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Getting into the Zone

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Any opinions expressed here are my own and do not necessarily reflect those of the Federal Open Market Committee.

Introduction

Background

- Inflation remains unacceptably high, well in excess of the Federal Open Market Committee (FOMC) target of 2%.
- During 2022, the FOMC has been moving toward policy settings that will put meaningful downward pressure on inflation in order to return inflation to the 2% target.
- This approach has included significant increases in the policy rate as well as a program of balance sheet reduction.
- Thus far, the change in the monetary policy stance appears to have had only limited effects on observed inflation, but market pricing suggests disinflation is expected in 2023.

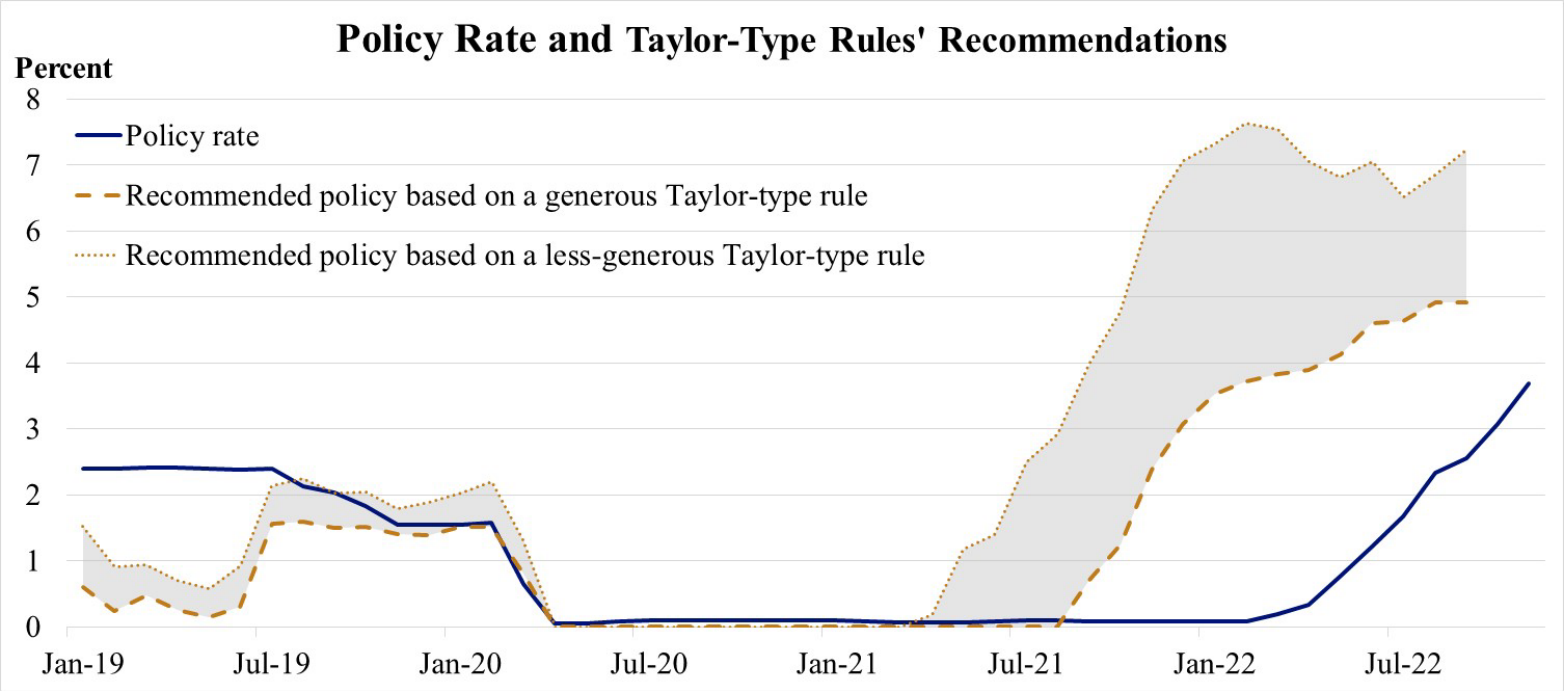
What is a sufficiently restrictive policy rate?

