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In Search of a Stable Nominal Anchor

In its public communications, the Federal Open Market Committee (FOMC) uses the language of discretion rather than rules. The message is that, given an uncertain future, discretion endows it with the ability to respond to the economy's most pressing problem. This flexibility means that the FOMC can vary monetary policy between expansionary and restrictive stances depending on which objective of the dual mandate is the more pressing: "stable prices" or "maximum employment." Section 1 notes the absence of any significant challenge to this message. Section 2 challenges this message. Because financial markets are forward looking, a stabilizing monetary policy must communicate a reaction function, which explains not only how the FOMC will respond to incoming information on the economy but also how it will respond to information that arrives in the future.

Section 3 contends that the FOMC does indeed communicate this consistency in its behavior to financial markets, but in an informal way that allows it to maintain the language of discretion in its communication with the public and Congress. By not making its reaction function explicit, the FOMC does not need to make explicit its understanding of the basic structure of the economy that causes the reaction function to stabilize the economy. That ambiguity, however, limits debate with the academic community and prevents learning about which kinds of policies have stabilized or destabilized the economy. The paper discusses the two main alternatives, labelled here the "Keynesian tradition" and the "monetarist tradition." However, in the way exposited by Milton Friedman, the latter at present appears to lack relevance. To make it relevant to the desirable debate over what monetary policy controls and how it exercises that control, Section 4 relates the monetarist tradition as exposited by Milton Friedman to the modern version represented in the New Keynesian (NK) model of Goodfriend and King (1997).

Section 5 argues that the optimal monetary policy regime is one that concentrates on maintenance of price stability. Specifically, the FOMC's pandemic monetary policy known as flexible-average-inflation targeting (FAIT) destabilized the economy with its focus on Phillips curve trade-offs. The FOMC should return to the Volcker-Greenspan policy, which restored price stability through a policy of leaning-against-the-wind (LAW) with preemptive increases in the funds rate to prevent the emergence of inflation. Section 6 reviews and examines critically the arguments that FOMC spokespersons have made for discretion rather than a rules-based monetary policy. It argues that monetary policy in the Great Recession would have benefitted from a rule-based monetary policy in the Volcker-Greenspan spirit. Section 7 discusses the political economy of reasons for why the FOMC chair finds it advantageous in dealing with the public and Congress to use the language of discretion. Section 8 concludes with some comments on why a rules-based monetary policy could be advantageous in preserving the long-run independence of the Fed and in the advancement of accountability.

1. The FOMC's language of discretion

The message that the FOMC communicates to the public is one of managing the economy. The formulation of monetary policy entails going meeting by meeting and at each meeting evaluating the most important threat to economic stability. Is the major concern achievement of "maximum employment" or achievement of "stable prices?" The FOMC then counteracts that threat by moving

the funds rate in a commonsense way. It lowers the funds rate if maximum employment, that is, unsustainable weakness in the economy, is the priority. It raises the funds rate if inflation, actual or potential due to unsustainable strength in the economy, is the priority. Nick Timiraos (2024) expressed the nature of the communication: "Fed officials often refer to their job as risk management—for example, making sure that they weigh the risks of hotter inflation against the risks of accelerating unemployment. They often set rates to manage against whichever risks seem more costly."

The FOMC argues that it has successfully pursued this policy of discretion to stabilize the economy. The former criticism under the rubric of "rules vs. discretion" has largely disappeared within academia. In the 1960s and 1970s, Milton Friedman was the standard bearer for the rules camp. His criticism of discretionary monetary policy is that it would destabilize the economy because of the phenomenon that came to be called "long and variable lags." For example, Friedman (*Newsweek*, 1/9/1967, 59) wrote:

> The Fed's erratic policy reflects also its failure to allow for the delay between its actions and their effects on the economy. Said Governor Robertson of the board in a recent speech: "Monetary policy will be formulated by the Federal Reserve, day by day, in the light of economic conditions *as they emerge*. This is a formula guaranteed to produce bad policy. If it is followed, the Fed will continue to step too hard on the brake until the recessionary effects are clear and unmistakable, and then will step too hard on the accelerator." (italics in original)

The Friedman antidote was for the FOMC to follow a rule for steady money growth. However, the Friedman monetarist program no longer attracts followers. The FOMC's advertised policy of discretion to preserve flexibility to respond to unforeseen events does not routinely destabilize the economy. FOMC participants probably do not even know the behavior of the money supply. Although made many years ago in 1980, the observations of Robert Lucas are insightful. Lucas (1980 [2013], 500-503) wrote:

> Keynesian economics is dead. . . . Keynesianism *mattered*—it filled a central ideological function. Now that it is gone , something is going to have to take its place—and we need to think about what that something is likely to be. . . . *The central* lesson of economic theory is the proposition that a competitive economy, left to its own devices, will do a good job of allocating resources. . . . This is the basic message of 19th century economics, continued into the 20th century. . . . Now in the 1930s, all this went out the window. . . . Try asking people "Do you think our private economy, left to its own devices, could be trusted to do a good job at maintaining full employment?" . . . . If you ask a normal literate, he will say "Of course not. Just think of the 1930s." . . . As a result, the view that the economy needs to be managed on a year in, year out basis is almost universal.
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> In academic circles, it is total chaos. . . . The collapse of the center means the end of consensus economics. . . . I expect public debate to grow increasingly more ideological. . . . What will the outcome be? Who knows? But it is certain that it won't be settled by a few dozen academic experts. If the general reading of the 30s as the "failure of capitalism" continues to prevail, I see one outcome. If some combination of counter-arguments . . . overcomes this, I see brighter prospects. (italics in original)

The "central ideological function" of Keynesianism was that it appealed to the popular belief that to ensure stability the economy needed to be "managed." The FOMC's use of the language of discretion conveys the message that it is fulfilling this role and managing the economy. Part of that

language is the omission of any reference to the role of the price system in stabilizing economic activity.

