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Normalization: A New Approach

James Bullard

President and CEO, FRB-St. Louis

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Introduction

A new approach

- The St. Louis Fed recently changed its approach to near-term U.S. macroeconomic and monetary policy projections.
 - Wharton Business Radio interview, Aug. 12, 2016.
 - J. Bullard, “A Tale of Two Narratives,” remarks delivered at the Gateway Chapter of NABE, St. Louis, July 12, 2016.
 - J. Bullard, “A New Characterization of the U.S. Macroeconomic and Monetary Policy Outlook,” remarks delivered at the Society of Business Economists Annual Dinner, London, U.K., June 30, 2016.
 - J. Bullard, “The St. Louis Fed’s New Characterization of the Outlook for the U.S. Economy,” St. Louis Fed commentary, June 17, 2016.
 - All available on my webpage under “Key Policy Papers.”

Two narratives

- An older narrative used by the St. Louis Fed over the last five years or so has likely outlived its usefulness.
- A new narrative is replacing the old narrative.
- In this talk, I will describe in more detail the differences between the two narratives.

Overview of the Previous Narrative

Gaps tending to zero

- The old narrative held that, as inflation and unemployment gaps narrowed to zero, the policy rate would have to rise.
 - For one example, see J. Bullard, “Fed Goals and the Policy Stance,” remarks delivered at the Owensboro in 2065 Summit, Owensboro, Ky., July 17, 2014.
- Today, inflation and unemployment gaps are indeed near zero—business cycle dynamics have completely played out seven years after the end of the recession.
- This suggests that—since inflation and unemployment are at normal levels—the policy rate should also be near its normal level.
- This is standard macroeconomics.

Nature of the old narrative

- What is driving this conclusion?
- In the old narrative, there is, axiomatically, a unique long-run steady state which is essentially an average of the past.
- The economy is viewed as converging—all values for key macroeconomic variables are tending toward steady-state values.
- Implication: The policy rate would likely rise over the forecast horizon to be consistent with its steady-state value.
- Under the old narrative, the St. Louis Fed therefore projected a rising policy rate over the forecast horizon.

Overview of the New Narrative

Nature of the new narrative

- In the new narrative, the concept of a single, long-run steady state is abandoned.
- Instead, there is a set of possible “regimes” that the economy may visit.
 - J.D. Hamilton, “A New Approach to the Economic Analysis of Nonstationary Time Series and the Business Cycle,” *Econometrica*, March 1989, 57(2), 357-384.
 - C.-J. Kim and C.R. Nelson, *State-Space Models with Regime Switching*, MIT Press, 1999.
- The “regime” language comes from this and subsequent nonlinear econometrics literature on this topic.

More on the nature of the new narrative

- Regimes are viewed as persistent, and switches between regimes are viewed as not forecastable.
- Optimal monetary policy is regime-dependent.
- The current regime appears to be characterized by slow growth and low real rates of return on safe assets.
- Implication: The policy rate will likely remain essentially flat over the forecast horizon to remain consistent with the current regime.
 - This implication is very different from the previous narrative.

The Previous Narrative and the End of Its Usefulness

Forecasts under the St. Louis Fed's previous narrative

- The typical medium-term forecast during the past several years under the old narrative:
 - Output growth above trend.
 - Unemployment declining.
 - Inflation (net of commodity-price effects) overshoots 2 percent.
 - Policy rate increases to be consistent with the unique steady state.

The old narrative: Did it work?

