

Enhancing Resilience with a Monetary Policy Rule

Athanasios Orphanides

MIT

15 December 2023

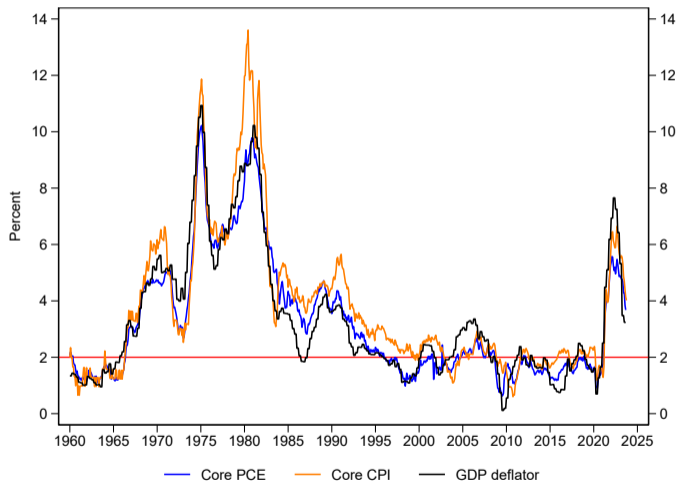
NBU/EABCN Workshop

Monetary Policy in Emerging Markets:

Understanding the Causes and Consequences of a New Wave of Inflation



The post-pandemic inflation in historical context



Alternative measures of inflation for the United States.

Year-on-year, monthly for PCE/CPI, quarterly for deflator.



The Anguish of Central Banking

“In monetary policy central bankers have a potent means for fostering stability of the general price level. By training if not also by temperament, they are inclined to lay great stress on price stability, and their abhorrence of inflation is continually reinforced by contacts with one another and with like-minded members of the private financial community. And yet, despite their antipathy to inflation and the powerful weapons they could wield against it, central bankers have failed so utterly in this mission in recent years. In this paradox lies the anguish of central banking.”

Arthur Burns, *The Anguish of Central Banking*, 1979.



The pandemic: Policy success followed by policy failure

- ▶ Policy response to the pandemic was appropriately forceful—a policy success.
- ▶ The post-pandemic recovery was unexpectedly strong. Together with supply constraints, this resulted in a spike in inflation.
- ▶ The Fed used its discretion to peg the federal funds rate at zero for too long.
- ▶ During 2021, with actual and expected inflation rising as the economy recovered, the Fed continued to push real interest rates to even lower and excessively negative levels. During 2022, the Fed strived to catch up.
- ▶ What explains this error?
- ▶ What lessons can be drawn for improving policy?

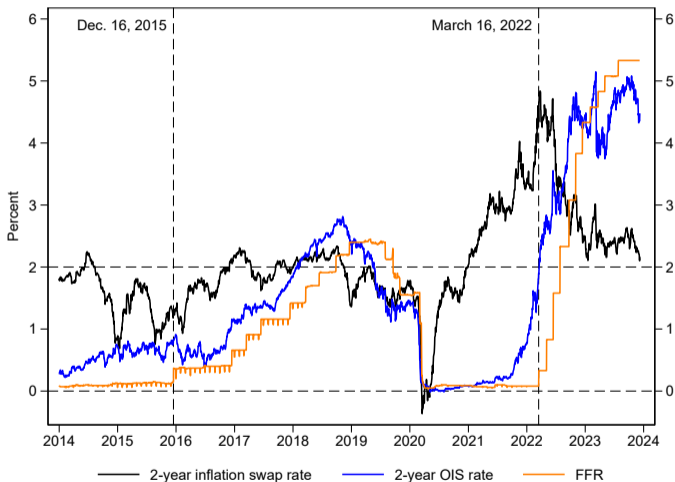


The forward guidance trap and lessons for future policy

- ▶ The Fed fell into the forward guidance trap.
- ▶ A flawed policy strategy: The Fed communicated explicit information about the likely path of future interest-rate policy instead of a systematic reaction function.
- ▶ Compared to this strategy, clearer communication of a central bank's reaction function would avoid the trap and improve policy outcomes.