According to the Lucas quote, the disappearance of Keynesian economics among economists has resulted in an intellectual vacuum. If so, that creates a problem in that to achieve a consensus about the optimal monetary policy regime, economists would have to judge which kind of model best organizes an understanding of when monetary policy has been stabilizing or destabilizing. However, the language of discretion with its emphasis of the present leaves a vacuum in terms of understanding how the monetary regime has changed over time. The computer can find some collection of shocks that will make any DSGE model fit the historical time series. An historical narrative that brings outside information to bear is needed to discipline the choice of shocks. The required body of knowledge for passing judgment on monetary policy is missing.

2. Forward looking markets need a reaction function

Noticeably missing from FOMC communication is any explanation of how the funds rate, which is an overnight rate of interest, controls both the spending of firms and households as well as the price setting of firms to achieve the FOMC's goals. In the absence of a command and control economy, such influence must work through the FOMC's influence on the signals sent by the price system as intermediated by the yield curve. Implicitly, the FOMC communicates as though it has solved the problem that plagues macroeconomics of "identification" or "simultaneity bias." That is, how is it possible to disentangle one-way causation when the behavior of the FOMC affects the behavior of the economy and the behavior of the economy affects the behavior of the FOMC? In order to learn from the past with its variety of monetary policies, the FOMC must somehow solve this problem. That is, the FOMC must somehow assign causation to the reduced-form correlations in the data between the behavior of the funds rate and the behavior of the economy.

Economists who have tackled the identification issue use a model that explains how monetary policy works through the price system to affect the behavior of agents (households and firms) and that contains a reaction function, which disciplines how the FOMC responds to new information about the economy (incoming "news"). The forward guidance provided by the FOMC in the form of speeches by participants and the quarterly Summary of Economic Projections (SEP) outlines a reaction function for the behavior of the funds rate *given* a particular forecast of the economy (and assuming markets can infer an FOMC consensus from the median values of the forecasts). However, forward guidance does not substitute for the reaction function of a model that explains how the projected funds rate path will change in response to news about the evolution of the economy.

The importance of that omission arises because the yield curve stretches out for 30 years. In order to respond in a stabilizing way to information that, say, the economy has begun to grow at a rate below potential output as evidenced by a rate of resource utilization for the economy that is decreasing at an unsustainable pace, markets must form an expectation not just of how the FOMC will respond at its next meeting but also how it will respond well into the future. In this example, the forward rates that determine the shape of the yield curve should decline in the near-term but not in the longer term. Moreover, because real output will have to grow above trend to return output to potential, assuming price stability is the objective, markets will need to anticipate that the FOMC will raise the funds rate before the strength in real output growth causes inflation to emerge.

The issue is more than academic. By the end of the 1970s, because the FOMC had allowed inflation to drift up over time, monetary policy lost a stable nominal anchor. In the event of weakness in the economy, allowing corrective strong growth in the economy caused markets to anticipate an increase in inflation. In a destabilizing way, the yield curve then rose because forward rates incorporated an increase in the inflation premia. In order to cause the yield curve to respond in a stabilizing way to news on the economy, Volcker and then Greenspan abandoned the cyclical inertia in the funds rate that had characterized the 1970s and replaced it with preemptive changes in the funds rate to demonstrate to markets that price stability would prevail regardless of strength in the economy or inflation shocks. The general point is that making a reaction function explicit just makes explicit the underlying consistency in monetary policy (the rule) required for a stable nominal anchor.

3. Clarity about the FOMC's reaction function would allow debate over the optimal policy

An articulation of the monetary policy regime that would allow public debate over its desirability should start with specification of a reaction function. An explicit specification would necessarily initiate a discussion over what monetary policy controls and how it exercises that control. The FOMC would then have to address its understanding of the structure of the economy that transmits its influence on the yield curve to the behavior of households and firms. It would need a model of the economy. There is no structural model of the economy that spells out the natural values of real variables such as unemployment and potential output. However, there are two distinct characterizations of the structure of the economy, labeled here "traditional Keynesian" and "traditional monetarism," which imply very different reaction functions and optimal policy.

