

MERCATUS SPECIAL STUDY



GETTING MONETARY POLICY RIGHT
WHAT SHOULD THE FEDERAL RESERVE
HAVE LEARNED FROM ITS
PANDEMIC RESPONSE?

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ABSTRACT

Articulation of the monetary policy regime must answer these questions: What does the Federal Open Market Committee (FOMC) control, and how does it exercise that control? Can it exercise systematic control over the behavior of the real economy (specifically output and unemployment subject to a tradeoff with inflation as given by the Phillips curve)? Or is its control far more limited in that an optimal monetary policy can control trend inflation but should leave the behavior of real variables to the stabilizing properties of the price system? The activist policy of aggregate-demand management pursued by the FOMC in response to the COVID-19 pandemic falls into the first category. In 2021 and 2022, following adoption of that policy, underlying inflation soared in stark contrast with the preceding period of stable, low inflation that started in 1994. What monetary policy produced the preceding price stability? Monetary policy is defined by the way that the systematic behavior of the FOMC, in response to the behavior of the economy, shapes how the yield curve responds to new information about the economy. The previous policy was characterized by preemptive increases in the funds rate to prevent inflation. The pandemic policy rejected that policy to prevent a rise in the yield curve until unemployment had returned to its prepandemic low of 3.5 percent. Starting in March 2022, the FOMC initiated a restrictive policy intended to lower inflation to 2 percent. Did the revival of activist policy destabilize the economy and inflation just as it had in the 1970s? If so, should the FOMC return to the policy of the Volcker–Greenspan era?

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Accountability requires that the Federal Reserve explain the nature of the current monetary policy regime and how it chose that policy regime. In light of what it has learned from historical experience with different monetary regimes, how did it choose the current policy regime? A standard response is for Fed spokespersons to state allegiance to the dual mandate of “price stability” and “maximum employment.” They then claim that the Federal Open Market Committee (FOMC) follows the evolution of the structure of the economy and implements the appropriate policy on the basis of that evolution. The question then arises, “How does the FOMC learn about this evolution and the appropriate monetary policy?” At present, evaluating the satisfactoriness of the Fed’s response would require a forthright explanation for the rise in underlying inflation in 2021 and 2022. Did that rise result from the pandemic monetary policy adopted in March 2020? If so, what did the FOMC learn about the stabilizing monetary standard going forward?

Section 1 of this study challenges the FOMC to evaluate and to learn the lessons offered by its return to an activist, highly stimulative monetary policy in March 2020 with the onset of the pandemic. Section 2 shows the behavior of inflation since the restoration of near price stability in 1994 and asks specifically what the Fed should have learned from the reemergence of inflation in 2021–2022. Sections 3 and 4 argue that the monetary policy regime chosen by the FOMC depends on its underlying assumption about the nature of the price level as a monetary or a nonmonetary phenomenon: Section 3 illustrates the nature of the optimal monetary policy regime based on a monetary view of the price level. Section 4 does so for the optimal monetary policy regime based on a nonmonetary view of the price level.

Section 5 argues that, in the past, monetary policy has been based at different times on this choice of the nature of inflation. The resulting dichotomy in the choice of the monetary policy regime combined with the associated stability or instability in the economy offers the “experiments” that should allow the Fed to learn about the character of the optimal monetary policy regime.

Section 6 discusses the choice of model required to organize learning from these experiments. Section 7 asks when money growth should be expected to predict inflation. Section 8 examines whether the Fed has a strategy for restoring price stability without causing a serious recession. Section 9 argues that transparency requires that the FOMC communicate in terms of the underlying consistency in policy. Section 10 is critical of the FOMC's objections to communicating in terms of that consistency, especially, characterizing it as a rule. Section 11 explains why such communication is especially important in 2024. Section 12 concludes.

1. HOW TO LEARN FROM THE MARCH 2020 REVIVAL OF AN ACTIVIST MONETARY POLICY

In response to the COVID-19 pandemic and the rapid rise in unemployment in April 2020, the Federal Open Market Committee pursued a highly expansionary monetary policy. Then, in response to the rise in underlying inflation in 2021–2022, the FOMC pursued a policy it believed was significantly contractionary. Congress has given the Fed a dual mandate to pursue “maximum employment” and “price stability.” Did it not pursue that mandate? Was not this policy of go-stop monetary policy appropriate given the economy's most pressing problem?

Accountability requires that the FOMC not rationalize the desirability of its past monetary policy. It needs to perform the counterfactual of how alternative policies would have worked. Of course, counterfactuals are controversial. They require explicit formulation of the post-March 2020 monetary policy regime along with explicit formulation of contrasting monetary policy regimes. Formally, such an exercise would require a reaction function summarizing how the FOMC responds to the behavior of the economy and a broad-brush characterization of the structure of the economy summarizing how the behavior of the reaction function affects employment and the price level. That is, the FOMC would have to evaluate the operation of different monetary policy regimes.

In the context of the recent go-stop monetary policy, the FOMC explicitly changed the nature of the monetary policy regime by rejecting the reaction function that had developed in the Volcker–Greenspan era of preemptive increases in inflation to maintain price stability as the central element of the monetary policy regime. In its place, the FOMC revived the 1970s policy of an activist aggregate-demand policy of adopting alternately expansionary and contractionary policies in a way designed to balance off achievement of a socially desirable low rate of unemployment with an acceptably low rate of inflation. The FOMC's reaction function was one of committed forward guidance to reinforce either an expan-

sionary or a contractionary monetary policy. In the first case, it took the form of a commitment to keep the funds rate at the zero lower bound (ZLB) until inflation rose above 2 percent. In the second case, it took the form of a funds rate maintained “higher for longer.”

An obvious counterfactual is to ask what would have been the result if the FOMC had retained the Volcker–Greenspan monetary policy regime rather than reverting to the activist policy of the 1970s. A reaction function in the spirit of Volcker–Greenspan would commit to a stable nominal anchor in the form of the expectation of price stability while pursuing a neutral monetary policy, which gives the price system great latitude to respond to shocks. How would it have worked? The model would have been the measured, but steady, recovery in the labor market that characterized the recovery from the previous three cyclical recoveries with cyclical peaks in July 1990, March 2001, and December 2007.

With the unfurling of the pandemic in early 2020, the unemployment rate shot up to 14.7 percent in April 2020. Given the enormous uncertainty about the devastation that would be wreaked by COVID-19, and with a vaccine not even envisaged, investors in long-term securities waited to see how the epidemic would unfold. There was a “dash for cash”—that is, a demand for liquidity. To have fulfilled its traditional role as lender of last resort, the Fed should have bought Treasury securities, albeit at short maturities that would have run off as the liquidity crisis abated. Instead, the Fed became involved in a vast variety of programs to extend credit and take credit risk onto its own and the Treasury’s portfolio, without any evidence that markets could not assess risk and allocate credit accordingly.

A neutral policy in the Volcker–Greenspan spirit would have given the price system time to reallocate resources and labor into areas not closed by the pandemic. Congress, with pandemic payments, would provide aid to the unemployed. The key characteristic of the pandemic recession with a cyclical peak in February 2020 and a cyclical trough in April 2020 was its origin as a negative productivity shock accompanied by the “great resignation,” a reduction in labor force participation. Potential output fell while resources were reallocated. A highly expansionary monetary policy necessarily raised underlying inflation in addition to the inflation caused by supply disruptions.

Indeed, with its policy of flexible-average-inflation targeting, the FOMC wanted to raise underlying inflation above its 2 percent target. With its reversion to the activist policy characteristic of the 1970s, the FOMC reoriented policy around exploitable Phillips curve tradeoffs. Moreover, using data for the past decade and a half characterized by near price stability, the FOMC operated on the basis of a Phillips curve flat down to at least the prepandemic level of unemployment of 3.5 per-

FIGURE 1. CORE PCE INFLATION



Source: Federal Reserve Bank of St. Louis, FRED (database), "Personal Consumption Expenditures Excluding Food and Energy (Chain-Type Price Index)."

Note: Personal consumption expenditures (PCEs), excluding food and energy (Chain-Type Price Index), monthly data, percent change from a year ago, January 1994 to November 2023.

cent. A controlled move of inflation above target would, the FOMC assumed, allow an expeditious return of unemployment to a level at least as low as 3.5 percent.

At present (early 2024), the FOMC has not offered any guidance as to its long-run policy. The recommendation here is that it evaluate and learn from its experience since March 2020. The remainder of the paper discusses the issues raised by such a retrospective evaluation.

2. THE FED SHOULD EXPLAIN THE SURGE IN UNDERLYING INFLATION IN 2021 AND 2022

The FOMC began to raise the funds rate in March 2022 when underlying inflation had reached 5.5 percent.¹ Figure 1 shows underlying inflation from January 1994 through November 2023. What is striking about the graph is the stability in inflation before the recent pandemic period. From January 1994 through December 2019, inflation averaged 1.7 percent with a range of two percentage points. The high was 2.7 percent in August 2006, reflecting the inflation shock caused by the rise in world commodity prices with the integration of the BRIC (Brazil,

1. Figures on inflation in this section are for year-over-year percentage changes in the monthly core personal consumption expenditure (PCE) deflator, which removes food and energy inflation.

Russia, India, and China) into the world economy. The low was 0.7 percent in August 2009, reflecting the Great Recession.

In the post-1951 Treasury–Fed Accord period, the only rises in underlying inflation comparable in magnitude to the 2021–2022 rise occurred in 1973 and in 1979. Did a similar monetary policy cause these three surges in underlying inflation? The FOMC should explain not only the last rise in underlying inflation but also what it has learned from these three rises. Unfortunately, it will not. The reason is that the FOMC always talks about macroeconomic instability in terms of exogenous shocks and how it has mitigated those shocks.

The FOMC never asks whether the cause of the instability originated in an inappropriate underlying consistency of policy. At present, to do so would require the FOMC to talk about how it changed that consistency in response to the pandemic. Did the rise in inflation result from that change in policy? And what were the similarities between the pandemic policy and the policy in the 1970s that caused the previous sharp rises in inflation? The argument that follows is that the motivation for the change in policy initiated in March 2020 was an implicit replacement of the underlying assumption of the price level as a monetary phenomenon, which had characterized policy since the Volcker era, with the underlying assumption of the price level as a nonmonetary phenomenon, which had characterized the earlier Burns–Miller era. This change in policy is an obvious candidate for explaining the rise in underlying inflation in 2021–2022.

3. TREATING THE PRICE LEVEL AS A MONETARY PHENOMENON

Since 2012, the FOMC has provided a broad characterization of monetary policy in its Statement on Longer-Run Goals and Monetary Policy Strategy. The distinction between the price level as a monetary phenomenon and employment as a real phenomenon appeared in the initial formulation of the statement:

The inflation rate over the longer run is primarily determined by monetary policy, and hence the Committee has the ability to specify a longer-run goal for inflation. . . . Communicating this inflation goal clearly to the public helps keep longer-term inflation expectations firmly anchored, thereby fostering price stability. . . . The maximum level of employment is largely determined by nonmonetary factors that affect the structure and dynamics of the labor market. These factors may

change over time and may not be directly measurable. Consequently, it would not be appropriate to specify a fixed goal for employment.²

This statement reflected the still dominant influence of the Volcker–Greenspan era in which policy was disciplined by the need to restore a nominal anchor as a prerequisite to reestablishing the price stability lost in the decade and a half prior to 1980. Policy in this era derived from the leaning-against-the-wind (LAW) procedures instituted by William McChesney Martin after the 1951 Treasury–Fed Accord. These LAW procedures entailed raising the funds rate in a persistent, measured way in response to sustained growth above trend as indicated by a sustained increase in the economy’s rate of resource utilization (a sustained decline in the unemployment rate), and conversely for sustained weakness. Credibility for price stability entailed communicating to markets a commitment to raise rates to whatever extent required to prevent the emergence of inflation. Effectively, these procedures, labeled LAW with credibility in *The Federal Reserve: A New History*, stabilized the economy’s rate of resource utilization.³ (See the appendix for supportive quotes.) After 1994, when the Fed regained credibility for price stability and bond markets ceased fearing a reemergence of inflation and no longer disciplined monetary policy, Chair Alan Greenspan moved to preemptive increases in the funds rate at signs of overheating in labor markets.