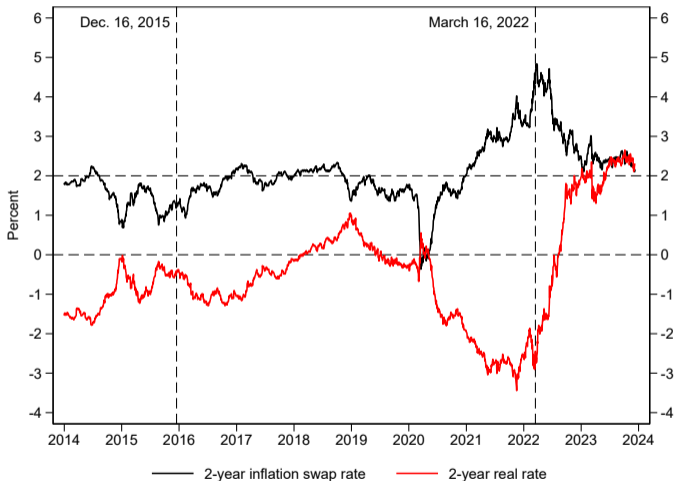
Federal funds rate and two-year OIS and inflation swap rates



Vertical lines denote policy liftoff after GFC and pandemic recessions.



Two-year inflation swap and ex ante real rates

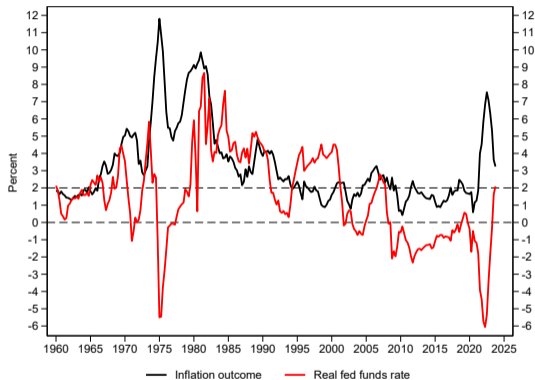


Real rates based on OIS and inflation swap rates.

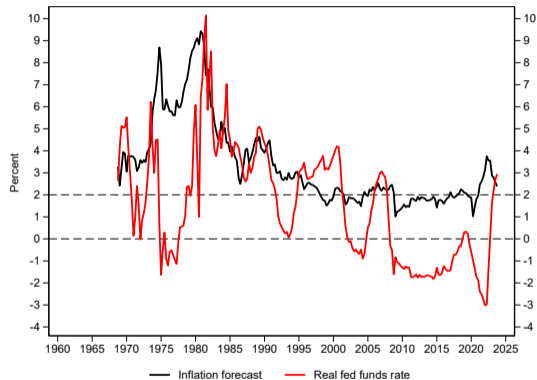


The trap in historical perspective: Inflation and real rates

Outcome-based



Forecast-based



Inflation outcome is GNP/GDP deflator growth over 4 quarters as available in real time. Forecast based on 3q ahead SPF median. Real fed funds rate is quarter-average rate minus inflation outcome/forecast.



How did the Fed fall into the forward guidance trap?

- ▶ Communicating and implementing policy with a nominal interest rate deflects attention from the evolution of **real** interest rates.
- ▶ A decision to move **from forecast-based to outcomes-based** forward guidance introduced myopia, raising the odds the Fed would be “behind the curve”.



The introduction of outcomes-based forward guidance

- ▶ July 29, 2020 (statement):
“The Committee expects to maintain this target range until it is confident that the economy has weathered recent events and **is on track to achieve** its maximum employment and price stability goals.
- ▶ September 16, 2020 (statement):
“The Committee ... expects it will be appropriate to maintain this target range until **labor market conditions have reached** levels consistent with the Committee’s assessments of maximum employment and **inflation has risen** to 2 percent and is on track to moderately exceed 2 percent for some time.”
- ▶ November 3, 2021 (press conference):
“We have not focused on whether we meet the liftoff test, because **we don’t meet the liftoff test** now because we’re not at maximum employment.”