In the Keynesian tradition, the price level is a nonmonetary phenomenon. There is an inherent inflexibility in relative prices that causes them to move only slowly to clear markets in response to variations in aggregate demand. Given that stickiness, inflation is in part a result of aggregate real demand and in part a result of cost- and wage-push pressures coming from the exercise of market power. The formulation of monetary policy is necessarily organized around a Phillips curve. To control inflation, monetary policy must manipulate slack in the economy to move the economy along the Phillips curve in its control of aggregate-demand inflation. It must also manipulate slack in the economy to offset upward or downward shifts in the Phillips curve in its control of cost- and wage-push inflation. Because expectations are adaptive, that is, formed entirely on the observed past behavior of inflation, the FOMC can take them as given each period. It can then manipulate slack discretionarily, that is, on a period-by-period basis without commitment to a rule.

In contrast, in the monetarist tradition, the price level is a monetary phenomenon. Inflexibility in relative prices that prevents market clearing is due to monetary instability that causes the price level to evolve in an erratic and unpredictable manner. It is not an inherent feature of a market economy. To provide for price stability, FOMC procedures must provide for monetary control. Provision of that discipline does not necessarily entail targets for money or bank reserves. It is also important to realize that the empirical measures of the liquidity desired by the public in its asset portfolio, now chiefly measured by M2, do not need to possess predictive power for economic activity.

Why in the early 1980s for M1 and in the early 1990s for M2 did these empirical measures of the public's demand for liquidity cease being accurate measures? In the early 1980s, the cost of transferring funds in and out of M1 declined due to the computer. At the same time, banks continued to change the interest rates they pay on their deposits only with a long lag following changes in

money market interest rates. For example, when market interest rates decline, given that banks are slow to follow suit, investors transfer deposits into the more attractive bank deposits. The transferred deposits possess the characteristics of savings instruments rather than the characteristics of transactions instruments. The resulting increase in M1 then overstates the increase in liquidity that investors see in their asset portfolios. As a result, in the early 1980s, the behavior of M1 changed from being procyclical to being countercyclical. Strength in M1 accompanied weakness in the economy and lower money market interest rates and became an inappropriate indicator for policy because weakness in the economy required lowering the funds rate.

How then do FOMC procedures that result in price stability provide for monetary control given that the policy instrument is the funds rate not bank reserves and also given that FOMC participants may not even be aware of the behavior of money? There is a demand and a supply aspect, which reflect the monetarist premises that inflation is a monetary phenomenon, that the price system works well to ensure full employment when left to operate in an environment of price stability, and that with a credible rule ensuring price stability monetary policy can separate the determination of the price level from the behavior of the real economy (the classical dichotomy). With respect to demand, the FOMC can implement a rule that ensures the expectation of price stability because the public adapts its expectations to the rule. The public then demands an amount of real liquidity (moneyness) in its portfolio consistent with price stability. Given the FOMCs interest rate target, banks accommodate that demand and the Fed supplies the associated reserves demand.

With respect to supply, to provide for price stability, the rule must entail procedures that cause the funds rate to track the natural rate of interest. These procedures constitute those pioneered by William McChesney Martin, which he called "leaning against the wind" (LAW). If growth in real output is above trend as evidenced by an unsustainable increase in the rate of resource utilization, the real rate of interest lies below the natural rate of interest and must rise to maintain growth in output equal to potential. LAW that provides for price stability is characterized by preemptive increases in the funds rate at signs of overheating in the labor market. These procedures equilibrate the goods market and prevent both the excess supply of bonds, which requires the FOMC to purchase bonds and create deposits, and the excess demand for bonds, which requires the FOMC to sell bonds and destroy deposits. In effect they prevent the macroeconomic equivalent of price fixing with the accompanying excess and deficiencies in the bond market that create monetary instability given the FOMC's rate peg.

LAW with preemption or LAW with credibility (Hetzel 2022) stabilizes the economy's rate of resource utilization. The operation of the price system then determines output and employment. In contrast, with Keynesian procedures, LAW with cyclical inertia in the funds rate, or LAW with trade-offs, the objective is to control slack in the economy as the intermediate target. Policy aims at controlling output and employment rather than leaving their determination to market forces. Policy overrides the operation of the price system. The FOMC's use of the language of discretion obscures the difference and the way in which a stabilizing monetary policy operates. Is it in the monetarist tradition of letting the stabilizing properties of the price system operate to maintain full employment? Alternatively, is it in the Keynesian tradition of active control of slack in the economy to achieve a desirable combination of low inflation and low unemployment? If the monetarist tradition is correct, the problem is that policy makers might actually believe that they, rather than the price system, are managing the economy. This conceit happened with the pandemic monetary policy and the FOMC's return to the activist policy of the 1970s.

An analogy with floating exchange rates is instructive to understand the monetarist position. With a floating exchange rate, the exchange rate is continually responding to new information on world markets. The real exchange rate then never deviates far from the value that equilibrates the balance of payments. LAW procedures with preemptive changes in the funds rate that maintain price stability remove cyclical inertia in interest rates. In doing so, they cause the funds rate to track the natural rate of interest. The yield curve then adjusts continually to keep the intertemporal distribution of demand consistent with a degree of current aggregate demand equal to potential output. With a stabilizing rule, the price system, not the FOMC is managing the economy.

