GETTING GLOBAL MONETARY POLICY ON TRACK

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THE NEXT STRATEGY REVIEWS

INTRODUCTORY REMARKS

John H. Cochrane

The US Federal Reserve and the European Central Bank (ECB) are beginning formal reviews of their policy strategies. Other central banks are asking themselves the same questions.

We have assembled here a panel with superb academic and practical experience in monetary policy, but none of whom currently serve in central banks. I think it's about the best set of outside-the-bubble consultants a central bank could ask for in a policy strategy review.

I like the word *strategy* that the Fed and ECB have adopted in this effort. John Taylor frequently reminds people that his "rule" is not meant as a recommendation that central banks mechanically follow a formula, but rather that rules anchor a strategy. Central banks consider the rule and think in terms of it, but also understand and explain deviations from a rule in response to other events. The stable strategy, not a mechanical rule, anchors expectations.

After an extended and collective deliberation, the Fed adopted a new strategy framework.[1] This framework was explicitly designed by a worldview that "the federal funds rate is likely to be constrained by its effective lower bound more frequently than in the past," and a consequent judgment that "downward risks to employment and inflation have increased." A shift to "inclusive" employment, a return to the old idea that economic "shortfalls" can be filled, and a promise not to stem future inflation but rather to let inflation run hot above 2% to make up for past shortfalls followed. These promises of future dovishness were intended to stimulate demand in the short run.

In short, in my words, the Fed adopted an elaborately constructed new-Keynesian forward-guidance defense against the perceived

danger of deflation and stagnation at the zero lower bound (ZLB). No sooner was the ink dry on this grand effort, however, when inflation shot up to 8%, and the zero lower bound seemed like a quaint worry. Something clearly went drastically wrong. Naturally, the first question for a strategy review is: how can we avoid having *that* happen again?

Inflation eased without interest rates rising substantially higher than inflation and without a large recession. I think I have a clear and simple explanation (and the only one) for that fact, but I promise not to digress into a fiscal theory today.[2] Still, inflation is persistently high, raising the obvious worry that it's 1978 again. Obviously, central banks have a range of worries on which to focus a new strategy, not just a return to a long-lasting zero bound (though that could happen too).

I'm the moderator here, so I'll take it as my job to pose the *questions*, which I hope this review will answer, and invite the panelists to supply answers. (I wrote previously on strategy review at the 2020 St. Louis Fed Homer Jones Memorial Lecture, and most of those thoughts still apply.[3])

React or guide? It seems clear to me that policy will have to be described more in terms of how the Fed will *react* to events, rather than in standard forward-guidance terms with unconditional promises of how the funds rate will evolve. It will involve more "data-dependent" rather than "time-dependent" policy.

In part, that must come, I think, as a result of the stunning failure of all inflation forecasts, including the Fed's. Forecasts did not see inflation coming, did not see that it would surge up, and basically always saw a swift AR(1) response from whatever it was at any moment back to 2%. Either the strategy review needs to dramatically improve forecasts or the strategy needs to abandon dependence on forecasts to prescribe a future policy path, and thus just state how policy will react to events and very-short-term forecasts. I state that as a question for debate, however.

Guidance and QE? Is forward guidance as a separate policy tool worth keeping, and if so, how? I think not, because I think the theoretical basis for powerful forward guidance is wrong.[4] I also think quantitative easing (QE) is basically powerless except as a signal. But these additional "tools" were central parts of the zero-bound efforts, so how much they should be retained in the new strategy is a central question.

Price level? Flexible average inflation targeting (FAIT) prescribes a period of above-target inflation following a period of unintended below-target inflation. In so doing, it moves toward a price-level target. Much of the intuition for the wisdom of that decision seems to apply in the other direction too: expectations of further inflation would be tamed if people thought the Fed would now move past disinflation to a period of below-target inflation. The Fed seems to have an asymmetric definition of "average." It does not, in practice, seem inclined to move below 2% in reaction to the large positive error, but perhaps it should. To what extent should the new strategy include such a move to a price-level target, and should it be symmetric?

Rules or outcomes? How much should a rule for the Fed's actions be part of the strategy? Should it include numerical guideposts? The FAIT was criticized for being too flexible, so that the Fed could rationalize practically any decision as being consistent with the strategy. Should the Fed hold itself more tightly to a quantitative benchmark? One can also argue that discretion in methods but commitment to outcome is just as effective. Mario Draghi said, "Whatever it takes," and markets believed him, though he did not say a word about just what he might do.

Contingency plans? Stress tests? How detailed should the Fed's internal and public contingency planning be? I hope a lot more. As Jón Steinsson remarked later, we all thought the FAIT included an implicit break-glass-in-case-of-emergency plan, "but if inflation surges we'll raise rates quickly." Apparently not. Having that plan

would have been useful. But as Amir Yaron's presentation about October 7 emphasizes, a central bank cannot lay out contingency plans for everything. Still, the Fed currently lays out a forecast, then plans as if that's certain. A few contingencies seem worth stating. Shouldn't the Fed stress-test its monetary policy?

More shocks? Surely a central lesson of 2021 is that there are inflationary (and maybe deflationary) shocks out there, and inflation is not just the result of interest rate–setting mistakes. The Fed seems to think "*supply shocks*" drove inflation massively above the 2% target. So, shouldn't the "strategy" then include a massive effort to measure, diagnose, and respond quickly to "supply shocks"? If TVs couldn't get through ports, and that caused 8% inflation, where is the team watching how many TVs can get through ports? "Supply shocks" are economics, not a dog-ate-my-homework excuse for inflation. Perhaps a sharp shift in relative demand for goods over services provoked inflation. All right, but how does that catch the Fed and its forecasters completely by surprise? That shouldn't be hard to see and react to appropriately. I, of course, think a massive fiscal shock drove inflation and its miraculous easing. The Fed studiously pays little attention to the inflationary possibilities of fiscal shocks.

An alternative theory is that the Fed diagnosed COVID-19 as a demand shock needing "stimulus." It agreed with the rest of the government's $5 trillion spending, much of it raw fiscal stimulus, and helped by monetizing $3 trillion of that. It further helped by deliberately keeping interest rates low, "flattening the LM (liquidity-preference money supply) curve" in traditional parlance, so the fiscal shock would work. Even inflation is regarded by some as a desirable Lucas-Stokey state-contingent default to finance the needed fiscal stimulus. If so, however, the current focus on transparency might suggest that the Fed admit it, and even defend it proudly.

What will the Fed do with a geopolitical shock, or a global sovereign debt shock? These will happen too. How will it respond to stagflation, not stagZLB?

Should monetary policy respond in the same way to output and inflation, no matter the source of the shock? Or should the Fed get a lot better at understanding shocks, which are currently really just error terms in equations—things we don't know—and then respond differently to different shocks? Surely the Fed should not respond to "supply"-driven output declines the same way it responds to "demand"-driven output declines. Now that the Fed admits "supply" shocks exist, an effort to respond appropriately seems right. But maybe not.

Limits. The environment has changed, imposing new limitations on monetary policy. How will the strategy think about these limits?

Fiscal limitations loom. Debt-to-GDP was 25% in 1980, and still constrained monetary policy. It's 100% now, and not 115% only because we inflated away a bunch of it. Each percentage point of real interest rate rise is now (quickly, thanks to the Treasury's decision to issue short and the Fed's QE, which shortened even that maturity structure) a percentage point extra interest cost on the debt, requiring a percent of GDP more primary surplus (taxes less spending). If that fiscal response is not forthcoming, higher interest rates just raise debt even more, and will have a hard time lowering inflation. In Europe, the problem is more acute, as higher interest costs could cause sovereign defaults. Many central banks have been told to hold down interest rates to make debt more sustainable. Those days can return.

Financial limitations loom as well. Many banks and other financial institutions will lose a lot of money if interest rates rise. Silicon Valley Bank (SVB) and the UK's pension fiasco described by Carolyn Wilkins are early warnings. I see that as a version of a fiscal limit, because higher rates then provoke bailouts. Shouldn't the strategy mix regulation and monetary policy a little better so that higher interest rates do not threaten financial trouble?

Ignorance. Finally, we should admit that neither we nor central banks really understand how the economy works and how mon-

etary policy affects the economy. There is a complex verbal doctrine that bounces around central banks, policy institutions, and private analysts asserting that interest rates have a relatively mechanical, reliable, and understood effect on "spending" through a "transmission mechanism" that, although operating through "long and variable lags," gives the Fed essentially complete control over inflation in a few years. The one thing I know from forty years of study, and that all of you know as well, is that there is no respectable, well-tested economic model that produces anything like that verbal doctrine.[5] Knowing what you don't know, and knowing that nobody else does either, is knowledge. Our empirical knowledge is also skimpy, and the historical episodes underlying that experience come with quite different fiscal and financial-structure preconditions. In many ways, 1980 was a different world.

So, what strategy do you adopt when you are really not sure how the levers are connected to the wheels?

John Taylor has long preached the Taylor rule not because it is exactly optimal in a given model, but because it does a pretty good job in a wide variety of models. We want that sort of robustness in a strategy even to models we haven't written yet, or to the possibility that the standard doctrine is also wrong.

I've asked a lot of questions. It's time for you to offer answers.

(Larry Summers's very provocative answer is, basically, "Don't try." Give up on the whole strategy-and-communication business. Given how hard an answer to all my questions is, it's an intriguing view.)

Notes

1. For deliberations, see "Review of Monetary Policy Strategy, Tools, and Communications," Board of Governors of the Federal Reserve System (online), last updated August 27, 2020. For the new strategy, see "Statement on Longer-Run Goals and Monetary Policy Strategy," Board of Governors of the Federal Reserve System, adopted effective January 24, 2012; as reaffirmed effective January 30, 2024.

2. See John H. Cochrane, "Fiscal Narratives for US Inflation," manuscript, January 29, 2024, https://www.johnhcochrane.com/research-all/sims-comment.
3. John H. Cochrane, "Strategic Review and Beyond: Rethinking Monetary Policy and Independence," *Federal Reserve Bank of St. Louis Review* 102, no. 2 (second quarter 2020): 99–119.
4. See John H. Cochrane, "The New-Keynesian Liquidity Trap," *Journal of Monetary Economics* 92 (December 2017): 47–63.
5. For an extensive treatment of this point, see John H. Cochrane, "Expectations and the Neutrality of Interest Rates," *Review of Economic Dynamics* 53 (July 2024): 194–223.

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Enhancing Resilience with Monetary Policy Rules

Athanasios Orphanides

Since its founding in 1913, the Federal Reserve has been adapting its policy strategy from time to time. In recent years, the Fed has been more open about this process. The ability to critically evaluate past performance, learn from mistakes, and espouse new knowledge is the hallmark of a good institution. Though the Fed's adaptation of its policy strategy has not been uniformly positive, Federal Reserve policy has improved over the past few decades with the adoption of some features of the inflation-targeting approach.

Yet, Fed policy continues to be hampered by episodes characterized by excessive use of discretion that is inconsistent with systematic policy. The postpandemic inflation episode provides a recent example of the consequences. The resilience of the Fed's monetary policy strategy would be enhanced by constraining discretion.

The Fed's next policy strategy review should aim to discipline discretion and help the Federal Open Market Committee (FOMC) be more systematic. This can be achieved by using simple policy rules to explain policy and by providing to the public pertinent information in real time.[1] Rules that have been part of the FOMC briefing materials but not disclosed to the public in real time can serve this purpose.

Simple rules can serve as a cross-check on the Fed's discretionary policy, as has been advocated by numerous observers over the years, including former and current Fed officials. Since notable persistent deviations of policy from simple rules would warrant explanation, public disclosure would discipline discretion. Two simple rules

that have been presented in the Fed's Bluebook/Tealbook starting in 2004 provide an illustration of how this approach would have helped the Fed during the recovery from the pandemic.

The Postpandemic Policy Error

Following the successful disinflation of the 1980s and 1990s under chairs Paul Volcker and Alan Greenspan, the Fed generally succeeded in fulfilling its mandate better than in the past. From the 1980s until the pandemic, inflation and inflation expectations were better behaved (figure 17.1). The adoption of a 2% goal as a numerical definition of price stability in 2012 was a major positive step for the Fed. However, the postpandemic inflation raised questions about the resilience of the Fed's policy strategy. While the Fed eased policy forcefully in 2020, as was appropriate, it was far too late in normalizing policy during the recovery. What went wrong has been discussed extensively, including in previous editions of this conference (Bordo, Cochrane, and Taylor 2023 and 2024; Eggertsson and Kohn 2023; Orphanides 2023). Yes, some of the inflation was unavoidable and could be attributed to adverse shocks. But monetary policy was part of the problem. The Fed got trapped in the forward guidance it provided about future policy and deviated from what would be expected if policy had been systematic.

After the pandemic, the Fed used its discretion to peg the federal funds rate at zero for too long, even as inflation and inflation expectations were rising. With the Fed keeping nominal interest rates inappropriately low, *real* interest rates kept falling to more and more negative levels while the economy was growing rapidly, fueling inflation (figure 17.2). It is hard to square the Fed's policy during 2021 with a systematic policy approach. During the postpandemic recovery, policy not only violated the Taylor principle, as is evident in the figure; it also failed to respect the first of the two limitations on monetary policy that Milton Friedman had highlighted

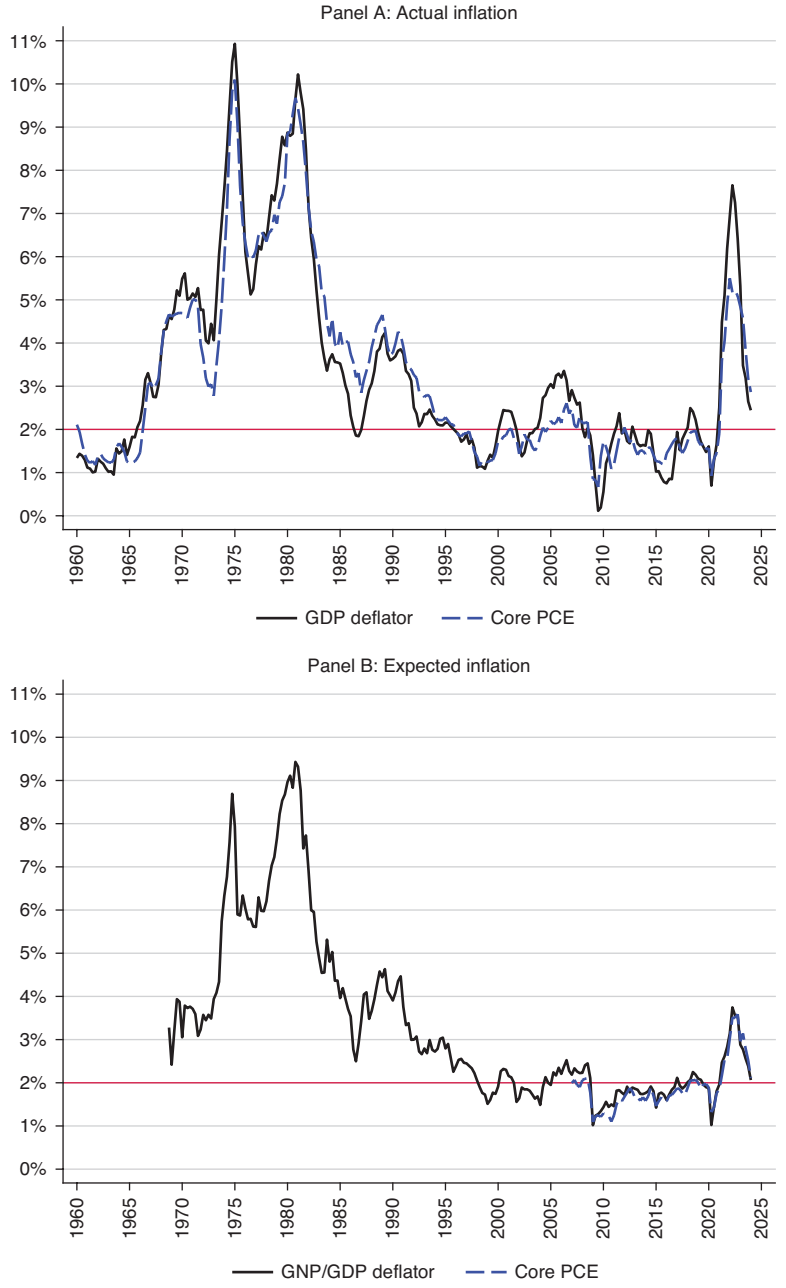

FIGURE 17.1. Actual and expected inflation.

Notes: Actual inflation shown in quarter t reflects year-over-year inflation ending in quarter t. Expected inflation reflects SPF median of year-over-year inflation ending in $t + 3$.

Source: Federal Reserve Bank of Philadelphia.

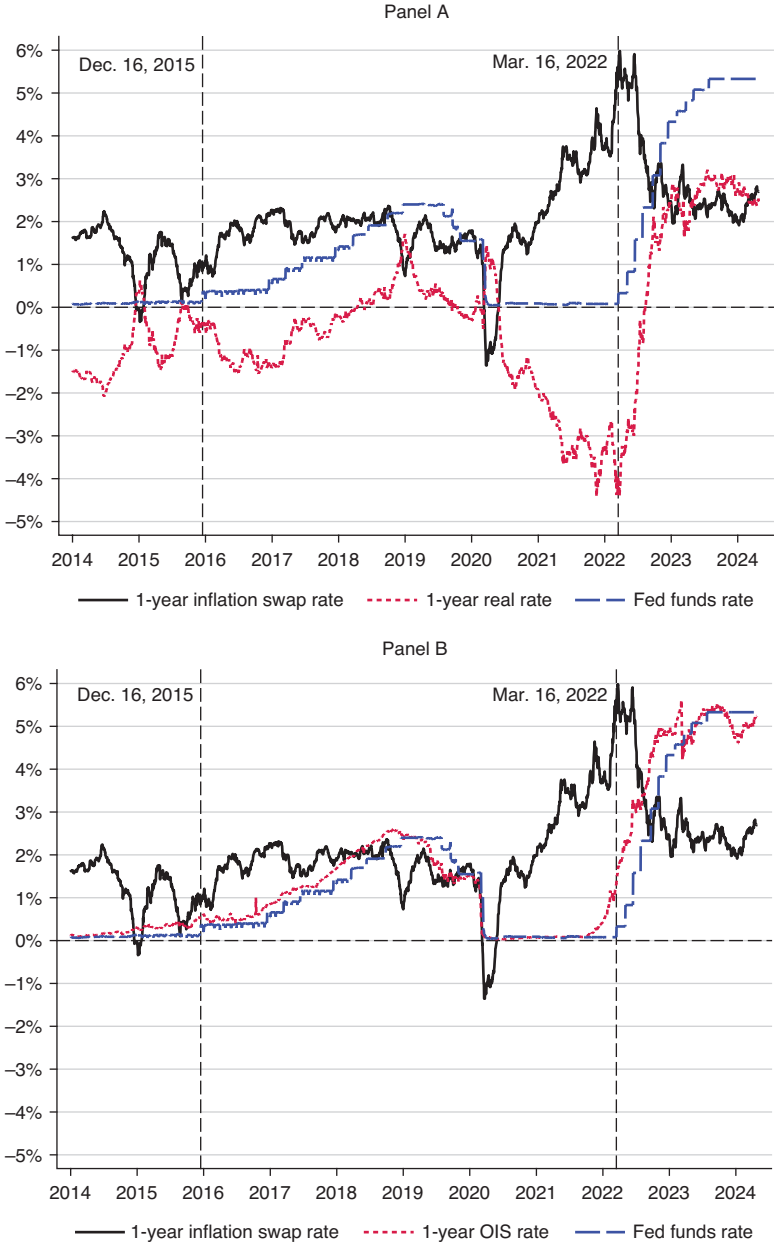

FIGURE 17.2. The postpandemic policy error.

Notes: Expected inflation as measured by the one-year inflation swap rate. The real interest rate reflects the one-year OIS rate minus the one-year inflation swap rate.

Source: Bloomberg and author calculations.

in his 1967 American Economic Association (AEA) Presidential Address. Monetary policy, Friedman wrote, "cannot peg interest rates for more than very limited periods" (Friedman 1968, 5).

During the course of 2021, real interest rates at short and intermediate maturities were driven to extreme lows. The one-year real rate implied by OIS (overnight indexed swap) and inflation swap rates fell to below minus 4%, and stayed improperly low until after the Fed started adjusting rates in March 2022.

The recent experience illustrates that implementing policy with nominal interest rates can be challenging.[2] Of course, systematic monetary policy can be implemented and communicated with a nominal interest rate, but this requires adjustment in a systematic fashion to account for the evolution of the economy, especially inflation: policy must be informed by a well-specified policy reaction function (McCallum 1981 and 1986).

One lesson from the postpandemic policy error is that Fed policy has not been sufficiently systematic. The postpandemic experience is an illustration of an underlying challenge that has hampered monetary policy over time: a policymaker proclivity toward excessive discretion.

The Challenge of Constraining Unhelpful Discretion

Insufficient guidance from policy rules and excessive reliance on discretion is not a new challenge. This is a well-known problem for monetary policy design. The central bank may have the mandate to deliver price stability over time, but policymakers are human. At times, politics can get in the way, and behavioral biases can have an undue influence on policy decisions. The risk of inappropriate use of discretion is one of the reasons why in 1962 Milton Friedman had argued against central bank independence.[3]

A successful monetary policy framework requires a mechanism for *constraining* discretion. In the 1990s, informed by the

early experience with inflation targeting around the world, Ben Bernanke and Rick Mishkin advocated that the Fed should adopt this framework. They suggested that constraining discretion was one of the major advantages of the approach:

> Some useful policy strategies are "rule-like," in that by their forward-looking nature they constrain central banks from systematically engaging in policies with undesirable long-run consequences; but which also allow some discretion for dealing with unforeseen or unusual circumstances. These hybrid or intermediate approaches may be said to subject the central bank to "constrained discretion." (Bernanke and Mishkin 1997, 104)

Indeed, the inflation-targeting framework has been an innovation that has had some success in this regard. Some of the steps adopted by the Fed over the past few decades have moved the Fed's policy strategy in that direction. However, success in practice is determined by institutional factors and what may appear to be implementation details that sometimes are not details at all.

One factor that hinders success for the Fed, unlike for many other central banks, is the formulation of its mandate. A literal interpretation of the Fed's statutory mandate to simultaneously deliver maximum employment and price stability is simply infeasible. In contrast, legislation of most inflation-targeting central banks identifies price stability as the primary mandate of the bank, which is, after all, the best way to support sustainable growth and employment over time.

Interestingly, before inflation targeting was adopted around the world, under chairs Volcker and Greenspan the Fed interpreted its mandate in this manner. I recall that when I joined the Federal Reserve as an economist, it was considered unhelpful to discuss in public the maximum-employment side of the Fed's mandate.

Monetary policy in the Volcker-Greenspan era was fairly systematic and more successful than in earlier years, because it focused, as

Chair Greenspan summarized in 2004, on "maximizing the probabilities of achieving our goals of price stability and the maximum sustainable economic growth that we associate with it" (Greenspan 2004, 37).

Since 2012, the Fed has been far more explicit about the maximum-employment part of its mandate. However, the tension of simultaneously delivering maximum employment and price stability makes systematic policy harder. Constraining discretion successfully is more important for the Fed than for inflation-targeting central banks with a mandate that recognizes the primacy of price stability.

Simple Rules as a Cross-Check

One way to constrain discretion is by using simple policy rules as guidelines, acknowledging the limitations of simply following a specific mechanical formula at all times (Taylor 1993).

Viewed in this manner, simple rules can supplement other analytical tools associated with the inflation-targeting approach. Simple rules can serve as a cross-check, as proposed and implemented by Jan Qvigstad at the Norges Bank (Qvigstad 2005). The Norges Bank published a list of criteria for setting the interest rate, with criterion 6 describing the role of simple rules: "It may also be useful to cross-check by assessing interest rate setting in the light of some simple monetary policy rules. If the interest rate deviates systematically and substantially from simple rules, it should be possible to explain the reasons for this" (Norges Bank 2005, 28).

With this approach, while policy retains some discretion, decisions are informed by simple rules. The central bank is expected to provide information to the public that can be used to monitor deviations and explain the reasons for substantial deviations. The public disclosure and commitment to explain deviations constrains discretion, facilitating more systematic policy.

