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Making Monetary Policy: Rules, Benchmarks, Guidelines, and Discretion

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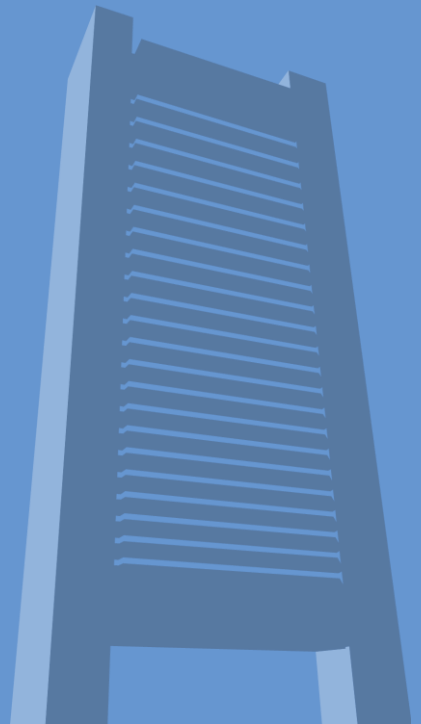
Federal Reserve Bank of Boston's 61st Economic Conference
"Are Rules Made to be Broken? Discretion and Monetary Policy"
Boston, Massachusetts



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Should We Have Rules-Based Monetary Policy?

- Legislation is being considered that has policymakers adhere to predetermined rule
  - “Taylor Rule” – leading example of rules
  - Legislation closely follows Taylor (1993)
- Alternative is to focus on outcomes
  - Maximum employment and stable prices
  - Allow policymakers discretion in determining how best to achieve the mandate

Benefits of Policy Rules

- Rules can capture the response of policy to various conditions over a historical period, providing a benchmark
- Rules can make inherently complex policies more understandable and transparent to the public
- Greater transparency can make it easier to communicate the current and prospective stance of monetary policy
- Provide consistency through time, even as the membership of the policymaking committee changes

Drawbacks – A Historical Example

- Boston Fed President Frank Morris, 35 years ago, a leader in the rules versus discretion debate
  - Many economists were arguing for rules tied to simple money aggregates
  - Frank argued financial innovation had degraded the information content of money aggregates, so simple money-based rules would be poor guides for monetary policy
- With the benefit of hindsight, I think it is clear that Frank Morris was right – money aggregates largely disappeared from policy debates

Potential Issues with Rules

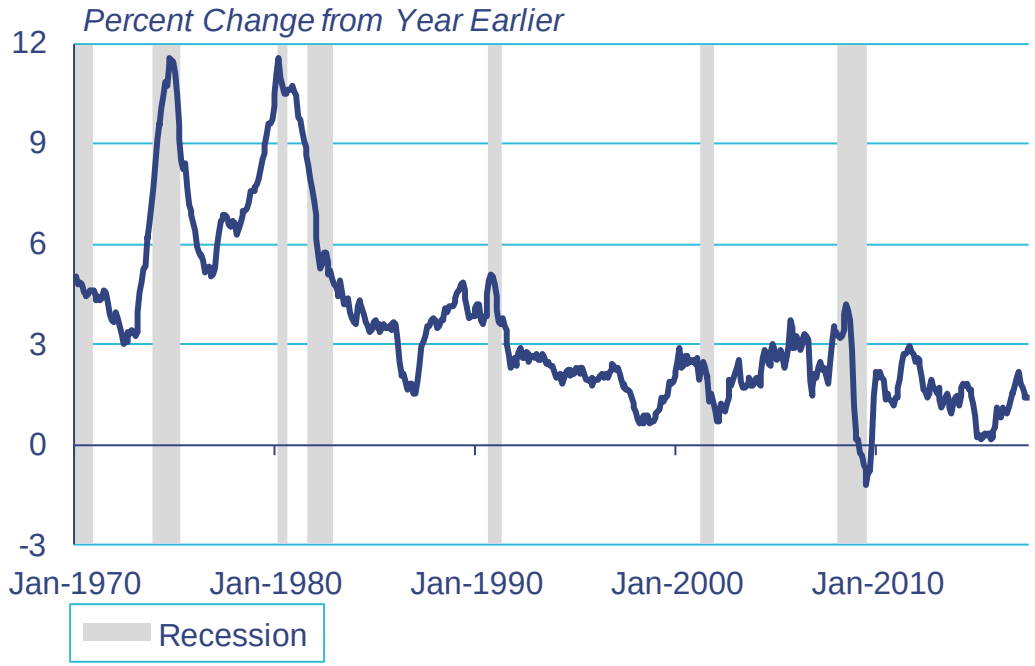
- No simple policy rule has been widely adopted to direct policy at central banks around the world
- Picking the wrong rule can entail significant costs: an ineffective or inappropriate rule could produce distinctly sub-optimal results for the economy
- Costly to a central bank's reputation and communication efforts if the rule has to be abandoned