Economists in the monetarist tradition can use the NK model of Kosuke Aoki (2021), a student of Michael Woodford. Aoki divides firms into two classes: firms that set prices for multiple periods and firms that set prices in auction markets. With a rule that provides for price stability, the former firms, those in the "sticky-price sector," set dollar prices based on the assumption of price stability. The FOMC should limit itself to stabilizing the price level in the sticky-price sector while letting the prices set in the "flexible price sector" pass through to the price level. In that way, it is free to follow procedures that cause the funds rate to track the natural rate of interest. Economists supportive of the Keynesian tradition, can find support in the model of Blanchard and Gali (2007). In their model, the importance of mark-up shocks interacts with the NK Phillips curve so that price stability requires offsetting changes to unemployment. However, in terms of the Aoki model, the resulting fluctuations in the price level would be transitory shocks and should just be allowed to pass through as noise in the price level.[1]

The two different traditions possess very different implications for how to interpret the transmission of monetary policy. In the Keynesian tradition, the FOMC need not worry about money creation because with an interest rate instrument the money supply 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 influence the FOMC exerts on financial intermediation, that is, on conditions in credit markets. Moreover, it is desirable for the FOMC to allocate credit to sectors of the economy adversely affected by the herd behavior of frightened investors in times of financial distress. Credit policy works through its influence on the distribution of income because the Fed itself cannot create resources that can be made available for lending. Who is favored by a change in interest rates depends upon whether one is a borrower or a lender. Dickler (2024) wrote:

> "There are always winners and losers when there is a change in interest rates ," said Stephen Foerster, professor of finance at Ivey Business School in London, Ontario. "In general, lower rates favor borrowers and hurt lenders and savers. It really depends on whether you are a borrower or saver, have locked in borrowing or savings rates," he said.

[1] Leduc et al (2024, abstract) wrote: "How much impact have price markups for goods and services had on the recent surge and the subsequent decline of inflation? . . . Aggregate markups—which are more relevant for overall inflation—have generally remained flat, in line with previous economic recoveries over the past three decades. These patterns suggest that markup fluctuations have not been a main driver of the ups and downs of inflation during the post-pandemic recovery."

In the monetarist tradition, monetary policy shapes the behavior of the yield curve through movements in the risk-free rate of interest incorporated into forward rates. The risk-free rate is the price of intertemporal resources, not credit. The stabilizing properties of the price system do not work through credit policy and the allocation of credit.

4. Continuing the monetarist tradition

Milton Friedman (1960) criticized the activist monetary policy of the 1970s, which relied on discretionary changes in the funds rate to move the economy along a Phillips curve subject to upward shifts due to wage- and cost-push inflation. Discretion was required to judge the amount of politically acceptable unemployment that could be used to suppress inflation (Burns 1979). Discretion necessarily relies on evaluating the impact of individual policy actions, in this case, their impact on slack in the economy. In his "long-and-variable-lag" critique, Friedman argued that such an activist policy would be destabilizing. Famously, Friedman argued for a rule requiring steady growth in money. In the pre-1980s world, the monetary aggregates M1 and M2 possessed stable real demand functions, which were relatively interest insensitive. Trend growth in labor productivity and in the labor force was fairly constant. As a result, low, steady money growth would have yielded a stable nominal anchor in the form of near price stability. In addition, the rule would have turned over the determination of real variables (output and employment) to the unfettered operation of the price system.

While the form of the Friedman rule is no longer viable, the spirit is captured by a rule that maintains price stability. Friedman lacked the model with forward looking agents that came into being with NK models. Without such a model, he could only argue intuitively that a rule in this spirit would be stabilizing because the expectation of price stability would remain unaffected by shocks to the real economy or to inflation. Friedman (1962) used the analogy with free speech that a rule protecting free speech would encourage free speech compared to a discretionary decision made by government in each particular case. Goodfriend and King (1997) gave content to the spirit of the original Friedman rule with an NK model in which the optimal monetary policy was one of price stability, which turns over the determination of real variables to the real business cycle core of the economy. In doing so, Goodfriend and King could explain how the Volcker-Greenspan policy of price stability created the Great Moderation by implementing a rule in the Friedman spirit.

The question arises of how to test their model. The contention here is that one must ask how well the model organizes an historical narrative. The reason is that one must bring outside information about monetary policy to discipline the choice of shocks and especially to isolate shocks arising from monetary policy. Chari et al (2009) explained the general problem with estimation using the example of how to understand a recession. One can restrict the choice of shocks by estimating a simple version of the NK model. However, there is no way to give content to the shocks that provides assurance that one knows how to attribute them to actual behavior. Alternatively, one can estimate a structural model of the economy. However, there will always be some complicated combination of the plethora shocks that will make the model fit the data. One is left with no useful information about how to generalize about the cause of recessions. Chari et al (2009, 243-244) wrote:

> We show that introducing the wage and price markup shocks amounts to mechanically inserting a labor wedge into the model that can be interpreted in more than one way. These shocks are equally interpretable, for example, as fluctuations in the bargaining power of unions or as

fluctuations in the value of the leisure of consumers, not as a sign of a structural feature. Furthermore, both of these interpretations seem strained. In the bargaining power view, a contagious attack of greediness among workers leads them to demand higher wages. In general equilibrium, this attempt is frustrated, and workers simply bid themselves out of jobs. In the fluctuating value of leisure view, a contagious attack of laziness among workers leads them all to take vacations by quitting, causing an economic downturn. Many macroeconomists will find both interpretations unpalatable and, hence, should reject this model for policy analysis.