Simple rules that are well suited to serving this purpose are rules with desirable robustness characteristics, informed by policy research. The rules employed as a cross-check should be subject to periodic reviews and adaptation. Since no single, simple rule can be robust against all possible sources of error in policy analysis, focusing on a couple of alternatives that are robust across different dimensions can prove incredibly useful in practice.

Desirable characteristics of robust interest rate policy rules have been studied extensively in recent decades and are well understood. Good rules must preserve price stability over time, and maintain inflation expectations well anchored, in line with the central bank's goal; they must be forward-looking, embracing the informational benefits of current analysis, nowcasting, and short-term projections; they must be somewhat countercyclical, tempering business cycle booms and busts; and they must be robust against imperfect knowledge.

Two Simple Rules from the Fed's Bluebook/Tealbook

How could the Fed adapt its current strategy in this direction? Fed staff has been at the forefront of policy research and analysis with simple rules and has been tracking prescriptions from simple interest rate rules since the 1990s. Starting with the January 2004 FOMC meeting, real-time prescriptions from simple rules have been presented to the FOMC in the Bluebook/Tealbook that is prepared for each regularly scheduled FOMC meeting. However, the Fed has not been disclosing this analysis to the public in real time. At present, prescriptions from simple rules monitored by staff and presented to the FOMC in real time are available until 2018.

The Fed's next policy strategy review could adopt the incremental step of providing simple rules analysis to the public in real time. The Fed could explain the systematic nature of policy with simple rules and, importantly, explain deviations of its policy decisions from

simple rules when notable deviations are evident. Such analysis could be provided on a quarterly basis, with the presentation of the FOMC's Summary of Economic Projections (SEP). Public disclosure would discipline discretion and improve policy. Since notable deviations would warrant explanation, the Fed would be less prone to ignore deviations from systematic policy with no good reason.

The usefulness of this approach can be illustrated by considering two simple rules that have been part of the Bluebook/Tealbook prepared for all FOMC meetings for which the information has been available to the public, starting in January 2004. The first rule is a variant of the original Taylor rule: it provides a prescription for the level of the policy rate, using the sum of the inflation gap and the output gap as the main input. The second is a variant that provides a prescription for the quarterly change of the policy rate, using the projected deviation of nominal GDP growth from the natural growth rate as the input:[4]

$$\text{Classic Taylor rule: } i = r^* + \pi + \theta\left(\pi - \pi^*\right) + \theta y$$
$$\text{Natural growth–targeting rule: } \Delta i = \theta\left(n - n^*\right)$$

Both are one-parameter rules, with their responsiveness to perceived deviations from the normal state of the economy governed by the parameter θ. Following the original formulation in Taylor (1993), both rules have been tracked with $\theta = 0.5$.[5]

The Tealbook variant of the Taylor rule has been implemented using current-quarter projections of inflation and the output gap as inputs, in line with Taylor's original timing convention. The use of projections is necessary to make the rule operational because of the lags associated with data releases. Unlike the original formulation, however, the core PCE concept of inflation has been employed instead of GDP deflator inflation. In addition, the equilibrium real interest rate employed has varied over time, reflecting perceived variation in the concept by Fed staff and FOMC participants.

The natural growth–targeting rule was originally formulated to respond to the deviations of projected nominal GDP growth, n, from the natural growth rate of nominal GDP, n^*, approximated as the inflation goal plus the growth rate of real potential GDP, $n^* \approx (\pi^* + g^*)$. It responds to the projected growth gap over four quarters, ending three quarters ahead. Instead of responding to the nominal GDP growth gap, this rule can be rewritten as responding to the sum of the inflation gap and the real-growth gap. In turn, the real-growth gap (over four quarters) can be approximated with the four-quarter difference in the output gap: $(n - n^*) \approx (\pi - \pi^*) + (g - g^*) \approx (\pi - \pi^*) + \Delta^4 y$. The Tealbook variant of the natural growth–targeting rule has been implemented with the core PCE concept of inflation and the four-quarter difference in the output gap. The Tealbook refers to this variant as the "first difference" rule.

Figure 17.3 compares the end-quarter federal funds target rate (or midpoint of target range) to the prescriptions for these rules obtained from the historical Bluebooks and Tealbooks prepared for the first FOMC meeting in each quarter. To illustrate how public disclosure of these simple rules would have helped the Fed avoid the postpandemic policy error, it would have been ideal to have the Tealbook prescriptions for 2021 and 2022. Since these are not yet available, we examine prescriptions from closely related variants that can be tracked in real time using public information. Instead of Tealbook projections, we can use projections from the quarterly Survey of Professional Forecasters (SPF), published by the Federal Reserve Bank of Philadelphia every quarter. Figure 17.4 superimposes the real-time prescriptions based on SPF projections to the Bluebook/Tealbook variants of the rules in figure 17.3.[6] As can be seen, though not identical, the differences between the Tealbook and SPF variants over the 2004–18 period (when both are available) are generally relatively small.

A comparison of actual policy with the Taylor rule and the natural growth rule indicates that both captured the contours of policy

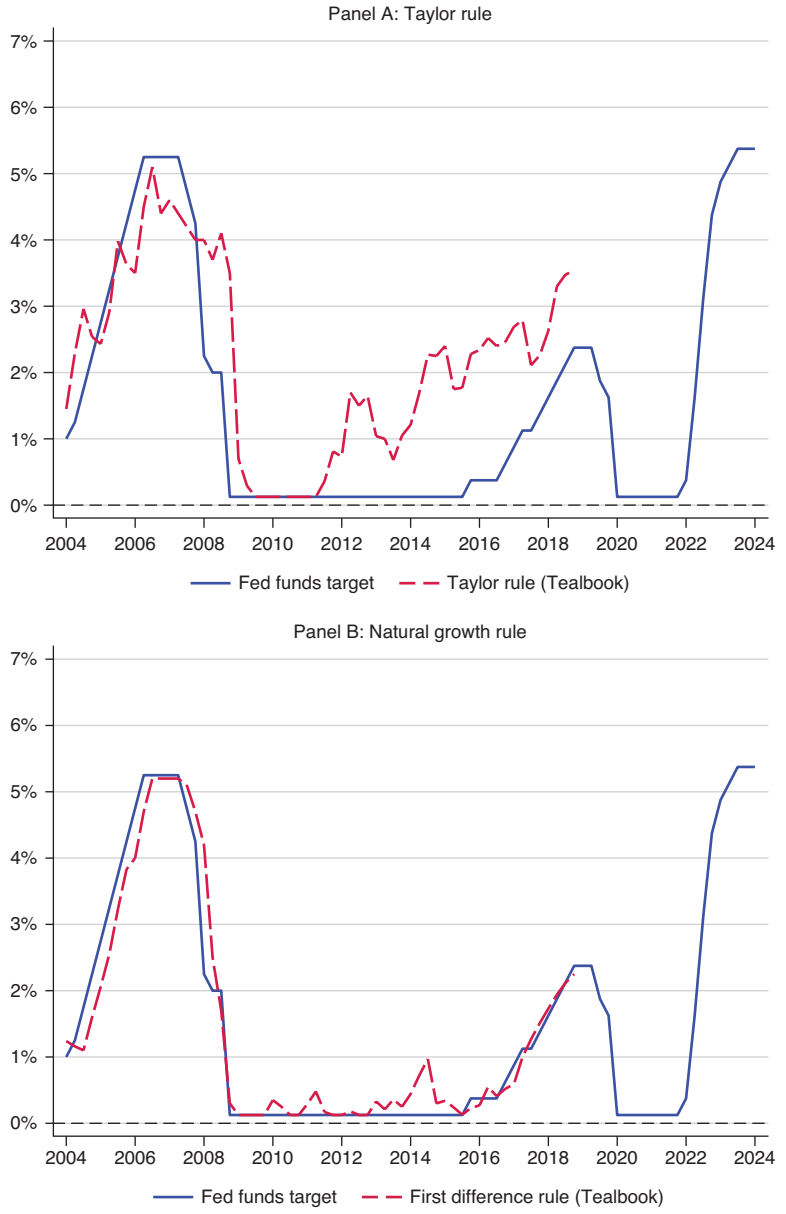

FIGURE 17.3. Two simple policy rules from the Fed's Bluebook/Tealbook.

Notes: Fed funds target or midpoint of target range. Rule prescriptions are constrained by ZLB. Post-2018 Tealbooks are not yet available to the public.

Source: Board of Governors of the Federal Reserve System.

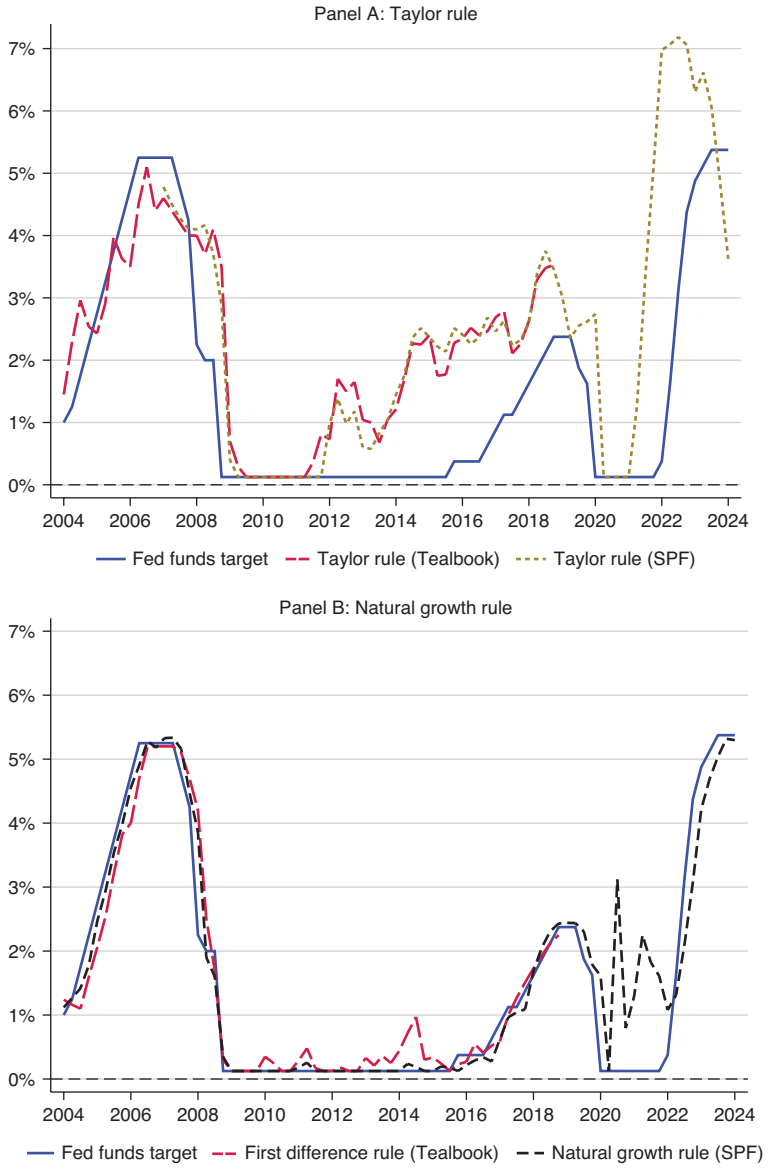

FIGURE 17.4. Two simple policy rules: Bluebook/Tealbook and SPF.

Notes: Fed funds target or midpoint of target range. Rule prescriptions are constrained by ZLB. The Tealbook variants are as shown in historical Bluebooks/Tealbooks; the SPF variants are constructed as described in the text.

Source: Federal Reserve and author calculations.

in the 2004–11 period, but also that their prescriptions diverged in later years. Actual policy deviated significantly and persistently from *both* simple rules in only one year, 2021. While the two rules provided different guidance on the timing of liftoff, both rules indicated that the Fed needed to normalize policy during 2021.[7] Instead, the Fed kept increasing the policy accommodation it provided to the economy that year, both by reducing real interest rates, as shown in figure 17.2, and by expanding its balance sheet with asset purchases.

Had the Fed started to provide information about the simple rules in the Tealbook to the public when it revised its policy strategy in August 2020, the inappropriate use of discretion during 2021 would have been checked.[8] The large deviations of policy from both of these simple rules would have likely first prompted an explanation and subsequently, as the deviations persisted, a reassessment of policy.

Conclusion

The Fed's next policy strategy review should aim to discipline discretion and help the FOMC be more systematic. Simple rules could serve as a cross-check on discretionary policy. The SEP could disclose in real time the prescriptions from benchmark policy rules that have been presented in the Bluebook/Tealbook since the January 2004 FOMC meeting. The simple rules would explain how monetary policy depends on the evolution of the economy. Since notable deviations of policy from simple rules with desirable robustness characteristics would warrant explanation, public disclosure of deviations would constrain discretion.

Providing this information would also help the public develop a better understanding of the likely future direction of policy and its systematic dependence on the evolution of the economic outlook, without explicit statements about the future policy rate. The unhelpful forward guidance provided with the dots should end.

Explaining policy with simple rules can discipline discretion and enhance the resilience of the Fed's monetary policy strategy.

References

Bernanke, Ben, and Frederic Mishkin. 1997. "Inflation Targeting: A New Framework for Monetary Policy?" *Journal of Economic Perspectives* 11, no. 2 (Spring): 104.

Bordo, Michael D., John H. Cochrane, and John B. Taylor. 2023. *How Monetary Policy Got Behind the Curve—and How to Get Back*. Stanford, CA: Hoover Institution Press.

———. 2024. *Getting Monetary Policy Back on Track*. Stanford, CA: Hoover Institution Press.

Eggertsson, Gauti, and Donald Kohn. 2023. "The Inflation Surge of the 2020s: The Role of Monetary Policy." Hutchins Center Working Paper No. 87, August.

Fischer, Stanley. 1990. "Rules versus Discretion in Monetary Policy." In *Handbook of Monetary Economics*, Volume 2, edited by B. M. Friedman and F. H. Hahn, chapter 21, 1155–84. Amsterdam: Elsevier.

Friedman, Milton. 1962. "Should There Be an Independent Monetary Authority?" In *In Search of a Monetary Constitution*, edited by Leland B. Yeager. Cambridge, MA: Harvard University Press. Reprinted in Milton Friedman, *Dollars and Deficits*. Englewood Cliffs, NJ: Prentice Hall, 1968.

———. 1968. "The Role of Monetary Policy." *American Economic Review* 58, no. 1 (March): 1–17.

Greenspan, Alan. 2004. "Risk and Uncertainty in Monetary Policy." *American Economic Review* 94, no. 2: 33–40.

McCallum, Bennett. 1981. "Price Level Determinacy with an Interest Rate Policy Rule and Rational Expectations." *Journal of Monetary Economics* 8, no. 3: 319–29.

———. 1986. "Some Issues Concerning Interest Rate Pegging, Price Level Determinacy, and the Real Bills Doctrine." *Journal of Monetary Economics* 17, no. 1: 135–60.

Mester, Loretta. 2018. "The Federal Reserve and Monetary Policy Communications." The Tangri Lecture given at Rutgers University, January 17.

Nelson, Edward. 2020. *Milton Friedman and Economic Debate in the United States, 1932–1972*, Volumes 1 and 2. Chicago: University of Chicago Press.

Norges Bank. 2005. *Inflation Report with Monetary Policy Assessments, 1/2005*. March.

Orphanides, Athanasios. 2003. "Historical Monetary Policy Analysis and the Taylor Rule." *Journal of Monetary Economics* 50:983–1022.

———. 2015. "Fear of Liftoff: Uncertainty, Rules, and Discretion in Monetary Policy Normalization." *Federal Reserve Bank of St. Louis Review* 97, no. 3: 173–96.

———. 2019. "Monetary Policy Strategy and Its Communication." In *Challenges for Monetary Policy, Proceedings of the 2019 Jackson Hole Economic Policy Symposium*, Jackson Hole, WY, August.

———. 2023. "The Forward Guidance Trap." Institute for Monetary and Economic Studies Working Paper No. 2023-E-6, October.

———. 2024. "Enhancing Resilience with Natural Growth Targeting." Institute for Monetary and Financial Stability Working Paper No. 200, February.

Orphanides, Athanasios, and John C. Williams. 2002. "Robust Monetary Policy Rules with Unknown Natural Rates." Brookings Papers on Economic Activity No. 2: 63–145.

Papell, David, and Ruxandra Prodan-Boul. 2024. "Policy Rules and Forward Guidance following the COVID-19 Recession." SSRN-Elsevier Working Paper, April.

Qvigstad, Jan. 2005. "When Does an Interest Rate Path 'Look Good'? Criteria for an Appropriate Future Interest Rate Path—A Practician's Approach." Norges Bank Staff Memo No. 2005/6, June.

Tatar, Balint, and Volker Wieland. 2024. "Taylor Rules and the Inflation Surge: The Case of the Fed." Institute for Monetary and Financial Stability Working Paper No. 201, February.

Taylor, John B. 1993. "Discretion versus Policy Rules in Practice." *Carnegie-Rochester Conference Series on Public Policy* 39 (December): 195–214.

Taylor, John B., and John C. Williams. 2011. "Simple and Robust Rules for Monetary Policy." In *Handbook of Monetary Economics*, edited by Benjamin Friedman and Michael Woodford, 829–59. Amsterdam: Elsevier.

Williams, John C. 2017. "Preparing for the Next Storm: Reassessing Frameworks and Strategies in a Low R-Star World." Federal Reserve Bank of San Francisco Economic Letter 2017-13, May.

Notes

I would like to thank Gregory Hess, Vincent Reinhart, and Tom Sargent for helpful discussions and comments.

1. See Fischer (1990) and Taylor and Williams (2011) for reviews of this literature.

2. With a monetary aggregate instrument, a robust rule for this can be simpler, for example, the k-percent money growth rule advocated by Milton Friedman. However, the financial innovation of recent decades has led to a deterioration of the effectiveness and robustness characteristics of such rules.
3. Friedman considered this to be a problem especially "in times of uncertainty and difficulty" (Friedman 1962, 188). Orphanides (2015) discusses the consequences of behavioral biases.
4. Here, i denotes the policy rate, r^* the natural/equilibrium real interest rate, π the inflation rate, y the output gap, and n nominal income growth. π^* and n^* are the inflation goal and the natural growth of nominal GDP that is consistent with the inflation goal.
5. The natural growth–targeting rule was developed at the Fed as a variation of the original Taylor rule that could emulate Friedman's k-percent rule for money growth, and McCallum's rule for the monetary base with an interest rate instrument instead of a monetary aggregate. Alternatively, it may be viewed as a price level–targeting variant of the Taylor rule, in first-difference form. See Nelson (2020), Orphanides and Williams (2002), Orphanides (2003 and 2024), and Williams (2017) for related discussion.
6. Additional detail on the SPF variant of the natural growth rule is provided in Orphanides (2024). Since the SPF does not include the output gap, the SPF variant of the Taylor rule shown in the figure employs the unemployment gap and Okun's law, $y \approx \kappa(u - u^*)$, with $\kappa = -2$. The variation in perceived natural rates is captured by using the median SEP responses of FOMC participants. See Orphanides (2019) for additional details.
7. Other simple rules also indicated that the Fed had fallen behind the curve well before liftoff in March 2022 (Papell and Prodan-Boul 2024; Tatar and Wieland 2024).
8. Related proposals had been made before 2020, including by FOMC participants, but were not adopted. For example, before the work on the 2020 strategy review started, Federal Reserve Bank of Cleveland President Loretta Mester proposed "using simple monetary policy rules as benchmarks to explain our policy decisions" (Mester 2018, 11).

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The Fed's Strategic Approach to Monetary Policy Needs a Reboot

Mickey D. Levy and Charles I. Plosser

In 2018–20, the Federal Reserve undertook a strategic review of its approach to monetary policy. It culminated in a New Strategic Framework (NSF) adopted in August 2020 that replaced and fundamentally changed its original January 2012 "Statement on Longer-Run Goals and Monetary Policy Strategy."[1] Commonly referred to as the consensus statement, the 2012 initiative established a numeric inflation target of 2% and explained that a numeric target for employment would be inappropriate. It was considered a major step for the Fed in terms of transparency and a commitment to how it would conduct monetary policy. It was followed by steady economic expansion with a significant decline in the unemployment rate and an inflation rate that hovered modestly below 2%, while inflationary expectations modestly declined from near 3% to between 2% and 2.5%.

Despite this performance, the Fed worried that the persistence of sub-2% inflation created an unstable condition that risked a sharp decline in inflationary expectations and a decline in nominal interest rates that could lead to more-frequent confrontations with the effective lower bound (ELB) and heighten the risk of deflation. The Fed was concerned that the scope of monetary policy in future downturns might be inhibited. In addition, the sustained low inflation amid low unemployment was inconsistent with the standard Phillips curve predictions. This led the Fed to conclude

that a flatter Phillips curve was the new normal, which the Fed interpreted as meaning easier policy was more likely to boost job creation than to create inflation.

Based on these worries and perceptions, the NSF materially altered the Fed's interpretation of its dual mandate and restructured its strategic approach to monetary policy. The new framework replaced the symmetric 2% inflation target of the consensus statement with an asymmetric, flexible average inflation target that favored higher inflation to address the issues surrounding the ELB. The NSF also broadened the interpretation of the Fed's employment mandate to "maximum inclusive employment" and adopted an asymmetric focus on "shortfalls" in place of "deviations" from maximum employment. Combined with the Fed's perception that the Phillips curve was nearly flat, this effectively ended the Fed's historical practice of preemptive tightening in response to higher anticipated inflation. The NSF heightened the ambiguity and uncertainty regarding how monetary policy would be implemented, and its expanded complexity broadened the scope for discretionary policymaking.

In September 2020, we prepared a critique of the NSF in a paper aptly titled "The Murky Future of Monetary Policy."[2] We expressed concerns that the new strategy—with its greater emphasis on discretion and with less clarity and transparency regarding the conduct of monetary policy—was ill conceived and would eventually lead to monetary policy mistakes and higher inflation. It didn't take long for things to unravel. Within eight months of the Fed's adoption of the NSF, extraordinary monetary accommodation and unprecedented fiscal deficit spending in response to the pandemic generated monthly annualized inflation rates that rose above 5%. Ultimately, the inflation rate reached levels not seen in over forty years.

Following its adoption, the Fed rarely referenced the NSF, but implementation of monetary policy during the inflation run-up was consistent with it. Fed Chair Jerome Powell announced in late 2023 that the Fed would commence a new strategic review

late in 2024, consistent with his earlier statements that a strategic review would take place every five years. Inflation has receded from its recent highs, and a concern is that, in its review, the Fed may choose to attribute its inflationary policy blunders to misinterpretations of the effects of the pandemic or minor errors in the implementation of an otherwise sound strategy, and therefore recommend few changes to its strategic framework. This would be a mistake. It is worth noting that despite the inflation fiasco of 2020–22, each January from 2021 to 2024 the Fed reaffirmed its commitment to the NSF. The upcoming strategic review is an important opportunity for the Fed to acknowledge and address the shortcomings of the 2020 NSF and put in place a framework that will improve the Fed's conduct of monetary policy.

First we briefly review the evolution of monetary policy during the recovery from the Great Financial Crisis (GFC) and the conditions that motivated the Fed to undertake a strategic review. The next section describes the process and results of the strategic review. The following section summarizes the NSF. Next we describe our critique of the NSF and why it was flawed from the outset. In the following section, we assess the performance of the NSF in the 2020s. In the final section of this report, we suggest which issues should be addressed in a new strategic review and elements of what a new framework might contain.

In summary, the experiences of the last four years highlight how the Fed needs to take a step back in its strategic review before it tries to move forward. First, it needs a more thoughtful and thorough review of the inflation process and its dynamics as it relates to its monetary policy toolkit. The Fed's understanding of inflation is adrift. Reliance on an unstable or time-varying Phillips curve is inadequate. The Fed must conduct more research on the monetary transmission mechanism, the role of the Fed's balance sheet, fiscal policy, and other factors that influence aggregate demand. Nominal GDP and what affects aggregate demand must be a focus. Second,

the Fed must correct its asymmetric interpretations of its dual mandate, tone back excessive wordsmithing, and aim to develop a clear, balanced strategy that is suitably robust. It must reassess its asymmetric concerns about inflation and correct the obvious flaws in its flexible average inflation targeting. For example, the Fed could return to a symmetric 2% inflation target with numeric bands, as followed in many other countries, to convey uncertainty and the range of outcomes. Third, the Fed should consider systematic policy rules that may be used as guidelines and provide value as reaction functions. Complicated structures and formulations should be avoided in favor of simple and understandable objectives. Fourth, the Fed needs to abandon forward guidance as an independent policy tool and be more circumspect about the practicality of its complex modeling of managing inflationary expectations. Fifth, the Fed needs to consider ways to improve the interpretation of the Summaries of Economic Projections (SEPs) and potential ways to enhance risk management amid uncertainty.