Current Rules Have Significant Advantages Over Money Aggregates

- They are firmly tied to the ultimate goals that Congress has set for the Federal Reserve
- A policy rule that guides actions (interest rate decisions) to reduce misses in the mandate (deviations of inflation and employment from their targets) makes intuitive sense
- I will show why benchmarking with policy rules is essential – and why legislating the use of simple policy rules would be counterproductive

Figure 1: Inflation Rate: Change in Personal Consumption Expenditures (PCE) Price Index

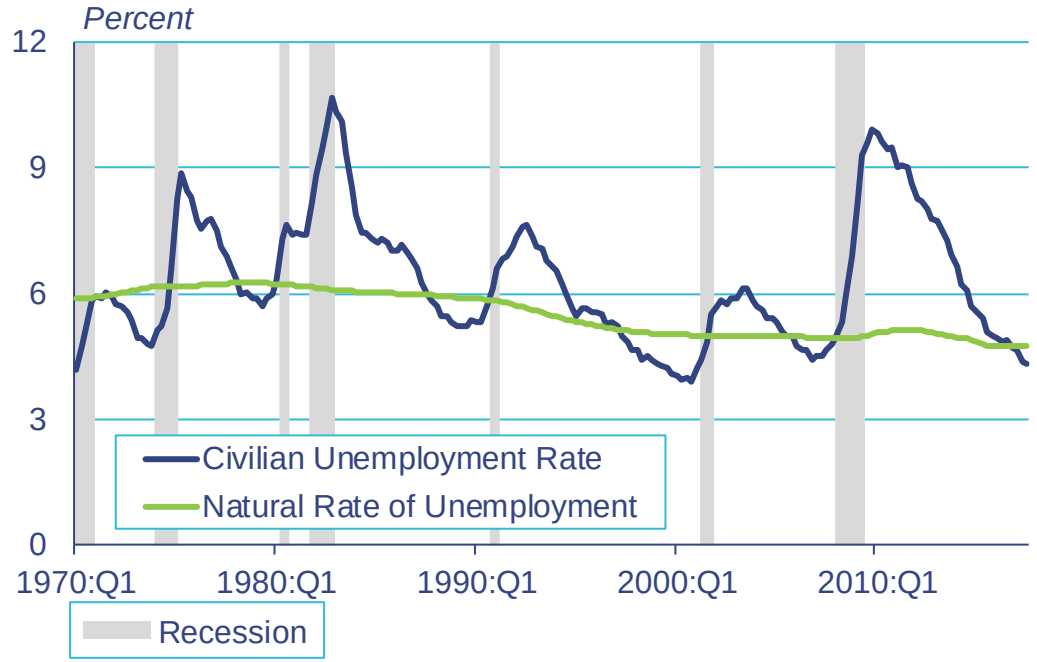
January 1970 - August 2017



Source: BEA, NBER, Haver Analytics

Figure 2: Civilian Unemployment Rate and the Natural Rate of Unemployment

1970:Q1 - 2017:Q3



Source: BLS, CBO, NBER, Haver Analytics

Figure 3: Specifications of Policy Rules for the Federal Funds Rate

December 8, 2011

Outcome-based rule	$i_t = 1.20i_{t-1} - 0.39i_{t-2} + 0.19[1.17 + 1.73\pi_t + 3.66(y_t - y_t^*) - 2.72(y_{t-1} - y_{t-1}^*)]$
Forecast-based rule	$i_t = 1.18i_{t-1} - 0.38i_{t-2} + 0.20[0.98 + 1.72\pi_{t+2\|t} + 2.29(y_{t+1\|t} - y_{t+1\|t}^*) - 1.37(y_{t-1} - y_{t-1}^*)]$
Taylor (1993) rule	$i_t = 2 + \pi_t + 0.5(\pi_t - \pi^*) + 0.5(y_t - y_t^*)$
Taylor (1999) rule	$i_t = 2 + \pi_t + 0.5(\pi_t - \pi^*) + (y_t - y_t^*)$
First-difference rule	$i_t = i_{t-1} + 0.5(\pi_{t+3\|t} - \pi^*) + 0.5(\Delta^4 y_{t+3\|t} - \Delta^4 y_{t+3\|t}^*)$

Note: i_t is the federal funds rate for quarter t, $y_t - y_t^*$ is the output gap estimate for the current period, π_t is the trailing four-quarter core PCE inflation for quarter t, and π_t^*, policymakers' long-run inflation objective, is assumed to be 2%. The symbol Δ^4 refers to the change over 4 quarters, and $\pi_{t+2|t}$ refers to inflation expectations formed at time t for two quarters ahead.