Janet Yellen, who succeeded Ben Bernanke as FOMC chair in February 2014, expressed the lessons learned from the Volcker–Greenspan era when the FOMC raised the funds rate preemptively in a sustained way starting in December 2016 to forestall a rise in inflation. Yellen said:

We should also be wary of moving too gradually. Job gains continue to run well ahead of the longer-run pace we estimate would be sufficient, on average, to provide jobs for new entrants to the labor force. Thus, without further modest increases in the federal funds rate over time, there is a risk that the labor market could eventually become overheated, potentially creating an inflationary problem down the road that might be difficult to overcome without triggering a recession. Persistently easy monetary policy might also eventually lead to increased leverage and

2. Board of Governors of the Federal Reserve System, “Statement on Longer-Run Goals and Monetary Policy Strategy,” as adopted January 24, 2012. The statement was amended in January 2019.

3. Hetzel, *The Federal Reserve*.

other developments, with adverse implications for financial stability. For these reasons, and given that monetary policy affects economic activity and inflation with a substantial lag, it would be imprudent to keep monetary policy on hold until inflation is back to 2 percent.⁴

Yellen summarized, “[I]f the economy ends up overheating and inflation threatens to rise well above our target, we don’t want to be in a position where we have to raise rates rapidly, which could conceivably cause another recession. So we want to be ahead of the curve and not behind it.”⁵

Although the FOMC never articulates the model of the economy that underlies its choice of the monetary policy regime, the broad character of that model is determined by its understanding of the price level as a monetary or nonmonetary phenomenon. If the price level is a monetary phenomenon, there is no inherent inflexibility in individual dollar prices. No exogenous force gives money and the price level a determinate value. The FOMC must do so—that is, it must provide a stable nominal anchor. With an interest rate as its instrument rather than a target for bank reserves, the FOMC must adopt a rule that controls both the demand for and the supply of money.

First, consider how the rule conditions demand. With no intrinsic value, people accept money in exchange for goods because they believe it will have value in future exchange. Ideally, the FOMC follows a rule that causes that belief to take the form of the expectation of price stability, and the public demands an amount of money consistent with price stability. As a general matter, the public is forward looking and bases its behavior on its expectations of the future. Stanley Fischer, as vice chair of the Board of Governors, expressed the principle as follows:

Households and firms are forward looking. . . . [They] set out a plan—a contingency plan—for consumption, savings, and employment for the future. . . . So the expectations of decision-makers, be they households, firms, or investors, are at the center of how monetary policy works—both in the real world and in FRB/US.⁶

4. Yellen, “Inflation, Uncertainty, and Monetary Policy.”

5. Condon and Smialek, “Yellen Says Fed’s Focus Has Shifted to Holding Growth Gains.”

6. Fischer, “I’d Rather Have Bob Solow Than an Econometric Model.”

It follows that the FOMC must impose a consistency on its policy so that regardless of how shocks affect headline inflation, the expectation is that such changes in the price level are transitory.

Second, consider how the rule controls supply. To control the amount of money that it creates, the FOMC must follow a rule that allows markets full rein to determine real values, such as employment and output. Arbitrarily interfering with this operation of the price system is the macroeconomic analog of price fixing and creates destabilizing monetary emissions that in turn destabilize the price level.

The LAW with credibility procedures described earlier effectively cause the funds rate to track the natural rate of interest, which is the real interest rate that maintains contemporaneous aggregate demand equal to potential output. They do so by stabilizing the economy's rate of resource utilization so that output grows at potential. They constitute "neutral aggregate-demand management." They contrast with Keynesian procedures, which attempt to move the economy along a Phillips curve by controlling slack in the economy. These procedures, which I term "LAW with tradeoffs," constitute "activist aggregate-demand management."⁷

The procedures characterized as LAW with credibility, which developed in the Volcker–Greenspan era, are characterized by the first-difference Taylor rules estimated by Athanasios Orphanides,⁸ and by Orphanides and Simon van Norden.⁹ With these rules, the FOMC is operating under the realistic assumption that it can stabilize the economy's rate of resource utilization and leave market forces free to determine potential output and an output gap.¹⁰ The associated assumption that the stabilizing properties of the price system are sufficient to ensure full employment turns on households' desire to smooth their consumption intertemporally. Optimism about the future then entails a desire to bring the future good times into the present. If events produce significant optimism about the future, reconciling aggregate demand to potential output requires a relatively high real rate of interest. Pessimism about the future requires a relatively low real rate of interest. However, procedures that let the price system work to smooth consumption intertemporally maintain optimism about the future.

7. Hetzel, *The Federal Reserve*.

8. Orphanides, "Monetary Policy Rules Based on Real-Time Data."

9. Orphanides and van Norden, "The Unreliability of Output-Gap Estimates in Real Time."

10. At least in models with an exploitable Phillips curve, the level Taylor rules are in the spirit of LAW with tradeoffs. In these models, the FOMC can control the output gap—that is, the amount of slack in the economy to move the economy predictably along a Phillips curve. See Taylor, "Discretion versus Policy Rules in Practice."

Thus, they work to stabilize current aggregate demand by sustaining consumption smoothing.

The opposite of this contention, expressed in Keynesian views, is that the extremes of animal spirits going from exuberance to pessimism overwhelm the stabilizing properties of the price system. The issue is empirical. Do the experiments with the monetary standard furnished by the Fed offer evidence? The contrast between the activist aggregate-demand policy of the 1970s and the neutral aggregate-demand policy of the subsequent Volcker–Greenspan era offers such evidence. The hypothesis is that the stability in the Volcker–Greenspan era, known as the Great Moderation, provides empirical support both for the assumption that the price level is a monetary phenomenon and for the assumption that the price system works well to stabilize real output around potential as long as monetary policy allows it to work.

The bond market vigilantes, plus the strength of the personal commitment of Paul Volcker and Alan Greenspan to restore nominal expectational stability in the form of the expectation of price stability, guaranteed an underlying program of LAW with credibility. Specifically, the FOMC moves the funds rate in a way that maintains steady the economy’s rate of resource utilization. In doing so, the FOMC is not setting a target for a socially desirable low rate of unemployment. Rather, it is allowing the price system to determine both real output growth at potential and the unemployment rate. The price system determines real variables. At the same time, the consistency in policy (the rule) is anchoring the public’s expectation of price stability. As explained earlier, these are the conditions for monetary control. They do not require an explicit target for money or for bank reserves.

The nominal and real stability during the recovery from the Great Recession also supports these views. In *The Federal Reserve: A New History*, I argue that monetary policy in the Great Recession was contractionary because of the failure to realize that the natural rate of interest was negative and thus was slow to initiate the required forward guidance and quantitative easing.¹¹ The sharp decline in wealth produced by the fall in house prices in 2007 and the disruption to financial intermediation after the Lehman bankruptcy on September 15, 2008, undoubtedly were factors in making the natural rate of interest negative in fall 2008. The sustained recovery from the Great Recession, however, shows that if the natural real rate of interest is negative, a portfolio balance effect from direct

11. Hetzel, *The Federal Reserve*.

money creation, which works through a wealth effect, it can raise the natural rate of interest to a positive value.¹²

How should one understand the transmission of monetary policy assuming that the Volcker–Greenspan policy provided for the monetary control required for price stability? Does not the fact that the FOMC implements monetary policy by setting an interest rate, the funds rate, mean that the FOMC is controlling aggregate demand through controlling financial intermediation? Does not the control of conditions in the credit market make the behavior of money irrelevant? The short answer is that through procedures that cause the funds rate to track the natural rate of interest, the FOMC is allowing the price system to operate, rather than controlling financial intermediation.

The long answer starts with the fact that because financial markets are forward looking, the transmission of monetary policy occurs through the way that the consistency in FOMC policy (its reaction function) shapes how the term structure of interest rates (the yield curve) responds to the behavior of the economy. Specifically, the term structure moves in response to “news” about the economy—that is, in response to new information about the behavior of the economy. Economic stability requires that the term structure move in a stabilizing way in response to incoming news. Again, because financial markets are forward looking, their behavior in response to news depends on both the current and the expected future behavior of the FOMC in response to news. That is, the behavior of the yield curve depends on the market’s understanding of the FOMC’s reaction function (its rule). To allow the stabilizing properties of the price system to work, the FOMC must, therefore, behave in a consistent way that is predictable by financial markets. To ensure price stability, the FOMC must follow a rule that causes markets to expect the continuation of price stability despite the occurrence of inflation shocks.

The innovation in the Volcker–Greenspan era was rule-like behavior to condition the behavior of the term structure. In response to new information showing that the economy was growing faster than had been anticipated, this consistency conditioned markets to raise the level of the term structure with all the increase in forward rates incorporated into the term structure being entirely real rather than being due in part to an increase in an inflation premium. This radical alteration in

12. Arthur Pigou first made this point to challenge Keynes’s assumption of the possibility of an underemployment equilibrium. A fall in the price level would raise the value of (outside) money. Don Patinkin stressed the importance of the real balance effect. Milton Friedman emphasized how a wealth effect would increase the real rate of interest. See Pigou, “The Classical Stationary State”; Patinkin, *Money, Interest, and Prices*, 313.

the underlying consistency of policy replaced the previous cyclical inertia in the funds rate with preemptive changes to prevent the emergence of inflation. A stabilizing monetary policy shapes the behavior of the yield curve through movements in the risk-free rate of interest embedded in forward rates. The risk-free rate is the price of intertemporal resources. The stabilizing properties of the price system in no way involve credit policy and the allocation of credit.

LAW with credibility also captures the policy followed by the FOMC in the recovery from the Great Recession. Robert Hall and Marianna Kudlyak wrote:

We show that the natural rate [of unemployment] closely tracked the actual rate during the long recovery that began in 2009 and ended in 2020. We explain how the common finding of research in the Phillips-curve framework of low—often extremely low—response of inflation to unemployment could be the result of fairly close tracking of the natural rate [of unemployment] and the actual rate in recoveries. Our interpretation of the data contrasts to that of most Phillips-curve studies, [which] conclude that inflation has little relation to unemployment. We suggest that the flat Phillips curve is an illusion caused by assuming that the natural rate of unemployment has little or no movement during recoveries.¹³

If the FOMC was following a rule that caused the unemployment rate to track its natural counterpart, then the rule was also causing the funds rate to track its natural counterpart—the natural rate of interest. The FOMC was allowing the price system to work. In doing so, it was giving the labor market time to match job seekers with employers. In the recoveries from the 1990, 2001, and 2008–2009 recessions, the result was a steady movement to a low, full employment rate of unemployment without an increase in inflation. The Phillips curve was flat because with price stability the determination of the unemployment rate was shaped entirely by real factors (the time required for labor market matching). An implication is that inflation is a monetary phenomenon, not a nonmonetary phenomenon moved around by the behavior of the unemployment rate relative to a fixed benchmark for full employment, the nonaccelerating inflation rate of unemployment (NAIRU).¹⁴

13. Hall and Kudlyak, “The Downward Glide of the Natural Rate of Unemployment during Cyclical Recoveries Could Explain Flat Phillips Curves,” abstract.

14. See Hetzel, “Recovery from the Great Recession,” in *The Federal Reserve*.

4. TREATING THE PRICE LEVEL AS A NONMONETARY PHENOMENON

In a 2020 press release (reproduced as follows with its two bullet points), the FOMC explained the reformulation of the original 2012 Statement on Longer-Run Goals and Monetary Policy Strategy:

The updates reflect changes in the economy over the past decade and how policymakers are taking these changes into account in conducting monetary policy. . . . The economy is always evolving, and the FOMC’s strategy for achieving its goals must adapt to meet the new challenges that arise. . . . Our revised statement reflects our appreciation for the benefits of a strong labor market, particularly for many in low- and moderate-income communities, and that a robust job market can be sustained without causing an unwelcome increase in inflation.

Among the more significant changes to the framework document are:

- On maximum employment, the FOMC emphasized that maximum employment is a broad-based and inclusive goal and reports that its policy decision will be informed by its “assessments of the *shortfalls* of employment from its maximum level.” The original document referred to “*deviations* from its maximum level.” (italics in original)
- On price stability, the FOMC adjusted its strategy for achieving its longer-run inflation goal of 2 percent by noting that it “seeks to achieve inflation that averages 2 percent over time.” To this end, the revised statement states 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.”¹⁵

15. Board of Governors of the Federal Reserve System, “Federal Open Market Committee Announces Approval to Its Statement on Longer-Run Goals and Monetary Policy Strategy.”