Evolution of Monetary Policy Prior to the Strategic Review of 2020

The consensus statement of 2012 was an important watershed in the evolution of monetary policymaking at the Fed (Board of Governors 2012). Many of the concepts incorporated in the statement, however, were not new. The idea of explicit targeting of a specific rate of inflation and the importance of anchoring inflationary expectations were widely acknowledged as important pillars of sound monetary policy and had already been publicly adopted by some leading central banks.[3] Preemptive monetary tightening was also generally considered an important element in controlling inflationary expectations and inflation. Low unemployment was always a high priority at the Fed and a key metric when interpreting its statutory employment mandate. The monetary policy

debate revolved around the Phillips curve and the dynamics of inflation. The fact that employment is heavily influenced by nonmonetary factors beyond the Fed's control was understood, if not widely or publicly discussed or acknowledged by the Fed. Thus, the consensus statement mostly codified the existing state of monetary policy practice. Yet, it was profoundly consequential that the Fed was willing to summarize and acknowledge its commitment to a broad framework (Lacker 2020). The transparency of such a statement meant that policymakers could speak with more clarity, more commitment, and more accountability than ever before.

Of course, in the wake of the Great Financial Crisis, many aspects of policy were changed, and the adoption of the consensus statement was but one feature of the new policy environment. For example, in 2008 the Fed began paying banks interest on reserves (IOR) held on deposit at the central bank. This was instituted in conjunction with the Federal Open Market Committee's (FOMC) decision to lower the fed funds target rate to near zero and to engage in large-scale asset purchases (LSAPs, or quantitative easing, QE) of US Treasury and mortgage-backed securities (MBS). These LSAPs flooded the banking system with reserves and provided substantial credit support to the housing sector. IOR was originally intended to help control the consequences of the Fed's large balance sheet resulting from QE in an environment where the fed funds rate was constrained by the effective lower bound.

Another major change in the policy environment that impacted monetary policy was the Dodd-Frank Act of 2010. Like interest on reserves and QE, the Dodd-Frank Act altered the regulatory environment for banks in significant ways. At the same time, the Fed instituted annual stress tests that forced large banks to raise capital standards and adopt more rigorous risk-management practices. These changes in the policy environment impacted the lending and borrowing decisions of banking institutions, likely changing

the traditional understanding of the transmission mechanism of monetary policy to the real economy and inflation.

During the ensuing eight years (2012 through 2019) prior to the pandemic, the economy continued its recovery and expansion from the GFC recession. Employment growth averaged 1.7% per year, the labor force expanded, and the unemployment rate fell to a fifty-year low of 3.5%. The Personal Consumption Expenditures (PCE) inflation rate dipped and remained modestly below the Fed's adopted inflation target, averaging about 1.4% over the 2012–19 period, while core PCE inflation excluding food and energy averaged 1.6%.[4] Inflationary expectations gradually declined from somewhat over 3% to about 2.5%.[5] And, in each of its quarterly SEPs, the Fed projected that under appropriate policy inflation would rise to its 2% target.[6]

The overall performance of the economy during the post-GFC expansion was moderate. Yet as it evolved, concerns about the slow improvements in labor markets and increasingly about the sub-2% inflation and the challenges caused by the limitations associated with the ELB on the policy rate came to dominate Fed policy discussions and research. These concerns became more frequent and more emphatic in 2015 following the rapid decline in oil prices in 2014 and 2015 that reduced headline inflation. Of note, these concerns about low inflation and the risk of sharp declines in inflationary expectations persisted even as inflation rebounded beginning in 2016 following the drop in oil prices. Headline and core PCE inflation each averaged about 1.7% during 2016 and 2019. The CPI (Consumer Price Index) inflation, which measures prices of consumer out-of-pocket expenditures and closely tracks survey-based measures of inflationary expectations, averaged 2.2% over the same period, and the core CPI averaged 2.1%. Thus, the very low inflation rate of 2014–15 and the fears of declining inflation or inflation expectations proved largely ephemeral.

Even as economic performance improved and inflation edged up toward the Fed's target, concerns about the economy, inflation,

and low interest rates persisted. Worries about slow economic growth centered on excess saving relative to investment, insufficient demand, and the low inflation and low real interest rates that resulted (see, for example, Summers 2016). Fed researchers estimated that the natural real rate of interest was in a secular decline to very low levels, reflecting a lower trajectory of productivity and potential real growth (Laubach and Williams 2016).

As the unemployment rate receded, inflation remained modestly below 2%. According to the Fed, a key reason was the Phillips curve had flattened (Yellen 2019). This observation had several implications. First, it reinforced the view of many economists, dating back to Friedman (1968), that the Phillips curve should not be treated as a reliable or stable way to model inflation dynamics. Nevertheless, the Fed's econometric models and its approach to policy relied heavily on the Phillips curve for assessing and forecasting inflation dynamics. The Fed's inflation forecasts from its econometric models depended largely on a measure of "slack" (such as the deviations of the unemployment rate from some measure of the natural rate) and inflation expectations. If employment or unemployment and related measures of slack were not influencing inflation in a predictable way, then absent an alternative model of inflation dynamics, the Fed was forced to place more and more emphasis on inflationary expectations as the primary source of inflation. This involved trying to manage those expectations directly through forward guidance.[7] Using forward guidance to influence expectations had long played a role in the Fed's thinking (Nelson 2021). Effective forward guidance was integral to the "lower for longer" strategy proposed by Reifschneider and Williams (2000) that would stimulate demand if interest rates were stuck at the ELB. Fed Chair Bernanke emphasized that "influencing the public's expectations about future policy actions became a critical tool" and argued that forward guidance was an important complement to the Fed's QE3 (Bernanke 2011 and 2012). Woodford's emphasis on forward

guidance carried significant weight at the Fed (Woodford 2013). With the heightened emphasis on managing expectations, forward guidance became perceived as an independent tool of monetary policy. Second, the perceived flat Phillips curve amid low inflation provided an opportunity for some to argue that continued monetary ease could generate stronger employment without much risk of excessive inflation. Fed governor Brainard referred to "opportunistic reinflation" that would "take advantage of a modest increase in actual inflation to demonstrate to the public our commitment to our inflation goal on a symmetric basis" (Brainard 2019).

To summarize, concerns about low inflation, low real rates, and the ELB came to dominate policy discussions at the Fed. As a result, these concerns came to dominate the agenda of the strategic review.

The Fed's Strategic Review and the Development of its 2020 Framework

In November 2018, the Fed announced its intention to review the "strategies, tools, and communication practices it uses to pursue its congressionally-assigned mandates" (Board of Governors 2018). The Fed stated that its strategic review would focus on three areas: (1) the need for a new strategy to offset past misses, (2) whether the current monetary policy tools are adequate to achieve the Fed's mandate or it would be necessary to expand the toolkit, and (3) improving communications (Clarida 2019). The Fed's review process included internal research, research commissioned on specific topics, and a series of "Fed listens" seminars in which the Fed would convene public forums to obtain perspectives from various interested parties.

In reality, the Fed's reference to offsetting "misses" pertained primarily to below-target inflation outcomes. The premise that a new strategy should seek to offset past misses signaled strongly that the

Fed intended that the review would conclude that inflation targeting would no longer be the strategic imperative that it was in the original 2012 statement.[8] The strategic review focused on the inflation misses and how to reinterpret its inflation mandate to allow for a time-varying (and presumably higher) medium-term inflation rate. The Fed's goal was to boost inflation expectations in the medium term when confronting shortfalls to keep the expectations from declining, while maintaining its longer-term focus on 2% inflation to keep expectations anchored and meet its price-stability mandate. The Fed's review of its monetary policy toolkit necessary to achieve its mandate focused almost exclusively on what monetary policy tools would be most appropriate in case the Fed faced the ELB. There was no focus on the risks of higher inflation, as the Fed presumed it would know what to do if inflation rose. The Fed had ruled out negative interest rates as impractical and undesirable (Powell 2019b). The Fed knew that its communications were a problem, but it did not consider adopting systematic rules or a better-defined reaction function that would help clarify how the Fed would respond to inflation and labor market conditions.

Unfortunately, the Fed's review mostly ignored or dismissed the impact of other important policy developments such as IOR, QE, and the increased regulatory oversight of banks and short-term funding markets, each of which may have contributed to changes in the transmission mechanism of monetary policy to inflation. Nor did the review analyze the implications of fiscal policy or the major credit allocations pursued by the Fed or the growth of its balance sheet.[9] Instead, the Fed's concerns about the ELB focused the review almost exclusively on low inflation; on unstable, low inflationary expectations; and on a presumed secular decline in the steady-state real interest rate. The narrow scope of the review may have led the Fed to misinterpret the causes of the economic outcomes during the expansion and thus develop flawed or inappropriate changes in its strategic approach to monetary policy.

The content and results of the Fed's strategic review were largely in place prior to when the formal review began. In February, Clarida (2019) described the Fed's concerns, outlined the review process, and strongly hinted that the review process would conclude the need for flexible inflation averaging and a makeup strategy following periods of subtarget inflation.

Research on inflation conducted internally and by some external sources had developed models that illustrated (1) how the misses on inflation from its 2% target could be a potential source of falling inflationary expectations and instability, suggesting that a new strategy was needed; (2) how the existing monetary policy tools (for example, interest rates and balance sheet adjustments) needed to be augmented or enhanced by a more flexible approach to inflation that allowed for higher inflation and higher expected inflation in the medium term to prevent a downward spiral in expectations that could be induced by the ELB considerations; (3) how forward guidance should play a prominent role in managing inflationary expectations, and how it is a powerful independent monetary policy tool that would enhance and clarify communications; and (4) how research on labor markets showed that even with the unemployment rate below estimates of the natural rate of unemployment, wage increases were not accelerating and select groups were materially behind. The flat Phillips curve therefore supported a more aggressive policy focused on the labor market. The Fed's review did not come up with much about its communications.

As part of its strategic review, the Fed held a two-day conference in June 2019 hosted by the Federal Reserve Bank of Chicago. In his welcoming remarks to the conference, Powell (2019a) applauded the benefits of the extended economic expansion and sustained improvement in labor markets, but his focus was primarily on the ELB and the fears it engendered at the Fed. Strikingly, in the nineteen paragraphs of Powell's speech, nine of them mentioned and focused on the ELB.

The academic papers presented at the conference were consistent with the concerns expressed in Powell's welcoming remarks. One paper analyzed the unstable situation posed by inflation that persisted below 2% and emphasized the important role of forward guidance in managing inflationary expectations (Svensson 2019). A study of labor markets concluded that there was more slack in labor markets than generally perceived, suggesting that there was more room for monetary expansion without being inflationary (Abraham and Haltiwanger 2019). In two separate panels, community leaders effectively articulated the benefits of sustained economic expansion and lower unemployment to their constituents.

The New Strategic Framework: Its Components and Characteristics

Powell (2020) announced the NSF at the Kansas City Fed's Jackson Hole symposium in August 2020. The new approach significantly changed the Fed's interpretation of its congressional mandates, introducing important asymmetries and flexibilities to its inflation and employment goals. This altered its strategic approach to monetary policy. The new flexible average inflation targeting (FAIT) favored higher inflation. The enhanced maximum inclusive employment objective broadened the scope of the Fed's mandate to consider distributional aspects of the labor market. The shift in focus to "shortfalls" from "deviations" from maximum employment represented to Fed Vice Chair Clarida a "robust evolution in the Federal Reserve's policy framework" (Clarida 2020). The consequence of these changes was to materially elevate the priority of employment.

The Inflation Target—the New FAIT

In place of the Fed's 2012 balanced 2% inflation target, the NSF instituted a form of flexible average inflation targeting in which

inflation would average 2% over time with a makeup strategy following a period of sub-2% inflation. The new plan was purposely asymmetric by not including a makeup strategy following a period of above-2% inflation. The NSF reads: "In order to anchor longer-term inflation expectations at this level, the Committee seeks to achieve inflation that averages 2 percent over time, and therefore judges that, following periods when inflation has been running persistently below 2 percent, appropriate monetary policy will likely aim to achieve inflation moderately above 2 percent for some time" (Board of Governors 2020a).

The differences from the 2012 strategic plan are significant. The 2012 strategic plan made it clear that whether actual inflation was above or below the Fed's target, policy would seek to return inflation to 2%. In contrast, the NSF did not include any numeric guidelines for the makeup strategy or guidelines as to when it would be used, leaving open the issue of how high and for how long the Fed would pursue and tolerate above-2% inflation. This ambiguity about when and how the makeup strategy would be implemented added uncertainty about the Fed's inflation goals and how policy would be conducted and made it more difficult to judge the Fed's success and to hold it accountable.

The Fed provided little additional interpretation to its FAIT because it presumed inflation would stay low, and it was confident in its ability to manage inflation and inflationary expectations even if inflation did rise.

Maximum Inclusive Employment and "Shortfalls"

The NSF materially reinterpreted the employment mandate as well. It repeated the 2012 statement that stressed that the maximum level of employment was "largely determined by nonmonetary factors that affect the structure and dynamics of the labor market," yet it expanded the mandate to "maximum inclusive employment" (Board

of Governors 2012). This broadening implicitly establishes a goal of maximum employment for all subgroups of the labor force. In addition, whereas the 2012 statement stated that monetary policy "seeks to mitigate deviations of inflation from its longer term goal and deviations of employment from the Committee's assessments of its maximum level," the new strategy added a critical asymmetry that "the Committee's policy decisions must be informed by assessments of the shortfalls of employment from its maximum level" (Board of Governors 2012 and 2020a).

Importantly, the shift to shortfalls combined with the Fed's perception that maximum employment was compatible with stable, low inflation and that the Phillips curve was flat effectively discarded the Fed's traditional reliance on preemptive monetary tightening. The Fed's preemptive tightening in anticipation of higher inflation—"leaning against the wind"—had been a critical tool the Fed had used in managing inflationary expectations.

Assessing the Flaws in the New Strategic Framework

Our initial critiques of the NSF in October 2020 proved warranted. First, we emphasized that the primary impetus driving the Fed's strategic review was the Fed's overly narrow focus on the ELB as a prime culprit preventing inflation from returning to target through its impact on inflationary expectations. In doing so, it dismissed or ignored other factors that may have been important.[10]

Second, we emphasized how the asymmetries and lack of constructive guidelines in the FAIT favored higher inflation. Combined with the broadened employment objective, this would reinforce the Fed's discretionary approach to monetary policy and steer the Fed further away from rules-based guidelines that could have been useful for avoiding past policy mistakes.

Third, we noted that the NSF's dismissal of preemptive tightening would undercut a traditional mainstay of the Fed's efforts

to anchor inflationary expectations. Fourth, we viewed the Fed's heightened reliance on using forward guidance to manage inflation expectations as highly problematic and risky. Fifth, the lack of clarity of the objectives and implementation of the NSF complicated rather than simplified its communications.

We concluded that it would only be a matter of time before undesirable outcomes and problems would emerge. These concerns are detailed below.[11]

The Fed's Excessive Fears of Low Inflation and Falling Inflationary Expectations

The Fed's overstated fears of low inflation, falling inflationary expectations, and the ELB stem in part from its misperception of why inflation remained low following the GFC.

Following the GFC, the Fed's SEPs projected a strong economic recovery and higher inflation, reflecting its sustained zero interest rate policy and LSAPs combined with the fiscal stimulus of the American Recovery and Reinvestment Act of 2009. When the recovery was less robust than anticipated and inflation remained subdued, the Fed simply attributed it to a flatter Phillips curve than it had previously presumed. This ex post explanation was inadequate, and failed to explain why the Fed's model hadn't worked. There are at least two likely alternative explanations.

First, the negative impacts on the monetary transmission channels imposed by changes in aspects of the Fed's operating framework and practices offset the zero interest rates and LSAPs and fiscal stimulus. Plosser (2019) described how the Fed's paying of IOR, increased capital and liquidity standards, and LSAPs that dominated and interrupted short-term funding markets disrupted monetary transmission channels. Supporting this view, M2 money velocity collapsed during the GFC and never fully recovered. Bank lending to businesses and households fell and didn't recover to their pre-GFC levels until 2015.

Second, the GFC's severe blow to household net wealth and perceived permanent income led consumers and businesses to save more and spend less. This slowed aggregate demand. Over eight million jobs were lost (5.4%) and the unemployment rate more than doubled to 10%, the highest since the Great Depression. Household net worth fell 15.8%, reflecting maximum declines of 25.5% in home values and 46.9% in the S&P 500. Approximately $1.4 trillion of outstanding home equity loans became a severe financial burden as loan-to-value ratios soared, weighing on household cash flows and balance sheets. Commercial banks were crippled, and the largest banks required capital infusions from the government. Before the GFC, the housing bubble had fueled debt-financed consumption that lowered the rate of personal saving below 3%. Following the crisis, the rate of personal saving rose sharply as households replenished their balance sheets. It took approximately five years of zero interest rates and gradual gains in employment and personal income to restore household balance sheets and confidence in future prospects.

Even though consumption, aggregate demand, and inflation picked up in the second half of the decade, the Fed continued to focus on the sub-2% PCE inflation and the risks that falling inflationary expectations could lead to encounters with the ELB. These Fed fears were embedded in specified models that posed the ELB as an existential threat. Amid stable moderate inflation and inflationary expectations relatively anchored near 2%, the Fed seemed to be fighting the last battle and not the current one.

The Fed did not explain why inflation that remained modestly below 2% ran the risk of a downward spiral in inflationary expectations. This fear was particularly odd since through most of the decade the Fed believed inflation expectations were reasonably well anchored near target, and it seemed confident in its ability to manage inflationary expectations. This calls into question the basic premise of the need for a new strategic framework characterized by asymmetries that favored higher inflation.

The New FAIT

The FAIT reinterpreted the Fed's longer-run inflation objective by introducing unnecessary complexity and asymmetry that tilted toward higher average inflation and undermined the Fed's price-stability commitment.

The FAIT's lack of numeric guidelines for its makeup strategy added confusion and uncertainty about the Fed's intermediate-term goals. Powell (2020) explicitly dismissed the idea that the goal of an average inflation rate of 2% had any specific meaning or accountability associated with it, stating, "In seeking to achieve inflation that averages 2 percent over time, we are not tying ourselves to a particular mathematical formula that defines the average." Such statements undermine the Fed's credibility and its commitment to its goals, thus reinforcing its discretionary desires.[12]

By undermining the public and financial markets' ability to gauge the Fed's intentions, the FAIT damaged the Fed's ability to credibly manage inflationary expectations. How can the Fed credibly anchor inflation expectations to 2% when its strategy clearly gives the impression that it favors above-2% inflation?

The Enhanced Employment Mandate

Broadening the Fed's maximum-employment mandate to be inclusive placed a higher priority on employment and tilted policy toward monetary ease. It also expanded the Fed's role to encompass labor market objectives beyond the scope of monetary policy.

The 2012 strategic plan's emphasis on "deviations" of employment from maximum reflected a symmetric view on employment and stemmed, in part, from the Fed's long-held embrace of the Phillips curve as an important determinant of inflation dynamics. Specifically, the Phillips curve view adopted by the Fed meant that a robust economy where employment was above trend or some

natural level (or the unemployment rate was below its natural rate) caused inflation to rise, while employment deviations below the natural level would exert downward pressure on inflation.

Similar to the Fed's January 2012 consensus statement, the NSF emphasizes that the maximum-employment objective cannot be defined by a numeric target and that employment is affected by an array of nonmonetary factors.[13] Powell (2020) acknowledged the important roles of education and skills training, healthcare, and fiscal policy on employment. Labor markets are also influenced by demographics, taxes, and regulations on businesses.

The unobservable aspect of a maximum-employment mandate has always made the Fed's task difficult, and making the objective "inclusive" adds an extra layer of difficulty and challenge. How will the Fed interpret trends in employment-to-population ratios, participation rates, and the employment/unemployment of groups of people that were considered challenged? What is the mechanism by which monetary policy can shape the desired outcomes? Even if such mechanisms exist, are there trade-offs that impact the Fed's other goals?

An inclusive labor market for all citizens is an important and desirable feature of an efficient market economy. Lifting employment of underprivileged and minority citizens would enhance economic performance and lift potential growth. Yet monetary policy is not an appropriate or effective policy tool for achieving such an objective, and singling it out gives the impression that monetary policy can effectively address these laudable objectives. It can't. Trying to achieve these broader goals through monetary policy would involve unintended side effects and risk higher inflation.

Discarding Preemptive Monetary Tightening and Relying on Forward Guidance

The Fed's shift to focusing on shortfalls rather than deviations from maximum inclusive employment, coupled with its assessment that

the Phillips curve is flat, implied that it had walked away from its practice of preemptive tightening: "This change conveys our judgment that a low unemployment rate by itself, in the absence of evidence that price inflation is running or is likely to run persistently above mandate-consistent levels . . . will not, under our new framework, be a sufficient trigger for policy action" (Clarida 2020).

This interpretation was reinforced by the Fed's press release following its September 2020 FOMC meeting immediately following the enactment of the NFS:

> The Committee decided to keep the target range for the federal funds rate at 0 to 1/4 percent and expects it will be appropriate to maintain this target range until labor market conditions have reached levels consistent with the Committee's assessments of maximum employment and inflation has risen to 2 percent and is on track to moderately exceed 2 percent for some time. (Board of Governors 2020b)

Downgrading the relevance of preemptive monetary tightening without a clear understanding of the inflation process and lags between monetary policy tools and inflation seems risky. The Fed's acknowledgement that the Phillips curve had become an unreliable predictor of inflation had evolved over a long period, and it is wise that Fed Chair Powell and other members finally downgraded its importance. The Phillips curve was an empirical finding that described certain periods in the data, but it is flawed analytically and has not been a reliable or quantitatively important predictor of inflation for some time. While taking this step, however, the Fed has not replaced the Phillips curve with any framework or model for predicting inflation, except to emphasize the importance of inflationary expectations in the inflation process.

The Fed stressed that keeping inflation expectations well anchored would require a heightened role for forward guidance. In our early assessment of the Fed's NSF, we questioned the reliability of forward

guidance as an independent monetary policy tool (Plosser 2013). This seemed to be a risky tool, particularly in the absence of a clear understanding of the inflation process. We noted that if the Fed truly believed it could credibly manage inflationary expectations, why did it fear a collapse in inflationary expectations in the first place? This problem became clear in 2021 and early 2022 when the Fed kept rates anchored to zero and its forward guidance failed to constrain inflationary expectations. It is not surprising that inflationary expectations rose after the Fed made clear that unemployment rates were not closely tied to inflation (that is, the Phillips curve was flat), so its traditional path to reducing inflation was weakened. Oddly enough, in 2022 the Fed restored the Phillips curve as an explanation for why it needed to be more restrictive.

Fed Communications

The Fed's NSF muddled rather than improved its communications by fundamentally changing its historical reaction function as it has come to be understood by the public and the markets, generating a wide range of interpretations that lack clarity. Communicating the Fed's assessment of inflationary expectations and at the same time its strategy of using forward guidance to manage those expectations would be difficult. The Fed's communications were stuck in the middle of an unhealthy relationship between the Fed and financial markets in which the Fed looks to markets for indicators of expectations at the same time the markets seek advice from the Fed on its future policies.

The vagaries of the NSF also complicate and add uncertainties to the Fed's quarterly SEPs, which are thought of as forward guidance, but the conditionality of their projections is frequently misinterpreted and ignored. The appropriate policy paths constructed by participants for the NSF will have to implicitly contain guesses as to if and how any makeup strategies will be implemented.

Suggestions for modifying the SEPs will be described in the final section of this chapter.

The Performance of the New Strategic Framework

The high inflation of 2021 quickly revealed the flaws in the Fed's new strategy and its biased premises that influenced monetary policy. The Fed failed to tighten monetary policy when inflation soared, inflationary expectations became unanchored to 2%, and signs of labor market tightness and inflationary wage gains became widespread and wages accelerated. The NSF heightened the Fed's discretion, and the Fed's poor judgment led it to ignore simple rules that universally signaled that monetary policy needed to be tightened.

