It's Time to Get Back to Rules-Based Monetary Policy[1]

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Abstract. This paper examines the recent deviation from rules-based monetary policy in the United States, and proposes a way for the Federal Reserve to return quickly to a more effective rules-based policy. The paper reviews the impact of the COVID pandemic on the economy, and the key monetary policy developments that led to an increase in inflation and today's precarious economic situation. This review sets the stage and suggests a way for the Federal Reserve to improve economic performance and achieve low inflation by getting back to more rules-based policy decisions.

For several years, starting around 2017, the Federal Reserve began to move back to a more rules-based monetary policy that had worked well in the United States in the 1980s, 1990s, and in other years. Many papers written at the Fed and elsewhere reflected this revival and showed the benefits of rules-based policies. In July 2017, when Janet Yellen was Chair, the Fed began to include a whole section on rules-based monetary policy in its *Monetary Policy Report,* and many policy makers made favorable comments about rules-based policy. The evidence was that the move toward rules-based policy was beneficial and economic performance improved.

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The Fed halted that move in early 2020 when COVID-19 hit the American economy and many other economies around the world. The Fed stopped reporting on monetary policy rules in the July 2020 *Monetary Policy Report.* It also embarked on new efforts to deal with the pandemic crisis on the economy, including a rapid reduction in the federal funds rate, large-scale purchases of Treasury and mortgage backed securities, which caused a large expansion of the Fed's balance sheet, and a sharp increase in the growth rate of the monetary aggregates. These actions were special and were not generally consistent with rules-based policies.

In February 2021, however, the Fed began to put monetary policy rules back in its *Monetary Policy Report*. Though the section on policy rules was back in the Report and remained there through July 2021, there was little evidence that actual monetary policy decisions followed those rules. Thus, a gap developed between the reported rules-based policy and the policy actions of the Fed. Inflation began to rise.

Perhaps seeing this gap, the Fed then reversed again, and removed the section on policy rules from the *Monetary Policy Report* in February 2022. In a Congressional hearing on March 3, 2022, several members of Congress asked Fed Chair Jerome Powell questions about why the policy rules section was missing. Fed Chair Powell responded that the Fed would aim to put the rules section back in the Report later in the year, perhaps in the July *Monetary Policy Report*. However, only small changes have yet occurred in actual monetary policy.

A big gap thus still exists between most measures of rule-based policy and actual policy actions, and this gap occurred before and accompanied the rise of inflation. Thus, we are in a high inflation era unless the Fed and other central banks take sensible actions to bring policy in line with known policy rules and strategies. Recent events in Ukraine have raised measured inflation of many goods, such as gasoline, but have not changed this basic story.

1. A Revival of Research on Monetary Policy Rules

Monetary policy rules were the subject of much research in the 1970's through the early 2000s. For the next several years, there was a lull in policy rule research and applications, but starting in 2017, there was a big pickup, and there is plenty of evidence for this revival. As mentioned above, a new section on monetary policy rules for the instruments appeared in the Fed's *Monetary Policy Report* with five different policy rules presented and compared with actual policy. In addition, papers were given at a monetary policy conference at the Hoover Institution at Stanford held in May 2019, at the Federal Reserve Review conference in Chicago in June 2019, and at the Macro Model Comparison Conference in Frankfurt also in June 2019. There are many takeaways, but that there was a revival of research on monetary policy rules is quite evident.

At the conference at Stanford, for example, Mertens and Williams (2020) evaluated different policy rules for the interest rate with a new Keynesian model. They considered three types of monetary policy rules. First was a standard inflation-targeting interest rate rule in which the Fed reduces its response to higher inflation and output, in order to bias the economy toward higher interest rates and inflation and thereby reduce the probability of hitting the lower bond. Second was a rule in which the average inflation target is higher than with standard inflation targeting, though the strength of responses to deviations is unchanged. Third was a price-level targeting rule, in which the Fed allows substantial inflation after a low-inflation episode, until the price level recovers to its target, and vice versa.

Cochrane, Taylor and Wieland (2020) evaluated rules with seven different models. These rules include the Taylor rule, a "balanced-approach" rule, a difference rule that responds to

growth rather than levels of inflation and unemployment, and two rules that take particular account of periods with near-zero federal funds rates by implementing a forward-guidance promise to make up for zero bound periods with looser subsequent policy. The paper evaluated these monetary policy rules in seven well-known macroeconomic models—a small New Keynesian model, a small Old Keynesian model, a larger policy-oriented model, and four other models from the Macro Model Data Base. The robustness across models was an essential part of the evaluation process.

At the conference at the Federal Reserve Bank of Chicago, Sims and Wu (2019) evaluated different monetary policy rules with a new structural model, and Eberly, Stock and Wright (2019) evaluated monetary policy rules using the FRB/US model. At the conference in Frankfurt, Andreas Beyer (2019), Gregor Boehl (2019) and many others evaluated interest rate rules in specific models. These included interest rate rules as well as rules for purchases of assets and corresponding expansion of the central bank's balance sheet. Of particular note is the paper by Nikolsko-Rzhevskyy, Papell and Prodan (2021) which compared policy rules and discretion historically using new econometric techniques. Their paper considered a specific policy rule for the interest rate and measured discretion as a deviation of the actual interest rate from that rule. They did calculations for 400 rules and found that the average loss in high deviation periods was greater than the average loss in low deviation periods.