Larry Meyer later explained how the FOMC understood the change in its procedures that was captured in the statement that the FOMC “seeks to achieve inflation that averages 2 percent over time,” labeled FAIT:

The new framework got off to a bad start, in my view when some of them referred to Flexible Average Inflation Targeting (FAIT); in practice, it was not average inflation targeting at all, as usually defined. The latter calls for “making up” for an earlier period of undershooting the inflation target by later overshooting it to just return the *price level* to one consistent with the 2% objective. Vice Chair [Richard] Clarida instead emphasized that there was no make-up in practice and that was clearly the case. (italics in original)¹⁶

Lael Brainard, former governor of the Board of Governors, gave content to the statement that “[t]he maximum level of employment is a broad based and inclusive goal.” Brainard stated:

The COVID-19 pandemic is exacerbating existing disparities in labor market outcomes. Although employment fell sharply for all groups between February and April, the decline was steeper for Black and Hispanic workers than for white and Asian workers, steeper for women than for men, and steeper for non-college-educated workers than for college graduates. . . . It [the new statement on goals and strategy] commits that the Committee will aim to eliminate shortfalls of employment from its maximum level, rather than the previous reference to deviations, which could be in either direction. By eliminating the rationale for removing accommodation preemptively when the unemployment rate nears estimates of the natural rate in anticipation of high inflation that is unlikely to materialize, the new framework will avoid an unwarranted loss of opportunity for many Americans. The broad-based and inclusive definition of maximum employment calls for a more comprehensive assessment of areas of slack in the labor market, such as the disparities in employment outcomes I discussed earlier.¹⁷

16. Meyer, “Meyer’s Musings: Blame and Credit.”

17. Brainard, “Achieving a Broad-Based and Inclusive Recovery.”

Despite the convoluted language in the FOMC's revised Statement on Longer-Run Goals and Monetary Policy Strategy, the postpandemic strategy of monetary policy was laid out clearly. It was predicated on a Phillips curve that was flat down to at least the prepandemic unemployment rate of 3.5 percent. With below-target prepandemic inflation at that level of unemployment, and with inflation not exhibiting persistence when it did rise, the FOMC could pursue a stimulative monetary policy to push the unemployment rate to a value less than 3.5 percent, stopping only when inflation rose above 2 percent, indicating that unemployment had reached the NAIRU. The lack of persistence in inflation would facilitate a return of inflation to 2 percent. The "shortfalls" language sent a message to bond markets that the FOMC had abandoned the prior policy of preemptive increases in the funds rate to prevent the emergence of inflation. Specifically, bond markets should not raise bond rates when the unemployment rate declined to "low" levels at or below 3.5 percent.

Mary Daly, president of the Federal Reserve Bank of San Francisco, explained the need for discretion when policy is organized around balancing off the tradeoffs given by the Phillips curve. Daly wrote:

Policymakers have to respond to an economy that is evolving in real time and prepare for what the economy will look like in the future. . . . Before the pandemic and the current episode of high inflation, the world was starkly different. The principal and decade-long challenge for the Federal Reserve and most other central banks was trying to bring inflation up to target, rather than pushing it down. . . . Large structural forces were to blame. The most notable was population aging. . . . Despite sustained monetary policy accommodation after the Great Recession, annual personal consumption expenditures (PCE) inflation remained below 2% for 84 out of 98 months. . . . Over that same period, the federal funds rate was set near zero almost half of the time. . . . Let me offer four things that I think could be important for our future inflation path. One is a decline in global price competition. . . . Another potential factor affecting future inflation is the ongoing domestic labor shortage. . . . Inflation pressures could also move upward as firms make the transition to a greener economy. . . . Finally . . . inflation expectations could change. If the old dynamics are eclipsed by other, newer influences and the pressures on inflation start pushing

upward instead of downward, then policy will likely need to do more.¹⁸

To repeat the point made in the previous section, although the FOMC never articulates the model of the economy that underlies its choice of the monetary policy regime, the broad character of that model is determined by its understanding of the price level as a monetary or nonmonetary phenomenon. The assumption that the price level is a nonmonetary phenomenon implies that in each period in which the FOMC takes a policy action, it can take as given an inflexibility in the way that firms set dollar prices. That inflexibility also appears in the adaptive expectations of the public with which the expectation of inflation is formed as a weighted average of past rates of inflation. Inflexibility in the ability of dollar prices to change to determine the relative prices that clear markets implies that optimal monetary policy is necessarily organized around the amount of slack in the economy's rate of resource utilization. The FOMC then must choose a combination of unemployment and inflation in a way given by the Phillips curve.

The assumption that the stabilizing properties of the price system are insufficient to ensure full employment implies that the herd behavior of markets (animal spirits) can create booms and busts that destabilize output and employment. Monetary policy must implement an activist monetary policy to control aggregate demand to make it stimulative when unemployment is the primary concern and restrictive when inflation is the primary concern. Money creation accommodates the demand for money given the combination of output and the price level chosen by the FOMC. The transmission of monetary policy occurs through the way in which the FOMC influences conditions in credit markets—that is, through financial intermediation. In this respect, it is only one influence on the intermediation of credit. Moreover, it is desirable for the FOMC to allocate credit to sectors of the economy adversely affected by the herd behavior of investors in times of financial distress.

5. LEARNING FROM THE EXPERIMENTS THE FED HAS DELIVERED

Resolution of the issue of the nature of the price level as nonmonetary or monetary and the related issue of the efficacy of the price system in ensuring full employment in the absence of monetary instability determines the nature of the optimal

18. Daly, "Forward-Looking Policy in a Real-Time World," 1–2, 4–5.

monetary policy regime as nonactivist or activist (or alternatively as expressed here as LAW with credibility or LAW with tradeoffs). Different schools of thought (Keynesian and monetarist) have constructed models based on the choice between these conflicting assumptions. The issue is how to test the contrasting models. A selective choice of data can seem to validate any model. An empirical horse race to determine which model is valid requires organizing historical experience as a series of semicontrolled experiments capable of offering information on causation. Because the experiments are not the outcome of a controlled experiment, such empirical verification requires generalization from a concatenation of the experiments offered by history. Identification of these experiments is facilitated because the FOMC's choice of the monetary policy regime has emerged in the context of different political and intellectual environments. The result has been a clear dichotomous choice between activist and nonactivist policies.

Since the 1951 Treasury–Fed Accord, the Fed has implemented two variants of leaning-against-the-wind policy. LAW with tradeoffs attempts to manipulate slack in the economy (the output gap) to balance two competing objectives: a socially desirable “low” rate of unemployment and low inflation. The tradeoffs are presumed given by a structural Phillips curve invariant to monetary policy. LAW with tradeoffs treats the economy's rate of resource utilization as an intermediate target. Controlling slack in the economy is the instrument for balancing off the independent targets of a socially desirable low rate of unemployment and a low rate of inflation. A presumed structurally stable Phillips curve presents the tradeoffs. The result is an activist policy of aggregate-demand management with monetary policy stimulative when low unemployment is the priority and restrictive when low inflation is the priority. This policy characterized the Burns, Miller, and, to date, Powell eras. The adoption of low unemployment as an independent objective in the Powell pandemic monetary policy and the priority assigned to its achievement appeared in the added language of the Statement on Longer-Run Goals and Monetary Policy Strategy: “The Committee seeks over time to mitigate shortfalls of employment from the Committee's assessment of its maximum level.”¹⁹

In contrast, LAW with credibility concentrates on price stability and rejects any attempt to trade off low unemployment against low inflation. The LAW with credibility rule concentrates on maintaining stable the economy's rate of resource utilization, not on manipulating it. In this way, the economy grows

19. Board of Governors of the Federal Reserve System, “Federal Open Market Committee Announces Approval to Its Statement on Longer-Run Goals and Monetary Policy Strategy.”

at potential, and the price system maintains the output gap at zero. This policy characterized the Volcker, Greenspan, and Yellen eras. Evidence in favor of the monetary nature of inflation, as opposed to a nonmonetary nature driven by cost-push shocks, was the failure of the Keynesian prediction that maintenance of price stability would require periodic spells of socially unacceptable high rates of unemployment. The adoption of one or the other of these two policy regimes at different times offers the experiments required to test the nature of the optimal monetary policy regime.

6. USING A MODEL THAT CAN ORGANIZE THE HISTORICAL EXPERIMENTS PROVIDED BY THE FED

One needs a model to determine the direction of causation embedded in the correlations of the data. To determine whether the price level is a monetary phenomenon, one must test the propositions underlying the equation of exchange, $M = pky$, where M is money and pky is the dollar expenditure of the public on output. The price level is p , real output is y , and k is the fraction of real output the public desires to hold in the form of purchasing power (real money balances). Specifically, the direction of causation runs from M to pky . However, the equation of exchange does not in itself necessarily offer guidance as to how to test whether money creation (the left side) occurs independently of the dollar expenditure of the public (the right side).

The first problem is that central banks do not use procedures that target money or bank reserves. The issue then becomes whether those procedures provide indirectly for monetary control (the control of money creation) even if policymakers do not intentionally target money. The second problem is that since the early 1980s, with the deregulation of the interest rates on bank deposits combined with the ease of electronic funds transfers between the liquid deposits of banks and the less liquid assets of money markets, there is no satisfactory empirical measure of the liquidity (moneyness) of the public's asset portfolio.

What features should central bank procedures possess to provide for monetary control, especially to ensure price stability? To answer this question, one finds it useful to start with the proposal of Milton Friedman for a rule ensuring steady growth of the monetary aggregate M2.²⁰ Although no longer desirable as a rule, before the early 1980s, when M2 was characterized by interest insensitivity and possessed a stable demand function, the Friedman rule would have both

20. Friedman, *A Program for Monetary Stability*.

provided for a stable nominal anchor and turned over the determination of real variables to the unfettered operation of the price system.

The issue then is to choose a model that makes these two features central to a stabilizing monetary policy. The reason for a model is that using historical experience to learn the nature of the optimal monetary standard requires solution of the “identification problem”—namely, that monetary policy influences the behavior of the economy and the behavior of the economy influences monetary policy. That simultaneity in causation requires a model to sort out the causation underlying movements from periods of macroeconomic stability to periods of macroeconomic instability. Of course, there are conflicting models, but one must start with a model and then ask how useful it is in isolating the historical experiments offered by monetary policy required to generate testable implications.

Assuming that the price level is a monetary phenomenon, the relevant model is the Goodfriend and King version of the New Keynesian (NK) model.²¹ In this model, price stability turns the determination of real variables (output and employment) over to the real business cycle core of the economy. Price stability allows the stabilizing properties of the price system to maintain full employment. The following three equations are a summary of this version of the NK model.

The real rate of interest is the intertemporal price of resources. The natural rate of interest is the real rate of interest that distributes aggregate demand intertemporally so that contemporaneous aggregate demand equals potential output. The following is a three-equation version of the NK model.²² The real rate of interest, r_t , is the market rate of interest, i_t , minus expected inflation, $E_t\pi_{t+1}$. The natural rate of interest, r_t^n , equals equation (1).

$$r_t^n = \rho_t + s^{-1} E_t(\Delta y_{t+1}^n), \quad (1)$$

where y_t^n is the natural rate of output expressed in logarithms; ρ_t is the subjective rate of time preference with $\rho \equiv -\log \beta$ and β the discount factor; s is the intertemporal elasticity of substitution in consumption; and Δ is the first difference operator. The output gap equals $\tilde{y}_t \equiv y_t - y_t^n$ with y_t equal to (the logarithmic value) of output. Using equation (1) and its counterpart expressed in actual values of the real rate of interest and the output gap (the household Euler equation) and solving forward yields equation (2).

$$\tilde{y}_t = -s \sum_{k=0}^{\infty} E_t(r_{t+k} - r_{t+k}^n), \quad (2)$$

21. Goodfriend and King, “The New Neoclassical Synthesis.”

22. Barsky et al., “The Natural Rate of Interest and Its Usefulness for Monetary Policy.”

That is, the output gap equals the sum of the contemporaneous and future interest-rate gaps between the real rate of interest and its natural counterpart. Finally, equation (3) expresses the NK Phillips curve.

$$\pi_t = \beta E_t[\pi_{t+1}] + k\tilde{y}_t \quad (3)$$

Note that from equation (2), a future interest rate path in which the actual real rate of interest is always equal to the natural rate of interest achieves an output gap of zero. From equation (3), an output gap equal to zero is consistent with price stability. These results require a rule to condition markets to anticipate that the central bank will follow the required policy in the future. Note also that the required policy provides for the monetary control that ensures price stability.