The Fed's failure to respond reflected its misunderstanding of the inflation process and its unwillingness to acknowledge that the rise in inflation resulted from the monetary- and fiscal-stimulated excess demand and not just the pandemic supply constraints. The Fed's preconceived notion that inflation would stay low, similar to its pattern following the GFC, led it to attribute the higher inflation to transitory supply shocks. The rapid acceleration of aggregate demand was largely ignored. As inflation kept rising, the Fed continued to project and provide forward guidance that maintaining a fed funds rate appreciably below the inflation rate would result in inflation quickly returning to 2% (Levy 2024).

Even if the new FAIT had included numeric guidelines, the Fed's calculations for the inflation makeup strategy likely would have been driven by its projections that inflation would quickly fall to 2%. By May 2021, market-based inflation expectations had risen to 2.5% and the University of Michigan one-year inflation expectation reached 4.6% and its five-year expectation reached 3.0%. Closely followed measures developed by the Fed, including the Federal Reserve Bank of New York's Underlying Inflation Gauge (3.5%) and the Federal Reserve Bank of Cleveland's trimmed-

mean CPI (5.0%) indicated inflation momentum. This had little impact on the Fed's behavior.

Even as PCE inflation soared above 4.5%, Powell expressed support of the NSF at the highly visible Jackson Hole symposium in August 2021: "The changes we made last year to our Statement on Longer-Run Goals and Monetary Policy Strategy are well suited to address today's challenges" (Powell 2021). There were no dissents among FOMC members, and there was a startlingly close bunching of FOMC participants' projections that inflation would fall quickly in the Fed's SEPs. No Fed member estimated the need to raise interest rates even to 2%. This lack of diversity of thought among FOMC members reflects the need for improved risk-management tools. It also likely reflects a mounting "circle the wagons" mentality in response to the pandemic crisis.

As the Fed's communications were increasingly strained by realities, the Fed stubbornly continued to attribute the higher inflation to large price increases for a small number of items (Board of Governors 2021; Brainard 2021). As such, it argued that it was appropriate to keep rates at zero since the unemployment rate remained high and its employment goal had not been achieved.

The Fed's bad judgment proved costly. As inflation continued to rise, the Fed did not refer to the Taylor rule or other simple rules that clearly showed that anchoring the fed funds rate at zero was inappropriate.

The Fed's reliance on forward guidance was ineffective in constraining inflationary expectations without raising interest rates. Expectations began declining only when Powell announced that the Fed would be raising rates and the Fed began doing so. As Plosser (2013) had warned, forward guidance as an independent policy tool is flawed theoretically and in practice. The Fed cannot exercise discretion and simultaneously expect forward guidance to be effective.

The NSF did not include any strategy for the Fed's balance sheet. The Fed provided no clear explanation for its ongoing purchases

of US Treasuries and MBS or how they related to its inflation and employment mandates. This had many undesired side effects, including large subsidies to real estate (including higher rental costs) and distortions to short-term funding markets. The Fed stumbled on the timing and sequencing of unwinding its asset purchases and raising rates, delaying its first interest rate increase (Waller 2023). This forced significant adjustments in financial markets.

As financial markets speculated on how much the Fed would need to raise interest rates, its communications were in a catch-up mode. The Fed's estimates of the appropriate policy rate needed to achieve its inflation objective (as reflected in the SEPs) and its forward guidance proved far off the mark: the Fed's median dots for the appropriate fed funds rate for year-end 2023 rose from 1.6% in its December 2021 SEP to less than 3% in its March 2022 SEP and less than 4% in its June SEP (Levy 2024). Even these radically changed estimates fell far below what unfolded.

Inflation has subsided significantly, and recent Fed statements that it remains committed to maintaining a restrictive monetary policy to reduce inflation to 2% are welcomed. However, the Fed's commitment to reducing inflation to 2% also confirms that it has no intention to make up for the high inflation with a period of sub-2% inflation. This highlights how the FAIT results in above-2% average inflation and a rise in the general price level well above the outcome of a 2% trajectory.

The New Review: Suggestions for Research and Rebooting the Framework

The last four years highlight how the Fed's strategic framework is adrift. The upcoming strategic review provides an opportunity for the Fed to step back and think through its objectives and its capabilities and limitations. The NSF envisioned monetary policy as having much greater capacity to fine-tune and manage expectations through

forward guidance than it is likely to possess. If so, the review should consider frameworks and strategies that are less ambitious and more robust. This is likely to require the Fed to scale back the expectations of the public and elected officials as to what the Fed can or should be doing rather than continuing to expand its authorities.

First, the Fed should conduct a more thoughtful and thorough review of the inflation process and dynamics as it relates to monetary policy's tools.

Relying on an ever-changing or time-varying Phillips curve is not an adequate basis for understanding inflation or the Fed's objective of attaining its 2% inflation target. Is the Phillips curve "flat," as the Fed argued in 2019 to explain the low inflation of the post-GFC period, or is it steepening, as some Fed members argued to explain the 2021–23 current low unemployment rate and mounting inflation pressures? If the Phillips curve is unstable, what is a better and more reliable framework for predicting inflation and conducting monetary policy?

The Fed needs to analyze key factors that affect aggregate demand, including fiscal policy, the monetary transmission mechanisms and how they may be affected by operational changes including paying IOR, and the Fed's asset purchases and its balance sheet. Alternative frameworks for achieving the Fed's inflation target, such as focusing on nominal GDP and the role of money supply, should be considered. Efforts to explain inflation based on wage-and-price-setting dynamics in the absence of considering aggregate demand are missing a critical element in the inflation process.

A deeper understanding of why inflation remained low during the post–financial crisis recovery is needed. The Fed significantly increased its projections of economic growth and inflation based on the stimulus of the American Recovery and Reinvestment Act of 2009 and the Fed's zero interest rates and QE, but barely changed its projections in 2020–21 following the unprecedented $5 trillion

increase in deficit spending and the Fed's zero rates and massive asset purchases.[14] Following the GFC, to what extent were consumption and aggregate demand dampened by the jarring impacts of the deep recession and collapse in home values and the stock market on consumers' pocketbooks and perceptions of well-being? Following the pandemic, to what extent did these factors reverse and have the opposite effect of buoying spending and aggregate demand?

Consideration of alternative frameworks for conducting monetary policy should include a focus on nominal GDP, as recently discussed by Athanasios Orphanides (2024) and Peter Ireland (2022 and 2024). Their approaches avoid some of the pitfalls of the Phillips curve and would have avoided major policy mistakes of the past, including the 2020–21 inflation. Other frameworks that focus on aggregate demand and supply, including money supply, should be explored (see, for example: Bordo and Duca 2023; and Ireland 2022).

The Fed seems to view its balance sheet and asset purchases sometimes as a financial-stability tool, sometimes as a fiscal policy tool to conduct credit allocation, and sometimes as a monetary policy tool, but it does not provide a framework or structure that describes when and how it should be used.[15] If the balance sheet is an important tool in normal times (as opposed to in emergencies such as at the ELB), how does it complement or substitute for interest rate policy? In 2021, the Fed focused financial markets on the timing and sequencing of its balance sheet tapering and the beginning of its interest rate increases, but never articulated the influences of these monetary policy tools. A more thorough review of the Fed's balance sheet policies is clearly called for.

Second, the Fed needs a clearer interpretation of its mandate.

Correcting the asymmetric and overly complex interpretations of the Fed's inflation and employment objectives should be a

top priority. The excessive wordsmithing and fine-tuning of the Fed's objectives muddle the understanding of its goals and complicates its strategy. The Fed should strive for balance, clarity, and robustness.

The FAIT was based on the Fed's concerns about the ELB, reflecting its worries about low inflation, falling inflationary expectations, and its estimates of a secular decline in the neutral rate of interest. Concerns about the ELB are history. Recent events suggest that a more balanced interpretation is needed. The Fed's fears that sub-2% inflation would risk a downward spiral in inflationary expectations need to be reassessed. Despite the fact that some theoretical models found such downward slides were possible, these fears are not supported by the inflation data or measures of inflationary expectations, which were relatively stable.[16]

The Fed could consider returning to a 2% inflation targeting regime. The FAIT should be discarded and replaced by a balanced interpretation, much like the 2012 consensus statement. This would remove the upward bias in inflation, clarify the Fed's inflation intentions, and reduce ambiguities. The Fed's delayed responses to the inflation in 2021 highlighted the flaws in the FAIT and the perspective adopted by the Fed. The Fed might also consider including numerical bounds as guidelines around its 2% target. This could help convey a more realistic view of the uncertainty while acknowledging noise in the inflation data. On the other hand, simply specifying a band does not really describe how the Fed would be expected to react at the boundaries.

Alternatively, the Fed could explore a symmetric price-level-targeting regime. That would be closer to an average inflation target but would require offsetting persistent periods of sub-2% and over-2% inflation. Such a scheme does have useful properties but may be difficult to implement politically, in particular.[17]

Third, the Fed's review should consider systematic policy rules as guidelines for the conduct of monetary policy.

John Taylor has, of course, long argued that a more systematic or rule-like approach to monetary policy could substantially improve outcomes (Taylor 1993, 1999, and 2017). Thinking about rules should not conjure up rigid formulas that dictate or lock in monetary policy. Rather, systematic rules can provide important inputs and guidelines for the conduct of policy, and discussing rules and reaction functions can be a useful way of improving communications as well as outcomes.[18] They can add clarity and transparency about policy and the Fed's approach to data-dependent policymaking. A more direct discussion about policy decisions put in the context of rules would go far in helping the public and markets to understand monetary policy and policy choices. A more robust discussion of this topic would be a welcome addition to the review and to the strategic framework.

An assessment of systematic rules would be beneficial compared to the highly theoretical, untested, and complicated structures and formulations that underlie the NSF. The Fed includes a description and current estimates of some rules in its semiannual Monetary Policy Report to Congress, but the text highlights the problems and limitations of the rules rather than the benefits they may provide. Research shows that such guidelines would have helped avoid major policy mistakes. An evenhanded assessment of such rules and how they may be used to improve the conduct of monetary policy would be a welcomed addition to this strategic review.

Fourth, the Fed should dismiss the notion that forward guidance is an appropriate or effective independent tool of policy.

Using forward guidance as an independent tool not supported by interest rate and balance sheet policies is flawed in theory and makes

little sense practically. It can be confusing and counterproductive. Relying solely on forward guidance when the Fed simultaneously touts its willingness to be flexible and data dependent complicates the Fed's communications and may undercut its credibility. The 2021–22 experience showed that the Fed's forward guidance, unsupported by changes in monetary policy or the credible commitment to use its tools, proved inadequate in managing expectations. A careful and evenhanded assessment of forward guidance will confirm that its impacts and influences are unreliable when conducted independently of traditional tools of monetary policy.

Fifth, the Fed should clarify the quarterly SEPs and consider ways to improve them.

The Fed's purpose of the SEPs—to provide clarity and enhance transparency—is well intended.[19] SEPs are closely scrutinized and are critical to the Fed's communications and forward guidance. However, they are often misunderstood and misinterpreted, and can be improved. The Fed clearly states (in the footnotes of its quarterly summary projection tables) that the economic and inflation projections of each FOMC member are *conditional* on the federal funds rate that members estimate to be appropriate, and that the policy rate estimates are not a commitment to any policy path. Yet the SEPs often create confusion, in part because it is impossible to link the estimated appropriate policy rate of any individual FOMC member to his or her economic and inflation projections. The commentary on the SEPs tends to focus on the median points. Aggregating all FOMC members' estimates into medians muddles any interpretation of the appropriate policy rate that would achieve an economic projection.

However, there can be exceptions to this when appropriate policy paths of the FOMC members are highly concentrated. As inflation soared during 2021, FOMC members unanimously estimated that

the *most appropriate monetary policy* was to keep the fed funds rate anchored to zero. Through June 2022, as FOMC members raised their estimates of inflation, all of them estimated that the most appropriate policy was to keep the funds rate below the median projection of inflation. The Fed's assessments of appropriate policy were wildly inconsistent with estimates that simple rules provided for monetary policy (Orphanides 2024).

These observations suggest various ways to improve the SEPs. The Fed has data on different members' projections and estimates. Associating the dots anonymously with individual projections (without attributing the projections to member names) could help clarify the reaction functions of individual Fed members and improve communications. Second, adding information that links FOMC projections of inflation and the economy to select rules would enhance the SEPs and provide guidance on how the Fed should react to inflation and economic projections. Third, since the Fed perceives that its balance sheet is an important monetary policy tool, the strategic review should seek ways to convey information about the balance sheet in the SEPs. Since the Fed uses the balance sheet for many different purposes, this will not be an easy task. Moreover, FOMC members may not have a common view of what is happening to the balance sheet and what channels it may be working in to shape inflation and employment goals. Fourth, based on the unreliable track record of the SEPs' projections, the Fed may consider augmenting the SEPs with an annual exercise that includes alternative scenarios that could be used for risk-management purposes. This approach has been advocated by Bordo, Levin, and Levy (2020). The full SEP report now includes valuable information on the FOMC participants' perceptions of risk, but they get little attention. There are several ways to develop the alternatives (Levy 2020 and 2024; Davis 2024).

The Fed established the SEPs to improve clarity and make the Fed's thinking more transparent. The current SEPs have fallen shy

of those well-intended objectives. The Fed should use its upcoming strategic review to consider ways to improve the SEPs.

References

Abraham, Katharine G., and John Haltiwanger. 2019. "How Tight Is the Labor Market?" Conference on Monetary Policy Strategy, Tools, and Communication Practices (A Fed Listens Event), Federal Reserve Bank of Chicago, June 4.

Bernanke, Ben S. 2011. "The Effects of the Great Recession on Central Bank Doctrine and Practice." Federal Reserve Bank of Boston, October 18.

———. 2012. "Monetary Policy since the Onset of the Crisis." Speech at the Federal Reserve Bank of Kansas City Jackson Hole Economic Symposium, August 31.

Board of Governors of the Federal Reserve System (Board of Governors). 2012. "Statement on Longer-Run Goals and Monetary Policy Strategy." January 26.

———. 2018. "Federal Reserve to Review Strategies, Tools, and Communications Practices It Uses to Pursue Its Mandate of Maximum Employment and Price Stability." November 15.

———. 2020a. "Statement on Longer-Run Goals and Monetary Policy Strategy." Adopted August 27.

———. 2020b. Federal Reserve, press release, September 16.

———. 2021. "Monetary Policy Report—July 2021." Submitted to the Congress on July 9, 2021, pursuant to Section 2B of the Federal Reserve Act.

Bordo, Michael D., and John V. Duca. 2023. "Money Matters: Broad Divisia Money and the Recovery of Nominal GDP from the COVID-19 Recession." National Bureau of Economic Research Working Paper No. 31304, June.

Bordo, Michael D., Andrew T. Levin, and Mickey D. Levy. 2020. "Incorporating Scenario Analysis into the Federal Reserve Policy Strategy and Communications." National Bureau of Economic Research Working Paper No. 27369, June.

Brainard, Lael. 2019. "The Disconnect between Inflation and Employment in the New Normal." National Tax Association 49th Annual Spring Symposium, May 16.

———. 2021. "Assessing Progress as the Economy Moves from Reopening to Recovery." Annual Meeting of the Aspen Economic Strategy Group, July 30.

Clarida, Richard H. 2019. "The Federal Reserve's Review of Its Monetary Policy Strategy, Tools, and Communication Practices." US Monetary Policy Forum, University of Chicago Booth School of Business, February 11.

———. 2020. "The Federal Reserve's New Monetary Policy Framework: A Robust Evolution." Peterson Institute for International Economics, August 31.

Davis, Steven J. 2024. "Discussant Remarks" on Mickey D. Levy, "The Fed: Bad Forecasts and Misguided Monetary Policy." In *Getting Monetary Policy Back on Track*, edited by Michael D. Bordo, John H. Cochrane, and John B. Taylor, 291–308. Stanford, CA: Hoover Institution Press. 2024 Hoover Monetary Policy Conference.

Eggertsson, Gauti B., and Donald Kohn. 2023. "The Inflation Surge of the 2020s: The Role of Monetary Policy." Hutchins Center Working Paper 87, Brookings Institution, July 25.

Friedman, Milton. 1968. "The Role of Monetary Policy." Presidential Address at the Eightieth Annual Meeting of the American Economic Association, *American Economic Review* 58, no. 1 (March).

Goodfriend, Marvin. 1994. "Why We Need an 'Accord' for Federal Reserve Credit Policy: A Note." *Journal of Money, Credit and Banking* 26, no. 3: 572–80.

Goodfriend, Marvin, and Robert King. 1997. "The New Neoclassical Synthesis and the Role of Monetary Policy." *NBER Macroeconomics Annual* 12 (January): 231–96.

Ireland, Peter. 2022. "The Continuing Case for Nominal GDP Level Targeting." Shadow Open Market Committee, April.

———. 2024. "Update on Monetary Conditions: Spring 2024." Shadow Open Market Committee, April.

Lacker, Jeffrey M. 2012. "Understanding the Interventionist Impulse of the Modern Central Bank." *Cato Journal* 32, no. 2 (Spring/Summer): 247–53.

———. 2020. "A Look Back at the Consensus Statement." *Cato Journal* 40, no. 2 (Spring/Summer): 285–319.

Lacker, Jeffrey M., and Charles I. Plosser. 2022. "The Fed Should Talk about the Prescriptions of Systematic Policy Rules." Hoover Institution Economics Working Paper 22129, November 11.

Laubach, Thomas, and John C. Williams. 2016. "Measuring the Natural Rate of Interest Rates." *Business Economics* 51:57–67.

Levy, Mickey D. 2020. "The Fed and Financial Markets: Suggestions to Improve an Unhealthy Relationship." In *Strategies for Monetary Policy*, edited by John B. Taylor and John H. Cochrane. Stanford, CA: Hoover Institution Press.

———. 2021. "Rising Inflation: Granular Data Analysis Shows Broadening Dispersion of Price Increases." Berenberg Capital Markets, November.

———. 2024. "The Fed: Bad Forecasts and Misguided Monetary Policy." In *Getting Monetary Policy Back on Track*, edited by Michael D. Bordo, John H. Cochrane, and John B. Taylor. Stanford, CA: Hoover Institution Press.

Levy, Mickey D., and Charles I. Plosser. 2022. "The Murky Future of Monetary Policy." *Federal Reserve Bank of St. Louis Review* 104, no. 3 (Third Quarter): 178–88. First published as "The Murky Future of Monetary Policy," Hoover Institution Economics Working Paper 20119, October 1, 2020.

Nelson, Edward. 2021. "The Emergence of Forward Guidance as a Monetary Policy Tool." Federal Reserve Board, Finance and Economics Discussion Series 2021-033.

Orphanides, Athanasios. 2024. "Enhancing Resilience with Natural Growth Targeting." Shadow Open Market Committee, April.

Plosser, Charles I. 2003. "Deflating Deflationary Fears." Shadow Open Market Committee, November.

———. 2010. "The Federal Reserve System: Balancing Independence and Accountability." World Affairs Council of Philadelphia, February 17.

———. 2013. "Forward Guidance." Stanford Institute for Economic Policy Research Annual Meeting, February 12.

———. 2014. "Systematic Monetary Policy and Communication." Economic Club of New York, June 24.

———. 2019. "A Cautionary Note on Price-Level Targeting." Hoover Institution, Defining Ideas, May 1.

———. 2022a. "The Fed's Risky Experiment." In *Populism and the Future of the Fed*, edited by James A. Dorn. Washington, DC: Cato Institute. First appeared as Hoover Institution Economics Working Paper 21116, June 2021, presented at Economic Policy Working Group, November 10, 2021.

———. 2022b. "Federal Reserve Independence: Is It Time for a New Treasury-Fed Accord?" Federal Reserve Bank of Richmond, Essays Honoring Marvin Goodfriend.

Powell, Jerome H. 2019a. "Opening Remarks." Conference on Monetary Policy Strategy, Tools, and Communication Practices, Federal Reserve Bank of Chicago, June 4.

———. 2019b. "The Economic Outlook." Joint Economic Committee, US Congress, November 13.

———. 2020. "New Economic Challenges and the Fed's Monetary Policy Review." Address at Navigating the Decade Ahead: Implications for Monetary

Policy, a Federal Reserve Bank of Kansas City Jackson Hole Economic Symposium, August 27.

———. 2021. "Monetary Policy in a Time of COVID." Address at Macroeconomic Policy in an Uneven Economy, a Federal Reserve Bank of Kansas City Jackson Hole Economic Symposium, August 27.

Reifschneider, David, and John C. Williams. 2000. "Three Lessons for Monetary Policy in a Low Inflation Era." *Journal of Money, Credit and Banking* 32, no. 4: 936–66.

Sims, Eric, and Jing Cynthia Wu. 2019. "Evaluating Central Banks' Tool Kit: Past, Present, and Future." Conference on Monetary Policy Strategy, Tools, and Communication Practices (A Fed Listens Event), Federal Reserve Bank of Chicago, June 4.

Summers, Lawrence H. 2015. "Demand Side Secular Stagnation." *American Economic Review* 205, no. 5 (May).

———. 2016. "The Age of Secular Stagnation." *Foreign Affairs*, February 15.

Svensson, Lars E. O. 2019. "Monetary Policy Strategies for the Federal Reserve." Conference on Monetary Policy Strategy, Tools, and Communication Practices (A Fed Listens Event), Federal Reserve Bank of Chicago, June 4–5.

Taylor, John B. 1993. "Discretion versus Policy Rules in Practice." *Carnegie-Rochester Conference Series on Public Policy*, 39 (December): 195–214.

———. 1999. "Introductory Remarks on Monetary Policy Rules." In *Monetary Policy Rules*, edited by John B. Taylor. Chicago: University of Chicago Press.

———. 2017. "Rules versus Discretion: Assessing the Debate over the Conduct of Monetary Policy." National Bureau of Economic Research Working Paper No. 21049, December.

———. 2022. "It's Time to Get Back to Rules-Based Monetary Policy." Hoover Institution Economics Working Paper 22111, May 1.

Waller, Christopher J. 2023. "Reflections on Monetary Policy in 2021." In *How Monetary Policy Got Behind the Curve—And How to Get Back*, edited by Michael D. Bordo, John H. Cochrane, and John B. Taylor. Stanford, CA: Hoover Institution Press.

Weiland, Volker. 2024. "Taylor Rules and the Inflation Surge: The Case of the Fed." Goethe University Institute for Monetary and Financial Stability Working Paper Series No. 201.

Woodford, Michael. 2012. "Methods of Policy Accommodation at the Interest-Rate Lower Bound." Paper presented at "The Changing Policy Landscape," a symposium sponsored by the Federal Reserve Bank of Kansas City held in Jackson Hole, WY, August 30–September 1.

———. 2013. "Forward Guidance by Inflation-Targeting Central Banks." CEPR Discussion Papers 9722, November 3.

Yellen, Janet. 2019. "Former Fed Chair Janet Yellen on Why the Answer to the Inflation Puzzle Matters." Hutchins Center Conference, "What's (Not) Up with Inflation," Brookings Institution, October.

Notes

1. For the original consensus statement and the new revision, see Board of Governors of the Federal Reserve System (2012) and Board of Governors of the Federal Reserve System (2020a), respectively.
2. Levy and Plosser (2020) appeared as a Hoover Institution Economics Working Paper, and a subsequently published and updated version can be found as Levy and Plosser (2022). In addition, Plosser (2021) elaborated on the shortcomings of the NSF, which later appeared as Plosser (2022a).
3. Some of the earliest central banks to adopt inflation targeting did so between 1990 and 1993, including those in New Zealand, Canada, United Kingdom, Australia, and Sweden.
4. The inflation performance over this period was influenced by the significant drop in oil prices in 2014–15. West Texas Intermediate Crude prices fell almost 60% between June 2014 and December 2015. This accounts for the core PCE inflation rate being above the headline. Over the same period, headline and core Consumer Price Index (CPI) inflation rates were 1.6% and 2.0%, respectively.
5. This decline is based on the University of Michigan consumer survey of the one-year-ahead expected inflation.
6. The Fed uses the SEPs as forward guidance and always projects inflation to move toward 2%. It is more accurate to say that FOMC participants all believed that "appropriate policy" would move inflation back toward the Fed's target, although they had differing views as to what that policy would have to be, as evidenced by the dispersion among the interest rate policies reported in the SEP. The conclusion must be that the actual policies chosen by the Fed were flawed, or that the transmission mechanism of monetary policy as understood by the Fed was flawed, or both.
7. Of course, if unemployment was no longer a useful determinant of inflation dynamics in the Fed's models, it becomes unclear how the Fed's policy

instrument, the fed funds rate, is expected to achieve the Fed's desired inflation objective. The Fed has no answer for this as yet.