Some researchers, including Belognia and Ireland (2019), looked at other instruments such as the money supply, but most continued to look at interest rate instruments. Bernanke, Kiley and Roberts (2019) examined ten different monetary policy rules for the instruments using the Federal Reserve Board/United States (FRB/US) model. The ten interest rate rules they examined are in Figure 1.

Figure 1. Policy Rules Studied by Bernanke, Kiley and Roberts (2019)

$$i_t^{Tay} = r^* + \pi_t + 0.5(\pi_t - \pi^*) + \hat{y}_t \quad \text{Taylor rule}$$

$$i_t^{iTay} = \rho i_{t-1} + (1 - \rho)[r^* + \pi_t + 0.5(\pi_t - \pi^*) + \hat{y}_t]$$

$$i_t^{FPLT} = r^* + \pi_t + 0.5(\pi_t - \pi^*) + \hat{y}_t + P_t$$

$$i_t^{iFPLT} = \rho i_{t-1} + (1 - \rho)[r^* + \pi_t + 0.5(\pi_t - \pi^*) + \hat{y}_t + P_t]$$

$$i_t^{FTPLT} = \rho i_{t-1} + (1 - \rho)[r^* + \pi_t + 0.5(\pi_t - \pi^*) + \hat{y}_t + \alpha TP_t]$$

$$TP_t = \sum_{j=t1}^{m}(\pi_j - \pi^*)$$

$$i_t = \max\{0, i_t^{Tay} - \sum_{j=t1}^{t-1}(i_j - i_j^{Tay})\} \quad \text{Reifschneider-Williams}$$

$$i_t^{KR} = i_{t-1}^{KR} + \alpha[(\pi_t - \pi^*) + \hat{y}_t]$$

Plus 3 TPLT rules, which are like i^{Tay} except for an ELB threshold

What explains this revival? One explanation is a revealed preference for such research on the part of monetary policy officials and others interested in monetary policymaking. At the Chicago Fed conference, Cecchetti & Schoenholtz (2019) found "The most frequently mentioned topic is the desirability of having a clear understanding of policymakers' reaction function." There were also statements by central bank leaders. Raghu Rajan, former governor of the Reserve Bank of India, said, "what we need are monetary rules." Mario Draghi, then President of the European Central Bank, said, "we would all clearly benefit from…improving communication over our reaction functions…" Jay Powell, Chair of the Federal Reserve Board, said, "I find these rule prescriptions helpful".

Another explanation for the revival was the desire to figure out how to deal with the effective or zero lower bound on the interest rate. There was genuine concern at the about the lower bound in the case of a need for substantial easing. How else can one evaluate alternative

proposals for "lower for longer" policy, such as the Reifschneider-Williams (2000) proposal, than with a rule? This is also a huge motivation behind the work by Lilley and Rogoff (2020).

Another possible explanation was the disappointment with monetary policy leading to the great recession and especially the deviation from rules in the 2003-2005 "too low for too long" period. Yet another explanation was the recognition that rules are necessary to evaluate quantitative easing proposals. At the Chicago conference, for example, Brian Sack said "'Talking more about the policy rules…is appropriate' to guide future bond purchase programs and improve their impact." Perhaps concern about proposed policy rules legislation that was circulating around Congress in 2017-18 led the Fed to talk more openly about policy rules in the *Monetary Policy Report*.

## 2. A Retreat from Policy Rules

The pandemic that started in the first quarter of 2020 with COVID-19 was a jolt to the American economy and many other economies. It interrupted around the world the revival of rules-based policies as many central banks, including the Fed, took special actions to deal with the effects of a health crisis on the economy.

These actions included a rapid reduction in the target for the federal funds rate during the period around March 2020, as show in Figure 2. It also included large-scale purchases of Treasury and mortgage backed securities causing a large expansion of the Fed's balance sheet as shown in Figure 3. Total assets at the Fed rose from $3.8 trillion to $8.9 trillion. Both M1 and M2 measures of the money supply also grew rapidly. As mentioned above, the Fed also stopped reporting on rules-based policy in its *Monetary Policy Report* in the July 2020 issue of the Report.