If the central bank stabilizes the price level, even if a satisfactory empirical measure of the public's demand for liquidity exists, money will not appear in the model because it is not a source of disturbance. However, for that to happen, the central bank still needs to provide for monetary control. As explained heuristically earlier, the monetary control required for price stability possesses two aspects: a demand for money and a supply of money. With respect to the demand for money, people hold money because they believe it will possess value in the future. With a policy of price stability, as shown in equation (3), actual and expected inflation are zero, and the output gap is zero. People then demand an amount of money consistent with price stability.

With respect to the supply of money, the central bank needs to follow procedures that cause the funds rate to track the natural rate of interest as shown in equation (2). In this way, it maintains the output gap equal to zero and avoids having to monetize the excess supplies and demands in the bond market created by a positive or negative output gap in the goods market. Money creation stays consistent with a demand for money that grows with potential output. Given the central bank's interest rate target, banks accommodate that demand by creating the deposits demanded by the public while the Fed creates the associated reserves demanded as a consequence of defending its interest rate peg.

In the Goodfriend–King NK model, as a by-product of a rule that creates the expectation of price stability and that allows the price system freedom to determine real variables, the central bank controls money creation.²³ The issue then is whether a model based on the optimality of price stability with no

23. Goodfriend and King, "The New Neoclassical Synthesis."

attempt to manipulate slack in the economy can organize a historical narrative that explains macroeconomic stability and instability, both real and nominal. A comparison of the 1970s with the succeeding period offers an extraordinary experiment relevant for testing the model. Monetary policy in the 1970s under the leadership of Arthur Burns and G. William Miller and the succeeding policy under Paul Volcker and Alan Greenspan offered the experiment.

The Burns and Miller FOMC treated inflation as a nonmonetary phenomenon determined by cost-push from corporations with market power and by wage-push from unions. By attempting to control slack in the economy to achieve a socially acceptable tradeoff between low unemployment and low inflation, FOMC procedures suppressed the stabilizing properties of the price system. Monetary policy relied on discretion in an attempt to create enough unemployment to control inflation. Political constraints on allowable unemployment prevented a policy of price stability.²⁴ Just as the cost-push nature of inflation ruled out a policy of price stability, it also ruled out a rule to control the expectation of inflation in a way consistent with price stability. Monetary policy took inflationary expectations as given by an extrapolation of past inflation. As inflation rose, the cost of restoring price stability without wage and price controls rose presumably accordingly. However, in the first half of 1979, inflationary expectations became unanchored.

Paul Volcker rejected the previous assumption that a consistent policy focused on the restoration of price stability was powerless to affect expected inflation and thus actual inflation at a socially acceptable cost in terms of unemployment. The bond market vigilantes reinforced the discipline of a consistent focus on the restoration of price stability. Moreover, they applied consistent pressure to undertake preemptive increases in the funds rate to prevent a reemergence of inflation. The result was to discipline the FOMC's LAW procedures to cause the funds rate to track the natural rate of interest. That is, an activist policy of aggregate-demand management (LAW with tradeoffs) ceded to a neutral policy of aggregate-demand management (LAW with credibility). Volcker and Greenspan were right that a consistent policy aimed at price stability would cause financial markets to expect price stability without recourse to high unemployment. The Goodfriend–King NK model explained the success of basic monetarist principles without the need for any recourse to explicit monetary targeting.²⁵

24. Burns, "The Anguish of Central Banking."

25. Goodfriend and King, "The New Neoclassical Synthesis."

7. WHEN IS MONEY CREATION INFLATIONARY?

With its pandemic monetary policy of extraordinary stimulus, the FOMC also delivered an experiment relevant to whether inflation is a monetary or a non-monetary phenomenon. It did so through its monetization of a significant fraction of the government pandemic payments. The rise in underlying inflation in early 2021 is evidence in favor of the monetary character of inflation. As Friedman said, “Inflation is always and everywhere a monetary phenomenon.”²⁶

The lagged response of inflation to the Fed’s money creation is evidence in favor of the transmission of monetary stimulus through the portfolio balance effect described by Friedman in the essay “The Lag in Effect of Monetary Policy.”²⁷ Monetary stimulus arises when the FOMC prevents the yield curve from rising to allow the price system to work. The portfolio balance effect describes the impact of the debt monetization that occurred in the post-March 2020 period until March 2022. The Fed’s purchase of long-term Treasuries and mortgage-backed securities (MBS) replaced illiquid assets with liquid bank deposits in the asset portfolio of the public. The price of illiquid assets (equities, houses, consumer durables, commodities) had to rise to reconcile the public to holding a more liquid asset portfolio. The increase in the price of these illiquid assets relative to their service flows stimulated investment and output. Eventually, inflation had to rise to restore the real cash balances (liquidity) desired by the public. However, the process takes place over time and is influenced by extraneous forces that affect the fundamental values of the illiquid assets. Figure 2 shows the increase in the asset side of the Fed’s balance sheet after March 2020 that initiated this portfolio balance effect.

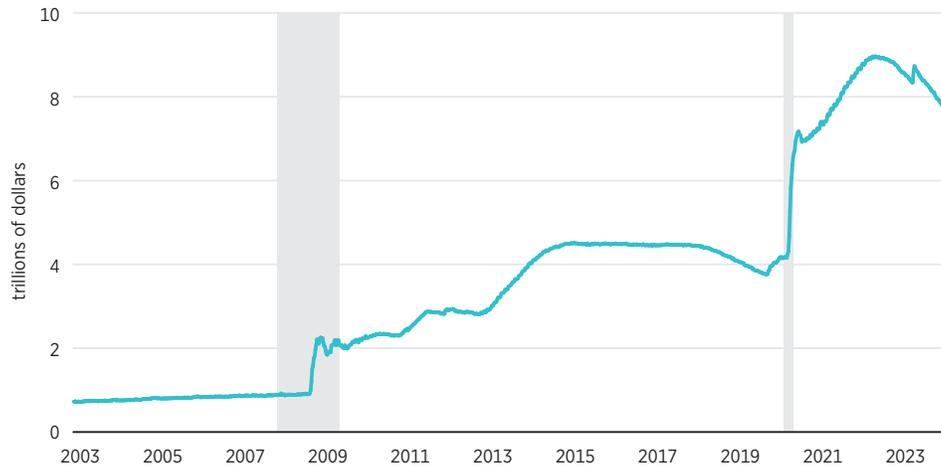
An evaluation of the consequences of the increases shown in figure 2, some of which took place before March 2020, must occur in the context of FOMC procedures for setting the funds rate. Specifically, one must know whether those procedures tracked the natural rate of interest. (The overview below follows *The Federal Reserve*.)²⁸ The initial increase in the Fed’s balance sheet occurred with the expansion of the Fed’s lending programs after the Lehman Brothers bankruptcy on September 15, 2008. Although the increase in bank reserves provided the liquidity needed to meet the increased demand, initially the FOMC remained focused on high headline inflation and did not lower the funds rate to the ZLB until its December 15, 2008, meeting. The recipients of the Fed loans had to repay

26. Friedman, “Inflation,” 39.

27. Friedman, “The Lag in Effect of Monetary Policy,” 255–56.

28. Hetzel, *The Federal Reserve*.

FIGURE 2. ASSETS ON THE FEDERAL RESERVE'S BALANCE SHEET



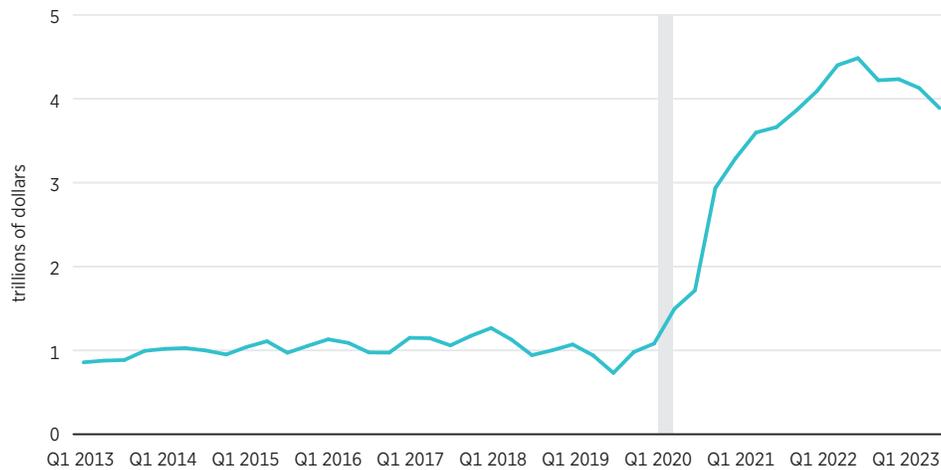
Source: Federal Reserve Bank of St. Louis, FRED (database), "Assets: Total Assets: Total Assets (Less Eliminations from Consolidation): Wednesday Level"; Board of Governors of the Federal Reserve System, Data Download Program (database), "Factors Affecting Reserve Balances of Depository Institutions," January 8, 2003, to December 27, 2023.

them at market rates of interest. Beginning in early 2009 with the purchase of MBS and then in March 2009 with the purchase of Treasury securities, the Fed over time replaced the reserves lent by the Fed with reserves created by the purchase of illiquid assets (long-term Treasuries and MBS). With this replacement of the source of reserves provision, a portfolio balance effect took place, and the economy began a recovery in June 2009.

The initial quantitative easing (QE) program raised the natural rate of interest from a negative value in fall 2008 to a moderately negative or a neutral value. Aided by the stimulus furnished by quantitative easing, the economic recovery proceeded despite a weak world economy. As of December 2016, the FOMC could raise the funds rate in a sustained way to track an increase in the natural rate of interest, which had become positive. Although QE raises the natural rate of interest through a portfolio balance effect, by tracking the natural rate of interest, FOMC procedures maintained growth in aggregate demand in line with growth in potential output. The money creation associated with QE then possesses no predictive value for nominal or real output.

In contrast to earlier QE programs, the purchases begun in March 2020 with the pandemic monetary policy occurred with forward guidance promising to keep the funds rate at the ZLB until inflation rose for some undefined time above 2 percent. The commitment to abandon the preemptive increases in the funds rate characteristic of the Volcker–Greenspan–Yellen policy undertaken

FIGURE 3. HOUSEHOLDS: CHECKABLE DEPOSITS AND CURRENCY



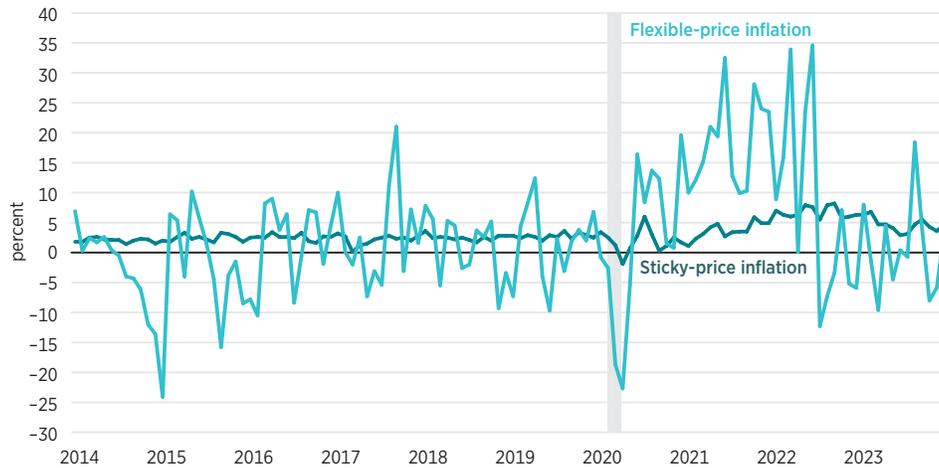
Source: Federal Reserve Bank of St. Louis, FRED (database), "Households; Checkable Deposits and Currency; Asset, Level."
 Note: Quarterly data, first quarter 2013 to third quarter 2023.

to prevent the emergence of inflation meant that FOMC procedures could not track the natural rate of interest. Money creation became helicopter money and was inflationary. There was then no difference in kind from the monetization of government debt in a country such as Zimbabwe or Venezuela.