- The most recent FOMC statement refers to ongoing increases in the policy rate to reach a level that is "sufficiently restrictive."
- This talk will give my views of a sufficiently restrictive level of the policy rate for the current macroeconomic environment.
- My approach to this question is based on "generous" assumptions—assumptions that tend to favor a more dovish policy over a more hawkish one.
- *Key point*: Even under these generous assumptions, the policy rate is not yet in a zone that may be considered sufficiently restrictive.

The argument in one chart

- The main point is summarized in the chart on the next slide.
- The chart packs in a lot of information that I will detail later in this talk.
- The chart suggests that while the policy rate has increased substantially this year, it has not yet reached a level that could be justified as sufficiently restrictive, according to this analysis, even with the generous assumptions.
- To attain a sufficiently restrictive level, the policy rate will need to be increased further.

The sufficiently restrictive zone



Sources: Bureau of Economic Analysis, Bureau of Labor Statistics, Federal Reserve Bank of Dallas, Federal Reserve Bank of New York and author's calculations. Last observations: September 2022 and November 2022.

This talk

- The remainder of this talk will give the details behind this chart:
  - A brief overview of monetary policy rules
  - What is the value of the short-term real interest rate? (Answer: low)
  - How large is the inflation gap? (Answer: large)
  - How large is the output gap? (Answer: small)
  - Putting it all together
  - Caveats and related issues

Monetary Policy Rules

Taylor-type monetary policy rules

- John Taylor (Stanford University) is famous for developing a "Taylor rule" which has been widely accepted in monetary policy discussions over the last 30 years.†
- A Taylor-type policy rule with generous assumptions will give us a minimal recommended value for the policy rate given current macroeconomic conditions.
- Less generous assumptions will give us an upper bound for a desirable target range for the policy rate.
- The recommended "zone" is the area between the lower and upper bounds.

† *See J.B. Taylor, "Discretion versus Policy Rules in Practice," Carnegie-Rochester Conference Series on Public Policy, December 1993, 39, pp. 195-214; and J.B. Taylor, "A Historical Analysis of Monetary Policy Rules," in J.B. Taylor, ed., Monetary Policy Rules. Chicago: University of Chicago Press, 1999, pp. 319-41.*

Why do we like Taylor-type rules?

- Monetary policy rules are useful because they provide an explicit recommendation for the value of the policy rate given current macroeconomic conditions.
- Taylor-type rules have been evaluated in a large literature and have been argued to characterize close-to-optimal monetary policy in commonly used macroeconomic models.
- The literature takes lagged effects into account.
- Policy rules like this help pin down different arguments that are made about the appropriate level of interest rates: You can make your own assumptions and develop your own recommendation.

Ingredients for a Taylor-type rule

- We will need:
  - A value for the short-term real rate of interest that would prevail if economic output was at potential and the inflation rate was at target
  - A value for the size of the current inflation gap—that is, current inflation minus the inflation target
  - A value describing how strongly the central bank should react to deviations of inflation from target
  - A value for the size of the output gap

Taylor rule specification

- I will consider rules of the following form

$$R_t = \max[R^* + \pi^* + \varphi_\pi(\pi_t - \pi^*) + \min(ygap_t, 0), 0]$$

- R_t is the recommended policy rate; R^* is the real interest rate; $\pi^* = 2\%$ denotes the inflation target; π_t is inflation measured from one year earlier; φ_π describes the reaction of the policymaker to deviations of inflation from target; and $ygap_t$ is the output gap.
- The term min(*ygap,*0) is meant to capture that "… the Committee's policy decisions must be informed by assessments of the shortfalls of employment from its maximum level…".*
- The maximum operator reflects the fact that the policy rate cannot be set below the zero lower bound.