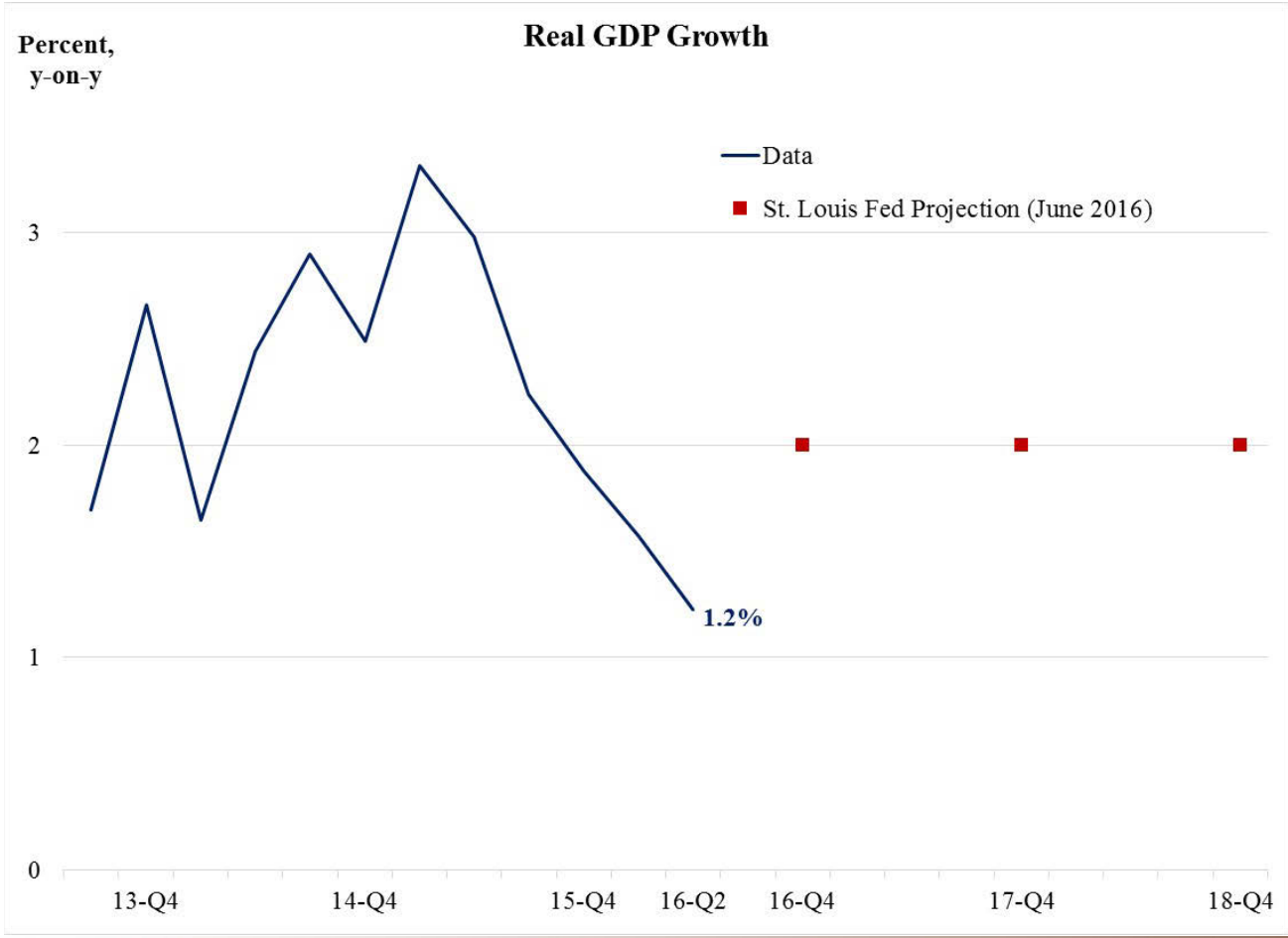
- Some aspects of the previous narrative worked well from second half of 2013 through the first half of 2015:
 - The average quarterly real GDP growth rate was about 2.7 percent versus a trend rate of about 2 percent.
 - So, economic growth was arguably above trend as we predicted.
 - Unemployment declined by 2 percentage points.
 - We were relatively accurate on this.
 - But, Dallas Fed trimmed-mean PCE inflation measured from one year earlier was 1.50 percent in July 2013 and increased to only 1.60 percent in July 2015.
 - We did not see the overshooting of the 2 percent inflation target we expected.