Figure 3 shows the checkable deposits and currency associated with the FOMC's debt monetization. Figure 4 shows the subsequent inflation. Inflation is classified as arising either in the sticky-price sector or the flexible-price sector. Firms in the sticky-price sector set prices for multiple periods. Necessarily, they must forecast inflation, although the expectation of price stability is the ideal. With firms in the flexible-price sector, prices are set in auction markets. As explained by Kosuke Aoki in "Optimal Monetary Policy Responses to Relative-Price Changes," inflation distorts relative prices and resource allocation only for firms in the sticky-price sector.²⁹ To allow the price system to determine relative prices, the FOMC should control sticky-price inflation and allow flexible-price inflation to pass through to headline inflation. Sticky-price inflation rose from 2.8 percent (three-month annualized rate) in February 2020 just before the initiation of the pandemic monetary policy to a high of 7.3 percent in October 2022. It fell to 4.5 percent in November 2023.

29. Aoki, "Optimal Monetary Policy Responses to Relative-Price Changes."

FIGURE 4. STICKY-PRICE AND FLEXIBLE-PRICE INFLATION



Source: Federal Reserve Bank of Atlanta, Sticky-Price Consumer Price Index (database).
Note: Both series are one-month annualized growth rates.

8. MAKING THE HELICOPTER DROP OF MONEY ONE AND DONE

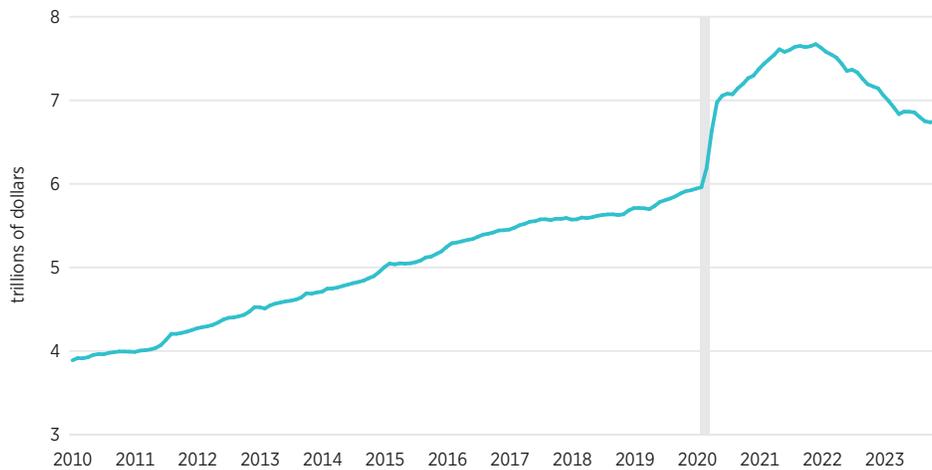
Underlying (sticky-price) inflation moderated in 2023 with the three-month annualized growth rate falling from 5.9 percent in March 2023 to 4.2 percent in December 2023. In his press conference after the September 2023 FOMC meeting, Chair Jerome Powell said:

The progress—process of getting inflation sustainably down to 2 percent has a long way to go. . . . We see the current stance of monetary policy as restrictive, putting downward pressure on economic activity, hiring, and inflation. . . . Reducing inflation is likely to require a period of below-trend growth and some softening of labor market conditions.³⁰

Can underlying inflation fall to 2 percent without an engineered increase in slack in the economy? The FOMC’s September summary of economic projections (SEP) projected average of median real GDP growth for the years 2024, 2025, and 2026 was 1.7 percent with estimated trend growth of 1.8 percent (longer-run median). For these three years, the projected median unemployment rate was almost 4.1 percent, with the natural rate of unemployment at 4.0 percent (longer-

30. Board of Governors of the Federal Reserve System, “Transcript of Chair Powell’s Press Conference.”

FIGURE 5. REAL M2



Source Federal Reserve Bank of St. Louis, FRED (database), "Real M2 Money Stock."
Note: M2 divided by the consumer price index (CPI), monthly data, January 2010 to November 2023.

run median). Nevertheless, core PCE inflation was projected to be 3.7 percent in 2023, and it was projected to decline to 2 percent in 2026.

Friedman used the example of a one-time injection of money, which raised inflation until real money balances returned to their original, desired level.³¹ Perhaps the money creation after March 2020 could also follow a similar pattern, with a one-time increase in the price level followed by a return to price stability. The decline in inflation shown in figure 4 then could be the start of such a process and need not entail a recession, hard or soft. What monetary policy could validate such a result? Figure 5 shows real M2. Could the FOMC just watch for when real M2 returns to trend and then lower the funds rate? Although the surge in real M2 captures the monetization of debt by the Fed starting in March 2020, there are limitations to how well M2 captures the liquidity in the public's asset portfolio. Some of the decline shown in figure 5 could be an artifact of the fact that banks raise the interest rate that they pay on their deposits with a lag only after increases in interest rates in the money market. As a result, investors move the deposits from banks considered primarily savings instruments to money market instruments. The resulting reduction in M2, however, does not indicate a loss in liquidity.

31. Friedman, "The Role of Monetary Policy."

A seemingly obvious alternative would be to reduce the funds rate when inflation falls to 2 percent or the level considered consistent with price stability. As background, consider how a one-time injection of money would likely play out on the basis of the lags observed in earlier periods of inflation and deflation. As explained earlier, the public is reconciled to the increase in the liquidity of its asset portfolio by a rise in the price of illiquid assets, which appears as an increase in the public's wealth. This portfolio balance effect stimulates an increase in expenditure and output. Firms raise prices only with a lag out of fear that by going first they will lose customers who will then shop for other providers. However, as output increases and the labor market tightens, firms feel comfortable that their competitors cannot increase output to steal away their customers. They then raise prices. The lag of inflation behind monetary stimulus carries over to a lag of disinflation behind monetary restriction. For that reason, if the FOMC waits to lower the funds rate until the restoration of price stability, the lags entailed will likely produce a recession.

Assuming inflation is a monetary phenomenon, providing for the monetary control that would make the FOMC's debt monetization a one-and-done phenomenon requires policy procedures that track the natural rate of interest. Although the FOMC was slow in initiating funds rate increases, the significant rise starting in March 2022 may have done just that. The challenge then is to avoid a hard landing by maintaining the funds rate in excess of the natural rate if the latter declines. Figure 6 displays a forecast of disinflation based on past experience, which arose when the FOMC maintained the funds rate in excess of its natural rate counterpart given a concern that markets would interpret a reduction as a retreat from the effort to lower inflation when it was the FOMC's main concern.³² In the spirit of Milton Friedman and Anna Schwartz, figure 6 plots money growth with a lag of 18 months and consumer price index (CPI) inflation.³³ According to the pre-1980 experience, if the FOMC maintains the

32. M1 includes currency; travelers checks of nonbank issuers; demand deposits (checking accounts) at commercial banks (excluding those amounts held by depository institutions); and other checkable deposits (OCDs), consisting of negotiable order of withdrawal (NOW) and automatic transfer service (ATS) accounts at depository institutions, credit union share draft accounts, and demand deposits at thrift institutions. M2 is M1 plus savings deposits (including money market deposit accounts) and small-denomination time deposits (time deposits in amounts of less than \$100,000). M3 is M2 plus balances in institutional money market mutual funds; large-denomination time deposits (time deposits in amounts of \$100,000 or more); repurchase agreement liabilities of depository institutions, in denominations of \$100,000 or more, on US government and federal agency securities; and eurodollars held by US addressees at foreign branches of US banks worldwide and at all banking offices in the United Kingdom and Canada.

33. Friedman and Schwartz, "Money and Business Cycles."

FIGURE 6. MONEY GROWTH AND CONSUMER PRICE INDEX INFLATION



Source: Courtesy of Reid, “Are These Charts Scarier Than Reality?”; see also Federal Reserve Bank of St. Louis, FRED (database).

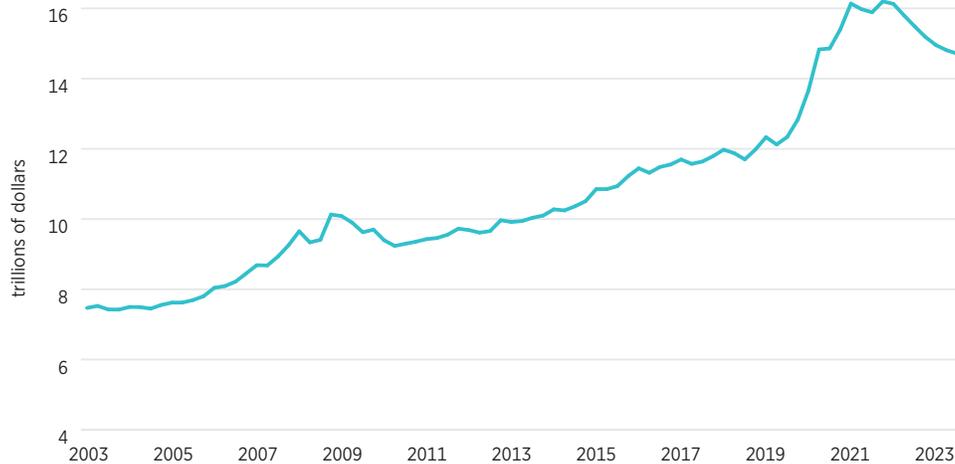
funds rate at or near its July 2023 cyclical peak, the monetary deceleration will cause significant disinflation.

Whether that happens depends on whether the FOMC lowers the funds rate significantly in the event of emerging weakness in the economy to track a decline in the natural rate of interest. In past periods of go-stop monetary policy, monetary acceleration followed by monetary deceleration produced inflation and disinflation, with disinflation accompanied by recession. Disinflation and recession resulted from cyclical inertia in maintaining the cyclically high level of the funds rate after the economy began to weaken significantly.

In 2024, even if underlying inflation remains above 2 percent, one hopes the FOMC can maintain its credibility for a long-run policy of price stability. However, the issue remains of how to track the natural rate of interest. The problem is that the natural rate of interest could be rising, steady, or falling. One possible leading indicator that could signal a need for a reversal of the funds rate increases begun in March 2022 would be the elimination of the monetary overhang starting in March 2020. One such measure, shown in figure 7, is real household liquid assets.³⁴ It is constructed using data from the quarterly financial accounts of the United States and comprises currency, bank deposits, and money market fund shares, deflated by the headline PCE deflator. As of 2023, extrapo-

34. Stanley, “Households Remain Flush.”

FIGURE 7. REAL HOUSEHOLD LIQUID ASSETS



Source: Board of Governors, Quarterly Financial Accounts of the United States, as in and courtesy of Stanley, “Households Remain Flush.”
Note: The chart shows real household liquid assets (currency, bank deposits, and money market fund shares) deflated by the PCE deflator.

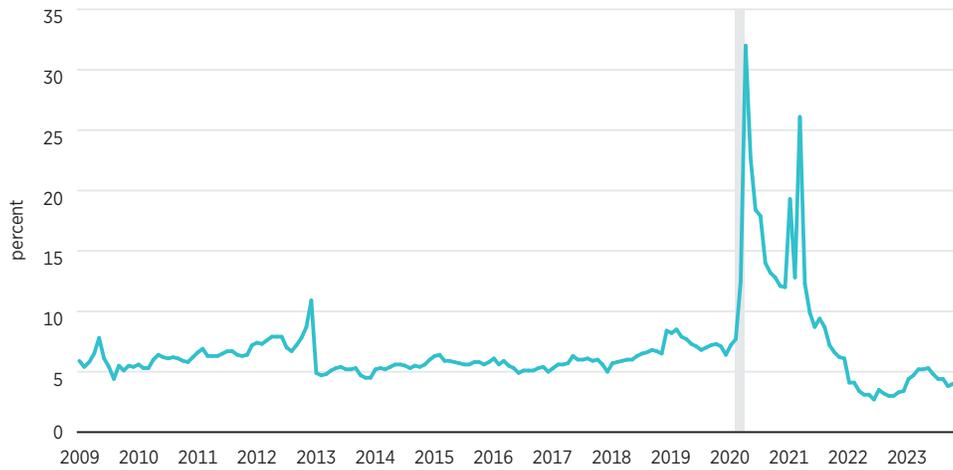
lation using the prepandemic trend suggested almost \$1 trillion remaining as excess savings that the public can run down to maintain expenditures.