The competing tradition is favored by many New Keynesians. Typified by the work of Lawrence J. Christiano, Martin Eichenbaum, and Charles L. Evans (2005) and Frank Smets and Raf Wouters (2007), this tradition emphasizes the need for macro models to fit macro data well. The urge to improve the macro fit leads researchers in this tradition to add many shocks and other features to their models and, then, to use the same old aggregate data to estimate the associated new parameters. This tradition does not include the discipline of microeconomic evidence. So, free parameters commonly abound in New Keynesian models.

In order to use the Goodfriend-King model to organize a historical narrative that predicts when monetary policy is a source of instability, it is necessary to add a rule that explains how the FOMC can achieve price stability. Athanasios Orphanides (2001, 2003a, 2003b, plus Orphanides and van Norden 2002) has done significant empirical work showing the infeasibility of using a level Taylor rule (1993, 1999) to make monetary policy in real time because of the lack of information on the required output gap. More generally, a rule with two independent targets, namely, low inflation and low unemployment, which requires organizing monetary policy around a Phillips curve, has been associated with instability as characterized by the 1970s. Orphanides used a difference Taylor rule with its concentration on price stability and rejection of Phillips curve trade-offs to explain the Great Moderation in the Volcker-Greenspan era.

Orphanides (2024) showed that a particularly simple version can forecast the behavior of the funds rate over the period starting in the early 1990s of relative price stability apart from two episodes: the 2008–2009 recession with disinflation and the 2021–2022 inflation. The rule is intuitive in that price stability requires that the rate of growth of nominal output equals the rate of growth of potential real output. The underlying procedures are LAW with preemption; however, one can think of the Orphanides rule as a discipline that enforces equality between the rate of growth of nominal output and the rate of growth of potential real output.

Orphanides termed his rule the "natural growth rule." Orphanides (2024) wrote: "In real time, the natural growth rule employs short-term forecasts to check whether nominal income grows in line with the economy's natural growth rate." The natural growth rate equals growth in potential output plus 2 percent for the inflation target. The change of the funds rate between the contemporaneous quarter and the previous quarter equals the difference between the projected growth of nominal income, n, and the natural growth rate, $n*$: $\Delta \mathrm{i} = \theta(n - n*)$, where Δi is the prescribed quarterly change of the funds rate from the previous quarter, and θ is a parameter controlling how responsive policy is to the projected difference. For the projected growth of nominal income, Orphanides used the real-time forecasts from the Survey of Professional Forecasters published by the Federal Reserve Bank of Philadelphia. When estimated from 1992Q1 through 2024Q1, the rule flags the Great Recession and the 2021–2022 rise in inflation as exceptions to the rule. In the former episode, after the April 2008 meeting, the FOMC did not lower the funds rate in a timely way despite a weakening real economy. In the latter episode, the FOMC ignored the strength

in nominal GDP growth that began in 2021. Note that there is nothing "mechanical" about imposing this kind of consistency (rule).

5. The FOMC should return to the Volcker-Greenspan policy of price stability

The pandemic monetary policy initiated in March 2020 known as flexible-average inflation targeting (FAIT) was a failure.[2] It represented a return to the activist monetary policy of the 1970s with the focus on moving the unemployment rate leftward along a presumed flat Phillips curve. The prepandemic unemployment rate was 3.5 percent and was accompanied by an inflation rate somewhat below 2 percent. The goal was to push the unemployment rate below 3.5 percent, stopping only when inflation rose above the 2 percent inflation target for some undefined period of time. The FOMC implemented its expansionary policy with a funds rate at the zero lower bound and with significant purchases of treasury securities and mortgages.

This quantitative easing (QE) differed from the QE of the recovery from the Great Recession in that with the earlier QE a portfolio balance effect raised the natural rate of interest from a negative value to a positive value. At that point, in December 2016, the FOMC began to raise the funds rate preemptively tracking the increase in the natural rate of interest. In short, with the Yellen FOMC tracking the natural rate of interest in the spirit of Volcker and Greenspan with preemptive funds rate increases, money creation was not a source of disturbances and lacked predictive power. However, with FAIT and the commitment to maintain money creation until inflation rose, money creation was inflationary. It differed only in magnitude not in kind from the debt monetization leading to inflation in countries like Zimbabwe, Argentina, and Venezuela. The FOMC should return to the Volcker-Greenspan monetary policy, but with the difference that it makes the accompanying reaction function explicit.

Given that the FOMC is accustomed to communicating to the public using the language of discretion, a rules-based monetary policy could seem like a venture into the unknown. However, the opposite is true. The goal should be to restore the Volcker-Greenspan policy that produced the Great Moderation. Although not characterized as a rule, until the restoration of credibility for price stability with the 1994 increase in the funds rate with no prior increase in inflation, the desire to restore the stable nominal anchor lost in the 1970s disciplined monetary policy and gave it the character of a rule. After 1994, Greenspan continued the discipline with preemptive increases in the funds rate based on signs of overheating in the labor market (Hetzel 2008, 2012, and 2022).