Lessons for the next review of the monetary policy strategy

- ▶ The Fed's aggressive hikes in 2022 guided **real** interest rates to a restrictive policy stance.
- ▶ For the time being, the Fed has abandoned its flawed approach to forward guidance.
- ▶ However, the Fed has not yet changed its overall policy strategy and communication and continues to exhibit a preference for unhelpful discretion.
- ▶ A simple policy rule could serve as a benchmark for communicating the systematic, contingent nature of monetary policy.
- ▶ The next strategy review should focus on the process for selecting a benchmark policy rule towards protecting against avoidable policy errors and enhancing the resilience of the economy.



Desirable characteristics of a benchmark rule

- ▶ Must preserve price stability over time, maintain inflation expectations well-anchored, in line with 2% goal.
- ▶ Be forward-looking, embracing benefits from current analysis, now-casting, short-term projections
- ▶ Be somewhat countercyclical, tempering business cycle booms and busts.
- ▶ Be robust to imperfect knowledge, including properly accounting for the pitfalls of relying on unknowable “star” concepts.



Alternative policy rules

- ▶ Choice of target variable.
- ▶ Choice of instrument (e.g. monetary base or policy rate).
- ▶ Choice of response horizon (recent observed data or projections).



Candidate target variables

- ▶ “Growth target” (e.g. inflation or nominal GDP growth).
- ▶ “Growing level target” (e.g. price level targeting of nominal GDP targeting).
- ▶ “Hybrid variable” (e.g. sum of inflation and output, as Classic Taylor rule).



Choice of instrument

- ▶ The monetary base and a policy interest rate can both be suitable instruments with different relative advantages/disadvantages.
- ▶ Monetary-base rules require attention to account for velocity shifts that may arise from factors such as financial innovation.
- ▶ Interest-rate rules require appropriate reaction to a nominal anchor to avoid instability/indeterminacy. **Cannot peg nominal interest rates for long.**



Two alternative benchmark rules with an interest rate instrument

- ▶ Level rule: Classic Taylor rule

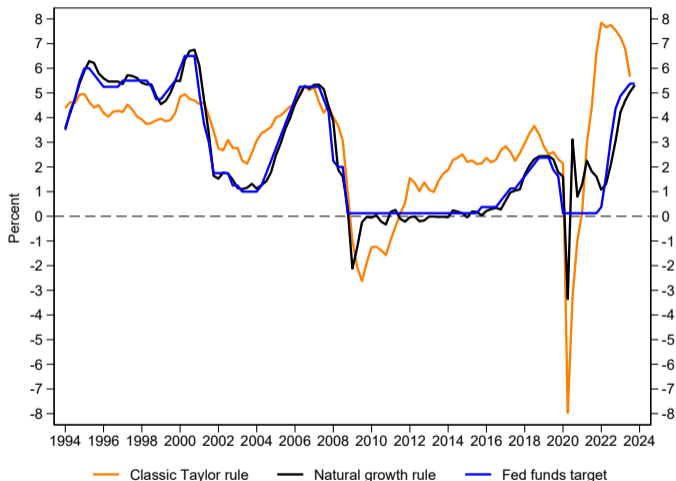
$$i = r^* + \pi + \theta(\pi - \pi^*) + \theta\kappa(u - u^*)$$