8. Inflation targeting is a time-consistent policy in the sense that bygones are bygones. Asserting that a new strategy must offset past misses requires a time-inconsistent policy. Price-level targeting rather than inflation targeting would be an example of such a time-inconsistent policy.
9. Some of these factors may not have been central to the inflation performance. Some (QE, credit allocations) were major efforts of the central bank and perhaps now should be reviewed and included in the strategic framework if the Fed considers them important tools or instruments it intends to use in the future.
10. See Plosser (2003) for a critique of the widely repeated fears of deflation.
11. More recently, Eggertsson and Kohn (2023) argued that the new framework led the Fed to pursue excessively easy monetary policy that generated higher inflation. Their argument focuses on the Fed placing maximum inclusive employment as a higher priority than inflation as the primary driver of the Fed's new strategy. Their analysis of the Fed's inflationary mistakes was based on a neo-Keynesian framework in which the Phillips curve played a central role, but which the Fed explicitly downplayed.
12. Clarida (2020) stated that "inflation that averages 2 percent over time" represents an "ex-ante aspiration."
13. The Fed's Statement of Longer-Run Goals and Monetary Policy Strategy states: "The maximum level of employment is a broad-based and inclusive goal that is not directly measurable and changes over time owing largely to nonmonetary factors that affect the structure and dynamics of the labor market. Consequently, it would not be appropriate to specify a fixed goal for employment" (Board of Governors of the Federal Reserve System 2020a).
14. Deficit spending was increased to more than 25% of GDP in response to the pandemic, and the Fed effectively purchased roughly one-half of the new debt. Why did this have very little impact on the Fed's projections? The $1.9 trillion American Rescue Plan of March 2019 and a 10% increase in deficit spending, primarily due to income-support payments to households in April 2021, had no noticeable effect on the Fed's SEP in June 2021 or the Fed's senior staff forecast.
15. Goodfriend and King (1997) usefully characterize monetary policy as variations in the size of the balance sheet and credit policy, which is captured by changes in the composition of assets held. See Goodfriend (1994) and Plosser (2022b).

16. For example, during the four years 2016–19 the University of Michigan consumer survey showed monthly one-year-ahead expected inflation rates fluctuating between 2.2% and 3.0%, with a yearly average for each of the four years fluctuating between 2.5% and 2.8%, beginning in 2016 at 2.4% and ending in 2019 at 2.6%. The less-volatile monthly five-year-ahead expected inflation rate fluctuated between 2.3% and 2.7%, while the yearly average for each of the four years varied between 2.2% and 2.5%, beginning in 2016 at 2.5% and ending in 2019 at 2.5%.
17. Plosser (2019) briefly discusses the pros and cons of price-level targeting.
18. See Plosser (2014) and Lacker and Plosser (2022) for discussions of how the Fed might incorporate systematic rules in its policy process.
19. The SEPs were instituted in 2009 to provide more information about economic and financial conditions and monetary policy than the prior semiannual projections. In 2012, the SEPs began including FOMC members' estimates of the year-end fed funds rate they deemed appropriate to achieve their economic and inflation projections. The FOMC members' estimates are shown as a median, range, and central tendency that eliminates the three highest and lowest estimates. The member estimates of the appropriate fed funds rates are shown separately as "dots," but the dots are not related to each member's economic and inflation projections.

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Thoughts on the Federal Reserve's Policy and Framework

Jón Steinsson

The last few years have been unusually eventful from a monetary policy point of view. After several decades of price stability, the United States experienced a bout of inflation in 2021 and 2022. The Federal Reserve was widely viewed as having been slow to react. But in 2022 it reacted forcefully, raising interest rates more rapidly than it had since the early 1980s. As of this writing, inflation has returned most of the way back to target.

Remarkably, the Fed has been able to engineer this disinflation without triggering a recession. Actually, the economy seems not to have skipped a beat when it comes to output and employment growth. Two years ago, few commentators believed this to be a likely outcome.

These events make this an opportune time for the Fed to reevaluate its monetary policy framework. The last framework review was conducted at a time when the Fed had been so successful at bringing about rough price stability for so long that the main problem being debated was the fact that inflation had persistently undershot its target by a few tenths of a percent. It seemed lost on many at the time what a sign of success that debate was. The COVID-19 recession and subsequent bout of inflation have refocused discourse about monetary policy on bigger, more fundamental issues.

What conclusions one draws from the experience of the last few years depend critically on how one interprets what happened. The COVID recession caused a number of unusual developments, both

on the demand side of the economy and on the supply side. On the demand side, large fiscal stimulus measures were passed in 2020 and 2021 and households built up unusually large savings early in the pandemic, which they then proceeded to spend down. On the supply side, COVID resulted in a substantial reduction in labor supply, which reversed slowly. Furthermore, COVID resulted in a substantial shift in expenditure patterns of households away from services and toward goods. This resulted in severe bottlenecks in the goods-producing sector of the economy and called for a sizable temporary increase in the relative price of goods.

Did the Fed Make a Serious Policy Error in 2021?

How should the Fed have reacted to this set of circumstances? One view is that the Fed made a serious error in 2021 by failing to raise rates aggressively as inflation rose. The Fed's failure to act aggressively in 2021 may have been caused by some of the novel aspects the framework the Fed adopted in 2020. First, the Fed adopted a flexible average inflation target (FAIT), which prescribed that inflation should be allowed to run moderately above 2% for some time after periods when inflation had persistently undershot the 2% target. Since inflation had indeed persistently undershot the target in the years prior to COVID, the FAIT framework prescribed patience during the early months of the rise in inflation in 2021.

Second, the Fed had come under sustained criticism in the years prior to COVID for preemptively tightening policy starting in 2015. That preemptive tightening was seen as hampering the economy's ability to reach full employment. The preemptive tightening was motivated by a concern that the labor market was reaching full employment and was at risk of overheating. But estimates of the natural rate of unemployment have repeatedly turned out to be too pessimistic, suggesting that policy was tightened too early. Because of this, the Fed faced intense pressure prior to COVID to allow

the labor market to find the true level of full employment without reference to potentially faulty estimates of the natural rate.

This strand of thought found its way into the Fed's 2020 framework in that the working definition of maximum employment was changed to the "highest level of employment that does not generate sustained pressures that put the price-stability mandate at risk" (Clarida 2022). The language in the framework statement emphasized the elimination of shortfalls rather than the symmetric elimination of gaps from the natural rate. In effect, the Fed adopted more of a "plucking" view of the labor market rather than a traditional natural rate view (Friedman 1964 and 1993; Dupraz, Nakamura, and Steinsson 2024).

Perhaps due to these types of considerations, the Federal Open Market Committee (FOMC) adopted the policy stance in the aftermath of COVID that interest rates would not be increased before the economy had reached full employment and inflation was on track to moderately exceed 2% for some time. The exact language of the FOMC statement from September and November 2021 was as follows:

> The Committee decided to keep the target range for the federal funds rate at 0 to 1/4 percent and expects it will be appropriate to maintain this target range until labor market conditions have reached levels consistent with the Committee's assessments of maximum employment and inflation has risen to 2 percent and is on track to moderately exceed 2 percent for some time. (Board of Governors 2021)

Somewhat surprisingly, it was not clear from these statements that this aspect of policy was subject to an escape clause in situations where inflation was substantially above target. I recall thinking at the time that this went without saying. But others did not see things this way. Since it was not clear whether the economy had reached full employment in the fall of 2021, the focus on maximum

employment contributed to a slow response of the Fed. (Twelve-month personal consumption expenditures (PCE) inflation was 5.5% in October 2021 and the unemployment rate was 4.5%.)

In addition to these factors, Chair Jerome Powell was up for renomination in the fall of 2021, making an unpopular pivot to tighter monetary policy more difficult politically. Finally, the FOMC had led markets to expect that it would curtail quantitative easing (QE) prior to raising rates. This, arguably, resulted in a slower pivot toward tighter policy than was optimal.

A More Positive View

As I mentioned above, an important reason for the inflation spike was the large shift in demand away from services and toward goods during and after COVID. This shift meant that the relative price of goods needed to rise. This could happen by goods prices increasing, services prices decreasing, or some combination. In addition, a considerable part of the increase in inflation in 2021 and 2022 was due to food and energy. A key policy question was then whether the Fed should have tightened policy enough to force down services prices to offset the rise in the prices of goods, food, and energy.

An alternative policy was to seek to prevent the price increases in goods, food, and energy from spilling over into services. If successful, this type of policy would result in a relatively short-lived deviation of inflation from target. Inflation would come down once the relative price of goods, food, and energy had stabilized, and might even reverse as the relative price of goods reversed when bottlenecks in the supply of goods eased.

This seems to have been largely the policy that the Fed has followed over the past few years. This policy has been remarkably successful in avoiding a recession, an achievement that is hard to overstate. It has not been fully successful when it comes to spillovers of goods, food, and energy inflation to services inflation. The

contribution of services to overall inflation rose from about 1.5% prior to COVID to about 3.5% in early 2023 before starting to recede. At the same time, inflation in goods, food, and energy had fallen to approximately zero by early 2024.

My overall assessment of the Fed's policy in 2021 and 2022 is that the Fed did get behind the curve in the late fall of 2021 and early 2022. The fact that the language of the FOMC statement was not changed between September and November 2021 was a mistake that delayed the policy pivot by at least a month. The fact that the FOMC felt the need to end QE before starting to raise interest rates also unnecessarily slowed the needed policy pivot. However, the Fed's historically aggressive interest rate increases in 2022—four 75-basis-point increases in a row—made up this ground relatively quickly. As a result, the damage was likely modest.

Arguably, a key reason why the Fed was able to engineer a disinflation over the past few years without triggering a recession was that longer-run inflation expectations remained largely anchored. There were some signs of unanchoring between September 2021 and March 2022, with five-year breakeven inflation from Treasury Inflation-Protected Securities (TIPS) rising from 2.5% to 3.5%. But this quickly reversed once the Fed began its aggressive rate increases. Inflation expectations even further out (e.g., the five-year–five-year-forward breakeven inflation rate from TIPS) did not budge at all during this period. The fact that longer-run inflation expectations were relatively well anchored was the consequence of a relentless focus on price stability over the prior forty years. This was therefore a hard-earned win for the Fed and demonstrated the value of having a large amount of credibility.

Maximal Employment and Preemptive Tightening

One of the key questions that faces the Fed as it reviews its policy framework is how best to fulfill its employment mandate. I am

quite sympathetic to the "plucking" view of business cycles, that is, the view that business cycles largely represent shortfalls of employment below a full-employment level rather than symmetric fluctuations around a natural rate. This view suggests that the Fed should be aiming for lower levels of unemployment than traditional analysis has indicated. Traditional analysis that pegs the natural rate of unemployment at something like 5% (or more) is in my view not supported by much good evidence. It seems to me that the level of unemployment that represents full employment is closer to 3.5% and perhaps even lower. I believe the Fed should take this plucking view very seriously and should calibrate its policy accordingly.

However, the fact that views about the natural rate of unemployment have been poorly calibrated in the past does not imply that the Fed should forswear preemptive tightening of policy. Monetary policy operates on the economy with some lag, and the economy can be highly inertial. Just as the captain of a large ship must turn the wheel far before the ship hits an obstacle, the Fed must adjust policy with an eye toward where it wants the economy to end up six to twelve months hence. This logic calls for preemptive tightening of policy at times (and preemptive loosening of policy at other times). The Fed's framework should make clear that preemptive policy actions are an integral part of the Fed's policy toolkit.

Flexible Average Inflation Targeting

The goal of adopting flexible average inflation targeting in 2020 was to better anchor long-run inflation expectations at the target rate of 2%. This is an important goal. However, the problem that led to the specific design of flexible average inflation targeting in 2020 was only one of several problems that the Fed might face regarding the anchoring of long-run inflation expectations. At that time, the Fed was worried that small but persistent undershoots of inflation in the years before 2020 might eventually get embedded in longer-

run inflation expectations. The subsequent, much larger increase in inflation has brought some needed perspective to this issue.

A heavy emphasis on anchoring long-term inflation expectations is appropriate and important for the Fed's Statement on Longer-Run Goals and Monetary Policy Strategy. The trouble is that it is not clear that we have a good understanding of how to achieve such anchoring. The idea of moving slightly toward price-level targeting—which is what flexible average inflation targeting does—is theoretically appealing in simple models. But whether it works in practice is not at all clear.

I used to think that central banks' relentless and constant focus on credibility in the post-Volcker era was at times too much of a good thing. But the experience of the last four years has changed my view in this regard. This experience has fortified my belief that credibility is hugely valuable when the central bank needs to respond to adverse shocks (supply shocks or fiscal shocks) and that credibility is most often earned slowly over time by both the actions and words of central bankers. This suggests that a heavy focus on the anchoring of longer-run inflation expectations is appropriate. Exactly what form this heavy focus should take is less clear to me. More research is needed on this issue.

Credibility and the Sacrifice Ratio

Why was the "sacrifice ratio" so favorable in this disinflation in contrast to earlier disinflations? My guess is that a key reason for this is that the Fed had built up enormous amounts of credibility over the preceding four decades. This credibility allowed it to respond more cautiously to the shocks that hit the economy in the aftermath of COVID without this leading to an increase in longer-run inflation expectations.

For simplicity, consider the situation of an economy hit by an adverse temporary supply shock. The central bank may want to

allow inflation to temporarily increase in response to this shock, so as to avoid having to engineer a large recession. This is what optimal policy looks like in simple models. The trouble is that a central bank with poor credibility will see inflation expectations rise rapidly when inflation rises. This will in turn further push up inflation. The dynamics of inflation may thus deviate sharply from the dynamics of the original supply shock. Even if the original supply shock is transitory, the dynamics of inflation will take on a life of their own because of the feedback loop between inflation expectations and inflation. To bring inflation back to target, the central bank is then likely to need to engineer a recession. So, the central bank with poor credibility is not really able to avoid engineering a recession.

Contrast this with a central bank that has good credibility. It can communicate to the markets that it is temporarily allowing inflation to rise above target due to the temporary supply shock but that it will conduct policy so that inflation falls back down to target when the supply shock dissipates. The central bank's credibility will imply that longer-run inflation expectations remain anchored. This in turn implies that the deviation of inflation from target will have similar dynamics to those of the supply shock itself. As a consequence, the central bank can be patient and avoid driving the economy into recession.

The situation after COVID was more complicated than just an adverse supply shock. But I think the basic story from the paragraphs above captures the essence of why the sacrifice ratio was more favorable over the past few years than in earlier disinflation episodes. In the early 1980s, the Fed's credibility was poor and long-run inflation expectations were poorly anchored. The Volcker Fed acted very aggressively to convince markets of its commitment to lower inflation. But credibility is difficult to attain quickly. As a result, markets were skeptical for years of the degree to which inflation would stay low, and long-run inflation expectations only

gradually converged to low levels. This meant that the Fed needed to engineer a recession to bring inflation down.

Scars to Credibility

The Fed's high level of credibility was extremely valuable over the past few years and arguably allowed the US economy to avoid recession. But the Fed "used up" some of its credibility in this episode. What I mean by this is that the Fed would likely be harder pressed to pull off the same thing again in the immediate future. More than one episode of elevated inflation within a short period may, to some, start to look like a pattern. This implies that it is especially important for the Fed to build credibility over the next five to ten years. The Fed will, for some time, have scarred credibility, and during that time its ability to respond to adverse shocks with a low sacrifice ratio will be impaired. Erring on the side of tighter policy during this period is likely prudent since the Fed cannot lean as heavily on its credibility before the scars of 2021–22 heal.

A Higher Inflation Target?

The notion that the Fed might consider raising its inflation target—perhaps to 3% or 4%—has been debated since the economy hit the zero lower bound (ZLB) on nominal interest rates in late 2008. The main argument in favor of this view is that it would provide the Fed with more room to ease policy during a severe downturn. The conventional wisdom that r^* may have fallen over the past few decades has also played an important role in this debate.

I was at one point somewhat sympathetic to this view. But I have become less sympathetic over the past five years. The main reason for this change in my views is simply the fact that people really dislike inflation, even relatively modest amounts of inflation. This intense

dislike of inflation has become abundantly clear over the past few years. This has driven home to me the wisdom of Alan Greenspan's definition of price stability as a state when "households and businesses need not factor expectations of changes in the average level of price in their decisions" (Greenspan 1994). I worry that an increase in the inflation target will result in a situation where the public does not feel that price stability—defined in this way—has been achieved.

The success of the Fed in responding to both the Great Recession and the COVID recession also plays into my view on keeping the inflation target at 2%. More room to ease policy would indeed have been valuable during and in the immediate aftermath of the Great Recession. But what happened was a far cry from the deflationary death spiral that some models predict can happen at the ZLB. Likewise, the Fed was able to provide a large amount of accommodation during COVID through a combination of rate cuts, forward guidance, and quantitative easing.

Lender of Last Resort

The final argument that I would like to make is that the Fed's framework should incorporate the Fed's role as a lender of last resort. The Fed's 2020 Statement on Longer-Run Goals and Monetary Policy Strategy implicitly defines monetary policy narrowly as interest rate policy (and perhaps quantitative easing) and does not discuss its role or its policy as a lender of last resort. But one of the core roles of a central bank is to act as a lender of last resort in a banking panic. The Fed has a checkered history in this regard. Its failure to act in the Great Depression was arguably a disaster, and the wisdom of allowing Lehman Brothers to fail in 2008 is a highly contentious issue. Furthermore, for historical reasons, the most straightforward mechanism through which the Fed can act as a lender of last resort—the discount window—is impaired by the stigma associated with its use. This is not a good state of affairs.

The Fed has developed a considerable amount of expertise in acting as a lender of last resort since 2008 and did so quite successfully during the COVID period. However, the Fed's role as a lender of last resort is not continually acknowledged as a core function of the Fed. Nor am I aware of a statement of policy principle by the Fed on this important topic. This risks demoting financial stability and crisis management to a secondary status in public and academic discourse. Fortunately, all is quiet on this front most of the time. But the Fed's actions as a lender of last resort in times of crisis (and commitments to act if needed) are a no-less-consequential part of the Fed's overall policy than "normal" monetary policy.

References

Board of Governors of the Federal Reserve System (Board of Governors). 2021. "Federal Reserve Issues FOMC Statement." Press release, November 3.

Clarida, Richard H. 2022. "The Federal Reserve's New Framework: Context and Consequences." Federal Reserve Board Finance and Economics Discussion Series, 2022-001.

Dupraz, Stéphane, Emi Nakamura, and Jón Steinsson. 2024. "A Plucking Model of the Business Cycle." Working Paper, University of California–Berkeley.

Friedman, Milton. 1964. "Monetary Studies of the National Bureau." In *The National Bureau Enters Its Forty-Fifth Year.* New York: National Bureau of Economic Research.

———. 1993. "The 'Plucking Model' of Business Fluctuations Revisited." *Economic Inquiry* 31, no. 2 (April): 171–77.

Greenspan, Alan. 1994. Statement before the Subcommittee on Economic Growth and Credit Formulation of the Committee on Banking, Finance, and Urban Affairs, US House of Representatives, February 22.

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Reflections on Central Bank Communication

Christopher Ong, Andrew Sacher, and Lawrence H. Summers

The practice of central banking has undergone a seismic shift over the last forty years. Formerly circumspect in communication and judicious in the use of tools, central banks across the world have embraced policies of constant transparency along with an ever-expanding toolkit. At the beginning of his highly successful tenure, Alan Greenspan said he had "learned to mumble with great incoherence. If I seem unduly clear to you, you must have misunderstood what I said" (Geraats 2007). Contrast that with today's Federal Open Market Committee (FOMC), which releases quarterly forecasts for future interest rates.

While central banking practice has been revolutionized, its effectiveness has not improved notably. The twenty years from 1980 to 2000 featured a dramatic decline in inflation, strong economic and productivity growth, and (largely consequently) high public esteem for the Federal Reserve, personified by Alan Greenspan. The ensuing nearly twenty-five years have witnessed unmoored inflation (first below desired levels and more recently well above), a productivity and growth slowdown, and a decline in public approval.

So central bankers have been doing much more, but they are not clearly accomplishing better outcomes. This could indicate that

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This paper is an elaboration of remarks delivered by Prof. Summers at the Hoover Monetary Policy Conference.

the underlying macro environment has become more challenging. But it could also suggest that central banks should proceed with caution and introspection. In the context of their regular framework reviews, central bankers may benefit from scaling back some of their recent policy innovations and thereby realize improved economic performance and greater credibility and autonomy.

Fundamentally, central banks should be judged by the macroeconomic outcomes that they are able to achieve. But there is an agency problem, in which central bank officials, financial journalists, and especially academics and the Fed-watcher community benefit from "transparency" (as either producers of information who are building up their personal brands or consumers of that information) irrespective of whether more information is helpful or harmful for economic outcomes.[1]

As of 2007 there was a substantial debate, at least in the United States, on the merits of inflation targeting and institutionalized transparency. The debate was resolved in favor of inflation targeting and institutional transparency because of the exigencies of the Great Financial Crisis (GFC). Now that we have reemerged from the zero lower bound (ZLB), it is appropriate to revisit the debate as part of the Fed's upcoming review of monetary policy strategy, tools, and communication. The focus of this paper is to question whether transparency, inflation targeting, and extraordinary measures should be part of the regular toolkit. This would be moot if we were likely to be at the zero lower bound for a large fraction of the time going forward. But the ZLB seems to be an unlikely prospect, as we detail reasons that the neutral rate has likely risen. To paraphrase Theodore Roosevelt, the Fed might benefit from speaking less, with a bigger short-term interest rate stick.

Approaches based on transparency and precommitments presuppose a much higher degree of economic predictability, comprehension, and stability than is realistic. They also suffer from the following five problems:

1. Precommitment impedes the ability to pivot once a mistake becomes apparent, as was the case in 2021.
2. Excessive forecasting can undermine institutional credibility when it is inevitably wrong.
3. Precommitments muddy previously reliable market signals on the state of the economy, such as inverted yield curves.
4. Quantitative easing (QE) risks fiscal losses and interferes with the Treasury's debt management.
5. Excessive communication increases market volatility, notably in the intraday reaction to press conferences. Different channels of Fed communications can move the market in opposite directions, sometimes within the span of minutes, despite no "real" change in policy direction.

A difficulty with precommitments is that they risk being counterproductive if markets do not fully internalize the precommitments, but (as we suggest later) ex post the Fed feels constrained by them. Then there may be little gain from realigning expectations, but there is a cost from constrained policies.

The rest of the paper is organized by section in the following order: how precommitments rely on a higher level of economic knowledge than is reasonable; precommitments as a barrier to needed action; a detailed, participant-by-participant analysis of the Fed's interest rate forecasts (dot plots), which finds that they produce no useful information; the ways that precommitments attenuate the information coming out of market signals; how quantitative easing creates fiscal risk for the government and interferes with Treasury debt management; the paradoxical and often counterproductive nature of having unscripted press conferences in which a single committee member performs; and finally, a variety of reasons why we believe that the zero lower bound may not be a problem in the near future with higher rates, affording the Fed the opportunity to scale back some of its new tools and practices.

Central Banks Need to Return to Humility about Economists' Degree of Understanding

> *Inflation targeting presupposes an ability to forecast, which I don't think any of us has, or can have. . . . One of the things that we always forget, looking back, is how little we knew at the time things were occurring or about to occur. . . . It is very tough to implement an inflation targeting system without far greater knowledge than we have.*
>
> —Alan Greenspan, Federal Open Market Committee, February 2, 2005

It would be wonderful if economics was a confidently understood science à la classical physics. Given our confidence level about planetary orbits, it would be perfectly reasonable to plan a space probe to visit Halley's Comet in 2061 or perhaps even a study of solar eclipses in 2186. Alas, that is not the situation with economics. Here our knowledge is more tentative, and underlying relationships can often be inconstant. Consider that as late as 2021, the Fed's median projections still held that there would be no interest rate hikes until at least 2024 (Federal Open Market Committee 2021).