Figure 2 The Federal Funds Rate in the United States
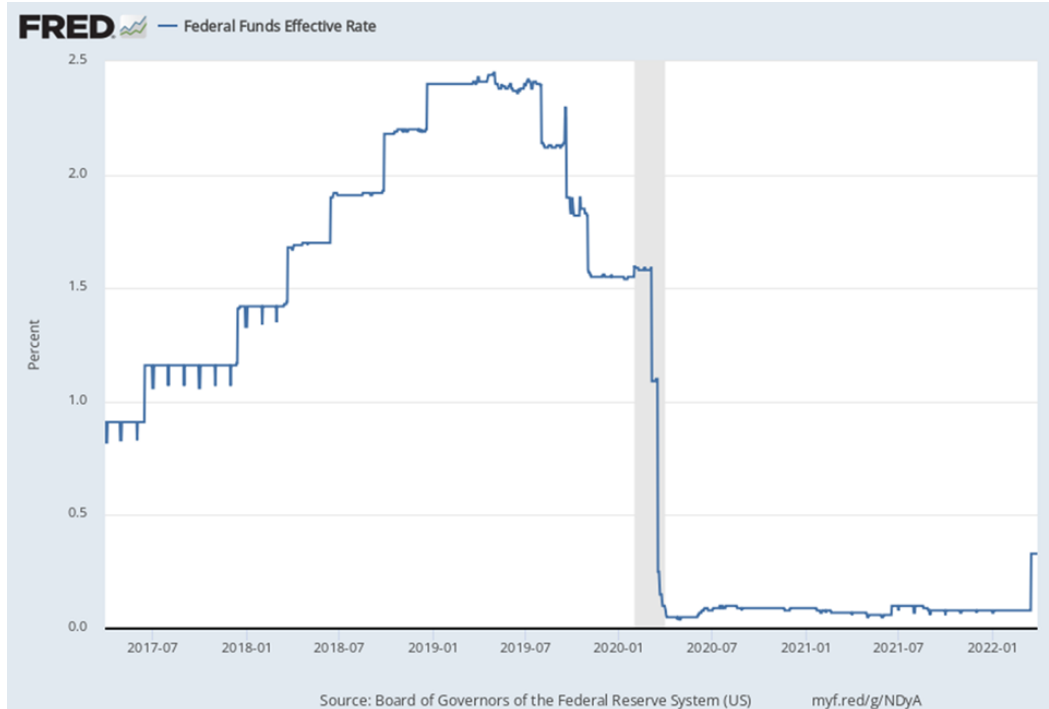
Figure 3.Total Assets. Federal Reserve System
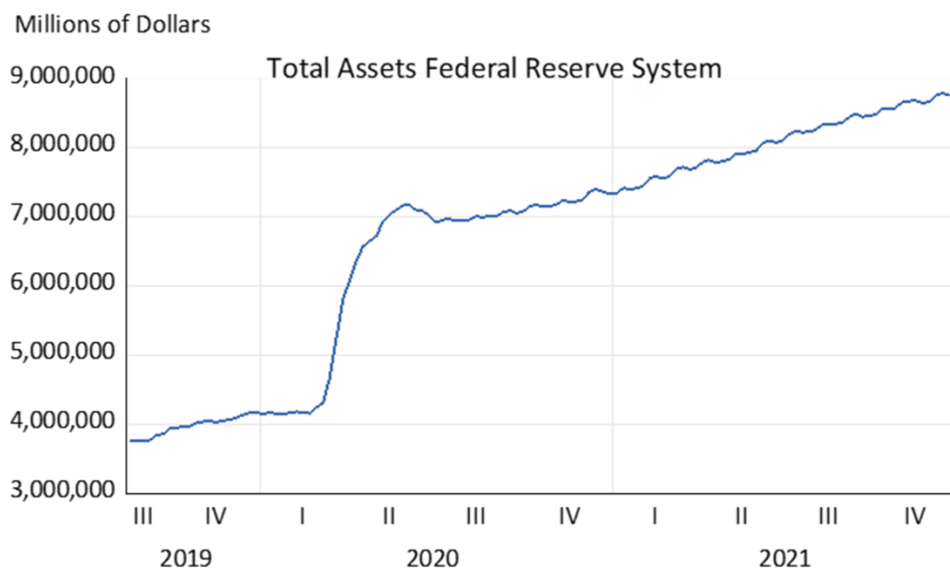
Source: FRED, Federal Reserve Bank of St. Louis. Wednesday Levels

By many accounts, these actions were discretionary and were not consistent with rules-based policies. Indeed, as would be expected from the large difference between these interest rate actions and a more rules-based policy, the inflation rate rose. As measured by the GDP deflator, the inflation rate shown in Figure 4, rose by very large amounts. It has not decreased. The inflation rate as measured by the consumer price index rose to 8.5% in March 2022.

Figure 4. Inflation rose starting in early 2021 reaching 7.1 % in the 1st quarter of 2021.

3. Average Inflation Targeting: A Further Retreat?

While these changes in inflation were beginning, the Fed and other central banks began to review their monetary policy strategies in light of COVID-19 as reviewed in Taylor (2020).

One of the first to complete this review was the Fed, which decided to move to a new "flexible form of average inflation targeting," as Fed Chair Jerome Powell described it at the annual Jackson Hole monetary policy conference in August 2020. European Central Bank President Christine Lagarde explained at the annual *ECB and Its Watchers* conference in September 2020 that the ECB was in the middle of its own "monetary policy strategy review." At the Bank of Japan, Governor Haruhiko Kuroda was involved in a similar discussion with the government of Japan. .

In fact, it looked like there was a move underway to reform the entire international monetary system, with each country or region taking actions similar to the Fed, though attuned to its own circumstances. It did not turn out that way. "At the very least," argued Otmar Issing, a former chief economist and former member of the ECB Board who was largely responsible for charting the original course of ECB policymaking, "other central banks should not blindly follow the Fed's new strategy."

Others criticized the Fed's new approach to average inflation targeting. In early September 2020, Robert Heller, former Federal Reserve governor, argued in a letter to the *Wall Street Journal* that the Fed should "not target an average inflation rate of 2%." At a virtual conference convened by Stanford University's Hoover Institution, Charles I. Plosser, a former president of the Federal Reserve Bank of Philadelphia, and Mickey D. Levy of Berenberg Capital Markets criticized the Fed for not being specific about the timespan over which average inflation is measured. Is it one year or several years?

Chair Powell acknowledged this lack of specificity at the Jackson Hole conference in August by saying "we are not tying ourselves to a particular mathematical formula that defines the average." He added that, "Our decisions about appropriate monetary policy … will not be

dictated by any formula." Then, in a press release the same day, the Fed's Board of Governors explained that policy decisions depended on "assessments of the shortfalls of employment from its maximum level" rather than by "deviations from its maximum level," as it had previously stated.