** See the FOMC's "Statement on Longer-Run Goals and Monetary Policy Strategy," adopted effective Jan. 24, 2012; as reaffirmed effective Jan. 25, 2022.*

The Short-Term Safe Real Rate of Interest

R-star

- We will need a value for the short-term safe real rate of interest that would prevail if output was at potential and inflation was at target, commonly called R-star (R^*).
- There has been a lot of research on this, and I have discussed it elsewhere.†
- Generally speaking, the literature makes the case that the value of R-star has declined significantly since the 1980s.
- I will use a low value of -50 basis points and a high value of +50 basis points.

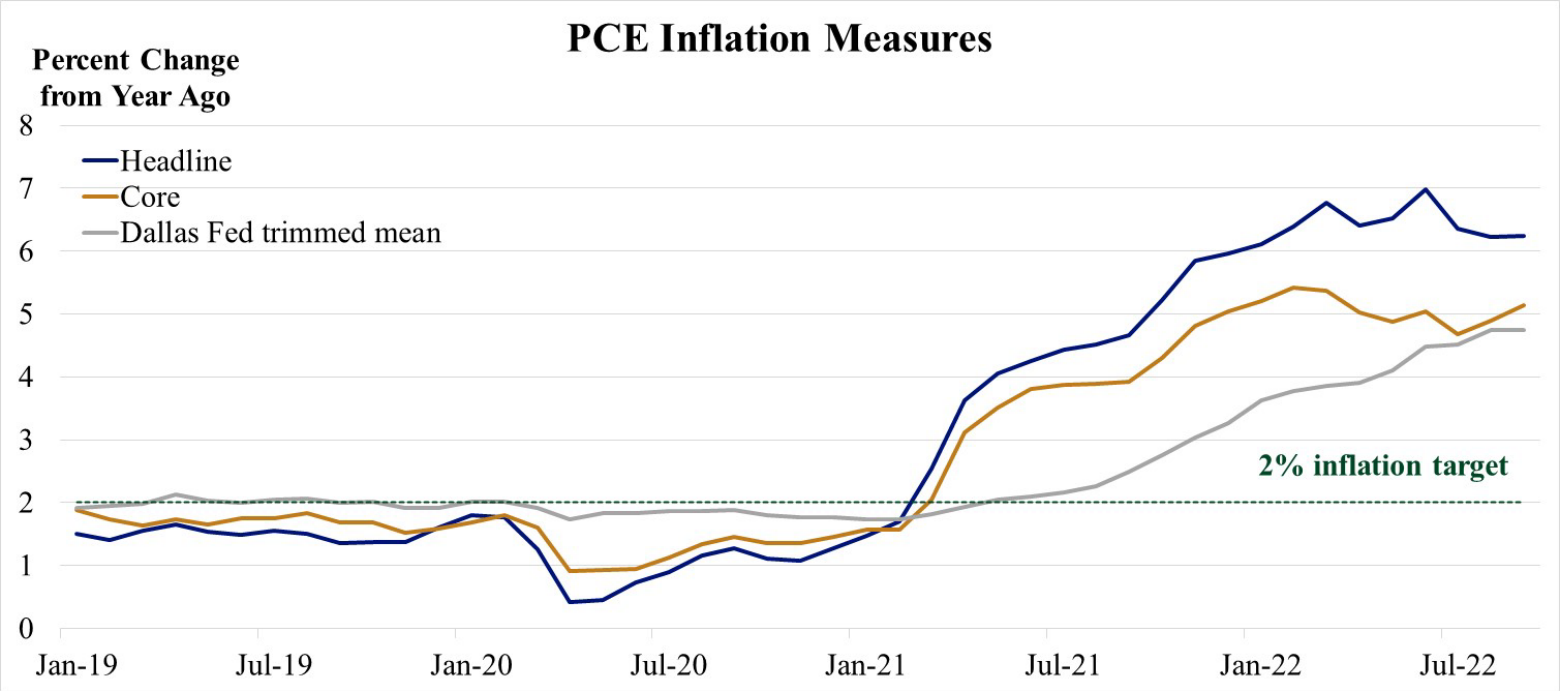
† *See J. Bullard, "R-Star Wars: The Phantom Menace," Feb. 26, 2018, remarks delivered at the 34th Annual National Association for Business Economics (NABE) Economic Policy Conference in Washington, D.C.*

How Large Is the Inflation Gap?