Roughly once a decade something happens that causes a big shock that changes everything. Economists term this "Knightian uncertainty."[2] The late Donald Rumsfeld popularized the phrase "unknown unknowns." We have seen this with COVID-19, the Great Financial Crisis, September 11, and the late-1990s productivity surge. Regardless, economists have no way of knowing where and when these shocks will come or how they will change our models.

Even without shocks, there is continuing uncertainty over economic theory. In the span of several hours at the conference that served as gestation for this paper, an eminent labor economist cast

doubt on conventional measures of the labor market (Hall and Kudlyak 2023) while another postulated that the natural rate is not the right way to think about macroeconomics. And even if models like r^* are correct, the estimated numerical parameters can shift radically from year to year or with different specifications.

Making specific long-term plans under these conditions would be like planning to view the 2186 solar eclipse if there was controversy over whether the Earth revolves around the sun and the gravitational constant is fluctuating. It would be like mandating school closures out to 2040 any time COVID community spread exceeds 1%.

What do you do when you have a stunning amount of uncertainty? You avoid making specific forecasts, committing yourself to specific rules. It is better not to take overly strong views or make overly strong commitments because they may well prove inappropriate in light of evolving circumstances and knowledge. The very act of committing is likely to delay recognition of new circumstances and will certainly make adjustment more difficult by undermining credibility.

Rather than making specific forecasts under uncertainty, it is better to state general values. For instance, when faced with the possible disintegration of the eurozone during the European debt crisis, Mario Draghi did not give a lot of specific forecasts such as saying he would limit the spread on Italian bonds over German bunds to 100 basis points. Rather, he stated the general value that he was going to do "whatever it takes to preserve the euro. And believe me, it will be enough" (Draghi 2012).

Or consider Treasury Secretary Bob Rubin's dollar policy. The market was gyrating and Bob said our policy is that "a strong dollar is in our national interest." Was the dollar too strong? Rubin answered, "Strong dollar is in our national interest." Are you concerned about the excessive weakness of the yen? Rubin would respond, "A strong dollar is in our national interest" (Bradsher

1995). That was the response to all questions. And everybody thought we had a really shrewd, sage dollar policy, and dramatic fluctuations were attenuated. All this was accomplished by stating the principle while deliberately avoiding getting into specifics.

The Oracle of Delphi understood something fundamentally important: if you are believed to be omniscient but are in fact human and uncertain, it is best to pronounce vaguely, infrequently, and unfalsifiably. This is particularly the case in situations, such as central banking, where being more credible by itself enhances effectiveness.

Such constructive ambiguity has been discarded in the Fed's new suite of policy tools that are primarily intended to affect longer-term interest rates. Financial markets are forward-looking, so manipulating longer-term rates necessarily entails at least implying some type of precommitment (e.g., "guidance") or manipulating the amount of available longer-term assets (e.g., QE). And of the two avenues, precommitment (if credible) will clearly affect longer-term interest rates. In contrast, QE relies upon the (debatable) presence of market imperfections. As Ben Bernanke famously joked, "The problem with QE is it works in practice, but it doesn't work in theory" (Bernanke 2014).

Naturally, the longer and less conditional a precommitment is, the more it will affect interest rates. For instance, Bernanke (2020) noted that the forward guidance he modeled was less effective because it was assumed to be credible for only *seven years*. But even in the less prescriptive "Delphic" strategies, there is an implicit precommitment to a particular economic modeling paradigm and objective function. For instance, in order to precommit to, say, not raising interest rates until unemployment falls below X percent, one must have confidence in the permanence of the relationship between unemployment and inflation. And in order to set a long-run inflation target, one must have confidence in the desirability of the social-loss function involved.

For most of the post-2012 inflation-targeting period, this problem of an unstable/uncertain social-loss function has been obscured because the primary concern was not managing the trade-off between unemployment and output, but rather getting inflation (and output) to return to a satisfactory level. With inflation too low, anything that increased output was also salutary on the inflation front as well. Policymakers could have their cake and eat it too, as there was no trade-off. In the current moment, with inflation *moderately* above target, the problem reasserts itself. But because the Fed happens to have a 2% target—arguably based largely on a circa-1996 analysis—it is implicitly committed to forcing a recession if that is what is required to get inflation to 2%.[3] This might well be the correct conclusion, and we take no view on what should constitute price stability for the Fed. But given the magnitude of welfare lost to both recession and inflation, at the very least there should be a continual impetus to rerun the analysis with the benefit of new information, rather than just say, "We have to hit 2% to be credible."

Put differently, a problem with long-term commitments is that they tend to lock in the initial level of ignorance. In the 2000-era solidification of a consensus around a roughly 2% optimal inflation rate, the ZLB was an important, arguably primary, consideration.[4] In an influential paper, Reifschneider and Williams (1999) used the FRB/US model to predict that with a 2% target, the ZLB would be binding 5% of the time. But this has proven to be off by nearly an order of magnitude; since 2000, the fed funds rate has been at zero in 37% of months, and within spitting distance of it (1% or less) a full 48% of the time, though as we describe later, we expect that the ZLB will be much less likely to bind in the future.[5]

Precommitment Is a Barrier to Needed Action under Changing Circumstances, as Was Apparent in 2021

> *I am strongly opposed to the adoption of formal multi-year inflation targets. . . . I do not think inflation targets would raise credibility for the simple reason that they would not be credible.*
>
> —Governor Janet Yellen, Federal Open Market Committee, February 1, 1995

It is widely accepted that the Fed "fell behind the curve" in the post-COVID inflation surge. In February 2021, as Congress was considering passing $1.9 trillion of fiscal stimulus, one of the authors of this paper predicted that inflation might rapidly get out of hand (Summers 2021). In March, President Biden signed the American Rescue Plan into law, and in the coming months inflation steadily accelerated to a high of 7%, around which time the Fed began to hike rates (US Bureau of Economic Analysis 2024a). Approximately a year passed between when the 2% threshold was surpassed and when the Fed first raised its target range for the fed funds rate (FFR) (US Bureau of Economic Analysis 2024c).

It is only the Fed's forward guidance that explains why we did not have the appropriate tightening, even when it was apparent that it was necessary. As described by Eggertsson and Kohn (2023), the Fed precommitted in September 2020 to not raising rates until inflation was "moderately above 2 percent" *and* maximum employment was achieved (Federal Open Market Committee 2020).[6] The Fed committed itself even more firmly when it promised to keep rates low while asset purchases were still ongoing. As late as December 2021, when year-over-year personal consumption expenditures (PCE) inflation was above 6%, Chairman Jerome Powell reiterated that it would not be "appropriate" for the Fed to raise rates until the tapering of bond purchases had finished, which would be in two meetings (US Bureau of Economic Analysis 2024a; Powell 2021). Three

meetings later, the Fed announced its first rate hike. Therefore, while it is impossible to read minds, it appears that precommitment was the primary reason for the Fed's inaction. Even when inflation was raging, the Fed was unwilling to break its own principles. However, once it was free from the burden of its own promise, it moved swiftly and aggressively in order to act on inflation.

For all of the headache that it caused in 2021, forward guidance had basically no effect in helping the Fed to achieve its goals in 2020. Preliminary research suggests that the gains from 2020 forward guidance were marginal in terms of shaping the public's expectations. Janson and Jia (2020) found that forward guidance was effective in shaping the public's expectations of the future path of the Fed policy rate (especially when guidance was reinforced by the Summary of Economic Projections) but had marginal effects on short-run inflation expectations and almost no effect on long-run inflation expectations. In short, the public believed the Fed's precommitment to low rates, yet precommitment did almost nothing to move inflation expectations in the direction that the Fed wanted.

With the benefit of hindsight, it seems clear that the Fed underestimated the risks of precommitment and overestimated its benefits. While it had been controversial in the 1990s and 2000s, forward guidance gained popular support in the years following the Great Financial Crisis, when forward guidance was widely credited with having helped to stabilize the economy.[7] However, the central banking community has been too quick to extrapolate the experience of 2011–15.

In the wake of the Great Financial Crisis, the Fed experimented with softer language for several years and then began to use explicit Odyssean forward guidance in 2011, with immediate impact on market expectations (Campbell et al. 2017; Bernanke 2020). As Bernanke (2020) described, this was when the FOMC began to explicitly promise low rates until specific dates. For example, in the January 2012 statement, the FOMC committed to maintaining

"exceptionally low levels for the federal funds rate at least through late 2014," a hard policy commitment of almost two years (Board of Governors 2012).

From early 2012 to late 2014, inflation rarely ever rose above 2%. In fact, during the entire period of "calendar guidance," which began in August 2011 and extended "at least through mid-2015," inflation exceeded 2% only in the short period from August 2011 through March 2012 (Bernanke 2020; US Bureau of Economic Analysis 2024a). This suggests the Fed would have kept rates low even without the constraint of its own forward guidance.[8] Since inflation stayed persistently low, there never came a time when the path of policy decisions that the Fed committed to ever deviated from the policy decisions that it would have voluntarily taken.

However, there's no such thing as a free lunch. Precommitment works by committing the Fed to a future course of action that may be inconsistent with the Fed's future incentives. By committing the Fed to a specific course of action, even if that action may later turn out to be situationally suboptimal, the Fed aims to move market expectations of inflation and thereby keep them within a target range. Assuming the market is rational and cannot be deceived by the Fed, there has to be some future scenario in which the Fed is worse off due to its precommitment for the precommitment to have any real bite. In 2011, the Fed got lucky because the time-inconsistency scenario never materialized. In 2021, it did.

The inflation of 2021 took most observers and forecasters by surprise. In large part, this was due to the massive changes that had occurred in macroeconomic fundamentals. COVID rewired the labor market, especially in jobs matching where the Beveridge curve shifted substantially (Blanchard, Domash, and Summers 2022). Supply chain disruptions and global conflict caused prices to rise on imported goods.[9] Major legislation passed by the Trump and Biden administrations added large fiscal stimuli that massively increased consumer spending. In the wake of these three upheavals, the Fed emerged from

the pandemic to a deeply changed world, where many of its prior assumptions were no longer true. Whereas inflation had previously been stubbornly low, it was now rapidly growing and accelerating.[10]

The experience of 2021 lays bare one of the key weaknesses of precommitment. Almost by definition, it makes it impossible to quickly pivot once a mistake has been made or when circumstances change. This is especially problematic in a world where uncertainty and shifting conditions make it difficult to build stable models, as described in the prior section.[11]

The Cacophony and the Dot Plots: Do They Do Anything but Pull Back the Wizard's Curtain?

> *Everyone says we'd gain credibility. I don't have a clue what that means. And there is no evidence of which I'm aware that tells me that announcing a target improves the performance of the central bank.*
>
> —Alan Greenspan, Federal Open Market Committee, September 15, 2003

Most FOMC participants communicate often via speeches and interviews, frequently moving markets (Gürkaynak, Sack, and Swanson 2004; Born, Ehrmann, and Fratzscher 2014). This intraorganization "cacophony" is unusual, and perhaps unique, among nonpartisan federal government agencies. The Fed has an extraordinary amount of transparency initiatives including minutes, hundreds of FOMC member speeches, press conferences, and eventual full transcripts. This disclosure has increased steadily, seemingly in a one-way ratchet, and is very different from how other federal bodies behave. The National Security Council does not publish minutes, nor does the Supreme Court, nor is every official encouraged to publicly elaborate on their particular view when it contravenes policy. A deputy assistant secretary must resign in order to express

dissatisfaction with the broader administration's position. Appeals court dissents (and concurring opinions) are perhaps the closest analogue in that judges can use them to advocate for views that did not garner majority support. But such dissents are effective if they convince *other judges*. An FOMC member can be effective (as well as augment their public profile) by *moving the market* in the direction of their favored outcome given the Fed's dislike of surprising markets. Vissing-Jorgensen (2020) described how this incentive structure can approximate a welfare-reducing prisoner's dilemma.[12]

The introduction of the Summary of Economic Projections, in which all FOMC members make a variety of forecasts, has arguably added to the cacophony. In 2012, Fed officials began to use the dot plot, with the ostensible purpose of giving the markets a better understanding of the Fed's expectations and reaction function. In other words, what is the modal path for future short rates, and how would they respond to unexpected shocks? By increasing market acuity on this topic, the Fed could in theory get the markets to do more of its work for it.

Over time, the dot plots are likely to be believed if they turn out to be good predictors of Fed policy. If so, they could serve as a soft-policy tool, allowing the Fed to nudge long-term interest rates in a desired direction. But if the dot plots have little explanatory policy, the markets will likely (and justifiably) come to disregard them, which could make it more difficult for the Fed to explicitly signal its intentions when it so desires. In other words, poor forecasts could be credibility destroying in exactly the situations where credibility is most important.

Empirically, the dot plots have underperformed interest rate futures for predicting Fed policy. Across nearly all time horizons (current quarter through three years in the future), the mean absolute error of the dot plots is higher than that calculated with overnight indexed swaps (OIS), with the lone exception of the six-quarter horizon (table 20.1).

TABLE 20.1. Forecast performance of the FOMC median dot versus market overnight indexed swaps.

Horizon (Quarters)	OIS	DOTS
2	0.14	0.26
3	0.45	0.47
4	0.71	0.74
5	0.90	0.99
6	1.16	1.06
7	1.23	1.30
8	1.32	1.53
9	1.64	1.89
10	1.65	1.92
11	1.35	1.79
12	1.42	1.87
13	1.86	2.04

Source: Bloomberg LP "DOTS Function" and fed funds rate. Data as of July 2024.

So the dots are not particularly good forecasts and may come to undermine credibility, or at the very least make it more difficult for the Fed to signal what is a forecast versus what is a precommitment.

Lack of a Coherent Reaction Function in the Dots

Perhaps in response to these shortcomings, there has been increasing talk about expanding the dot plots to encompass scenario analysis.[13] This could in theory help educate the public about the Fed's "reaction function," thereby making the Fed's job easier. If inflation surprised to the upside by 1% and markets understood that this implied the Fed would hike rates by 1.5%, long rates would move immediately by an appropriate amount. But this presupposes that the Fed has an advantage in economic forecasting along with a well-defined reaction function. If these conditions are not met, then over time making public pronouncements could undermine confidence in the Fed. As noted in Faust (2016), transparency that does not help predict future policy only "masquerades as helpful" while adding to public confusion.

While it might be thought that the detail in the dot plots is illuminating, that is not what we find when we look in detail at the tacit scenario analysis revealed by the actual individual forecasts. Instead, the dots imply counterintuitive things about policy. The Fed has released the individual forecasts for each meeting with a five-year lag, so we have data from the October 2007 through December 2018 meetings.[14] Each participant gives their forecast (at a variety of time horizons) for GDP, unemployment, headline and core PCE inflation, and the fed funds rate. In addition to providing individual forecasts, the FOMC provides an accompanying key that identifies each participant.[15]

By matching participant names with their forecasts, it is possible to create a meeting-to-meeting time series for each FOMC member. If there was a coherent reaction function that the markets could learn from the dots, it would presumably take the form of some type of Taylor rule. Rising inflation forecasts should require at least a one-for-one increase in the fed funds rate, and slowing growth (or rising unemployment) should correspond to lower rates.

However, that is not what the dots actually reveal. For time periods of less than one year (shown in table 20.2), core PCE inflation is totally insignificant (and has the wrong sign) in explaining changes in the fed funds rate. Overall inflation is marginally significant at the 6% level and has a coefficient of only 0.12, well below the >1 value called for by any Taylor rule. The unemployment rate is the most significant variable, but it also has the wrong sign. When Fed participants have revised their estimates upward for near-term unemployment, they also have tended to increase their rate projections.

Such short-term (less than a year ahead) forecasts may be unfair to the Fed, given the many influences on the economy over a single quarter. But the longer-term forecasts are counterintuitive as well. Regressing changes in the "appropriate" fed funds rate on changes in economic conditions (as shown in table 20.3) has an R^2 of only

TABLE 20.2. Regression 1: Changes in FOMC dot plot fed funds rate versus economic variables, less than one year ahead.

Regression statistics	
Multiple R	0.41
R squared	0.17
Adjusted R squared	0.16
Standard error	0.26
Observations	488

ANOVA

	df	SS	MS	F	Significance F
Regression	4	6.70693	1.676733	24.8297668	1.0281E–18
Residual	483	32.61657	0.067529		
Total	487	39.3235			

	Coefficients	Standard error	t stat	P-value	Lower 95%	Upper 95%
Intercept	–0.01791	0.013471	–1.32967	0.184256246	–0.04438157	0.008557
GDP	0.257935	0.044986	5.733732	1.73337E-08	0.16954356	0.346327
UI	0.438591	0.059845	7.328777	9.83506E-13	0.32100224	0.55618
PCE	0.122175	0.06551	1.864989	0.062789081	–0.00654432	0.250895
Core	–0.04297	0.110102	–0.3903	0.696488362	–0.25930974	0.173365

0.05. In other words, a full 95% of shifts in participant-level policy forecasts cannot be attributed to the reaction function to changing economic conditions. The coefficients all have the expected signs, but only unemployment is significant, and the coefficients on inflation are again much below unity.

So the dot plots do little to elucidate a coherent reaction function and, if anything, expose the lack of one. It is also possible that the very existence of the dot plots has partially attenuated the reaction function. Once people take a view on something, a panoply of behavioral biases may come into play. In particular, the endowment effect and loss aversion can apply to beliefs as well

TABLE 20.3. Regression 2: Changes in FOMC dot plot fed funds rate versus economic variables, one to three years ahead.

Regression statistics	
Multiple R	0.23
R squared	0.05
Adjusted R squared	0.05
Standard error	0.37
Observations	541

ANOVA

	df	SS	MS	F	Significance F
Regression	4	4.04346	1.010865	7.385994	8.54E – 06
Residual	536	73.35826	0.136862		
Total	540	77.40172			

	Coefficients	Standard error	t stat	P-value	Lower 95%	Upper 95%
Intercept	–0.09677	0.018981	–5.09823	4.76E-07	–0.13406	–0.05948
GDP	0.044277	0.091843	0.482094	0.629936	–0.13614	0.224693
UI	–0.24341	0.089695	–2.71374	0.006867	–0.41961	–0.06721
PCE	0.203719	0.258027	0.789524	0.430155	–0.30315	0.710588
Core	0.335693	0.265007	1.266733	0.205801	–0.18489	0.856272

as possessions (Abelson and Prentice 1989; Litovsky et al. 2022). Forcing all FOMC members to "own" an interest rate forecast is not costless; it may create an inherent policy inertia.

Returning to the COVID policy analogy, in the spring of 2020 there was nothing more important than how the disease, and *especially* its attendant policy response, would unfold. One could have made the argument that for "transparency" the relevant policymakers (Anthony Fauci, Donald Trump, Andrew Cuomo, Ron DeSantis, etc.) should have each provided detailed quarterly forecasts for the number of COVID cases and the appropriate masking, lockdown, and school closures conditional on their forecast.

Such transparency would allow the citizenry to make informed long-term plans, such as where to live and whether to shutter a restaurant if cases begin to spike. But given the uncertainties, such "transparency" would have served primarily to undermine confidence in those who made them.[16]

COVID policymakers understood that you should not forecast what you cannot forecast. The empirical performance of the dots suggests that the FOMC cannot forecast, as does the fact that as late as 2021 the median dot suggested that there would be no rate hike until at least 2024. If somebody suggested that a company should have a monthly earnings call where it forecasts what its earnings were going to be month by month going forward, some might say that it was information, and it was transparency, and it would make for a more efficient capital market. But the UK recently had the opposite experience, in which it rolled back a newly introduced quarterly reporting mandate.[17]

Forward Guidance and Market Signals: The Hall of Mirrors Makes It Harder for the Fed to Predict the Economy

Markets have traditionally contained among the most reliable signals about future economic activity. This makes sense, as they reflect the collective judgments of millions of forward-looking investors, including many who are both highly expert and incented to be correct. The collective resources and wisdom in the financial markets dwarf those available to even the most competent central bank.

In particular, the yield-curve spread has been a particularly good, and closely followed, indicator. Estrella and Mishkin (1996) demonstrated that for predicting economic activity two or more quarters ahead (likely the time frame most relevant for central bank actions), the yield curve was a much more effective forecasting tool than any other indicator. Indeed, other studies (Rudebusch

and Williams 2008) found that the slope of the yield curve *by itself* outperforms the consensus of professional forecasters.

Before the era of Fed transparency, long rates largely reflected the market's independent judgment on economic prospects and appropriate future monetary policy. But now they largely reflect the information that the central banks (with much less collective expertise and resources) are spoon-feeding to markets. Numerous studies have found that markets react much less to economic news under forward guidance regimes (Ehrmann et al. 2019; Gaballo 2016). It would not be surprising if their information content suffered as a result, which could in turn reduce their critical abilities to forecast, in which case a worsened information set available to central banks would be a direct cost of forward guidance.[18]

In this context, it is interesting that the yield curve seems to have lost its previously impressive (and highly useful) forecasting ability. See figure 20.1.

Quantitative Easing and Fed Legitimacy

Central bankers and academics have begun to make quantitative easing a nearly standard tool, not just for ensuring market functioning, but also for stimulating aggregate demand at the zero lower bound by bringing down long-term interest rates.[19] In March 2020, the Federal Reserve announced a new asset purchase program to ease turmoil in the Treasury and mortgage-backed securities (MBS) markets due to the COVID-19 pandemic, a program commonly referred to as QE4. However, even after financial conditions were eased in April 2020, the Federal Reserve continued large-scale purchases of long-term Treasuries and MBS for more than a year, eventually beginning to taper purchases in November 2021.[20] In the absence of market turmoil, one can only conclude that post-April 2020, the goal of quantitative easing was to stimulate aggregate demand by bringing down long-term interest rates.

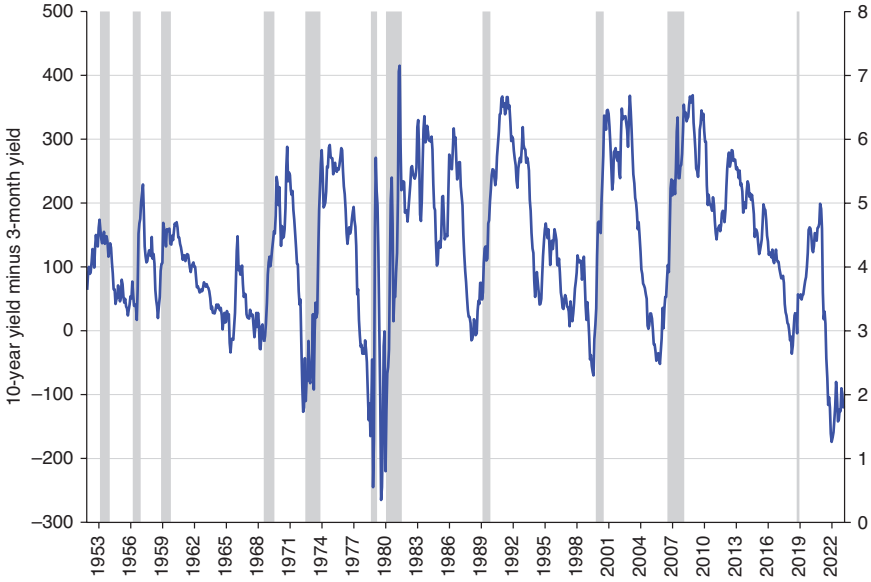

FIGURE 20.1. Yield curve slope and recessions.
Source: Federal Reserve selected interest rates, National Bureau of Economic Research.

It is a matter of significant debate as to how and why quantitative easing works. There are two primary channels through which QE is hypothesized to work: through a portfolio-rebalancing mechanism and through a precommitment mechanism.[21]

In the former mechanism, QE is hypothesized to bring down long-term interest rates simply through a supply-demand effect. As Bernanke (2020) described, if investors have sticky preferences for bonds of different maturities, reducing the amount of long-term debt in circulation will increase the relative price of long-term debt. The change therefore would be reflected in the term premium.

In the latter mechanism, QE is hypothesized to bring down long-term interest rates by precommitting the Fed to keeping interest rates low. Since rate increases would cause losses to the central bank's balance sheet, holding bonds on the Fed's balance sheet acts as a soft precommitment to avoid rate hikes until the

bonds have been sold off. Furthermore, the Fed has articulated that it is "inappropriate" for any rate hikes to occur while bond purchases are ongoing (Powell 2021). Since bond purchases can only be tapered off with a several-month lag, ongoing purchases essentially act as a hard precommitment to keep rates low for the short-term future (Eggertsson and Kohn 2023).