Partly because of difficulty of distinguishing between "deviations" or "shortfalls," this new approach added uncertainty. There was no mention of how monetary policy could create higher inflation.

In adopting this "flexible" approach, the Fed seems to shift further away from the more rules-based policy that it had been pursuing since 2017. As mentioned, the *Monetary Policy Report* dropped the section on monetary policy rules, in contrast to previous Reports, which had featured a whole section on rules. This made it difficult to compare rules with actual policy.

It is understandable that Issing and others would be reluctant to go along with the Fed's apparently more discretionary approach, especially when there were alternatives that other central banks could pursue. Rather than casting about for something new or simply different from the Fed, they looked for a rules-based policy path that the Fed itself was on before the pandemic struck.

When it was first developed, the Taylor rule used an average inflation rate. But the Taylor rule defined the "average" as "the rate of inflation over the previous four quarters." In other words, the Fed could still switch to a specific average-inflation approach.

Moreover, the formal policy rules previously listed in the *Monetary Policy Report* had variables to account for factors other than the inflation rate, such as the unemployment rate or the gap between real and potential GDP. These variables could be included in any new strategy

without neglecting the inflation target, as could policy rules to deal with asset purchases and their eventual unwinding. Developing such an approach would not be difficult to do.

The large increase in the inflation rate in 2021 and 2022, shown in Figure 4, raised even more basic question about the average inflation targeting. With the current inflation rate well above the level needed to raise average inflation by a small amount, the focus of everyone became how to reduce the current inflation rate rather than simply to allow the average inflation rate to rise.

That policy rules reentered the Federal Reserve's Monetary Policy Report in February 19, 2021was a welcome development. It re-initiated a helpful reporting approach that began in the July 2017 Monetary Policy Report when Janet Yellen was Fed chair. The approach continued under Chair Jay Powell in 2018, 2019 and early 2020, but it was dropped in July 2020.

Five rules were in the February 2021 *Monetary Policy Report* on pages 45 through 48. To quote the Report, these include "the well-known Taylor (1993) rule, the 'balanced approach' rule, the 'adjusted Taylor (1993)' rule, and the 'first difference' rule. In addition to these rules," and this is very important, there is a new "'balanced approach (shortfalls) rule,' which represents one simple way to illustrate the Committee's focus on shortfalls from maximum employment."

Figure 5 shows the five rules from the July 2021 Report. Even though these were not in the February 2022 *Monetary Policy Report*, they state where the Fed was most recently regarding rules. Moreover, the Fed Chair suggested the rules would be in future Reports. There were also five rules in the earlier Reports, but one was out, and a new one—the Balanced-approach (shortfalls) rule—was in. As stated in the document, this modified simple rule "would not call for increasing the policy rate as employment moves higher and unemployment drops

below its estimated longer-run level. This modified rule aims to illustrate, in a simple way, the

Committee's focus on shortfalls of employment from assessments of its maximum level."

Figure 5. Five Policy Rules from the July 9, 2021 Monetary Policy Report

A. Monetary policy rules

Taylor (1993) rule	$R_t^{T93} = r_t^{LR} + \pi_t + 0.5(\pi_t - \pi^{LR}) + (u_t^{LR} - u_t)$
Balanced-approach rule	$R_t^{BA} = r_t^{LR} + \pi_t + 0.5(\pi_t - \pi^{LR}) + 2(u_t^{LR} - u_t)$
Balanced-approach (shortfalls) rule	$R_t^{SBA} = r_t^{LR} + \pi_t + 0.5(\pi_t - \pi^{LR}) + 2min\{(u_t^{LR} - u_t), 0\}$
Adjusted Taylor (1993) rule	$R_t^{T93\,adj} = max\{R_t^{T93} - Z_t, \text{ELB}\}$
First-difference rule	$R_t^{FD} = R_{t-1} + 0.5(\pi_t - \pi^{LR}) + (u_t^{LR} - u_t) - (u_{t-4}^{LR} - u_{t-4})$

How different would this shortfalls rule be compared with the regular balanced-approach

rule? A helpful graph, which is modified from the 2021 Report, answers this question. I have

magnified a portion of that graph in Figure 6 below.

Figure 6. Comparison of the Balanced Approach Rule: With and Without Shortfalls
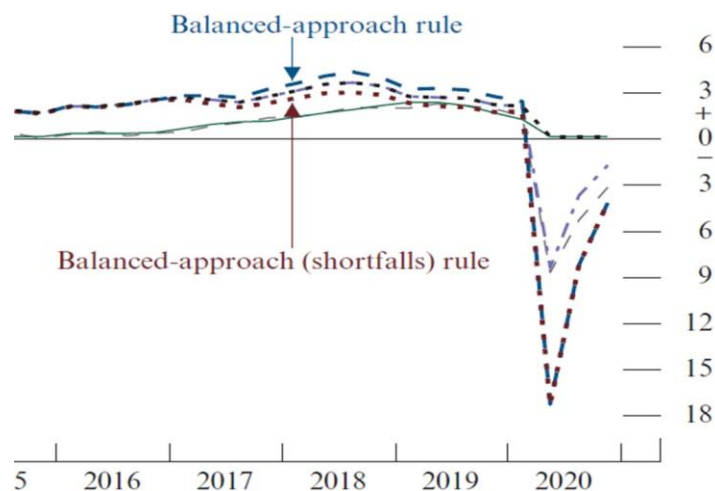
Notice that the balanced-approach (shortfalls) rule is below the balanced-approach rule in 2017

through the start of the pandemic in 2020. Thus, the shortfalls rule does not increase the interest

rate, as does the balanced approach rule without the shortfall. The rule in between these two in

the graphs is the Taylor rule. The shortfalls and the non-shortfalls rule then move together during the start of the pandemic as the unemployment rate rises well above the long run rate. The adjusted Taylor rule stays above zero, but then stays low for longer than the Taylor rule.