Source: FOMC, Tealbook B, December 8, 2011

Rules Do Provide an Important Benchmark

- FOMC participants do indeed regularly refer to policy rules – previous table shows they have been used regularly in briefing documents
- Help reinforce dual mandate –
  - Reinforce the expectations of firms and households that inflation is likely to be 2 percent
  - Reinforce commitment to full employment

Figure 4: Near-Term Prescriptions of Policy Rules for the Federal Funds Rate

December 8, 2011

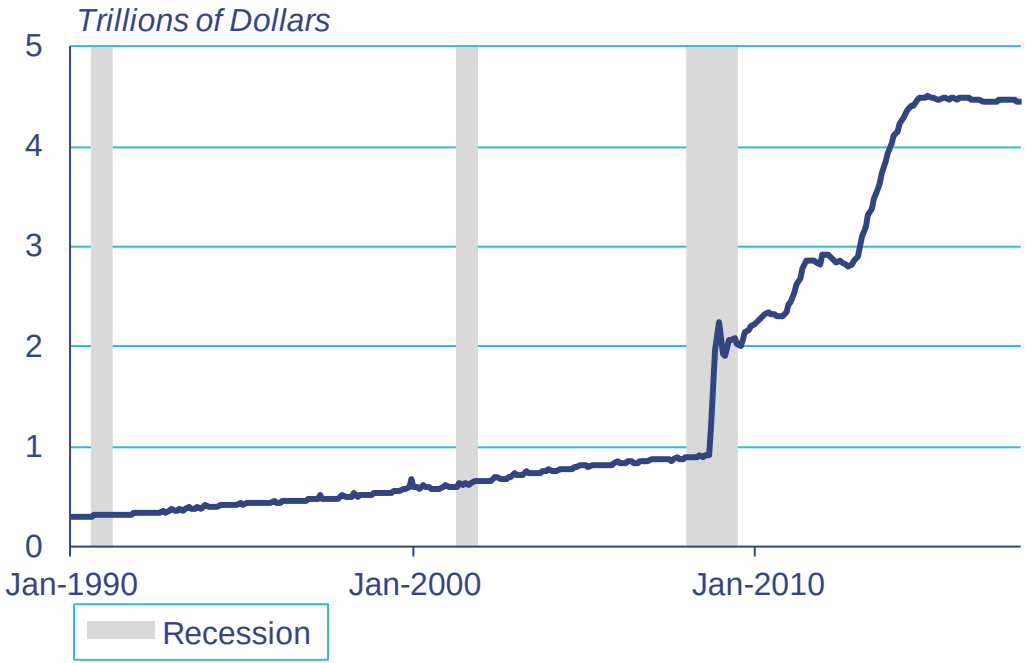
	2012Q1	2012Q2
Taylor (1993) rule	0.90	0.59
Taylor (1999) rule	-1.82	-2.15
Estimated outcome-based rule	-0.11	-0.42
Estimated forecast-based rule	-0.27	-0.61
First-difference rule	-0.02	-0.14

MEMO	2012Q1	2012Q2
Staff assumption	0.08	0.10
Fed funds futures	0.10	0.13
Median expectation of primary dealers	0.13	0.13
Blue Chip forecast (December 1, 2011)	0.10	0.10