Measuring inflation

- The FOMC inflation target is stated in terms of headline PCE inflation.
- Headline PCE inflation was about 6% in 2021 and looks set to be over 6% for all of 2022.
- However, the headline number includes the volatile food and energy components.
- Here we will only consider core PCE inflation (which excludes food and energy) and the Dallas Fed trimmed-mean PCE inflation measure.
- Both of these inflation measures are currently lower than the headline PCE inflation measure and therefore suggest a smaller inflation gap than the headline measure does.

Inflation well above target



Sources: Bureau of Economic Analysis and Federal Reserve Bank of Dallas. Last observation: September 2022.

How Actively Should Policymakers React to Inflation Deviations from Target?

Policymaker reaction to inflation deviations

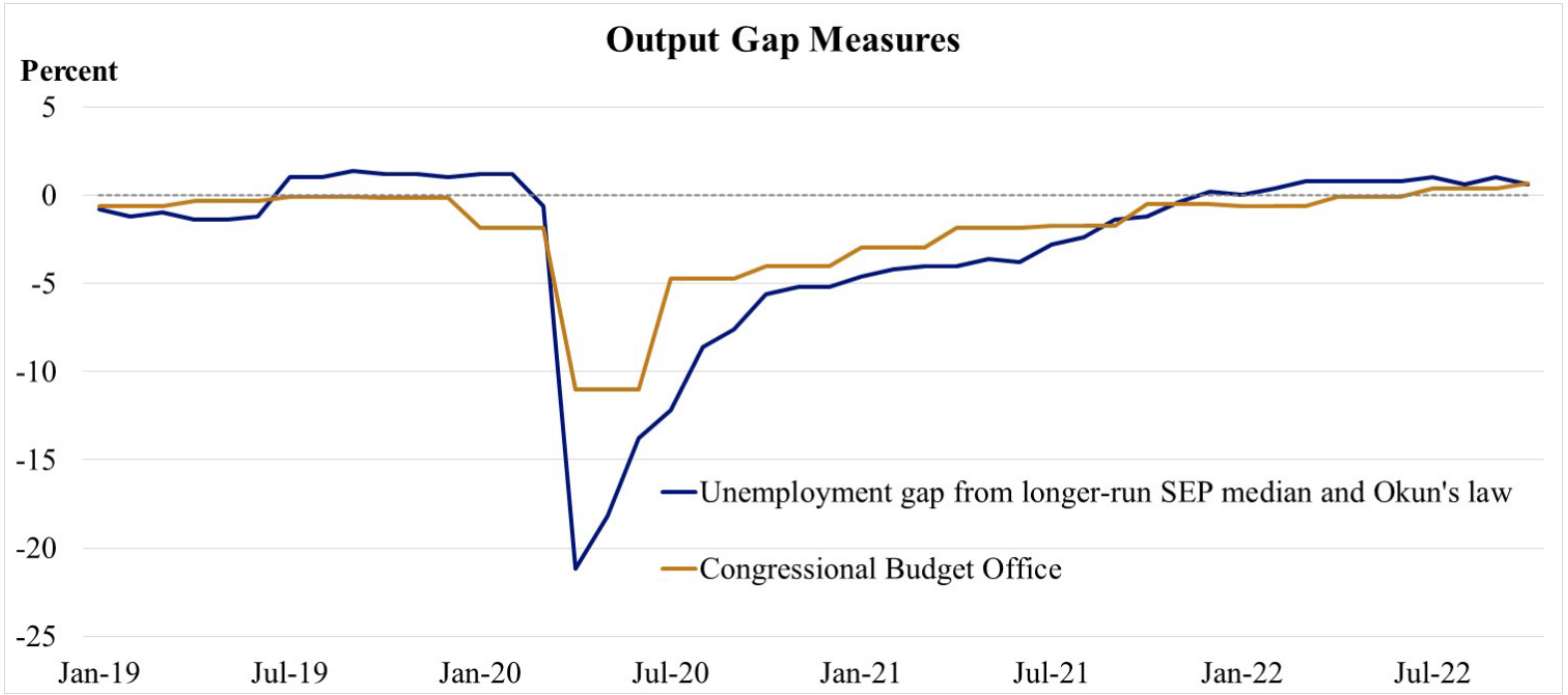
- When inflation is above target, the commonly used models in the macroeconomics literature state that the policy rate should be increased.
- But, by how much?
- The literature has a well-studied answer to this question: the policymaker should raise the policy rate more than one-for-one with deviations of inflation from target, known as the "Taylor principle."
- We will consider two values for this parameter: 1.25 in the more generous case, and 1.5 (closer to standard in the literature) for the less generous case.