The useful contribution of this new rule is that one now had an explicit way to think about the Fed's new "shortfalls from maximum employment" approach. One can see if the new rule performs better than the balanced approach or the modified Taylor rule, for example, by simulating various models. It is a bit disappointing that, as the Report says, the aims "of having inflation average 2 percent over time to ensure that longer term inflation expectations remain well anchored, are not incorporated in the simple rules analyzed in this discussion."

To summarize, the analysis in this section takes into account the shortfalls of unemployment rather than deviations and focusses on the average inflation rate by looking at moderate inflation rates slightly higher than the long run target inflation rate. Nevertheless, the results are similar to what is found by looking at the regular Taylor rule. The results can be summarized by looking at the average gap in percentage points between the FOMC interest rate and the settings of the three rules.

4. Reentry to a Monetary Strategy

It is good that rules were in the Fed's *Monetary Policy Report* in 2021, and it is good that they might be back in future *Monetary Policy Reports*. It would be more helpful if the Fed incorporated some of these rules or strategy ideas into its actual decisions. Apparently, this has not yet happened, as I show below by comparing the interest rate path and policy rules for the interest rate.

One reason that there was little or no action is that the Fed viewed the resurgence of inflation as "transitory." It was very low in previous years and supply chains seemed to be a

special factor. While there have been effects of supply shortages and the war in Ukraine on commodities, the major effect on inflation has been due to monetary policy. The Fed's plan to halt or slow the purchases of Treasuries & Mortgage Backed Securities seemed like it might reduce inflation, but a policy rule was not part of the strategy.

This is illustrated in Figure 7, which is based on the data as of April 10, 2021; thus the graph illustrates that the Fed has been behind the curve for a quite a while. The three lines in Figure 7 show the federal funds rates from three policy rules using the same parameters as those in the Taylor rule which is discussed in the February 2021 *Monetary Policy Report*.

The so-called equilibrium interest rate has been reduced from 2 percent to 1 percent in the calculations in Figure 7. Such a reduction in the equilibrium interest rate was suggested by staff at the Fed, but may be larger or smaller than assumed here. The policy rules use the four-quarter inflation rates of the GDP price index, the PCE price index, or the core PCE price index, based on the February 2021 Congressional Budget Office (CBO) projections. They use the same percentage deviation of real GDP from potential GDP as in the CBO report. Other economic forecasters have inflation and real GDP forecasts close to those of CBO.

Figure 7. Federal Funds Rate and Monetary Policy Rules with 3 Inflation Rates
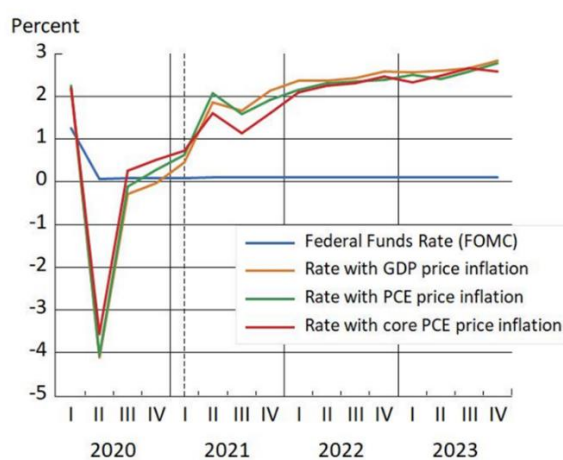
Even with this smaller equilibrium real interest rate (1 percent rather than 2 percent in the original Taylor rule), the FOMC's path for the federal funds rate is well below any of these policy rules. There is a difference in the first quarter of 2021, and the difference grows over time. Consider for simplicity the average of the interest rates for the three different inflation rates in the final quarter of each year. If we average the three values, we get 1.9 percent in 2021Q4, 2.5 percent in 2022Q4 and 2.7 percent in 2023Q4.

There has been little mention of why the discrepancy existed between the Fed's actual decisions reported here and the policy rules. Did this mean that the Fed actually intended to keep the rate this low under these circumstances regarding real GDP and inflation? Would it then raise the rate sharply in 2023 or 2024?

 Now consider the current situation. Figure 8 comes from the Fed's dot plot, which shows individual FOMC member views about future values of the Federal Funds Rate. Figure 8 shows the value at the end of different calendar years corresponding to different meeting times.

Figure 8. FOMC Projections of the Federal Funds Rate at Different Meeting Dates.

Year	2021	2022	2023	2024
March 15-16 '22 meeting	---	1.9	2.8	2.8
December 14-15 meeting	0.1	0.9	1.6	2.1
September 21-21 meeting	0.1	0.3	1.0	1.8

"The projections for the federal funds rate are the value of the midpoint of the projected appropriate target range for the federal funds rate or the projected appropriate target level for the federal funds rate at the end of the specified calendar year…"

"'Appropriate monetary policy' is defined as the future path of policy that each participant deems most likely to foster outcomes for economic activity and inflation that best satisfy his or her individual interpretation of the statutory mandate to promote maximum employment and price stability."