6. FOMC objections to an explicit reaction function (a rule) are unsupported

The defense by the Board of Governors of a policy of discretion is contained on the Board's website.[3] The Board of Governors (2018) wrote:

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[2] The summary here relies on Hetzel (2022, ch. 26).

[3] The Fed's message seems to dominate popular commentary. George Robertson (2024) received the following from Elon Musk's X.AI GROK when he asked, "What is the Fed's reaction function" (a small illustrative excerpt):

> The Federal Reserve's approach to monetary policy, especially post-2020, indicates a move towards a more nuanced, less formulaic strategy. . . . The Fed might avoid defining a strict reaction function to maintain flexibility in response to unforeseen economic shocks or shifts in economic theory and understanding. . . . By not defining a strict formula, the Fed can adapt its

> Some academic research on policy rules contends that tying monetary policy to a simple and unvarying policy rule can simplify the central bank's communications with the public and make monetary policy predictable and relatively easy to understand. . . . The conclusions of this academic research depend on **a number of assumptions that are unlikely to hold in the real world.** For example, this research assumes that the structure of the economy is well understood by policymakers and the public, and that the economy can be represented fairly accurately by a small number of equations. However, **the true structure of the economy is not known for certain;** it is highly complex, and the simple models used by researchers do not capture that complexity. Furthermore, in the real world, **the structure of the economy changes over time. . . .** The economic models that academic researchers typically use to study the implications of following a simple policy rule also assume that any unexpected events that will affect the economy in the future will resemble unexpected events that occurred in the past—that is, that the types and range of *shocks* affecting the economy in the future will not be all that different from the shocks that have hit the economy before. But **in practice, the nature and magnitude of the shocks hitting the economy can and do change over time.** A simple policy rule that leads to good economic performance under one constellation of shocks is not guaranteed to lead to similarly good performance under a different constellation of shocks.
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> Moreover, the academic research literature on policy rules typically assumes that households and businesses would fully and immediately understand what the rule would tell the central bank to do in all future economic scenarios as well as the implications of the central bank's policy actions for the economy. **If these assumptions do not hold in the real world, then the benefits that the models claim for simple rules will not be fully realized.** (italics and boldface in original)

The first and most important criticism to note is the implication that actual monetary policy is discretionary. The reality is that markets are forward looking and that the FOMC is therefore constrained to impart an underlying consistency to monetary policy. The problem of perception is that the FOMC communicates on two tracks. One track is to markets and one track is to Congress and the public. The confusion that allows the FOMC to portray monetary policy as discretionary in its communication to Congress and the public arises because the FOMC does not articulate its reaction function. An example of how the FOMC communicates the consistency in its policy to markets occurred with the change in its Statement on Longer-Run Goals and Monetary Policy Strategy originally formulated in January 2012 and again in September 2020.

The first Statement reflected the contemporaneous composition of FOMC participants who were concerned to maintain the earlier focus of policy on price stability. Given the uncertainty over the vigorous QE program and its possible effects on inflation, they wanted to institutionalize the policy of price stability that not only created an explicit inflation target but also accompanied it with reinforcing language in the Statement. The Statement language distinguished sharply between inflation, a nominal variable, and employment, a real variable. The FOMC could set an explicit target for the former but not the latter. The second Statement reflected the contemporaneous Keynesian composition of the FOMC and a desire to reinstate a policy of strong stimulus organized around a Phillips curve with its two independent goals of low inflation and low unemployment. The message of the first Statement was the that FOMC would continue with the policy of preemptive increases in the funds rate to ensure continued price stability. The message of the second Statement

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> policy narrative and actions in response to public and market reactions, aiming for a Goldilocks economy where policy is neither too tight nor too loose. . . . The Federal Reserve's approach embodies a complex, adaptive strategy that doesn't fit neatly into a single formula but rather operates within a broad, dynamic policy framework. This approach might be seen as more effective in navigating the complexities of modern global economies.

was that the FOMC had abandoned preemptive increases in the funds rate in order to trade off price stability in pursuit of a low, "inclusive," unemployment rate.

Another criticism of the Board of Governors' public rejection of a rules-based monetary policy is the assertion that discretion is required to respond to unforeseen shocks impinging on the economy. FOMC spokespersons make that assertion as though it is self-evident without any attempt to document successful implementation in the past. In fact, the record is not good. Examples are the FOMC's response to the October 1987 stock market crash and its response to the Asia crisis in fall 1998. Each time, the FOMC's forecast of recession did not materialize. The FOMC responded with expansionary monetary policy, which increased inflation and then had to be offset (Hetzel 2008, 2012, and 2022). Another example happened in 1970 when inflation rose to 6 percent, but the unemployment rate remained at 6 percent, above the 4 percent taken as full employment. The FOMC concluded that inflation was due to cost-push forces and needed to be dealt with by income policies rather than by moderate money growth.