How Large Is the Output Gap?

Measuring the output gap

- Real output is currently above potential.
- According to the formula in this talk, this means that we can ignore this aspect of the Taylor-type rule altogether.
- The next chart shows two ways to measure the output gap:
  1. By applying Okun's law to deviations of the unemployment rate from the median longer-run value in the FOMC's Summary of Economic Projections (SEP).
  2. As a percent of potential GDP, as estimated by the Congressional Budget Office (CBO).

Output is above potential



Sources: Bureau of Labor Statistics, Congressional Budget Office and author's calculations. Last observation: October 2022.

Putting It All Together

A generous rule

- In the first version of the Taylor-type rule outlined above, I use the most generous assumptions (those that tend to recommend a lower value of the policy rate):
  1. Measure the inflation gap using the Dallas Fed trimmed-mean PCE inflation rate.
  2. Use an approximate pre-pandemic value for the real interest rate (R^*) of –50 basis points.
  3. Use the relatively low value of 1.25 for the parameter describing the reaction of the policymaker to deviations of inflation from target.

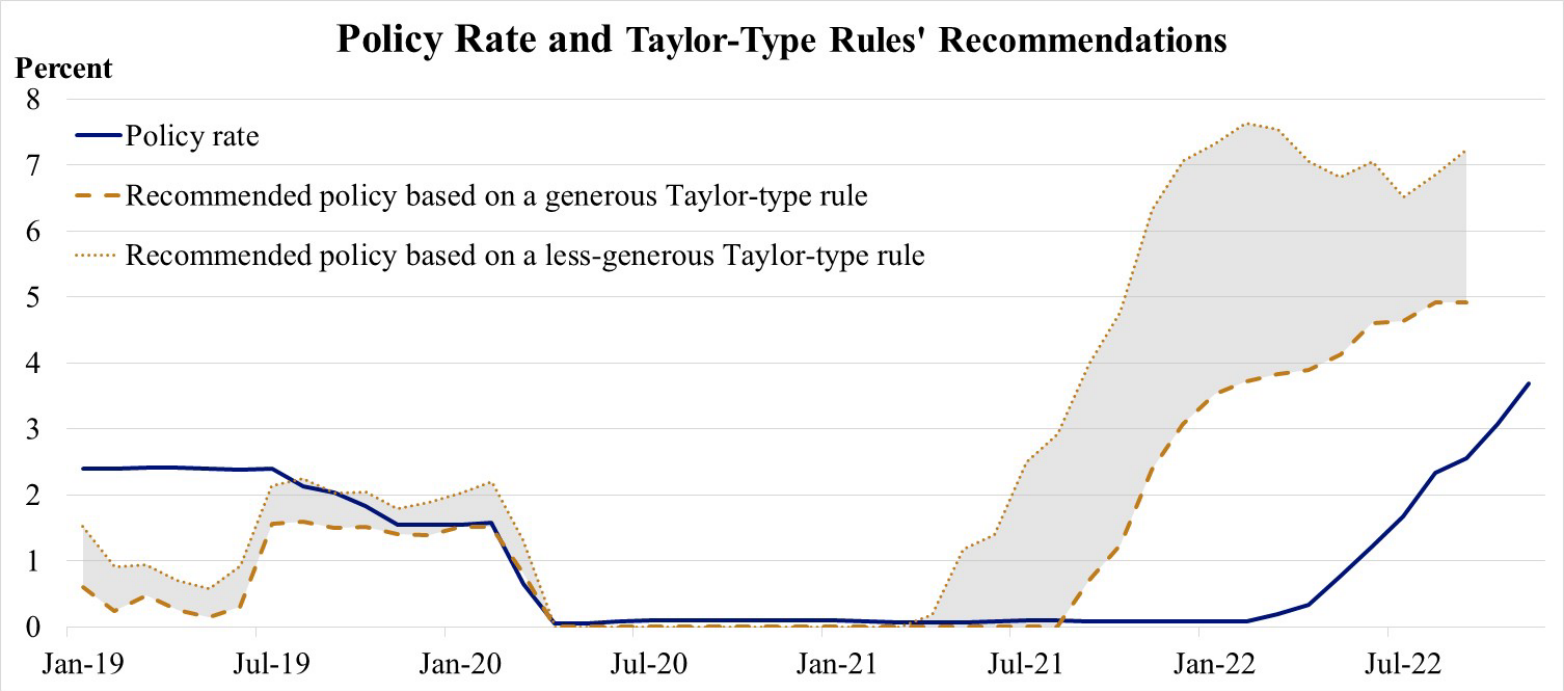
A less generous rule

- For a less generous specification, I will use:
  1. Core (excluding food and energy) PCE inflation as the inflation measure.
  2. A higher value for the real interest rate (R^*) of +50 basis points.*
  3. A parameter value describing the reaction of the policymaker to deviations of inflation from target closer to the literature standard, 1.5.†

** According to the September 2022 SEP, the median longer-run value for PCE inflation is 2.0%, while the median longer-run value for the federal funds rate is 2.5%. This implies a longer-run value of the real rate of 50 basis points.*

† See Taylor (1993, 1999).

The sufficiently restrictive zone



Sources: Bureau of Economic Analysis, Bureau of Labor Statistics, Federal Reserve Bank of Dallas, Federal Reserve Bank of New York and author's calculations. Last observations: September 2022 and November 2022.

Some Related Issues

Could the recommended zone decline?