Note that the rates are higher than in Figure 7, and that they then rise over time at each meeting. The top line shows the values at the most recent meeting (as of this writing) which is

March of 2022. According to the dots, the Federal Fund Rate will be 1.9 percent at the end of this year (2022), and then will rise to 2.8 percent at the end of 2023.

Figure 9 shows how the averages in Figure 8 are calculated. It gives the projections of each FOMC member at the meeting that occurred in December 2021. For example, the averages for the end of 2022 is 0.9 percent and then rises over time.

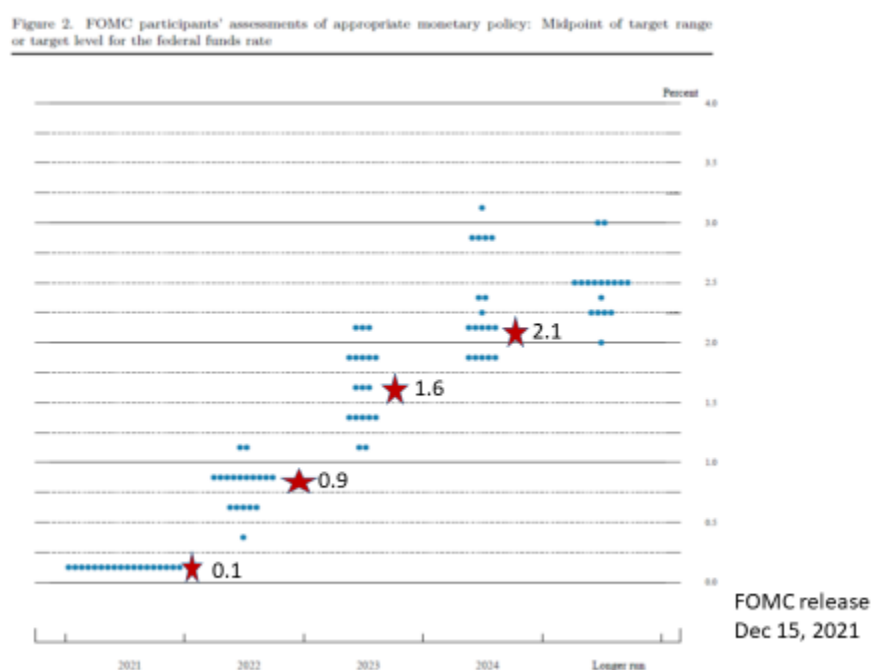**Figure 9. FOMC Dot Plot for Dec 2021 and Averages at End of Each Year.**

Figure 10 shows the dots and the averages for the recent meeting in March 2022. Observe that both the dots and the averages rise compared with Figure 9. Looking out into the later periods in 2022 and 2023, the results are not much different from Figure 9.

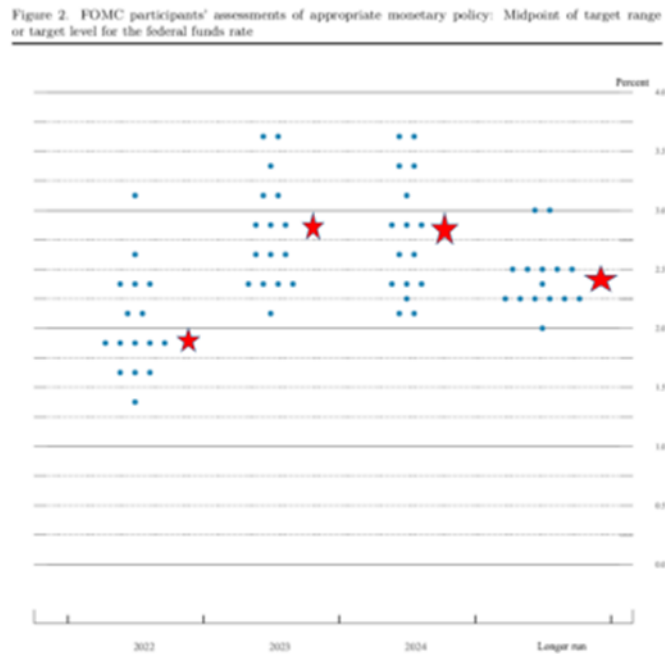**Figure 10. FOMC Dot Plot for March 2022 and Averages at End of Each Year**

Figure 2. FOMC participants' assessments of appropriate monetary policy: Midpoint of target range or target level for the federal funds rate

Figure 11 endeavors to bring together the esimates from policy rules and the decsions of FOMC members into a single picture.

Figure 11. Taylor Rule as of April 2021 and Average of FOMC Dot Plots
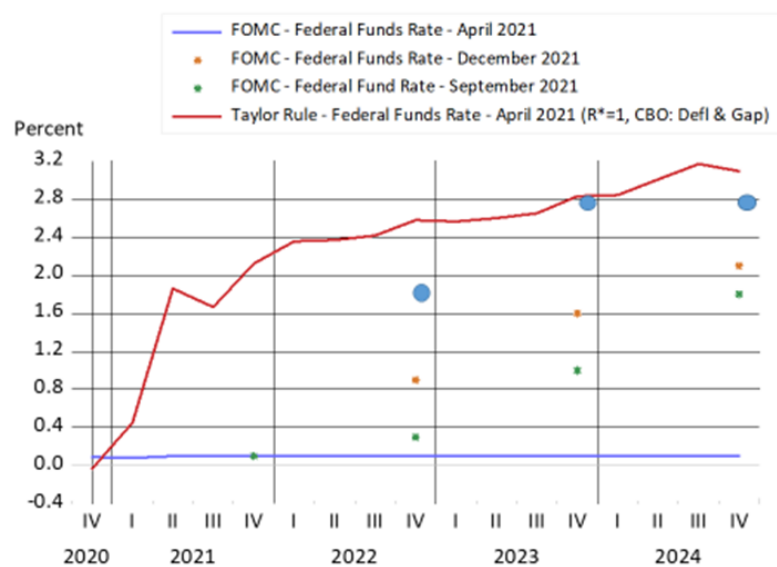
The solid red line in Figure 11 is the Taylor rule recommendations as of April 2021. The green and orange asterisks are the forward looking estimates of the FOMC in September 2021 and Decemer of 2021, respectively. The blue circles are from the FOMC meeting in March 2022. The FOMC values have been increasing toward the Taylor rule values during this period.