Economist Stephen Stanley described an alternative to measuring the overhang: “The popular methodology is to start with a pre-pandemic savings rate as a benchmark. Then, using the difference between the sky-high savings rates in 2020 and early 2021 and that pre-pandemic benchmark, economists create an estimate of the cumulative amount of excess savings. Then, the drop in the savings rate in 2022 and 2023 relative to the pre-pandemic benchmark is used to impute the pace at which households depleted their COVID windfall.”³⁵ (Stanley also notes that the prepandemic level of savings was unusually high.) Figure 8 shows the personal saving rate, and figure 9 shows the amount of personal saving.

Examination of these graphs suggests that as of end 2023 the savings rate has not fallen sufficiently to wind down the excess savings created starting in March 2020. The excess of savings, which elevated household wealth, maintained the spending of the public despite a significant increase in the funds rate and required a relatively high natural rate of interest. What monetary policy should the FOMC adopt to return the economy to price stability and full employment? As of fall 2023, the FOMC appears to be in a “wing it” mode. That is, it will go meeting by meeting,

35. Stanley, “Households Remain Flush.”

FIGURE 8. PERSONAL SAVING RATE



Source: US Bureau of Economic Analysis, personal income and outlays, as in Federal Reserve Bank of St. Louis, FRED (database), "Personal Saving Rate."
Note: Personal saving rate equals personal income less personal outlays and personal taxes divided by disposable personal income. Data are monthly with the last observation from January 2009 through November 2023.

FIGURE 9. PERSONAL SAVING



Source: US Bureau of Economic Analysis, personal income and outlays, as in Federal Reserve Bank of St. Louis, FRED (database), "Personal Saving."
Note: Personal saving equals personal income less personal outlays and personal taxes. Data are monthly, January 2009 to November 2023.

FIGURE 10. DECEMBER 2024 FED FUTURES CONTRACT



Source: Courtesy of Reid, "Good News or Bad for the Fed?"

read the economy, and do the “right thing,” or as Powell put it in the September press conference, “look at the totality of the data.”³⁶ Whether such an improvisational approach to policy will be a stabilizing force is uncertain.

Forward guidance appears to be at a dead end. Figure 10 illustrates the difficulty in forecasting interest rates. The market’s estimate of the funds rate that would prevail in December 2024 rose about 4.5 percentage points between January 2021 and January 2024. The FOMC needs operating procedures for tracking the natural rate of interest as the economy evolves. Specifically, the FOMC needs to articulate a reaction function to guide financial markets in a way that provides for both a stable nominal anchor and economic stability.

Forecasting the evolution of the stabilizing (natural) rate of interest is complicated not only by the extent of the existing monetary overhang but also by government fiscal policy and the dysfunction of a government unable to govern.³⁷ The Committee for a Responsible Federal Budget wrote:

36. Board of Governors of the Federal Reserve System, Transcript of Chair Powell’s Press Conference.

37. In response to the rise in the 10-year bond yield from about 3.4 percent in April 2023 to almost 5 percent in October 2023, market commentary has revived the term *bond market vigilantes*, originally coined by Edward Yardeni in a weekly commentary from July 27, 1983, “Bond Investors Are the Economy’s Bond Vigilantes” (see Yardeni, “The Bond Vigilantes”). In the 1980s, bond holders pushed the FOMC into preemptive increases in the funds rate to prevent the emergence of inflation. That is, they raised bond rates at any sign that the FOMC was reintroducing cyclical inertia in the funds rate despite evidence of strong growth in real output. In the current context, the reference is to the inability of the political system to deal with an unsustainably high budget deficit.

On average, current [interest] rates are about one percentage point above those assumed in [the Congressional Budget Office’s] baseline. If that gap were to continue for the next decade, debt would grow an additional \$2.8 trillion (about 7.2 percent of gross domestic product) through 2033. In 2033 alone, deficits would be nearly \$500 billion (1.2 percent of GDP) higher than projected. Interest was already the fastest growing part of the budget. Assuming these higher rates, interest costs would exceed defense spending by 2025 and exceed the net cost of Medicare by 2026. Under this scenario, interest would reach a record share of the economy within three years, at which point it would become the second largest federal program.³⁸

Given the rise in underlying inflation following the FOMC’s pandemic monetary policy of 1970s-style activist aggregate-demand management followed by the uncertainty of whether disinflation would cause a recession, the FOMC should set as a goal the restoration of the policy in the Volcker–Greenspan–Yellen era, labeled here “LAW with credibility.” That is, the objective of policy should be a sustainable rate of resource utilization, neither rising nor falling persistently, with expected inflation consistent with price stability. Given a strong labor market in fall 2023, the FOMC would raise the funds rate if the economy grows at a rate high enough to maintain existing strength in the labor market. It would lower the funds rate given evidence of a weakening in economic activity with a labor market returning to its prepandemic normal.

With such a policy, the FOMC is likely to restore price stability without a significant recession. That is, given an expectation of price stability and a policy that maintains money creation consistent with price stability, the money creation starting in March 2020 and the following rise in the price level will be a one-and-done phenomenon. As discussed in section 9, no matter what the FOMC decides, it needs to communicate in terms of the underlying consistency in monetary policy.

9. TRANSPARENCY REQUIRES COMMUNICATING THE UNDERLYING CONSISTENCY IN POLICY

Section 3 explains how a stabilizing monetary policy requires an underlying consistency in policy (a consistent reaction function) to ensure that the yield curve

38. Committee for a Responsible Federal Budget, “Interest Rates Remain Near Record Highs.”

responds in a stabilizing way to “news” about the evolution of the economy. Stanley Fischer expressed the general idea:

It has been increasingly acknowledged that monetary policy implementation relies importantly on the management of market expectations. . . . Clarity about the central bank’s reaction function . . . helps meet the central bank’s policy targets, with the result that the markets are working in alignment with the policymaker’s goals. . . . Clear communication of the Federal Open Market Committee’s (FOMC’s) views on the economic outlook and the likely evolution of policy is essential in managing the market’s expectations.³⁹

As evidenced by the long history of Fed watchers, the FOMC does find ways to communicate this consistency to markets. For example, before 1994, when the FOMC wanted to communicate to markets that it had, say, raised its funds rate target, it would conduct an open-market operation through a sale of government securities rather than through a reverse repurchase agreement. If it wanted to be certain that the increase in the funds rate target raised the yield curve significantly, it would accompany the open-market sale with an increase in the discount rate.⁴⁰ Such communication is understood—it is not explicit. Fed watchers infer the underlying consistency based on the FOMC’s past behavior. Concern by the FOMC that every change in the funds rate be built already into the yield curve disciplines it to behave consistently. The reason is that the FOMC dislikes having a change in the funds rate impart volatility to bond rates. As expressed by Fischer, the FOMC should “avoid unintended surprises in the conduct of policy.”⁴¹

Under the leadership of the chair, the FOMC communicates on two tracks—the implicit communication to financial markets just described and the other directed to Congress and the general public. The latter explains funds rate changes as directed toward addressing the current priority—unemployment or inflation. The narrative is one of discretionary changes, which conveys the message that the FOMC is a bulwark against the instability inherent in a market economy. The FOMC is an instability fighter, not an instability creator.

This two-track communication creates tension. As highlighted by the rationale for the January 1994 decision of the FOMC to make public its funds

39. Fischer, “Monetary Policy Expectations and Surprises.”

40. Cook and Hahn, “The Information Content of Discount Rate Announcements and Their Effect on Market Interest Rates.”

41. Fischer, “Monetary Policy Expectations and Surprises.”

increase and future funds rate changes following FOMC meetings, the FOMC was sensitive to accusations of secrecy that it reveals more information to financial markets than to the public. A more recent manifestation of this tension was the decision to release a Summary of Economic Projections (SEP). The SEP is an odd mixture of the forecasts of the participants in FOMC meetings with the published SEP table separated into forecasts for individual economic series so that one cannot identify the component parts of an individual's forecast, especially that of the chair. Participants make their forecasts with the undefined criterion of an "optimal monetary policy" without reference to an FOMC reaction function. Fed watchers assume that the median forecasts for the individual series are those of the chair.

Taken together with the median projection for the funds rate, Fed watchers can infer a reaction function. Markets then arrive at a consensus forecast for the evolution of the economy and move the yield curve accordingly. Public comments by the chair influence the behavior of the yield curve in a way that makes the yield curve accord more fully with the forecast by the FOMC of how the yield curve will need to behave to achieve its objectives given its reaction function and its own forecasts of the economy. The quality of FOMC debate as well as FOMC transparency would be greatly enhanced by making this communication with markets explicit. Explicitness would start with a committee consensus SEP. In their press conferences, FOMC chairs would then explain the forecasted behavior of the path of the funds rate in the SEP given the forecasted behavior of the economy.

Aided by the FOMC chair at the post-meeting press conference, the underlying consistency in policy would emerge over time with successive press conferences through observation of how the funds rate path changes in response to new information (news) about the behavior of the economy. The commentary by FOMC chairs would distinguish between this consistency in the FOMC's behavior (the FOMC's reaction function) and forward guidance. The desirability of this distinction arises periodically when the market sets the yield curve in a way that conflicts with the FOMC's consensus over the desired future path of the funds rate. The distinction would clarify whether the conflict arises from a misunderstanding of the FOMC's reaction function or from a forecast of the evolution of the economy by the FOMC that differs from that of the market.

Recent market commentary highlights the importance of this distinction. Through fall 2023, although the economy continued to grow steadily, many measures of inflation declined. Consider the commentary of Stephen Stanley:

Personal income posted a 0.4% rise in November, as a solid employment report generated a 0.6% jump in wage and salary income. In

fact, wage and salary income is up 6.5% over the past 12 months. Given how much headline inflation has fallen . . . , this works out to a stellar gain in real terms. Real disposable income was up 0.4% on the month and 4.2% year-over-year, more than enough to support a solid advance in real consumer spending. . . . The 3-month and 6-month annualized rates of increase [core PCE deflator] sagged to 2.2% and 1.9%, respectively. Many analysts will officially declare victory on inflation today, and financial market participants will presumably lock in a March [2024] rate cut.⁴²

Given the decline in inflation, at its December 2023 meeting, in its SEP, the FOMC forecast a decline of about 75 basis points from the midpoint of the existing funds rate range (5.375 percent) to the year-end 2024 value. However, as Stanley wrote of the market's reaction to Chair Powell's press conference after the December 13, 2023, FOMC meeting:

Either Chairman Powell has taken a drastic dovish swerve or he committed a historic communications error on Wednesday, when he managed to convince market participants to add over 50 more basis points of easing to already aggressive 2024 expectations. Even after some mild backtracking by Fed Presidents Williams and Bostic on Friday, the week ended with fed funds futures pricing in over 150 basis points of rate cuts for next year, more than double what the median dot of FOMC participants projects. It is my view that Powell simply failed to read the room and inadvertently gave a green light to the extreme dovish inclinations of financial market participants.⁴³

Because the chair speaks for the FOMC and the SEP makes explicit the forecasts of FOMC participants, the issue is not forward guidance but rather whether Powell signaled a change in the FOMC's reaction function to tilt it in a dovish direction. Specifically, if, by the March 2024 FOMC meeting, inflation is still muted, then the FOMC will reduce the funds rate target by significantly more than would have been the case with the prior reaction function. Adding to confusion over the FOMC's reaction function was that factors mentioned previously as important determinants of the funds rate were ignored without explanation.

42. Stanley, "November Income, Spending, and PCE Deflator Recap."

43. Stanley, "Weekly Economic Forecast Table."

In a column aptly titled “The Powell Pivot,” Michael Darda highlighted these factors:

Super core services inflation excluding rents (so called “super core” CPI). This metric was a preoccupation of the FOMC because it supposedly captured the “passthrough” of labor market pressures into the price level. The November reading was 0.44% m/m with a three-month average of 0.42% m/m, *above* the 0.2% trend of the last cycle, which was consistent with price stability and an *acceleration* over the summer period when monthly readings dipped below trend.