A recent example is the Great Recession of 2008-2009. The unprecedented shocks came first from a significant inflation shock that arose when with trade reform the BRICs (Brazil, Russia, India, and China) integrated into the world economy raising headline inflation due to an increase in commodity prices like oil. The second unprecedented shock came from a decline in the natural rate of interest to a negative value. The Great Recession exhibited the common characteristic of previous recessions when the FOMC delayed lowering the funds rate in response to weakness in the economy out of a concern for inflation (Hetzel 2022, ch. 3). As illustrated below, monetary policy would have benefitted from the Orphanides (2024) natural growth rule.

At its April 2008 meeting, the FOMC lowered the funds rate to 2 percent. Out of concern for high headline inflation, however, it then kept the 2 percent target for the next three FOMC meetings. In summer 2008, four-quarter headline PCE inflation reached 4.2 percent. The FOMC ignored the Friedman (1960) long-and-variable-lag critique of directly targeting inflation or any macroeconomic variable. Other central made the same mistake. Their economies went into a serious recession in 2008Q2. The United States went into a serious recession in summer 2008. A sharp rise in inventories reinforced the ongoing weakness in the economy that had existed since before the business cycle peak in December 2008. (See Hetzel 2022, graphs 21.4, 21.3, 21.4, and 21.7). Although the FOMC lowered the funds rate from 2 percent to 1 ½ percent on October 6, 2008, FOMC chairman Bernanke proposed it as a tactical objective. He argued that the FOMC needed to help the ECB to achieve a consensus to lower its policy rate through a "coordinated" reduction to overcome opposition from ECB hawks.

In fall 2008, a negative natural rate of interest made monetary policy contractionary even with a 1 ½ percent funds rate. Very likely the decline in housing wealth produced by the fall in house prices, a decline in real personal income from the inflation shock, and disturbances in the credit markets following the Lehman bankruptcy on September 15, 2008, were depressing factors. The FOMC began QE in early 2009 with purchases of MBS and with treasuries in March 2009. It only became apparent later that the natural rate of interest had become negative. That fact would require not only a funds rate at the ZLB but also forward guidance indicating an extended period of the funds rate at the ZLB and QE.

The Tealbook later provided evidence for a negative natural rate of interest. It showed estimates of the real rate of interest averaging around -2 percent from 2009 through 2014 (Board of Governors 2016, 81). Using measures of expected inflation from the Board of Governors staff

forecasts of inflation, over the period from January 2009 through December 2016, the real funds rate averaged -1.24% (Hetzel 2022, figure 18.5). At the same time, over the same period, inflation (12-month percentage changes in the core PCE, chain-weighted deflator) remained steady at 1.5%. If monetary policy had been expansionary, inflation would not have been so steady.

Although the unemployment rate rose steadily from a cyclical low of 4.4 percent in May 2007 to 7.3 percent in December 2008, the FOMC only lowered the funds rate to the ZLB at its December 2008 meeting. Would the Orphanides natural growth targeting rule have removed this inertia in the funds rate? As shown in Table 1, the answer is "yes." After the April 29-30 FOMC meeting, the FOMC stopped lowering the funds rate target. For the subsequent meetings through December 2008, Table 1 shows a measure of the difference in forecasted growth in nominal output for 2008Q4 and a measure of growth in nominal potential output given an assumption for the FOMC's inflation target.

Table 1: Natural Growth Targeting Rule

	Forecasts for 2008Q4		
Tealbook date	real private domestic final purchases plus core PCE inflation	nominal growth target	target miss
18-Jun-08	(-4.4+2.6)=-1.8	4	-5.8
30-Jul-08	(-3.9+2.6)=-1.3	4	-5.3
10-Sep-08	(-2.1+2.6)=.5	4	-3.5
22-Oct-08	(-4.4+2.3)=-2.1	4	-6.1
10-Dec-08	(-6.6+1.2)=-5.4	4	-9.4

The measure used for growth in real output is real private domestic final purchases, which is the sum of personal consumption expenditures, residential investment, and business fixed investment. Because it removes changes in inventories, net exports, and government expenditures, it offers a less volatile measure of the spending of the public than GDP. The measure used for inflation is the core personal consumption expenditures (PCE) chain-weighted price index, which removes volatile food and energy inflation to give a better estimate of underlying inflation. The figures reported in the table are forecasts for the particular FOMC meeting of the 2008Q4 values. The sum of the two measures is a proxy for forecasted growth in nominal output.[4]

[4] With the exception of the FOMC's implicit inflation target, the forecasted series come from Board of Governors staff estimates circulated before FOMC meetings in the document now called the Tealbook but in 2008 called the Greenbook: "Current Economic and Financial Conditions, Summary and Outlook," Part 1, "Changes in Real Gross Domestic Product and Related Items," "Changes in Prices and Costs," and "Decomposition of Structural Labor Productivity."

The measure used for growth in nominal output consistent with the FOMC's target for price stability is the sum of the estimate of growth in real potential output and an implicit FOMC objective for inflation. Consistently in 2008, the staff estimate of growth in real potential output was 2.5 percent. Not until 2012 did the FOMC announce an inflation target. Shapiro and Wilson (2019) used textual analysis and found that before then the most common inflation target mentioned in FOMC discussions was 1.5 percent. Given the upward bias in price indices due to the difficulty of adjusting for quality improvements, measured inflation of 1.5 percent is approximately consistent with price stability. The nominal growth target is the sum of the estimate for growth in potential output and the assumed inflation target (2.5% plus 1.5% or 4%).