While the blue dots are close to the policy rule , the inputs to the policy rule have changed since a year ago as shown in the equations below. Most important is that inflation has continued to rise. The 4 quarter average inflation rate was 4.575 percent as of the 3rd quarter of 2021 which imples that interest rate should be about 6 percent.

2021Q3
$$r = \mathbf{4.575} + 1 + 0.5*(\mathbf{4.575} - 2) + 0.5*(\mathbf{-1.60})$$
$$= \mathbf{6}$$
$$r = 4 \quad + 1 + 0.5*(4-2) \quad + 0.5*(-2)$$
$$= \mathbf{5}$$

Notes:
$$\text{pi21a} = (\text{pi21} + \text{pi21}(-1) + \text{pi21}(-2) + \text{pi21}(-3))/4$$
$$= (5.9 + 6.2 + 4.3 + 1.9)/4 = \mathbf{4.575}$$
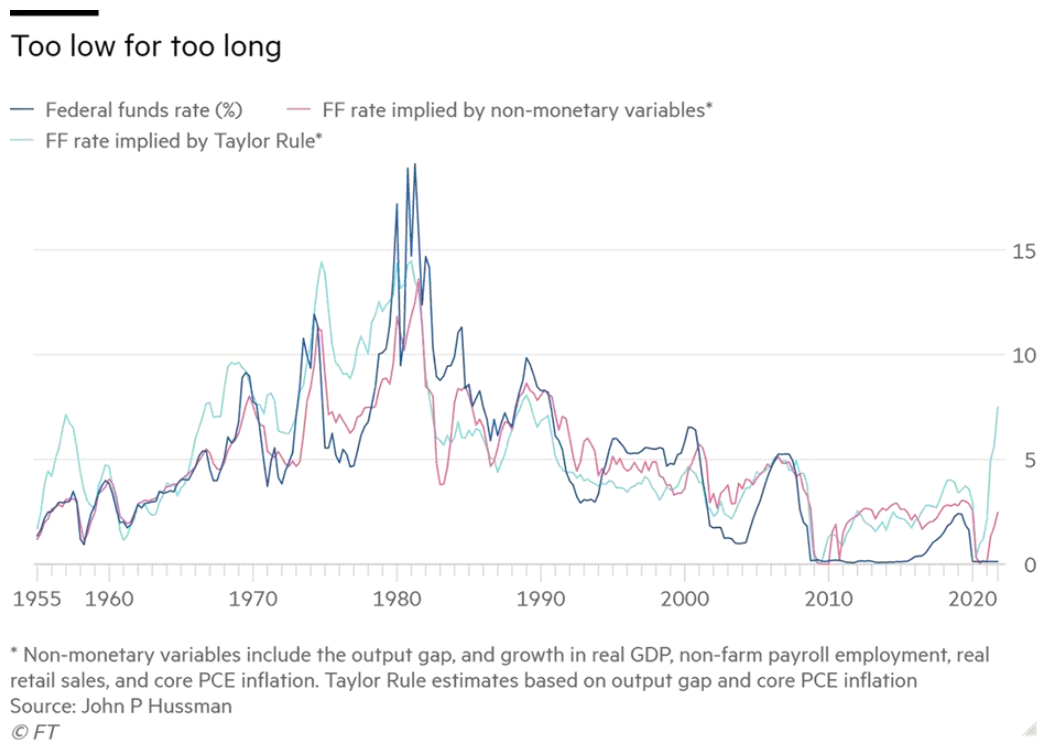$$\text{gap} = 100*(\text{RGDP-POT})/\text{POT} = \mathbf{-1.60}$$

If the average inflation rate is rounded down to 4 perent, then the interest rate should be 5 percent. If you look at the July 9, 2021, *Monetary Policy Report* version of the "Taylor rule," and plug in an inflation rate over the past four quarters of 4%, the gap between GDP and its potential of about -2%, a target inflation rate of 2%, an equilibrium interest rate of 1%, you get a federal funds rate of 5%. Recall that this assumes an equilibrium interest rate of 1% rather than 2%. These calculations use an average inflation rate over 4 quarters, consistent with a form of "average inflation targeting".

If the inflation rate falls to 2% by end 2022, and output equals potential, the federal funds rate should be about 3%, so the Fed is still behind.

Figure 12 shows an estimate of inflation and the Taylor rule based on more recent information using data from John Hussman. This chart shows that the ideal policy interest rate may even be higher than in the above calculations.