Quantitative easing has been employed twice: once in the aftermath of the Great Financial Crisis and once during the COVID pandemic. In the case of the GFC, Greenwood et al. (2014) found that the relative supply of long-term debt *increased* during the period of quantitative easing because the Treasury issued more long-term debt than was purchased by the Fed as part of its QE program. Therefore, any of the celebrated benefits of quantitative easing after the GFC could not have been because of portfolio rebalancing. In the case of COVID, Levin, Lu, and Nelson (2022) found that QE during the pandemic had no meaningful effect on term premia. Therefore, in both cases where it has been used, there is little empirical evidence to suggest that QE worked to reduce term premia and thereby bring down long-term interest rates.

Furthermore, even if the Fed were able to bring term premia down by decreasing the supply of long-term debt held by the public, it is unclear whether or not this would be something that the Fed should be able to do unilaterally. As Greenwood et al. (2014) pointed out, both the Fed and the Treasury have a vested interest in the maturity structure of the debt held by the US public. When the Fed engages in quantitative easing, it seeks to shorten the average maturity of publicly held debt in order to bring down long-term interest rates. At the same time, the Treasury often seeks to *lengthen* the average maturity of publicly held debt in order to reduce fiscal risk to the government. Without coordination between the two agencies, the Treasury and the Fed are effectively swapping securities between two government accounts, paying market makers a not-insignificant spread in the process.

In terms of the precommitment channel, there is the serious question of whether the Fed should be allowed to use fiscal risk to the government as a mechanism for showing its resolve. Precommitment via quantitative easing essentially works by transferring interest rate risk from the public to the government, thereby exposing the bank to serious fiscal risk if it changes policy by raising interest rates (Cavallo et al. 2019; Cecchetti and Hilscher 2024). However, once the bonds are on the Fed's balance sheet, moving them off is a slow and delicate process.[22] When changing policy direction is imperative, sometimes the Fed has to raise rates even before it has a chance to sell off all of the bonds. This was the case in 2022 when the Fed, already a year behind the inflation curve, rapidly raised rates even when it had a balance sheet of roughly $8.9 trillion (Board of Governors 2022). As a result, the costs to the government due to QE losses have been enormous. Levin, Lu, and Nelson (2022) estimated the total fiscal cost of QE4 to be $762 billion, with $641 billion of that loss attributable to bonds purchased after markets had stabilized in April 2020.[23] Across other developed economies, the fiscal costs of quantitative easing have been comparably large.[24]

Given the extent to which QE interferes with Treasury operations and imposes fiscal risk on the government's balance sheet, the Fed should avoid using quantitative easing except to enable smooth market functioning. When it does engage in bond purchases, the Fed should coordinate with the Treasury to come up with an integrated debt-management policy.

None of the previous issues we have raised diminish the argument for quantitative easing in the presence of dysfunction and illiquidity in bond markets. In this case, the central bank behaves as a market maker of last resort, purchasing bonds in dysfunctional markets in order to provide liquidity and reduce risk spreads, thereby calming investor panic (Tucker 2009; Levin, Lu, and Nelson 2022; Chen et al. 2020). QE purely to provide liquidity to stabilize dysfunctional bond markets has a clear connection to the Fed's mandate

of monetary stability, and the mechanism is more straightforward. Furthermore, as COVID has shown, the fiscal risks are much less. Less than 20% of the bond losses incurred as a result of QE4 were due to bonds that were purchased during market dysfunction (Levin, Lu, and Nelson 2022).

Press Conferences: The Antithesis of Measured Committee Communication

Following the practice of other central banks, the Fed began holding regularly scheduled postmeeting press conferences in 2011. Narain and Sangani (2023) demonstrated that press conferences have had a market impact comparable to the Fed's statement. In fact, Chairman Powell's press conferences have been more influential than the Fed statements and have had a directly opposite market impact (see figure 20.2).

This disproportionate (and muddled) market reaction is symptomatic of deeper flaws in the press conference. The Fed strives for clarity in communication. But off-the-cuff answers, under time and other pressures, to a series of random questions is not a recipe for clarity of thought or comprehensibility of communication. Even if the Fed chair could respond perfectly to every question under these circumstances, they would still be at the mercy of the questioners to get their point across.[25] And even if they are asked a question that they want to answer, who is to say that the market will correctly interpret that answer as being more important than any of the other ones? In these conditions, the press conference risks becoming a Rorschach test in which journalists and market participants project whatever they want to hear.

While the Fed chair has always been powerful, the FOMC is ultimately a committee. The press conference is from the chair alone, aggrandizing their power and reducing that of the rest. At each Fed meeting there is an extensive discussion of the Fed state-

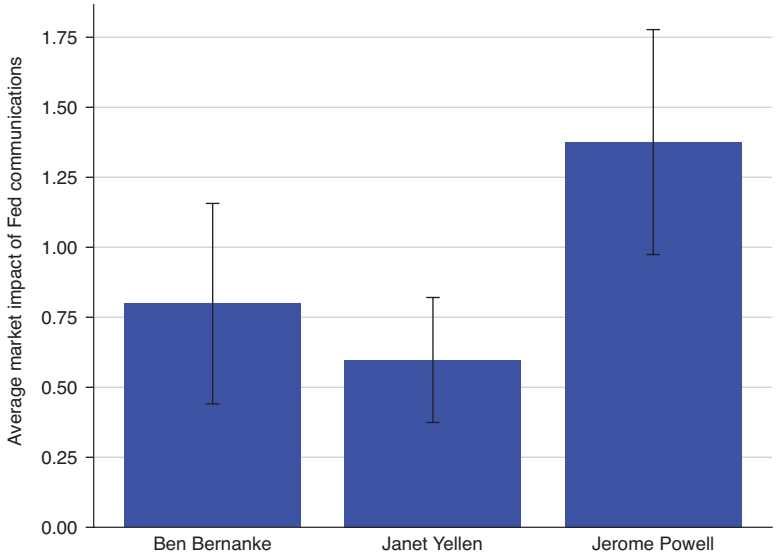

FIGURE 20.2. Average market impact of press conferences by three Federal Reserve chairs. The relative market impact of the press conference for each FOMC press conference date *t* is calculated as Relative Market Impact of Press Conference (*t*) = Volatility during Press Conference (*t*) / Volatility after FOMC Statement Release (*t*).

Source: Figure and caption partially reproduced from Narain and Sangani (2023), with permission.

ment. The staff prepare a set of possible statements for the meeting, and then each participant expresses their preferences in crafting a consensus statement. But no such process occurs for the press conference, which is now more influential to the market than the statement itself (Olson and Wessel 2016; Powell and Wessel 2020; Wessel and Boocker 2024).

As with the interest rate projections, the Fed publishes meeting transcripts with a five-year lag. In the available transcripts since press conferences began, there have been very few instances in which the chair had an extended discussion of what was planned for the press conference that approximated the normal procedure around a statement. The vast majority of discussion about press conferences revolved around whether a meeting was set to have a press

conference (and was therefore thought to be more "live") rather than the actual *content* of the press conference.

Rates Are Likely Higher for Longer

As detailed earlier, unconventional policies have significant drawbacks. As long as rates are comfortably away from the ZLB, unconventional policies are also unnecessary; the Fed can act by adjusting the short rate. Fortunately, that is likely to remain the case for the foreseeable future. There is a variety of evidence that suggests that the neutral rate may have moved upward considerably, from the prepandemic level of 2.5% (for the nominal rate) to perhaps the neighborhood of 4%. We detail the evidence below.

First, the economy's contractive reaction to the Fed's monetary tightening has been much weaker than would be expected if the neutral rate were still at prepandemic levels. As of this writing in August 2024, the fed funds rate is at 5.5%.[26] Despite the target range having risen by 5.25% in the most rapid and unanticipated manner of the last forty years, there is little evidence in the real economy that conditions are especially tight. GDP has continued at near-trend growth. Broader financial conditions are much more accommodative than would be expected given Fed actions. Financial conditions are now as loose as they were when the Fed first began to hike rates, despite the fact that the Fed has maintained the FFR at 5.5% (US Bureau of Economic Analysis 2024b). The market is also signaling that real interest rates have risen (figure 20.3).

Second, several macroeconomic variables have fundamentally shifted in a way that would tend to push the neutral rate upward. Previous studies have shown that higher levels of government borrowing tend to increase the neutral interest rate.[27] The budget deficit is higher than it has ever been outside of war or recession and is projected to stay that way (figure 20.4). This puts upward pressure on rates. Studies have also attributed the long-run decline

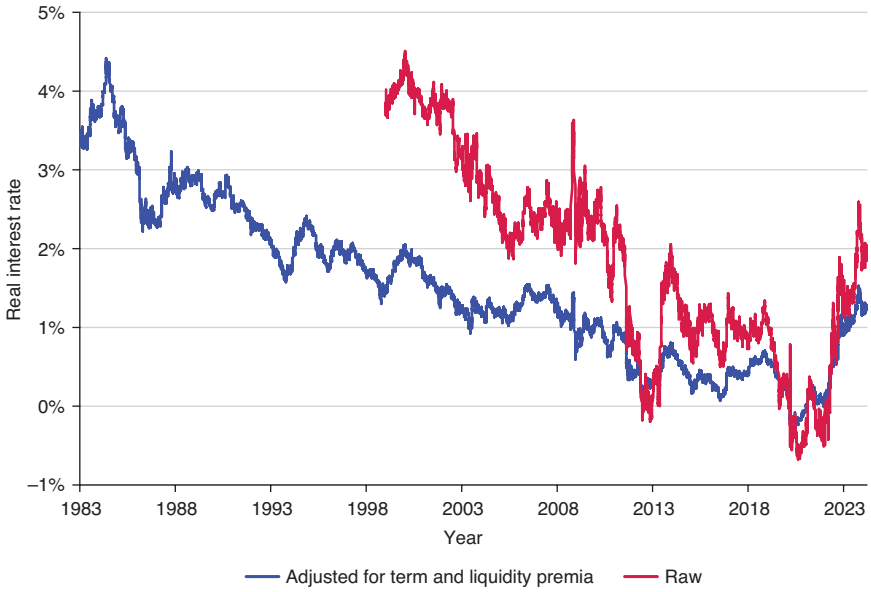

FIGURE 20.3. The five-year and five-year-forward real interest rates from 1983 to late 2023.
Source: D'Amico, Kim, and Wei (2008).

of neutral rates to aging demographics.[28] Now, immigration may be increasing, reversing some of the demographic-related decline to the neutral rate.

Before the pandemic, the United States had excessive savings and insufficient investment, a dynamic that caused neutral rates to reach historic lows (Summers 2016). Now, new investments in artificial intelligence (AI), the energy transition, and climate adaptation suggest that savings and investment may be coming more into balance. AI is adding meaningfully to investment. As shown in table 20.4, capital expenditures from just the four largest data center operators is expected to grow by $52 billion in 2024. That would represent 37% growth. The green energy transition will also soak up investment funds. Treasury Secretary Janet Yellen has said there is over $3 trillion a year in investment opportunities from green energy (Yellen 2023). This may be on the conservative end of the spectrum as the

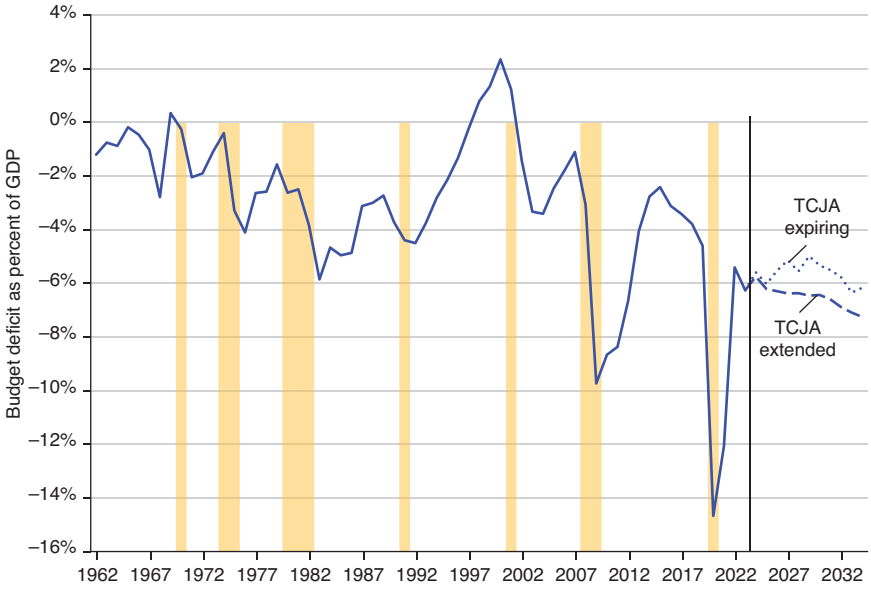

FIGURE 20.4. Budget deficits at historic highs. The dashed line represents deficit projections assuming that the tax cuts from the Tax Cuts and Jobs Act (TCJA) are extended in 2025; the dotted line represents deficit projections assuming that the tax cuts are allowed to expire.

Source: Congressional Budget Office and Penn-Wharton Budget Model.

International Energy Agency, UN, and BloombergNEF all forecast investments of between $4 and $6 trillion a year (BloombergNEF 2021; International Energy Agency 2021; United Nations n.d.). By way of comparison, the International Monetary Fund estimates that total global investment *on everything* will be $29 trillion (International Monetary Fund 2024).

Therefore, both the economy's reaction to the Fed's monetary tightening and shifts in macroeconomic fundamentals suggest that the neutral nominal rate has likely moved upward. For instance, reasonable estimates of the slope of the IS curve suggest that an increase in the deficit equivalent to 3% of GDP may add 1.5% to the real interest rate by itself.[29] If this is the case, it means that

TABLE 20.4. Capital expenditures at major data center owners (in billions of dollars).

	Historical				Forecast	
	2020	2021	2022	2023	2024	2025
Amazon	40	61	64	53	63	68
Google	22	25	31	32	48	50
Meta	15	19	31	27	37	41
Microsoft	15	21	24	28	44	51
Total	93	125	150	140	192	210

Source: Bloomberg LP.

the zero lower bound is much less likely to bind policy and that conventional policy will likely be sufficient to provide monetary accommodation in the future.

Conclusion

Based on the evidence, we argue that many elements in the new Fed toolkit of unconventional policies, most of which were implemented in the wake of the Great Financial Crisis, have important downsides. In particular, more deliberative transparency is not necessarily better. The Fed's embrace of them was largely born out of necessity. At the zero lower bound, the Fed was out of options to improve economic outcomes. While these practices became ingrained, the Fed should nevertheless potentially scale them back in the context of its upcoming regularly scheduled framework review.

For a variety of reasons, the neutral policy rate is now likely much higher than it was before COVID, suggesting that the zero lower bound is less likely to bind. The economy has undergone a massive reconfiguration whose ramifications we are now only beginning to understand. Given the amount of uncertainty and rapid pace of change in economic fundamentals, policymakers would do well to be more nimble and humble.

References

Abelson, Robert P., and Deborah A. Prentice. 1989. "Beliefs as Possessions: A Functional Perspective." In *Attitude Structure and Function*, edited by Anthony R. Pratkanis, Steven J. Breckler, and Anthony G. Greenwald, 361–81. New York: Psychology Press.

Bank of England. 2023. "Asset Purchase Facility Annual Report 2022/23, 1 March 2022–28 February 2023." July 6.

Bernanke, Ben S. 1990. "On the Predictive Power of Interest Rates and Interest Rate Spreads." *New England Economic Review* (November–December): 51–68.

———. 2003. Remarks by Governor Ben S. Bernanke at the 28th Annual Policy Conference: Inflation Targeting: Prospects and Problems. Federal Reserve Bank of St. Louis, October 17.

———. 2014. "A Conversation: The Fed Yesterday, Today and Tomorrow." A discussion with Federal Reserve Chairman Ben Bernanke on the Fed's 100th anniversary. Brookings Institution, January 16.

———. 2020. "The New Tools of Monetary Policy." *American Economic Review* 110, no. 4: 943–83.

———. 2024. "Forecasting for Monetary Policy Making and Communication at the Bank of England: A Review." Bank of England, April 12.

Blanchard, Olivier, Alex Domash, and Lawrence H. Summers. 2022. "Bad News for the Fed from the Beveridge Space." *SSRN Electronic Journal,* Peterson Institute for International Economics, July 13.

BloombergNEF. 2021. "Getting on Track for Net-Zero by 2050 Will Require Rapid Scaling of Investment in the Energy Transition over the Next Ten Years." July 21.

Board of Governors of the Federal Reserve System (Board of Governors). 2012. "Federal Reserve Issues FOMC Statement." Press release, January 25.

———. 2022. "Federal Reserve Balance Sheet Developments." November.

Born, Benjamin, Michael Ehrmann, and Marcel Fratzscher. 2014. "Central Bank Communication on Financial Stability." *Economic Journal* (London) 124, no. 577: 701–34.

Bradsher, Keith. 1995. "Intervention No Help as Dollar Sinks Again." *New York Times,* March 4, 1995, 33.

Campbell, Jeffrey R., Jonas D. M. Fisher, Alejandro Justiniano, and Leonardo Melosi. 2017. "Forward Guidance and Macroeconomic Outcomes since the Financial Crisis." *NBER Macroeconomics Annual* 31, no. 1: 283–357.

Cavallo, Michele, Marco Del Negro, W. Scott Frame, Jamie Grasing, Benjamin A. Malin, and Carlo Rosa. 2019. "Fiscal Implications of the Federal Reserve's Balance Sheet Normalization." *International Journal of Central Banking* (December).

Cecchetti, Stephen G., and Jens Hilscher. 2024. "Fiscal Consequences of Central Bank Losses." National Bureau of Economic Research Working Paper No. 32478, May.

Chadha, Jagjit, and William Allen. 2023. "The Ongoing Costs of Quantitative Easing." National Institute of Economic and Social Research, July 20.

Chen, Jiakai, Haoyang Liu, Asani Sarkar, and Zhaogang Song. 2020. "Dealers and the Dealer of Last Resort: Evidence from MBS Markets in the COVID-19 Crisis." Federal Reserve Bank of New York Staff Reports, no. 933, July 2020, revised February 2024.

Clarida, Richard H. 2022. "The Federal Reserve's New Framework: Context and Consequences." Board of Governors of the Federal Reserve System, January.

D'Amico, Stefania, Don Kim, and Min Wei. 2008. "Tips from TIPS: The Informational Content of Treasury Inflation-Protected Security Prices." BIS Working Paper No. 248, Bank for International Settlements, March 3. Updated by Kim, Don, Cait Walsh, and Min Wei. 2019. "Tips from TIPS: Update and Discussions." Board of Governors of the Federal Reserve System, May 21, https://www.federalreserve.gov/econres/notes/feds-notes/DKW_updates.csv.

Draghi, Mario. 2012. Verbatim of the remarks made by Mario Draghi at the Global Investment Conference in London. European Central Bank, July 26.

Eggertsson, Gauti B., and Donald Kohn. 2023. "The Inflation Surge of the 2020s: The Role of Monetary Policy." Brookings Institution, July 25.

Ehrmann, Michael, Gaetano Gaballo, Peter Hoffmann, and Georg Strasser. 2019. "Can More Public Information Raise Uncertainty? The International Evidence on Forward Guidance." *Journal of Monetary Economics* 108 (December): 93–112.

Estrella, Arturo, and Frederic S. Mishkin. 1996. "Predicting U.S. Recessions: Financial Variables as Leading Indicators." Federal Reserve Bank of New York, Research Paper No. 9609, May.

Faust, Jon. 2016. "Oh What a Tangled Web We Weave: Monetary Policy Transparency in Divisive Times." Hutchins Center Working Paper No. 25, November.

Federal Open Market Committee. 1995. FOMC Meeting Transcript, February 1.

———. 2003. FOMC Meeting Transcript, September 15.

———. 2005. FOMC Meeting Transcript, February 2.

———. 2012. FOMC Meeting Transcript, December 11–12.

———. 2018a. FOMC Summary of Economic Projections, December 18.

———. 2018b. Key for SEP Individual Projections, December 18.
———. 2020. Federal Reserve Press Release, September 16.
———. 2021. Summary of Economic Projections, March 17.
Gaballo, Gaetano. 2016. "Rational Inattention to News: The Perils of Forward Guidance." *American Economic Journal: Macroeconomics* 8, no. 1: 42–97.
Geraats, Petra M. 2007. "The Mystique of Central Bank Speak." *International Journal of Central Banking* 3, no. 1.
Greenwood, Robin, Samuel G. Hanson, Joshua S. Rudolph, and Lawrence H. Summers. 2014. "Government Debt Management at the Zero Lower Bound." Hutchins Center on Fiscal & Monetary Policy at Brookings, Working Paper No. 5, September 30.
Gürkaynak, Refet S., Brian Sack, and Eric T. Swanson. 2004. "Do Actions Speak Louder Than Words? The Response of Asset Prices to Monetary Policy Actions and Statements." Federal Reserve Board, Finance and Economics Discussion Series, November 1.
Hall, Robert E., and Marianna Kudlyak. 2023. "The Active Role of the Natural Rate of Unemployment." Federal Reserve Bank of San Francisco, Working Paper Series, 2023–33, November 29.
International Energy Agency. 2021. "Net Zero by 2050: A Roadmap for the Global Energy Sector." May 18.
International Monetary Fund. 2024. World Economic Outlook Database. Retrieved August 6, 2024, from April database.
Janson, Wesley, and Chengcheng Jia. 2020. "Forward Guidance during the Pandemic: Has It Changed the Public's Expectations?" Economic Commentary, Federal Reserve Bank of Cleveland, December 1.
Kohn, Donald. 2022. "Assessing the Federal Reserve's New Monetary Policy Framework." Brookings Institution, March 15.
Kraft, Arthur G., Rahul Vashishtha, and Mohan Venkatachalam. 2018. "Frequent Financial Reporting and Managerial Myopia." *Accounting Review* 93, no. 2: 249–75.
Levin, Andrew T., Brian L. Lu, and William R. Nelson. 2022. "Quantifying the Costs and Benefits of Quantitative Easing." National Bureau of Economic Research Working Paper No. 30749, December.
Litovsky, Yana, George Loewenstein, Samantha Horn, and Christopher Y. Olivola. 2022. "Loss Aversion, the Endowment Effect, and Gain-Loss Framing Shape Preferences for Noninstrumental Information." *Proceedings of the National Academy of Sciences* 119, no. 34 (August 16).

Mankiw, N. Gregory. 2006. "The Macroeconomist as Scientist and Engineer." *Journal of Economic Perspectives* 20, no. 4: 29–46.

Milstein, Eric, Tyler Powell, and David Wessel. 2021. "What Does the Federal Reserve Mean When It Talks about Tapering?" Brookings Institution, July 15.

Narain, Namrata, and Kunal Sangani. 2023. "The Market Impact of Fed Communications: The Role of the Press Conference." *SSRN Electronic Journal*, February 10.

Olson, Peter, and David Wessel. 2016. "Federal Reserve Communications: Survey Results." Hutchins Center on Fiscal & Monetary Policy at Brookings, November.

Papetti, Andrea. 2021. "Demographics and the Natural Real Interest Rate: Historical and Projected Paths for the Euro Area." *Journal of Economic Dynamics and Control* 132 (November).

Powell, Jerome. 2021. "Transcript of Chair Powell's Press Conference, December 15, 2021." Federal Reserve Board.

Powell, Tyler, and David Wessel. 2020. "Federal Reserve Communications: Survey Results." Hutchins Center on Fiscal & Monetary Policy at Brookings, November.

Rachel, Łukasz, and Lawrence H. Summers. 2019. "On Secular Stagnation in the Industrialized World." Brookings Papers on Economic Activity.

Reifschneider, David L., and John C. Williams. 1999. "Three Lessons for Monetary Policy in a Low Inflation Era." Board of Governors of the Federal Reserve System, September.

Rudebusch, Glenn D., and John C. Williams. 2008. "Forecasting Recessions: The Puzzle of the Enduring Power of the Yield Curve." Federal Reserve Bank of San Francisco, Working Paper 2007–16, July.

Summers, Lawrence. 1991. "How Should Long-Term Monetary Policy Be Determined?" *Journal of Money, Credit and Banking* 23, no. 3 (August): 625–31.

———. 2016. "The Age of Secular Stagnation." *Foreign Affairs* 95, no. 2 (February 15).

———. 2021. "The Biden Stimulus Is Admirably Ambitious. But It Brings Some Big Risks, Too." *Washington Post*, February 4, 2021.