- ▶ Difference rule: Natural Growth Targeting

$$\Delta i = \theta(n - n^*)$$



Taylor Rule and Natural Growth Rule



$$i = r^* + \pi + \theta(\pi - \pi^*) + \theta\kappa(u - u^*)$$

$$\Delta i = \theta(n - n^*)$$



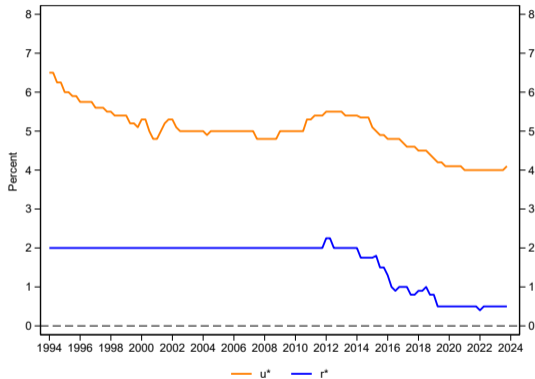
The Classic Taylor Rule

- ▶ Let $y \equiv (q - q^*)$ be the “output gap”.
- ▶ Rule has the form of a one-parameter “level” rule:
$$i = r^* + \theta(\pi - \pi^*) + \theta y$$
- ▶ Original formulation (Taylor, 1993), with $\theta = \frac{1}{2}$, $\pi^* = 2$, was based on current-quarter GNP/GDP deflator inflation, current-quarter output gap based on linear detrending and constant $r^* = 2$.
- ▶ Implementation in Federal Reserve’s *Monetary Policy Report* based on current-quarter core PCE inflation and unemployment, with varying r^* , u^* . (Recall, $y \equiv q - q^* \approx \kappa(u - u^*)$, where $\kappa = -2$ based on Okun’s law.)
- ▶ In recent years, can rely on median FOMC SEP projections for r^* , u^* .

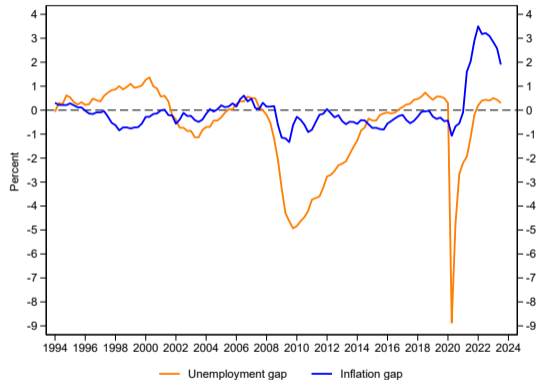


Inputs to Taylor rule

Stars



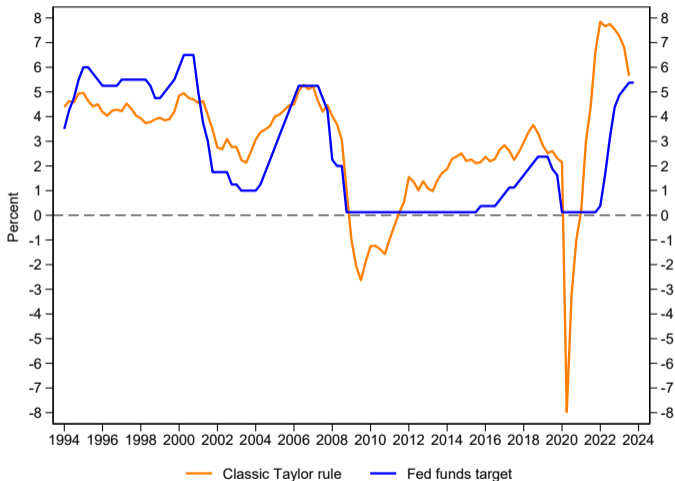
Gaps



$$i = r^* + \pi + \theta(\pi - \pi^*) + \theta\kappa(u - u^*)$$



Taylor Rule



$$i = r^* + \pi + \theta(\pi - \pi^*) + \theta\kappa(u - u^*)$$



The Natural Growth Targeting rule

- ▶ Let $(n - n^*)$ be the deviation of nominal income growth from normal.
- ▶ Rule has the form of a one-parameter “difference” rule:
$$\Delta i = \theta(n - n^*)$$
- ▶ To ensure rule is operational need to also:
 - ▶ specify real-time data/projections for n
 - ▶ define “normal” growth, n^* , accounting for variation of real potential output growth to ensure the rule delivers price stability consistently over time.

- ▶ Variations: The difference rule with inflation and output/unemployment gap:

$$\Delta i = \theta(\pi - \pi^* + \Delta y)$$

(PCE/output gap-forecasts in Bluebook, unemployment outcomes in MPR.

Recall, $\Delta y = \Delta q - \Delta q^* \approx \kappa \Delta u$, where κ based on Okun's law.)