Source: FOMC, Tealbook B, December 8, 2011

Figure 5: Federal Reserve System Assets

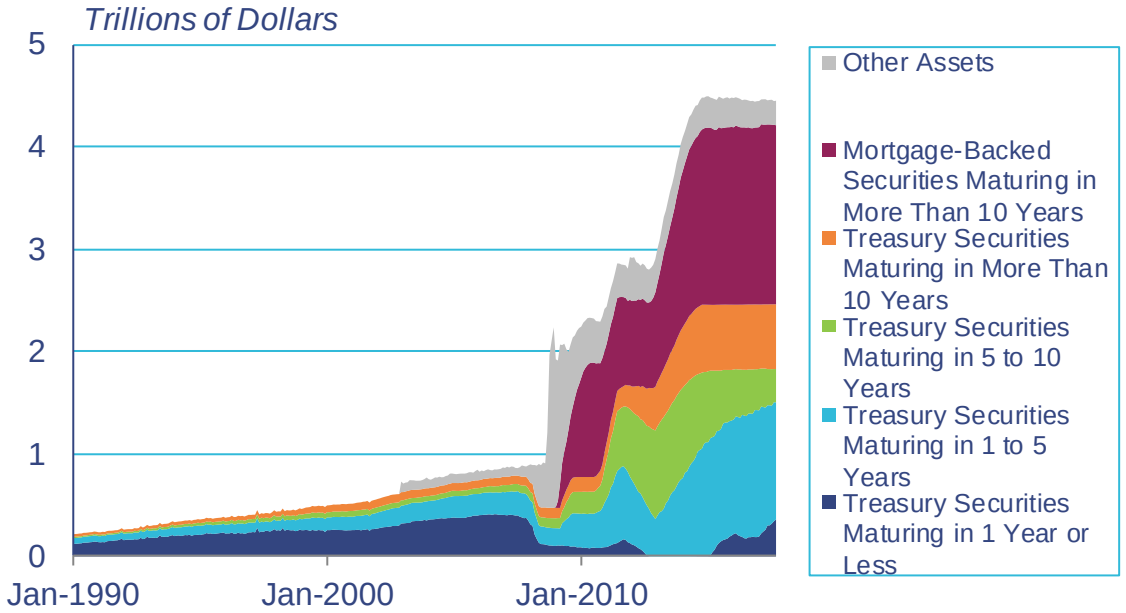
January 1990 - September 2017



Source: Federal Reserve Board, NBER, Haver Analytics

Figure 6: Federal Reserve System Balance Sheet Composition

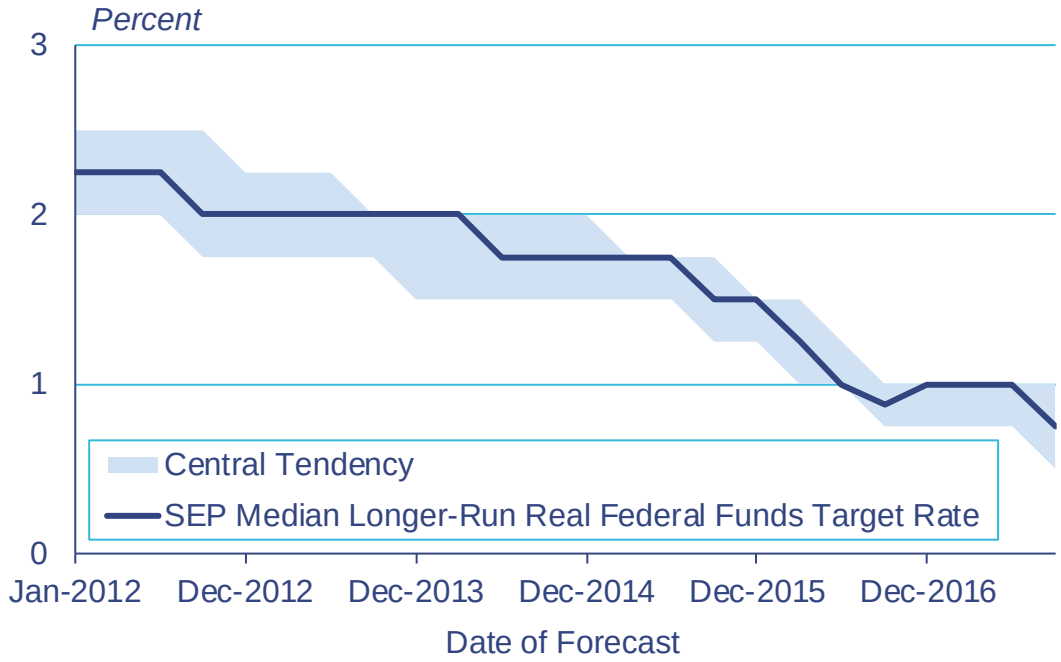
January 1990 - September 2017



Source: Federal Reserve Board, NBER, Haver Analytics

Figure 7: Estimates of the Equilibrium Real Interest Rate

January 2012 - September 2017

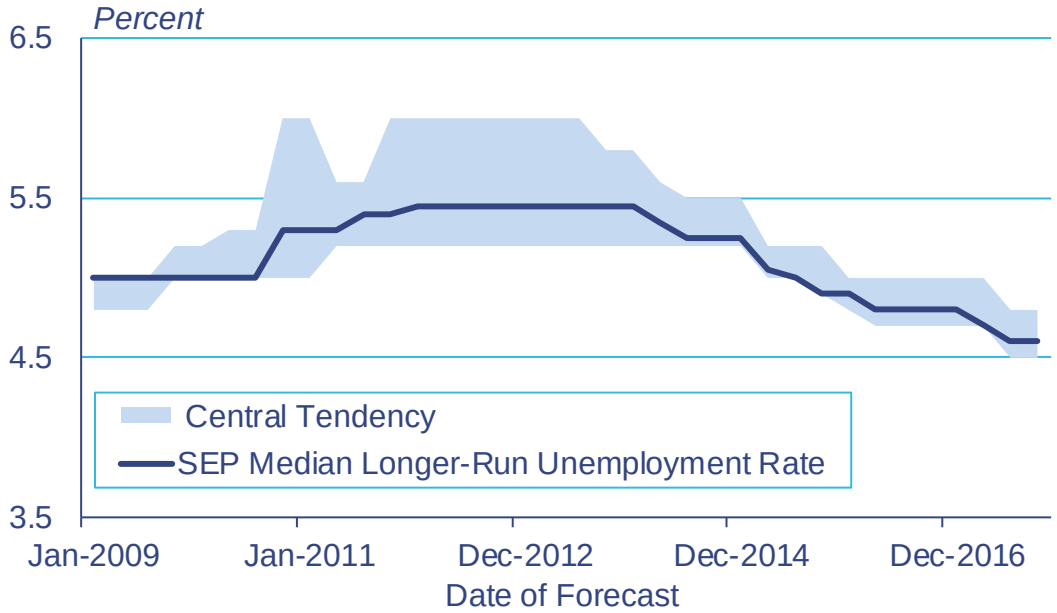


Note: The equilibrium real interest rate is calculated as the SEP median longer-run federal funds rate forecast less an inflation rate of 2%. The central tendency excludes the three highest and three lowest observations.