Sunstein, Cass R. 2023. "Knightian Uncertainty." SSRN, December 12.

Tucker, Paul. 2009. "The Repertoire of Official Sector Interventions in the Financial System: Last Resort Lending, Market-Making, and Capital." Remarks at the Bank of Japan 2009 International Conference "Financial System and Monetary Policy: Implementation," May 27–28.

Tyson, Alec, and Cary Funk. 2022. "Increasing Public Criticism, Confusion over COVID-19 Response in U.S." Pew Research Center, February 9.

United Nations. n.d. "Renewable Energy—Powering a Safer Future." Retrieved August 6, 2024, from https://www.un.org/en/climatechange/raising-ambition/renewable-energy.

US Bureau of Economic Analysis. 2024a. "Personal Consumption Expenditures: Chain-Type Price Index." Federal Reserve Bank of St. Louis, July 26.

———. 2024b. "Chicago Fed National Financial Conditions Index." Federal Reserve Bank of St. Louis, July 31.

———. 2024c. "Federal Funds Effective Rate." Federal Reserve Bank of St. Louis, August 1.

Vissing-Jorgensen, Annette. 2020. "Informal Central Bank Communication." National Bureau of Economic Research Working Paper No. 28276, December.

Wells, Matthew. 2024. "The Origins of the 2 Percent Inflation Target." Federal Reserve Bank of Richmond, *Econ Focus*, First/Second Quarter.

Wessel, David. 2024. "Could the Fed Replace the Dot Plot with Scenarios?" Brookings Institution, August 1.

Wessel, David, and Sam Boocker. 2024. "Federal Reserve Communications: Survey Results." Hutchins Center on Fiscal & Monetary Policy at Brookings, May.

Yellen, Janet L. 2023. "Remarks by Secretary of the Treasury Janet L. Yellen in New York, New York on Treasury's Principles for Net-Zero Financing & Investment." US Department of the Treasury, September 19.

Notes

1. Academics, in particular, benefit the most from transparency and are its biggest proponents. A survey conducted by Olson and Wessel (2016) found that academics had strongly more positive views about Fed communications' impact on the economy than private sector analysts. See also Wessel and Boocker (2024) and Powell and Wessel (2020).
2. See Sunstein (2023) for a discussion of unquantifiable (Knightian) uncertainty.
3. As early as 1991, one of the authors of this paper (Summers 1991) posited that 2% might be a good target inflation rate given his then-current guesstimate on nominal wage rigidities. It would be peculiar if that estimate turned out to be continually optimal over a four-decade span across a panoply of economically disparate countries employing varying

inflation-measurement methodologies. Don Kohn explained Greenspan's aversion to specific targets thus: "If you make 2 percent public, and you're running at 2.5 percent, then the question is, 'why aren't you creating unemployment to get to 2 percent?' That's not a position anyone really wanted to be in" (Wells 2024).

4. In discussing the optimal long-term inflation rate (OLIR), Bernanke (2003) explained that "in practice papers in this literature estimate the OLIR to be the lowest inflation rate for which the risk of the funds rate hitting the lower bound appears to be 'acceptably small.'"
5. See Clarida (2022) and Kohn (2022) for a discussion of the ways in which the perceived shortcomings of unconventional policy at the ZLB were instrumental in the Fed adopting the flexible average inflation targeting (FAIT) policy. This policy change was an example of learning in the context of precommitment, but with such long lags that it was counterproductive. It took several years to update the framework, and by the time it was done (in the throes of the COVID pandemic), the new framework was already stale.
6. Part of the overshoot can also be explained by the fact that this action was taken shortly after the release of the Fed's new flexible average inflation targeting policy. The rationale for targeting above 2% was that since inflation had been running below 2% for quite some time, by achieving above-2% inflation, the inflation rate would be on average close to 2% over a longer period of time. Dallas Federal Reserve President Robert Kaplan dissented at the meeting because he "prefer[red] that the Committee retain greater policy rate flexibility" (Eggertsson and Kohn 2023).
7. FOMC transcripts indicate that precommitment had been considered and repeatedly voted down as early as 1994.
8. When inflation was above 2% from August 2011 through March 2012, the Fed continued to extend its commitment to low rates, which suggests that it would have probably kept rates low even without any precommitment.
9. For this example and the next, see Eggertsson and Kohn (2023).
10. The accelerating nature of inflation was particularly problematic. Whereas before it was thought that the Fed could tolerate a moderate but controlled overshoot of inflation (which might occur as a result of precommitment), in 2021 it became clear that inflation might rapidly accelerate out of control.
11. As shown in Bernanke's (2024) review of the Bank of England forecasting system, building proper forecasting models is very hard and requires frequent updates and iterations.

12. The "prisoner's dilemma" is the best-known problem in game theory in which two actors will both be better off if they cooperate but have no way to enforce such coordination and face important incentives to not cooperate.
13. See Wessel (2024) for a recent thorough review of the discussion on scenario analysis.
14. Data for 2012–14 is not available on the Fed's website and is consequently not included in this analysis.
15. For examples, see Federal Open Market Committee (2018a and 2018b). The participant numbers change from meeting to meeting. For example, Robert Kaplan was participant no. 2 in the prior meeting and no. 9 in this meeting.
16. Even with their more judicious use of forecasting, COVID policymakers saw a notable decrease in public support due to the perception that their shifting recommendations were evidence of ignorance or incompetence. The Pew Research Center found that confidence in public health officials declined from 79% to 50% over the course of the pandemic and attributed the decline largely to the confusion over shifting recommendations (Tyson and Funk 2022).
17. See Kraft, Vashishtha, and Venkatachalam (2018) for a discussion of how the transition to quarterly reporting may have induced short-termism and reduced investment in the United States.
18. See Bernanke (1990) for an early analysis of how the informational content of credit spreads may vary based on changes in the manner of Fed action as well as shifts in financial market structure.
19. This section draws heavily from arguments made previously by one of the authors in Greenwood et al. (2014) and expands upon them. The viewpoint in favor of quantitative easing is most explicitly articulated by Bernanke (2020): "I argue that the new tools [quantitative easing and forward guidance] have proven effective at easing financial conditions when policy rates are constrained by the lower bound, even when financial markets are functioning normally, and that they can be made even more effective in the future. Accordingly, the new tools should become part of the standard central bank toolkit."
20. See Levin, Lu, and Nelson (2022) for a comprehensive history of the Fed's asset purchase program under COVID.
21. We base the following definitions of the two mechanisms on Bernanke's (2020) elaborate explanation of the theory behind both mechanisms.

22. The taper tantrum of 2013 is the quintessential example of quantitative easing making it difficult to change course (Milstein, Powell, and Wessel 2021).
23. Bernanke (2020) noted that Federal Reserve remittances tripled after the GFC to a cumulative $800 billion over a decade. Interest rate risk is not a one-way bet, and QE may be profitable over the long term given the normal upward slope to the yield curve. Regardless, risk of (potentially large) losses is a drawback.
24. According to the Bank of England, the Asset Purchase Facility marked a loss of 169.1 billion pounds for the year ended in February 2023 (Bank of England 2023; Chadha and Allen 2023). Cecchetti and Hilscher (2024) found that the Swiss National Bank experienced losses of up to 17% of GDP, while losses in the European Central Bank were relatively modest (less than 0.4% of GDP).
25. As Bernanke noted in the December 12, 2012, meeting: "Most of the press conference is Q&A, and so the questions that come will determine what I have an opportunity to say" (Federal Open Market Committee 2012).
26. The Fed has signaled that a rate cut is likely in September, and markets are assigning an overwhelming probability to it as well as further reductions.
27. See Rachel and Summers (2019) and the studies referenced therein.
28. See Papetti (2021) for a discussion of some of the hypothesized channels through which aging demographics bring down neutral rates.
29. The IS curve is part of the IS-LM model (IS and LM stand for Investment-Savings and Liquidity-Money, respectively). The IS curve is generally represented as downward sloping and represents the inverse relationship between interest rates and aggregate income/output when savings and investment are in balance. Changes in deficit spending shift the IS curve to the right, which raises the equilibrium neutral interest rate, which is required for economic output to match potential. For background on the IS-LM model, see Mankiw (2006) and references therein. For estimates of the effect of government deficits on neutral rates, see Rachel and Summers (2019) and the studies referenced therein.

GENERAL DISCUSSION

JOHN COCHRANE: Let's get some questions.

DAVID PAPELL: I want to take issue with the view that FAIT [flexible average inflation targeting] was an important part of the increase in inflation. If you look at the time of the March 2021 FOMC [Federal Open Market Committee] meeting, annual core PCE [personal consumption expenditure] inflation was 1.7% and the forecast for the end of 2021 was 2%. FAIT was clearly important at that point. By the June 2021 FOMC meeting, annual core PCE inflation was 3.5% and the forecast for the end of 2021 was 3%. FAIT became irrelevant, and it has stayed irrelevant. When people write about when the Fed started to fall behind the curve, including my work with Ruxandra Prodan-Boul, it's usually starting in September of 2021. So I don't see where FAIT had anything to do with the rise of inflation.

PATRICK KEHOE: For Jón Steinsson. You had some interesting pictures, and so did Emi [Nakamura], about inflation in goods versus services, but at one point you seemed to say that when setting monetary policy the Fed should have targeted inflation in goods differently than inflation in services. My question is: how would the Fed be able to differentially affect the inflation rate in goods relative to that in services?

SEBASTIAN EDWARDS: Thank you. I know that this is a panel on the Fed, but I want to ask the panel, what about the dollar and, in particular, the dollar-yen rate? It's astounding. The only similar exchange rate that has experienced such wide changes is the Mexican peso–dollar rate (which moved in the opposite direction). So let me ask this: Is there anything about the global economy, in particular exchange rates, that bothers you or that the Fed

should consider when rethinking its strategy? I think this is important since we are talking today about global monetary policy going back on track.

ROBERT HALL: First of all, I deny that I'm the hypothetical economist that Larry [Summers] mentioned. Anyway, seriously, let's take Larry's point and look at it carefully. Hypothetically, if the unemployment rate is 10%, some disaster comparable to what happened in 2009 has caused major, major dislocation of the economy—comparable to what a war does. Our claim is that there's only one way to get out of that jump in unemployment, namely, a patient rebuilding of the economy. That's the hypothesis. If the unemployment rate suddenly for no reason and no disaster jumped by 10%, then obviously this wouldn't apply. So I recognize the debating value of Larry's point. As usual, he went directly to a potential weak point. But I think it's plausible that a real-world recession raises the natural rate of unemployment temporarily by a substantial amount.

MICHAEL BORDO: I just have a quick question for Jón Steinsson. I like the plucking model, and I worked with it in the past with Joseph Haubrich. How do you square a plucking model with preemptive monetary policy? I'd like to understand how that works.

JAMES BULLARD: Thank you. Jim Bullard. So in his role of provocateur, Larry Summers has suggested two outrageous things here, which I want to correct. One is to get rid of the 2% target. So, it's become an international standard to have the 2% target all around the world—wildly successful. I think if the leading economy dropped the target, you'd cause chaos around the world. You'd be back to the 1970s. So I do not think dropping the numerical target is a good idea.

And on the cacophony issue, sorry, I don't think you can stop what's happened with global monetary policy. Most of the people that are talking are not the members of the committee but are major investment houses and others that are talking, and

many in this room that are talking, and former policymakers in this room, including me, that are talking sort of on a twenty-four-hour-a-day, 365-day-a-year debate about American monetary policy. To pull the policymakers out of that would be worse, I think, because you want the actual policymakers to be talking about what the policy actually is as opposed to everyone else speculating about what the policy actually is.

So I think it's good to have the big committee and also for the ECB [European Central Bank] to have a big committee and to be having the policymakers sort of fighting back or releasing the tension that's being driven by private sector commentary on what monetary policy should be doing or is doing.

ANDREW FILARDO: Regarding the upcoming Federal Reserve policy review, I wonder if there should be a meaningful discussion about negative-policy interest rates. Various central banks around the world have allowed their policy rates to become negative as a way to achieve their monetary policy goals. The Federal Reserve has balked at this approach and has preferred an alternative strategy of "low for long." However, there is a growing consensus that "low for long" creates powerful economic and financial distortions, especially in the way homeowners, investors, and financial markets react. In contrast, a sharper decline in policy interest rates consistent with a Taylor rule prescription (unconstrained by zero bound) and a subsequent sharper policy rate reversal may prove less distortionary. So, is it time for the Fed to reconsider adding negative policy rates into its conventional policy toolkit?

STEVEN DAVIS: Back to Larry Summers's comments, two points. One, presumably there's an intermediate possibility, which is even if you keep a 2% target, you don't make numerically precise projections. That's what I understand to be part of your argument, but I would like to hear your vision of what it means if we move toward your approach with more humility, more focus

on main objectives without being too precise about it, too much talking about it all the time. I'd like to hear your ideas about how we could facilitate an efficient evaluation of monetary policy performance under that type of approach. If the Fed does not offer precise guidance, it seems harder to assess performance. I don't want to go through another 1970s, where it takes a long time to have a course correction in terms of popular perceptions, popular desire to fight inflation, and to have the right person in the Fed. So, I'd just like to hear your thoughts on that.

VOLKER WIELAND: Thank you. Volker Wieland, Goethe University in Frankfurt. Just one quick question on the shortfalls idea, I mean, the policy rules with the shortfalls element. It seems to me that introduces an inflation bias. If you simulate a macro model with symmetric shocks and, on average, the central bank only responds to shortfalls of employment, an average inflation bias results from that policy. There was work by Alex Cukierman years ago showing this result with asymmetric output gap targets in the policy rule. Surely the Fed must have looked at that. Why would they want such an inflation bias?

ROBERT KING: I want to take the bait on something that Larry Summers said about central bank communication, and in particular I want to envision, as he did, going back to the 1990s. The Greenspan FOMC was notable in that it had systematic discussions about what the long-run goal for US inflation ought to be that involved presentations by Al Broaddus and Janet Yellen. They reasoned out that they could live with something that was like 2%, and then some of the many FOMC members talking at the time brought that 2% to the public, even though Alan Greenspan advised against it. Another feature of that period was that the Taylor rule became a reference point within the committee for thinking about the appropriate setting of monetary policy and the responses to various kinds of events.

The third thing was that during the 2000s, Greenspan began to signal the path of interest rates to the financial markets. And if one looks at the behavior of fed funds futures and Eurodollar futures, it is very clear that after the early 2000s, the markets sort of tuned in to what the Greenspan Fed was communicating. If you plot the financial futures, the outcomes are stunningly similar to the events that ultimately transpired, particularly during the tightening cycle in 2005, et cetera.

So, Larry, which of those things do you want to walk away from? Do you want to walk away from the idea that the central bank ought to have an internal goal? Do you want the staff not to produce Taylor rule calculations and use those as a focal point for some of the internal discussions? And do you want to stop talking to the markets so that the markets won't have expectations over the coming two years about the path of short-term interest rates?

COCHRANE: That's all we have time for. Can we have some brief responses from the panel?

ATHANASIOS ORPHANIDES: Thanks. So, I will address a couple of the questions that came up. I actually agree with Jón. We need to be forward-looking in policy, but this is meant to capture the Fed staff's ability to do excellent nowcasting and short-term forecasting. So, identifying these trends like one quarter ahead, it is much better to respond to that than waiting for the historical data released with lag. Being a little bit forward-looking actually can go a long way towards improving policy. But we also need to be robust. So we should not be guiding policy, as Larry pointed out, by stars that we don't know what they are. This is the whole point of running robustness exercises, so that we can have a benchmark rule that would be more robust than otherwise.

And I want to say something about the 2% target, the adoption by the Fed of the 2%, precise definition of price stability. In my view, this has been the most important improvement in

the Fed's strategy in the last half century. And I agree with Jim Bullard, it would be a terrible mistake to move away from that. And I think that overall, after that adoption and until the pandemic, the Fed had done a wonderful job. I mean, the fact that we were complaining about the Fed missing inflation by two or three tenths of a percent before the pandemic, I agree with the interpretation that that was a sign that the policy was pretty good. What I would have wanted is a strategy that actually makes that robust going forward. I would have wanted a strategy that would not allow the errors that happened later on with the forward guidance that was highlighted by many of us, and so forth.

CHARLES PLOSSER: I just want to emphasize a couple of points. I think that one of the things that concerned me most about the FAIT regime was the asymmetry. If the Fed had adopted a straight price-level target, I might have supported that had it been symmetric. But what they did was lay out a complex strategy that depended on the Fed's ability to manage time-varying inflation expectations only after shortfalls. In the short run or intermediate term, they wanted higher than 2% inflation, and that had to be credible or it wasn't going to help solve the zero lower bound problem, but there was no specificity about how that would be conducted.

Moreover, they made clear that they were not going to deliberately offset overshoots of inflation. Yet they declared that they still wanted average inflation to be 2%. Well, if you only offset undershoots, you cannot achieve an average of 2%. So, what did [Jerome] Powell say? Oh, we're "not going to be hung up on a mathematical definition of average." We are going to be "flexible." Thus there was no coherent price-level target or inflation target commitment offered—everything became vague and discretionary. Even in the best of cases, such a regime would result in the price level drifting up at an undetermined rate above 2%. They made no commitment to anything in particular. And I think that damaged their own credibility and commitment to the price-stability mandate.

In addition, as Larry said, and as Mickey [Levy] said, the Fed is not capable of managing expectations as if it were an independent tool of monetary policy. They can only manage it with their commitments to take policy actions in the process. And so I think that has been a, I don't want to say a false flag, a false dream that many people have relied on, and I think it's misguided.

So I very much agree with many of Larry's points. I think the Fed needs to step back. We need some more humility about what we are able to accomplish and more understanding of what the mechanisms are that allow that to happen. As Mickey and I said in our paper, inflation dynamics as we currently understand them are adrift. We don't know a lot about them. So what we need is good policies, committed policies that are robust, are supported by empirical evidence, and resist trying to fine-tune things in a way for which we are unable to be successful. And so that's why we say we need to take a step back, exercise a little humility, look for robust guidelines, and stick to them, and focus attention on objectives that we can actually achieve.

COCHRANE: Mickey, briefly?

MICKEY LEVY: Yeah, just two quick points. David [Papell], in the first half of 2021, while the Fed was attributing inflation to supply shocks and distribution problems, nominal GDP, the broadest measure of aggregate demand, was accelerating at its fastest pace in modern US history. That was a key source of the excess demand, along with supply constraints. Instead of focusing on trying to push down service prices, an option that Jón proposed to offset goods inflation, the Fed should focus on what it's most capable of, which is managing aggregate demand.

Second point in response to Sebastian. As Larry said, strong growth, and also a pickup in productivity, has lifted potential growth in the US significantly higher than in Europe, Japan, and other advanced nations. The higher returns on capital associated with the stronger real growth raises the real rate of interest and

exchange. Thus, US real interest rates are higher than in other advanced nations, and the dollar is strong. The Mexican peso has been outperforming the US dollar, reflecting its tremendous capital inflows and high expected rates of return on peso-denominated assets. That's all positive.

JÓN STEINSSON: Michael asked about plucking and preemptive tightening. Volker Wieland asked a related question about shortfalls and biases. The plucking model, or the plucking view of the world, is a nonlinear world. We're much more comfortable with linear frameworks, and operating in linear frameworks is simpler in certain ways. Operating in a nonlinear framework is more complicated. For example, the policy has to be nonlinear. And it's true that preemptive tightening is going to be more complicated to think about in a nonlinear world. You don't know where the kink is. So, you don't know exactly when you want to do the preemptive tightening. That's tough about living in a nonlinear world. But it doesn't mean that the principle of conducting preemptive tightenings isn't still a valid thing you need to be thinking about. It's just very hard to know when you should do it. If the world really is nonlinear, it's harder to perform policy. But I still think the principle applies.

There's been a lot of criticism of forward guidance on the panel. I'm a big proponent of forward guidance. In this context, I want to bring us back to the hair plot that Emi showed us in the last panel. One of the things that was very striking in that figure is that the market never had a clue what the Fed was doing. The Fed was in the middle of a major easing cycle, like in 2001, and the market couldn't forecast even one more easing. Or in 2008, in the middle of 2008, the world is collapsing and the market is not forecasting one more easing. So the market doesn't have a clue what is going on until the Fed starts doing forward guidance. Then, finally, the market can tell since the Fed is telling them what they expect they're going to do. This allows

the market to tell what is going to happen a little bit better. Not perfectly. Sometimes this guidance turns out to be wrong, and sometimes the Fed gets itself into a corner and is boxed in for a while, but at least it can transmit interest rate expectations into longer-term interest rates. And if the Fed wants to operate on the thirty-year mortgage rate and bank lending rates at five or ten years, this is a really valuable thing to do. And I think that's what forward guidance is about and why it's important.

I very much agree with Jim Bullard on the cacophony. I also agree with Athanasios on the basic fact that monetary policy has been spectacularly successful in a historical perspective over the last thirty-five years. So we don't want to break something that doesn't need fixing. Things are pretty good, in terms of monetary policy, if you take a historical perspective. And so I'm not really sure we should do something super-radical.

LAWRENCE SUMMERS: Bob [Hall], I think you misunderstood me. You might well be right, in your view. A good chance you are right, in my view. My point is the fact that you have your view and that it is so different from many standard views is a reminder that we all need to be humble about our understanding of the economy. And my intent was not to criticize your view.

The dollar is an interesting phenomenon. I think the least-remarked-on thing about the global economy that is really important to me is if you look at the fraction of stock market value that is made up of US companies, it is stunningly high relative to anything that anyone would have expected ten or twenty years ago. And that phenomenon and the strength of the dollar I suspect are very strongly related.

Plucking, I'll leave it to Jón to do it. I am sure that you can make a case that just because excess demand creating excess output is not the right way to think about excess demand, it is still a good idea to preempt excess demand, especially if you believe it will all go into inflation rather than only some of it going into

inflation rather than output. So, I'm sure you can square plucking with preemption.

The cacophony. Maybe this theory's right, that since there are a lot of other people who will comment on policy, a lot of other policymakers need to comment. Maybe that's a good theory. It is not a theory we as a society apply in any other area. There are a lot of people commenting on policy toward the Middle East, but we do not decide that every part of the government and every random assistant secretary or deputy assistant secretary should be giving a speech every three weeks with their views. In general, we want coherence from authorities. No company allows full transparency of its deliberations. Presidents do not allow the minutes of their National Security Council meetings to be released even ten years later. So, maybe there's something very special about monetary policy. Or maybe monetary policy people have figured it out and the rest of the world has not. But the way we think about the cacophony issue with respect to monetary policy is very different from the way we think about any other issue.

The 2% target. Look, the question is not whether having a regime with stability and having a bunch of research projects done within the Fed is a good idea. Of course those things are good ideas. The question is whether defining a specific numerical target is a good idea and enshrining it as a principle. My best guess is that over the next three years, one of two things will happen: either we will end up settling out as a 2.75–3% inflation country; or in pursuit of 2%, because of extra actions taken in pursuit of 2%, we will have a fairly serious recession. But one of those two things will happen. And that we will end up in an unpleasant place is I think made more likely by having enshrined as firmly as we have the 2% target.

I agree with you that if it were my responsibility to actually make policy rather than to influence policy by commenting, that I would want to be very careful about the consequences and

the way in which the adjustment was managed, given that we had announced a 2% target and it had become substantially enshrined. And I feel the same way about all this stuff. I mean, it is one thing to say that dot plots are a bad idea. It is another thing to say that having instituted the principle of dot plots, you are now going to remove dot plots.

One of the important issues that I probably should have highlighted is that there is a kind of ratchet in formal procedure. Whenever you put in place a new transparency thing, you can never take it away if it turns out to be a bad idea. And that is another reason to be cautious about transparency.

I'll conclude with this, because maybe I have not been quite outrageous enough. I think there is a 50% chance that the United States is going to elect a Juan Perón equivalent as its next president. If it does, inflation is going to be an important part of the reason that it happened. Whatever your detailed and nuanced arguments about flexible average inflation targeting and the ways in which it did or did not contribute to any of this, I believe that if Alan Greenspan or Paul Volcker had been chairman of the Fed in 2021, we would not have generated nearly as much inflation as we did. And I have no doubt that they would share my views on these points about forward guidance, cacophony, specific numerical targets, QE, and all of that. And I think that's something that is worth considering for those of you who are enthusiastic about all the apparatus.