An example based on the SPF

- ▶ Natural growth targeting rule with $\theta = \frac{1}{2}$, $\pi^* = 2$:

$$\Delta i = \frac{1}{2}(n - n^*)$$

- ▶ Update of “Monetary Policy Strategy and its Communication” (2019 JH).
- ▶ Use median SPF projections of nominal GDP, year-on-year, 3-Q ahead, for n .
- ▶ Use median SPF projection of real GDP growth over next 10 years as a proxy for real potential GDP growth, Δq^* . Construct $n^* = \pi^* + \Delta q^*$.
- ▶ Use end-quarter target fed funds (or midpoint of target band) to compare rule prescriptions with actual policy since 1994.

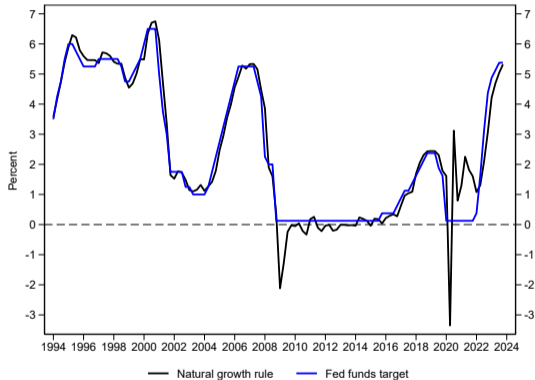


Inputs to Natural Growth Rule

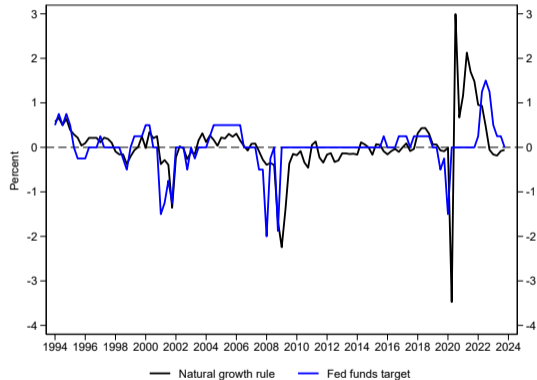


Natural Growth Rule

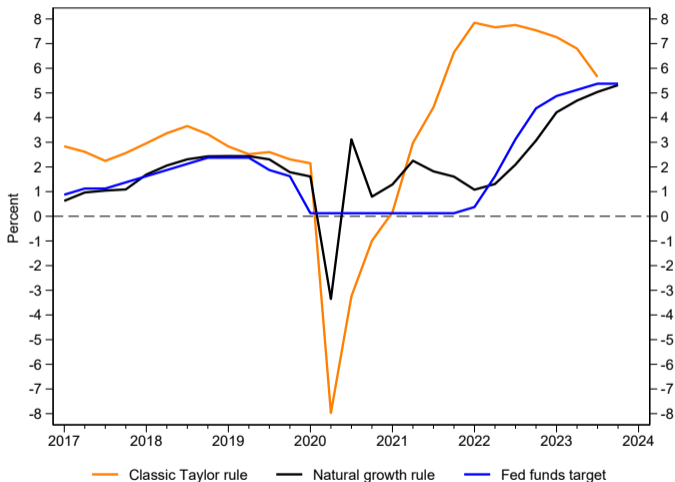
Level



Quarterly change



Would a rule have helped avoid the post-pandemic inflation?



$$i = r^* + \pi + \theta(\pi - \pi^*) + \theta\kappa(u - u^*)$$

$$\Delta i = \theta(n - n^*)$$



Enhancing Resilience with a Monetary Policy Rule

- ▶ A simple benchmark rule provides guidance against major policy errors.
- ▶ Contributes to transparency and accountability.
- ▶ Guards against unhelpful discretionary deviations from systematic policy.
- ▶ Natural growth targeting a simpler benchmark than the classic Taylor rule.
- ▶ An important component of a review of monetary policy strategy should be the evaluation and selection of a benchmark rule that can help enhance resilience.