Source: FOMC, Summary of Economic Projections (SEP)

Figure 8: Estimates of the Natural Rate of Unemployment: SEP Forecasts of the Longer-Run Unemployment Rate

January 2009 - September 2017

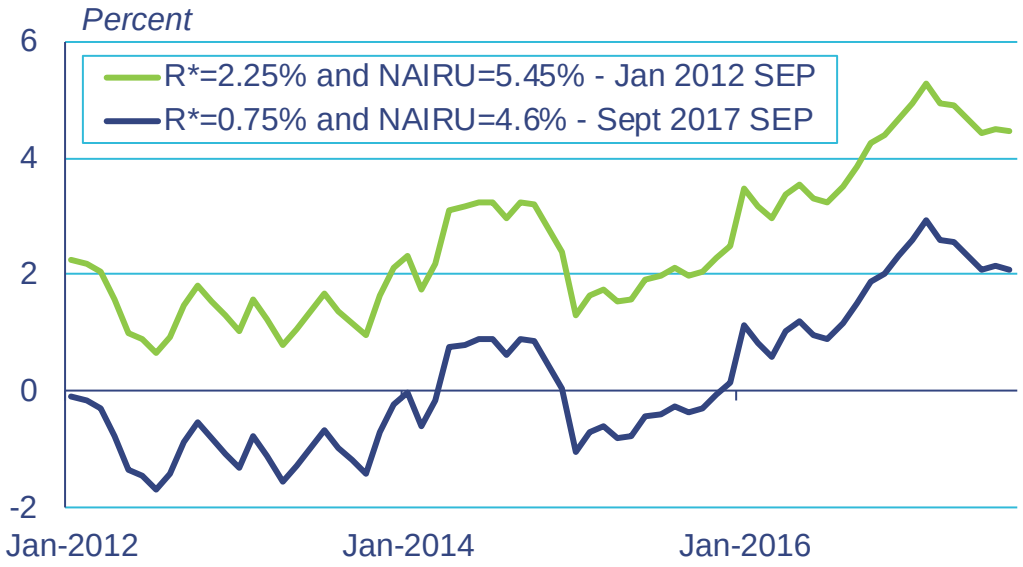


Note: Prior to the June 2015 median, SEP median unemployment rates are publicly available only with a five-year lag. Proxies for the medians for 2012 - March 2015 are calculated from the distribution of participants' projections reported in ranges of tenths in the meeting minutes. The central tendency excludes the three highest and three lowest observations.