Labor market as represented by the unemployment rate and various other measures of labor utilization. The labor market *tightened in November* with the unemployment rate falling 0.2 percentage points. The 3.7% level of U-3 is 0.3% above the cycle lows of 3.4% seen in January and April. The prime age employment-to-population ratio [EPR] *rose* 0.1 percentage point in November and is 0.2 percentage points below cycle peaks. The overall EPR rose to a new cycle high of 60.5 in November.

Financial conditions. The Powell-led Fed has focused on so-called “financial conditions” as the key transmission mechanism for changes in the Fed’s target rate and balance sheet to impact broader macro conditions. The Bloomberg Financial Conditions Index has “eased” to levels not seen since early 2022, prior to the Fed’s first-rate hike and the beginning of QT. (italics in original)⁴⁴

In his December 13, 2023, press conference, Powell reiterated five times that the FOMC looks at the “totality” of the data. Perhaps other factors outweighed the above factors previously highlighted as critical. Unfortunately, one has no immediate way of knowing because the FOMC keeps the transcripts of its meetings secret for five calendar years. However, along with “financial conditions,” such other factors should have been incorporated into the forecasts available in the SEP.

Most fundamentally, in terms of both transparency and the prerequisite that a stabilizing monetary policy requires that the yield curve move in a way that is consistent with the FOMC’s reaction function in response to news about the

44. Darda, “Sunday Musings: The Powell Pivot.”

economy, the FOMC needs to be explicit about its reaction function. As shown in the contrast between the language in the Statement on Longer-Run Goals and Monetary Policy Strategy released in 2012 and in 2020 (reproduced in section 4), the FOMC does change “monetary policy,” its reaction function, which captures the underlying consistency in monetary policy. The first statement demonstrated a policy focused on maintenance of price stability while giving markets free rein to determine unemployment. The second statement demonstrated a policy of trading off between the independent goals of a socially desirable low rate of unemployment and price stability. Both reflect the underlying procedures of LAW, but the first entails preemptive increases in the funds rate to prevent the emergence of inflation. The second, as embodied in FAIT, rejected preemptive increases.

The FOMC revises the statement once every three years. Without an explicit discussion of the reaction function in the press conference following FOMC meetings, markets and the public have no way of knowing when and why the FOMC may have changed its reaction function. When the FOMC’s reaction function changes without announcement, it takes time for markets to use SEP statements to infer that change.

10. FED OBJECTIONS TO MAKING EXPLICIT THE CONSISTENCY (THE RULE) IT IMPOSES ON ITS BEHAVIOR

The FOMC does change “monetary policy” understood as capturing an underlying consistency in FOMC decision-making as expressed in a reaction function. One can associate the policy articulated in the 2012 statement with the Volcker–Greenspan era and its neutral aggregate-demand policy (LAW with credibility). The 2020 statement is in the spirit of the Burns–Miller era in its activist aggregate-demand policy (LAW with tradeoffs), although perhaps now constrained by a longer-run objective of price stability. However, the FOMC does not make such associations. Therefore, it lacks systematic procedures for learning from historical experience.⁴⁵

As explained in section 3, because markets are forward looking, the transmission of a stabilizing monetary policy requires that markets understand how the FOMC responds to “news” (new information) about the economy. Monetary

45. A problem is political economy. The FOMC’s working assumption is that the admission of mistakes would facilitate attacks on the Fed’s independence. To maintain its independence, the FOMC believes that it needs to communicate the message that it does “all good things.” It fights against an externally created instability both in the real economy and in inflation. It does not create them with an inappropriate monetary policy.

policy therefore requires consistency over time. Markets infer that consistency from the behavior of the SEP over time and from speeches. At the same time, the FOMC chair does not articulate that consistency. The perennial issue of rules versus discretion raised the relevant issues. Is there merit to the objections FOMC spokespersons have raised in the past to the idea of conducting policy by a rule?

These objections caricature the idea of a rule-based policy as “mechanical” by ignoring the need for judgment. A LAW-based policy requires reaching a consensus on whether the economy is growing unsustainably fast or slow. Reaching such a consensus, which occupies the major part of FOMC discussions, draws on a wide variety of information and requires judgment. That fact, however, in no way implies that monetary policy does not and need not impose consistency over time in FOMC behavior.

Another standard objection to a rule-based monetary policy is that it is impossible to design a rule that will foresee all contingencies. The economy is too unpredictable. The underlying premise is that the FOMC can predict the effects of individual policy actions undertaken in response to untoward events.⁴⁶ A recent example would be the failure of Silicon Valley Bank, which conducted business with Silicon Valley corporations. Placed in the context of

46. The FOMC’s record of forecasting the effect of individual shocks and then offsetting them is poor. Two examples illustrate. In both cases, because of dire economic forecasts, the FOMC cut the funds rate. However, in both cases, the economy grew strongly and the concern became inflation, not recession. First, the Library of Congress has described the Black Monday stock market crash as follows:

Just as the stock market crash of October 28, 1929, has forever come to be remembered as “Black Tuesday,” so October 19, 1987, has come to be known as “Black Monday.” It was on this day that the stock market again crashed, precipitating one of the first financial crises of the modern globalized era, as the Dow Jones Industrial Average (DJIA) dropped 508 points, or 22.6% of its value. Within that one day, over \$500 billion was lost from the Dow Jones Index. . . . The S&P 500 lost 58 points, or 30% of its value. . . . Around the world stock market values were plunging, causing a rampant fear that this event would mimic the October 28, 1929, stock market crash, which contributed to the Great Depression of the 1930s.

See Library of Congress, “The Black Monday Stock Market Crash.”

The second example is the Asian Financial Crisis. Morris Goldstein wrote at the time:

Equity and currency markets in the most affected countries recorded huge drops—ranging from 20–75 percent—during the second half of 1997. . . . The crisis will also have significant spillover effects outside the region. The IMF recently revised downward its 1998 projection for global growth from 4.5 to 3.8 percent. In the United States, most analysts estimate that the crisis will cause growth this year to be one half to three-quarters of a percentage point lower than would otherwise be the case.

See Goldstein, “The Asian Financial Crisis.”

a model, the premise is that the FOMC can control the difference between the real rate of interest and the natural rate of interest to offset instability in the economy.

That is, the FOMC can conduct an activist policy of aggregate-demand management. In the context of a model, the FOMC can predictably solve the simultaneity problem of sorting out the one-way causation of its actions on the macroeconomy and can do so period by period. However, the difficulty in such a policy of discretionary reaction to events is that the associated variability in the difference between the real rate of interest and the natural rate of interest creates monetary emissions and absorptions that render unpredictable the evolution of the price level. Firms then cannot set relative prices in a way that clears markets.

Of course, unforeseen events that affect the economy occur regularly. However, that fact in no way invalidates the stabilizing properties of a neutral aggregate-demand policy (LAW with credibility). With a rule that maintains the expectation of price stability, the focus of policy is moving the funds rate and the yield curve in a way that maintains stability in the economy's rate of resource utilization. The FOMC is not forecasting period by period the impact on the economy of individual shocks. It is looking at how the constellation of shocks is affecting the direction of the economy's rate of resource utilization. To make that judgment, it relies on a variety of resources, such as the behavior of the labor market, inventories, anecdotal information about the economy gleaned through contacts with businesspeople and the boards of directors of the Reserve Banks, and so on.

This task is manageable because with LAW with credibility the FOMC tracks the natural rate of interest and allows the price system full rein to stabilize the economy. As explained in section 3, the FOMC controls money creation in such a way that money is not a source of disturbance. It is giving full rein to the price system to control the real economy without challenging the price system to perform that task with instability in the price level.

If the FOMC's objections to a rule-based monetary policy, albeit with judgment to read the economy, are not valid, academic economists should challenge the FOMC to deal with the argument by Robert Lucas for a rule-based policy:

Our ability as economists to predict the responses of agents rests, in situations where expectations about the future matter, on our understanding of the stochastic environment agents believe themselves to be operating in. In practice, this limits the class of policies the consequences of which we can hope to assess in

advance to policies generated by fixed, well understood, relatively permanent rules (or functions relating policy actions taken to the state of the economy) Analysis of policy which utilizes economics in a scientific way necessarily involves choice among alternative stable, predictable policy rules, infrequently changed and then only after extensive professional and general discussion, minimizing (though, of course, never entirely eliminating) the role of discretionary economic management.⁴⁷

Lucas also noted:

I have been impressed with how noncontroversial it [the above argument for rules] seems to be at a general level and with how widely ignored it continues to be at what some view as a “practical” level.⁴⁸

11. WHY AN EXPLICIT REACTION FUNCTION IS ESPECIALLY IMPORTANT IN 2024

As of fall 2023, financial markets were heartened by data showing core PCE inflation near 2 percent. The average of the annualized monthly growth rates for core PCE from June 2023 through November 2023 was 1.9 percent. The Atlanta Fed nowcast for annualized real GDP growth in fourth quarter 2023 made on December 22, 2023, was 2.3 percent with real personal consumption expenditures at 2.4 percent. Financial markets drew the conclusion that the FOMC not only had returned inflation to target but also had done so without a recession. It followed that in 2024 the FOMC could lower the funds rate significantly.

A more careful analysis, however, shows reasons for caution. Figure 4 shows flexible-price and sticky-price inflation (one-month annualized growth rates). The three-month annualized figure for sticky-price CPI inflation for December 2023 was 4.2 percent, with the number for flexible-price inflation at -3.7 percent (Atlanta Fed). From April 2021 through June 2022, flexible-price inflation (one-month annualized numbers) averaged 19.9 percent. From July 2022 through December 2023, it averaged -1.0 percent. The sharp decline in flexible-price inflation could have biased downward core PCE inflation,

47. Lucas, “Rules, Discretion, and the Role of the Economic Advisor,” 205.

48. Lucas, “Rules, Discretion, and the Role of the Economic Advisor,” 205.

which only subtracts food and energy inflation. Sticky-price inflation then is a better measure of underlying inflation. Moreover, growth in nominal GDP remains strong. From first quarter 2011 through fourth quarter 2019, growth in nominal GDP averaged 4.1 percent (average of annualized quarterly growth rates). From second quarter 2020 through third quarter 2023, the comparable figure was 8.0 percent, with growth in the first three quarters of 2023 at 6.1 percent.

Although Powell did not mention the role of an expansionary monetary policy in producing a strong rate of growth of aggregate demand, implicitly, he explained how it stimulated a demand for goods, whose supply was restricted by disruptions caused by the COVID-19 pandemic, to produce a high rate of goods inflation. Flexible-price inflation reflects goods prices as opposed to services prices. As Powell described:

Early in the pandemic, goods prices began rising rapidly, as abnormally strong demand was met by pandemic-hampered supply.⁴⁹

Powell said:

An important part of the explanation [why forecasts of inflation have been so far off] is that forecasters widely underestimated the severity and persistence of supply-side frictions, which, when combined with strong demand, especially for durable goods, produced surprisingly high inflation.⁵⁰

With the relaxation of supply constraints, the high rate of flexible-price inflation reversed to become deflation. Stephen Stanley wrote:

The steep deceleration in core inflation in recent months has been driven to a great degree by sharp declines in prices of some of the most volatile line items within the index. Used vehicle prices have fallen in five of the past six months, airfares in six of the past eight, and hotel rates in five of the last six. Meanwhile, the core CPI excluding the five most volatile line items has risen by 0.3% in each of the past nine months. At some point, airfares, used vehicle prices, and hotel rates are going to level out, and when they do, core readings are likely to run higher than

49. Powell, "Inflation and the Labor Market."

50. Powell, "Restoring Price Stability."

the FOMC is willing to accept. Alternative gauges of underlying inflation such as the Atlanta Fed Sticky-Price CPI (4.7% year over year and 4.5% annualized over the past three months), the Cleveland Fed Median CPI (5.2% year over year), and the Dallas Fed Trimmed-Mean PCE (3.6% year over year and 2.9% annualized over the past six months) confirm that the headline and core aggregates likely exaggerate the degree of progress.⁵¹

However, despite the strength in the economy in 2023, the monetary overhang could finally work off in 2024. The economy could weaken in 2024. If so, it would be a mistake to watch inflation and only lower the funds rate from its 5.25–5.5 percent range if underlying inflation has fallen to 2 percent or below. Such cyclical inertia is what preceded past serious recessions. For reasons of political economy, a standard FOMC procedure is to impose consistency on the direction of funds rate changes over significant periods of time, thereby avoiding the embarrassing need to abruptly make a reversal in a change in the funds rate.⁵² Doing so leaves the FOMC vulnerable to the charge of having made a mistake. Especially, populist critics of the Fed would jump on the reversal of a funds rate increase as raising unemployment unnecessarily.