Figure 12. Federal Fund Rate and Taylor Rule (source: John Hussman)

Too low for too long

— Federal funds rate (%)   — FF rate implied by non-monetary variables*
— FF rate implied by Taylor Rule*

* Non-monetary variables include the output gap, and growth in real GDP, non-farm payroll employment, real retail sales, and core PCE inflation. Taylor Rule estimates based on output gap and core PCE inflation
Source: John P Hussman
© FT

5. Conclusion

This paper has examined the reasons to return to a rules-based monetary policy in the United States and has outlined a method to do so. By reviewing the years leading up to the present monetary situation, it provides the background needed for analyzing current and future monetary policy decisions.

The answer to the key question "Are We Entering a New Era of High Inflation?" is clearly "yes," unless monetary policy makers change policy. There are now more reasons than ever for central banks to use a more rules-based policy. Central banks should start now on rules

that markets understand. The policy interest rate would increase as inflation rises, as has already happened. It would of course be a contingency plan, as are all rules. This would greatly reduce chances of a large damaging change later. If the negative growth rate in the first quarter of 2022 persists, then policy would change.

Having a clearly stated policy rule would prepare the Federal Reserve and others for such a strategy in practice. Moreover, explaining how its policy rule or strategy would be consistent with its flexible average inflation targeting statements would further clarify the Fed's monetary policy and facilitate the market adjustments. It would remove uncertainty and remaining inconsistencies.

References

Belongia, Michael T. and Peter Ireland (2020), "A Reconsideration of Money Growth Rules," Boston College Working Papers in Economics No. 976

Bernanke, Ben S., Michael T. Kiley (2019), John M. Roberts "Monetary Policy Strategies for a Low-Rate Environment," *American Economic Association Papers and Proceedings*, Vol. 109, May, pp. 421-26

Beyer, Andreas (2019), "Financial Stability and Monetary Policy—An Augmented Taylor Rule for the Euro Area," European Central Bank, Presented at the Third Research Conference of the Macroeconomic Modeling and Model Comparisons Network (MMCN), Frankfurt, June 13-14

Board of Governors of the Federal Reserve System (2017b, 2018a, 2018b, 2019a, 2019b, 2020a, 2021a) *Monetary Policy Reports*, Washington, DC: Board of Governors.

Boehl, Gregor (2019), "A Structural Investigation of Quantitative Easing," Presented at the Third Research Conference of the Macroeconomic Modeling and Model Comparisons Network (MMCN), Frankfurt, June 13-14.

Cecchetti, Stephen G. and Schoenholtz, Kermit (2019), "Improving U.S. Monetary Policy Communications," August, CEPR Discussion Paper No. DP13915.

Cochrane, John H. and John B. Taylor (Eds.), *Strategies for Monetary Policy*, Hoover Institution Press, 2020

Cochrane, John H., John B. Taylor, Volcker Wieland (2020), "Evaluating Rules in the Fed's Report and Measuring Discretion," in *Strategies for Monetary Policy*, John Cochrane and John Taylor (Eds.), Hoover Institution Press, 2020
https://www.hoover.org/sites/default/files/research/docs/chapter_5.pdf

Eberly, Janice C., James H. Stock, Jonathan H. Wright (2019), "The Federal Reserve's Current Framework for Monetary Policy: A Review and Assessment," May 24. Prepared for the Conference on Monetary Policy Strategy, Tools, and Communication Practices, Federal Reserve Bank of Chicago. file:///C:/Users/johntaylor/Downloads/review-current-framework-eberly-stock-wright-pdf%20(2).pdf

Lilley, Andrew and Kenneth Rogoff (2020), "The Case for Implementing Effective Negative Interest Rate Policy," in *Strategies for Monetary Policy*, John Cochrane and John Taylor (Eds.), Hoover Institution Press, 2020

Mertens, Thomas M. and John C. Williams (2020) "Tying Down the Anchor: Monetary Policy Rules and the Lower Bound on Interest Rates," in *Strategies for Monetary Policy*, John Cochrane and John Taylor (Eds.), Hoover Institution Press, pp. 103-154

Nikolsko-Rzhevskyy, Alex, David H, Papell, and Ruxandra Prodan (2014), "Deviations from Rules-Based Policy and Their Effects." *Journal of Economic Dynamics and Control* 49 (December): 4–17.

Nikolsko-Rzhevskyy, Alex, David H. Papell and Ruzandra Prodan (2021), "Policy Rules and Economic Performance," *Journal of Macroeconomics*, volume 68
https://www.sciencedirect.com/science/article/abs/pii/S0164070421000045?dgcid=rss_sd_all

Papell, David (2020), "Discussion of Evaluating Rules in the Fed's Report and Measuring Discretion" in *Strategies for Monetary Policy*, John Cochrane and John Taylor (Eds.), Hoover Institution Press, 2020

Reifschneider, David L and John C. Williams (2000), "Three lessons for monetary policy in a low-inflation era," *Journal of Money, Credit and Banking*, pp. 936–966.

Sims, Eric R. & Jing Cynthia Wu (2019) "Evaluating Central Banks' Tool Kit: Past, Present, and Future," presented at the Conference on Monetary Policy Strategy, Tools, and Communication Practices https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3416343

Taylor, John B. (2020) "Who's Afraid of Rules-Based Monetary Policy?" *Project Syndicate* October 12. https://web.stanford.edu/~johntayl/2020_pdfs/Who_s_Afraid_of_Rules-Based_Monetary_Policy-Project_Syndicate-10-16-20.pdf

Taylor, John B. (2021) "The Optimal Reentry to a Monetary Policy Strategy," presented at the Graduate Center, City University of New York