Source: FOMC, Summary of Economic Projections (SEP)

Figure 9: Taylor Rule Prescriptions for the Federal Funds Rate

January 2012 - August 2017



Note: To specify the rule in terms of the Fed's dual mandate, which is stated in terms of employment rather than output, the output gap has been replaced by the gap between the longer-run and actual rates of unemployment, using Okun's Law. The calculation uses the PCE inflation rate.

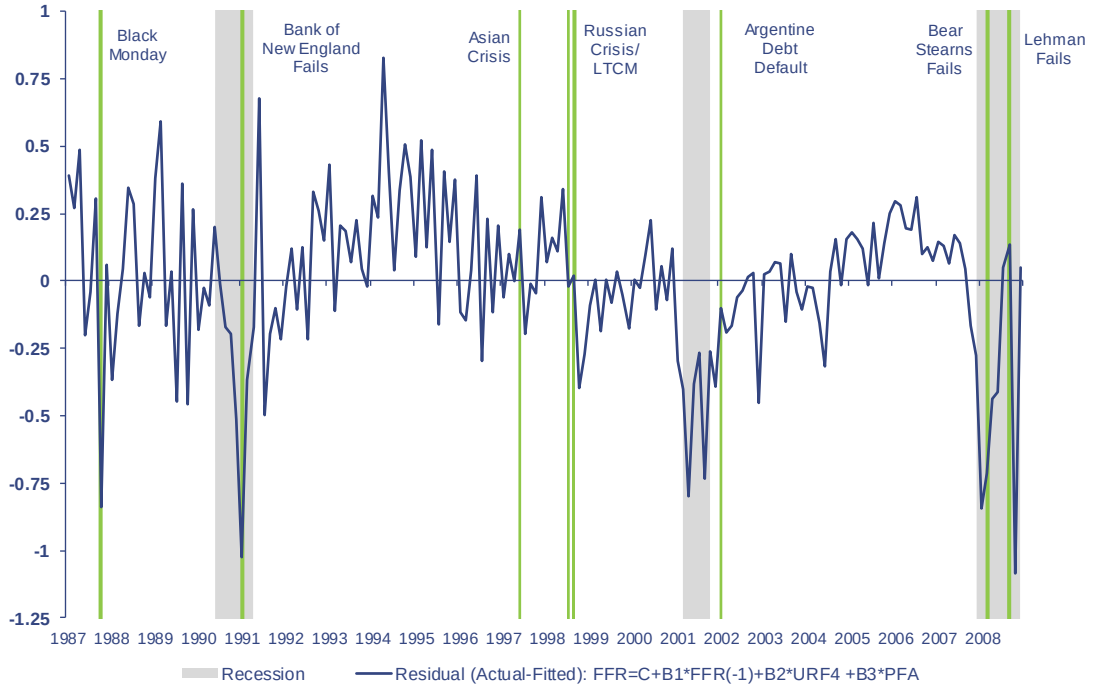
Source: FOMC, Summary of Economic Projections (SEP); Taylor Rule (1993)

Challenges with Policy Rules

- Simple interest rate rules do not capture the full range of policy instruments available to the central bank
- Parameters often specified as constants in simple policy rules have proven to be quite variable
  - Estimates of full employment and the equilibrium real interest rate have changed significantly over a short period of time
  - Given the changing views of economic relationships as we get more information about how the economy is actually responding, there would be many deviations from the rule and many complex explanations required
- Not incorporating financial stability and tail risks will not fully capture how policymakers react in real time
  - Significant omission during recessions and financial crises

Figure 10: Errors in the Estimated Taylor Rule and Periods of Instability

February 11, 1987 - December 15, 2008



Source: Peek, Rosengren and Tootell. (2016) "Does Fed Policy Reveal a Ternary Mandate?" Federal Reserve Bank of Boston Working Paper 16-11

Concluding Observations

- Simple policy rules are useful, not least in capturing how monetary policy has reacted historically
- This makes these rules very useful benchmarks providing useful guidance
- A legislated policy rule that is rigid could lead to large policy mistakes
  - Key inputs to policy rules that can change over time are estimated with substantial error

Concluding Observations (Continued)

- Policy effectiveness is better served by a more robust formulation of monetary policy that draws on a diverse set of guidelines and benchmarks – which is the exercise Fed policymakers conduct every six weeks for actual FOMC meetings