The "target miss" is the difference between the sum of forecasted real growth and inflation for 2008Q4 and the value given by the natural growth targeting rule. For the FOMC meetings subsequent to the April 2008 meeting, the measure of the target miss is negative. Only with the December FOMC meeting did the FOMC lower the funds rate to the ZLB. Not until early 2009 did the FOMC start QE purchases. The Orphanides natural growth rule would have offered a better guide to policy than the actual policy followed by the FOMC in 2008.

Again, the argument made by FOMC participants in favor of discretion is that a rule would not allow the FOMC the flexibility to respond to unusual shocks. The argument is wrong. Shocks continually impact the economy and by definition they are all unforeseen. Given credibility for the maintenance of price stability, the issue is always the same. How does the shock influence whether the resulting growth in output is above or below potential growth? LAW is always the bedrock of policy. Occurrence of an unusual shock is exactly when a rule is most important.

An unfortunate aspect of monetary policy is the unwillingness to allow short-term reversals in movements of the funds rate. Instead, the pattern of changes in the funds rate is unidirectional over significant periods of time. The reason is that the FOMC worries about the optics of a short-term reversal. Populist critics of the FOMC will charge that it made a mistake. If the FOMC raises the funds rate and then reverses it, they will charge that the FOMC is exercising its control of inflation to the detriment of workers. A rule would act to offset this unfortunate feature of monetary policy.

7. Political economy arguments that encourage the language of discretion

Convincing the FOMC chair of the desirability of articulating the FOMC's implicit reaction function that imposes consistency on policy so that FOMC communication is rules-based rather than discretion-based is not a matter of a rational debate. The chair finds the language of discretion useful for defending Fed independence against populist attacks. One fundamental responsibility of the chair is to pass on to their successor an independent Fed. The language of discretion always allows the flexibility to defend the FOMC's LAW procedures as addressing the economy's most pressing problem.

To understand why FOMC chairs will reject the language of a rules-based monetary policy, it is also useful to understand the reasons why they might believe that it would lessen their control over the FOMC. Consider how such a policy would require a reorganization of FOMC debate. In support of a rules-based monetary policy, the Tealbook should be reorganized into three parts. Part 1 would explain how the economy evolved to its current state. The focus would be on how the FOMC's reaction function interacted with the shocks impinging on the economy and the resulting success in achieving price and real output stability. Part 2 would be the forecast of the economy and would

recommend a consensus FOMC forecast accompanied by a projected funds rate path. That forecast would be of the path for growth in nominal GDP consistent with price stability given the forecast of growth in potential real output. Part 3 would evaluate how well the reaction function is working to achieve FOMC objectives.

With this structure , the chair would organize the press conference around the FOMC's forecasts that implement the rule. Assuming that the FOMC is following the Orphanides natural growth rule, a meaningful discussion with reporters could then occur beyond the current one of trying to weasel out of the chair the FOMC's proclivity toward adjusting the funds rate path. Instead, the discussion would focus on comparing the FOMC's forecasts with those of others like the Blue Chip forecasts. However, structuring FOMC debate and its summary in the press conference around a rule would limit the ability of the chair to control the outcomes of FOMC meetings and to control how they are presented to the public in the press conference.

To defend the Fed against attack, FOMC chairs like to communicate FOMC decisions as representing a consensus apart from an occasional dissent that evidences a healthy debate. Politicians do not understand the arcana of monetary policy, but they can seize on internal division and exploit it. FOMC consensus is best achieved by restricting decision-making to individual policy actions and avoiding the kind of debate that academics engage in over nature of the economy and the optimal monetary policy.

8. A rules-based monetary policy as the foundation for Fed independence

FOMC chairs like to argue that the alternative to Fed independence and its presumed discretionary policy is subjecting monetary policy to interference and control by partisan political forces with inflation the result. They do not discuss the idea that a better way to defend Fed independence could be a rules-based monetary policy widely understood by the public that provides a continuity to policy across a changing political environment and uncertain political appointments to the Board of Governors.

Monetary policy has become hugely complicated. As a result, accountability to the public and to Congress has become nearly impossible (Levin and Skinner 2024). Part of the problem is the continually growing financial safety net required to control the risk taking of banks in the absence of the market discipline to which nonbank firms are subject. (Nelson 2024 describes how the dynamic has created a vast expansion in bank excess reserves and the Fed's balance sheet.) The major part of the problem is the language of discretion, which obscures the consistency in policy. The endless parsing in the media of the Fed's communication about the behavior of the economy suggests to the public that the FOMC understands the structure of the economy. If that were the case, it could (and should) provide a simple conceptual framework for monetary policy. To do that, the FOMC would need to make explicit the reaction function it now communicates to markets only informally.

Getting monetary policy right is of existential importance for the United States and for the world economy. Each generation of policy makers "knows" that they are critical to stabilizing the economy. Even given the validity of that belief, the vagaries of the political appointments process do not assure its continuance, and the issue of accountability remains.

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