- The policy rate has been increased during 2022 but has lagged behind the increases in the recommended zone in the chart.
- The shaded area in the chart could decline as new data arrive—in particular, if inflation declines in the months and quarters ahead.
- Indeed, market expectations are for declining inflation in 2023.
- Caution is warranted, however, as both markets and the FOMC's SEP forecasts have been predicting declining inflation just around the corner for the past 18 months.

Financial stability risks

- The policy rate has been increased by 75 basis points per meeting at the last four meetings, as part of a front-loading strategy to move to an appropriately restrictive stance given very high inflation.
- It is possible that increased financial stress could develop in such an environment.
- However, the transparency with which these increases have been delivered, along with forward guidance, seems to have allowed for a relatively orderly transition to a higher level of interest rates so far.
- The St. Louis Fed's financial stress index is so far indicating a relatively low level of financial stress despite the higher policy rate this year.

Financial stress readings remain low

Source: Federal Reserve Bank of St. Louis. Last observation: Week of Nov. 4, 2022.

Policy inertia

- The policy rate has been adjusted only partially toward the recommended policy rate during 2022, a phenomenon referred to as "policy inertia" in the literature.
- In my view, inertia involves a judgment by the FOMC concerning the pace of adjustment and its possible risks, weighed against the gains from returning the economy as quickly as possible to the balanced growth path with 2% inflation.
- Inertia has not been included in the calculations here, as the desire has been to locate a recommended level of the policy rate independently of the judgment call on policy inertia.

Conclusion

Conclusions

- The most recent FOMC statement referenced a “sufficiently restrictive” level of the policy rate.
- In this talk, I have outlined one way to conceptualize this idea.
- According to the calculations presented here, the policy rate is not yet sufficiently restrictive even under the most generous interpretation.

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