The proposal here is for the FOMC to move back to the monetary policy that underlay the Volcker–Greenspan era, but to make it more explicit. FAIT was a failure. There is no evidence in the historical record that the FOMC can control slack in the economy to hit an arbitrary inflation target such as 2 percent and certainly not to move inflation above and then below in a controlled way. The evidence is that the FOMC can establish the expectation of price stability so that firms in the sticky-price sector set prices for multiple periods without building in an expectation of inflation. It can then use LAW procedures with preemptive moves to track the natural rate of interest. As evidenced in the recovery from the Great Recession, these procedures produce an underlying inflation rate of about 1.5 percent (see figure 4). The shortfall from the FOMC’s 2 percent target of one-half a percentage point did not represent an opportunity to move leftward along a Phillips curve reducing unemployment by raising inflation.

The first requirement is to make explicit the consistency in policy that ensures credibility for a stable nominal anchor—that is, price stability. An explicit inflation target is a first step, but because of the Friedman long-and-variable lags

51. Stanley, “Patience Is a Virtue: Year-End Review/2024 Preview.”

52. Hetzel, *The Monetary Policy of the Federal Reserve*, 259, figure 21.2.

phenomenon, the FOMC cannot employ a simple feedback rule to target inflation, and therefore it does not impose discipline on period-by-period FOMC decision-making. At its meetings, the FOMC should routinely set a nominal benchmark. Specifically, it should make a forecast for two paths—one the forecasted behavior of nominal output and one the forecasted behavior of potential real output (in logarithms). The benchmark would impose discipline on policy so that the difference in the slopes of these two forecasted paths would converge to the inflation target. The funds rate then can vary widely and decline sharply in response to weakness in the economy while markets remain assured that the FOMC is imposing a long-run discipline on policy. The FOMC can follow a policy of stabilizing the economy while not allowing inflation to drift.⁵³

The second requirement is for the FOMC to distinguish between forward guidance and a reaction function by making the latter explicit. The problem as of year-end 2023 is the lack of any kind of certainty over whether with the current funds rate the economy will grow at an unsustainably high or low rate. Moreover, will underlying inflation revert to price stability and, if so, remain there? Forward guidance, then, is of little value for communicating with financial markets. Explicitness about a reaction function will require that the FOMC make a choice whether to return to the Burns–Miller reaction function or to the Volcker–Greenspan reaction function. The underlying premise of the former is that monetary policy alters financial conditions to control the amount of slack in the economy with the objective of moving the economy along a Phillips curve—an activist aggregate-demand policy (LAW with tradeoffs). The underlying premise of the latter is that monetary policy provides for a stable nominal anchor in the form of the expectation of price stability and then moves the funds rate in a way that tracks the natural rate of interest—a neutral aggregate-demand policy (LAW with credibility).

53. To support this reform, the Tealbook (formally titled “Report to the FOMC on Economic Conditions and Monetary Policy”) should be reorganized into three parts. The first part would explain how the economy evolved to its current state. That part would be organized around how the systematic nature of monetary policy (the FOMC’s reaction function) interacted with shocks impinging on the economy to produce the current state of the economy. The second part would consist of a forecast of the economy. It would recommend a consensus FOMC SEP forecast of the economy accompanied by forward guidance for the future funds rate path. The third part would be a staff formulation of the reaction function assumed to discipline the behavior of the funds rate to cause the longer-run forecast to be consistent with price stability. It would be informed by analysis of the first part. Namely, did the rule followed in the period before the current period work well to maintain price stability accompanied by economic stability? Finally, the Tealbook would recommend the nominal-real benchmark paths assumed consistent with long-term price stability. See https://www.federalreserve.gov/monetarypolicy/fomc_historical.htm.

Without explicitness about the reaction function, given the uncertainty about the evolution of the economy that characterizes early 2024, if the economy either unexpectedly strengthens or weakens, the FOMC will have trouble knowing how the yield curve will respond. An extreme case could occur at a time when markets become concerned about the currently unsustainable government budget deficit and believe that the FOMC is under political pressure to offset an increase in bond rates. A sharp reduction in the funds rate, even if desirable to offset weakness in the economy, could lead markets to anticipate that the FOMC has backed off from the restoration of price stability.

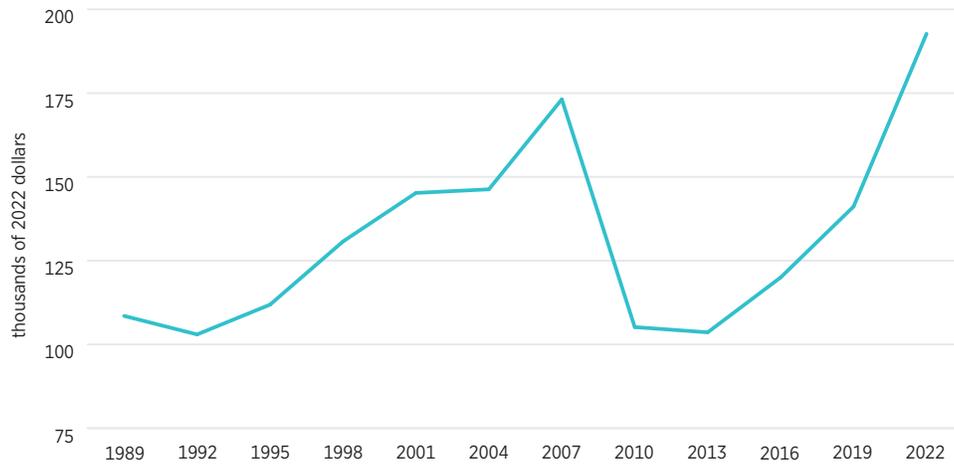
Moreover, disinflation is an interim measure. The FOMC needs to have a North Star to guide it in the long run. To maintain economic and price stability, it needs procedures that allow it to track the natural rate of interest. At present (early 2024), it needs to follow LAW procedures that move the funds rate to offset unsustainable weakness or strength in the economy. The following is an illustration of the uncertainty over whether the FOMC will need to offset weakness or strength in the economy. Figure 11 shows household net worth. Plausibly, the behavior of the real net worth of households is one determinant of the natural rate of interest.

Especially after 1995, the net worth series rose, propelled upward by the government policy of raising home ownership, while the supply of houses was constrained from rising commensurately. Starting in June 2004, the Greenspan FOMC began raising the funds rate from 1 percent to 5.25 percent in June 2006. With the sharp decline in house prices that began in 2006, the net worth series fell sharply. Plausibly, the decline was a factor in making the natural rate of interest negative by mid-2008, a decline exacerbated later by the turmoil in financial markets after the Lehman Brothers failure. Monetary policy became contractionary when the FOMC, concentrating on high headline inflation, waited until the December FOMC meetings to lower the funds rate to the zero lower bound.

As shown in figure 11, after 2013, real household wealth rose again significantly. The combination of a funds rate kept at the ZLB until March 2022 and monetization of a significant amount of the government pandemic transfers to households spurred household accumulation of assets and wealth creation. Jeanna Smialek and Ben Casselman wrote:

American families saw the largest jump in their wealth on record between 2019 and 2022, according to Federal Reserve data released on Wednesday, as rising stock indexes, climbing home prices and repeated rounds of government stimulus left people's finances

FIGURE 11. HOUSEHOLD NET WORTH



Source: Board of Governors of the Federal Reserve System, Survey of Consumer Finances (database).
Note: Median net worth of all families, 1989–2022, measured in 2022 dollars.

healthier. . . . Median net worth climbed 37 percent over those three years after adjusting for inflation, the Fed’s Survey of Consumer Finances showed the biggest jump in records stretching back to 1989. At the same time, median family income increased 3 percent between 2018 and 2021 after subtracting out price increases.⁵⁴

Although the Board of Governors updates the wealth series shown in figure 11 only every three years, with the last observation in 2022, the series surely rose again in 2023. From December 2022 through October 2023, the S&P CoreLogic Case-Shiller US National Home Price Index rose 5.4 percent. From December 2022 through December 2023, the S&P stock market index rose 19.8 percent. If household wealth is a determinant of the natural rate of interest, the current funds rate range of 5.25–5.5 percent is not necessarily unusually high. Supporting that possibility is that growth in consumer spending had yet to decline at year-end. Monthly annualized growth rates of real personal consumption expenditures from January 2014 through January 2020 averaged 2.8 percent. From January 2023 through December 2023, the number was 3.3 percent. The point is that the FOMC needs LAW procedures to track the natural rate of interest without prejudging whether the funds rate target is too high or too low.

54. Smialek and Casselman, “American Household Wealth Jumped in the Pandemic.”

12. CONCLUDING COMMENT

The Fed has no systematic way of learning from the past. To learn from the experiments that it has furnished would require admitting that monetary policymakers make mistakes. Moreover, if the price level is a monetary phenomenon, the Fed cannot repeat the dual mandate in a way that pretends to be all things to all people. In this case, the Fed is not a master puppeteer pulling strings to control the real economy while producing an acceptable amount of inflation. A stable monetary policy regime requires that the Fed follow a rule that provides a stable nominal anchor in the form of the expectation of price stability and that allows the price system free rein to determine employment and output.

APPENDIX: GREENSPAN AND LAW WITH CREDIBILITY

Alan Greenspan described these LAW with credibility procedures that stabilize the economy's rate of resource utilization:

Persistent deviations of actual growth from that of capacity potential will soon send signals that a policy adjustment is needed. . . . Through the four quarters of 1994, for example, real GDP. . . rose 3 1/2 percent. If that were the true rate of increase in the economy's long-run potential, then we would have expected no change in rates of resource utilization. Instead, industrial capacity utilization rose nearly 3 percentage points, and the unemployment rate dropped 1 percentage point. Moreover, we began to see signs of strain on facilities: deliveries of materials slowed appreciably, and factory overtime rose sharply.⁵⁵

Greenspan commented:

By themselves, surges in economic growth are not necessarily unsustainable provided they do not exceed the sum of the rate of growth in the labor force and productivity for a protracted period. . . . Assessing conditions in the labor market can be very helpful in forming those judgments. Employment growth has exceeded the growth in working-age population this past year by almost 1/2 percentage point. This implies that real gross domestic

55. *Conduct of Monetary Policy: Hearing before the Subcomm. on Domestic and International Monetary Policy of the H. Comm. on Banking and Financial Services*, 104th Cong. 2nd sess. (1996) (statement of Alan Greenspan).

product is growing faster than its potential. What is important is the information offered by changes in resource utilization for the *difference* between actual and potential growth. (italics in original)⁵⁶

Greenspan commented, “We cannot tell . . . what the actual potential [growth rate] is. . . . But it shouldn’t be our concern. Our concern should be the imbalances that emerge.”⁵⁷

Greenspan replied to a question about whether the Fed limited growth in raising interest rates:

Senator, I do understand where you are coming from because I have been in the same place. . . . The question of how fast this economy grows is not something the central bank should be involved in. . . . What we are looking at is basically the indications that demand chronically exceeds supply. . . . The best way to measure that is to look at what is happening to the total number of people who . . . are unemployed. . . . What . . . we are concerned about is not the rate of increase in demand or the rate of increase in supply, but only the difference between the two. . . . In other words, we don’t know whether the potential growth rate is 4, 5, 6, or 8 percent. What we need to focus on . . . is solely the difference between the two.⁵⁸

56. *Federal Reserve’s Second Monetary Policy Report for 1999: Hearing before the S. Comm. on Banking, Housing, and Urban Affairs*, 106th Cong. 1st sess. (1999) (comment of Alan Greenspan).

57. *Conduct of Monetary Policy: Hearing before the H. Comm. on Banking and Financial Services*, 106th Cong. 1st sess. (1999) (comment of Alan Greenspan).

58. *Federal Reserve’s First Monetary Policy Report for 2000: Hearing before the S. Comm. on Banking, Housing, and Urban Affairs*, 106th Cong. 2nd sess. (2000) (statement of Alan Greenspan).

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