The end of the usefulness of the old narrative

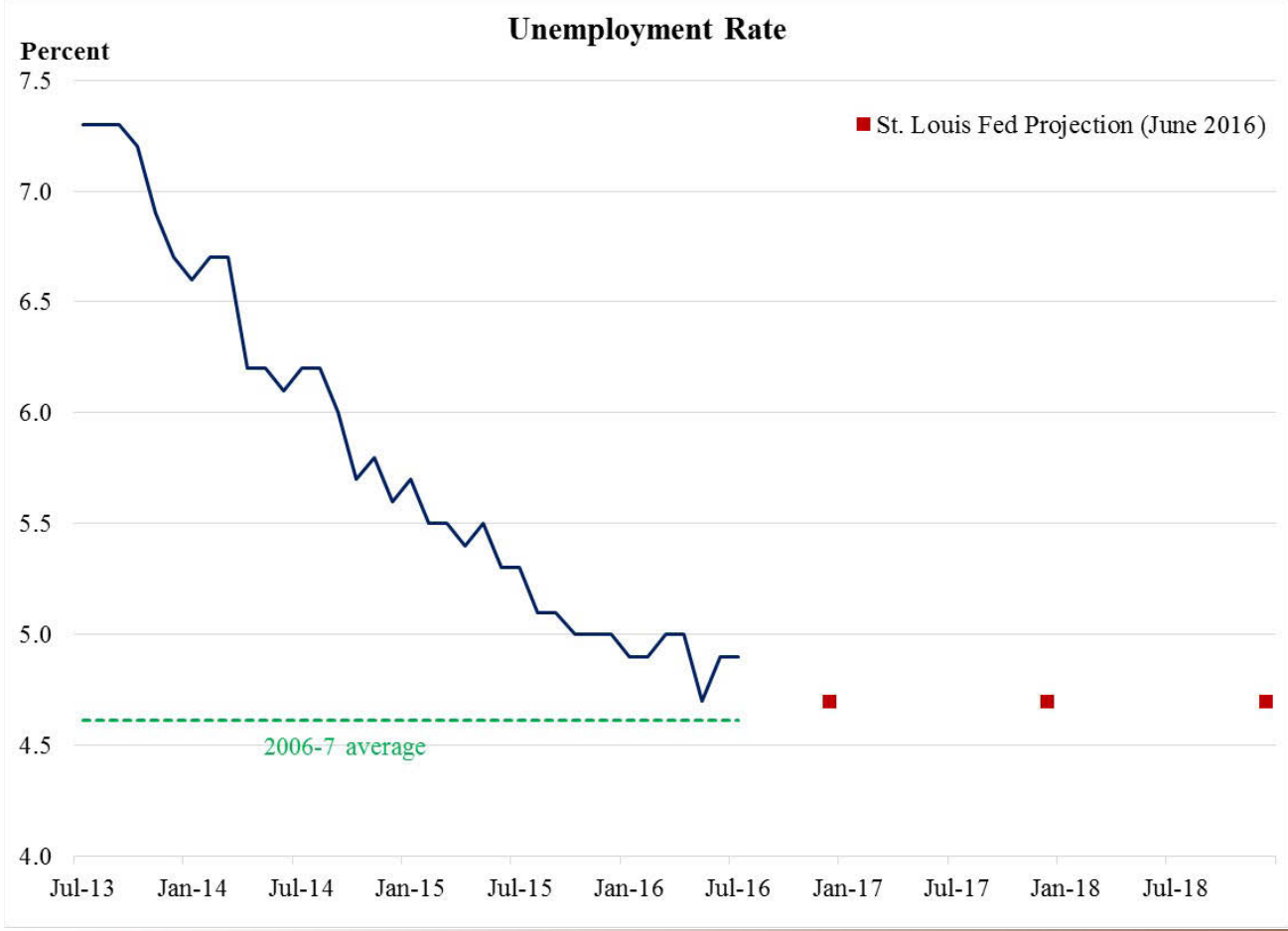
- The usefulness of our previous narrative may have now come to an end:
 - Output growth has arguably slowed to a rate below a 2 percent trend.
 - Unemployment may not fall much below its current values.
 - Trimmed-mean inflation is close to target but not rising rapidly.
- If there are no major shocks to the economy, this situation could be sustained over a forecasting horizon of two and a half years.
- These facts suggest that it may be time to quit using the old narrative.

Previous Narrative and the End of Its Usefulness in Charts

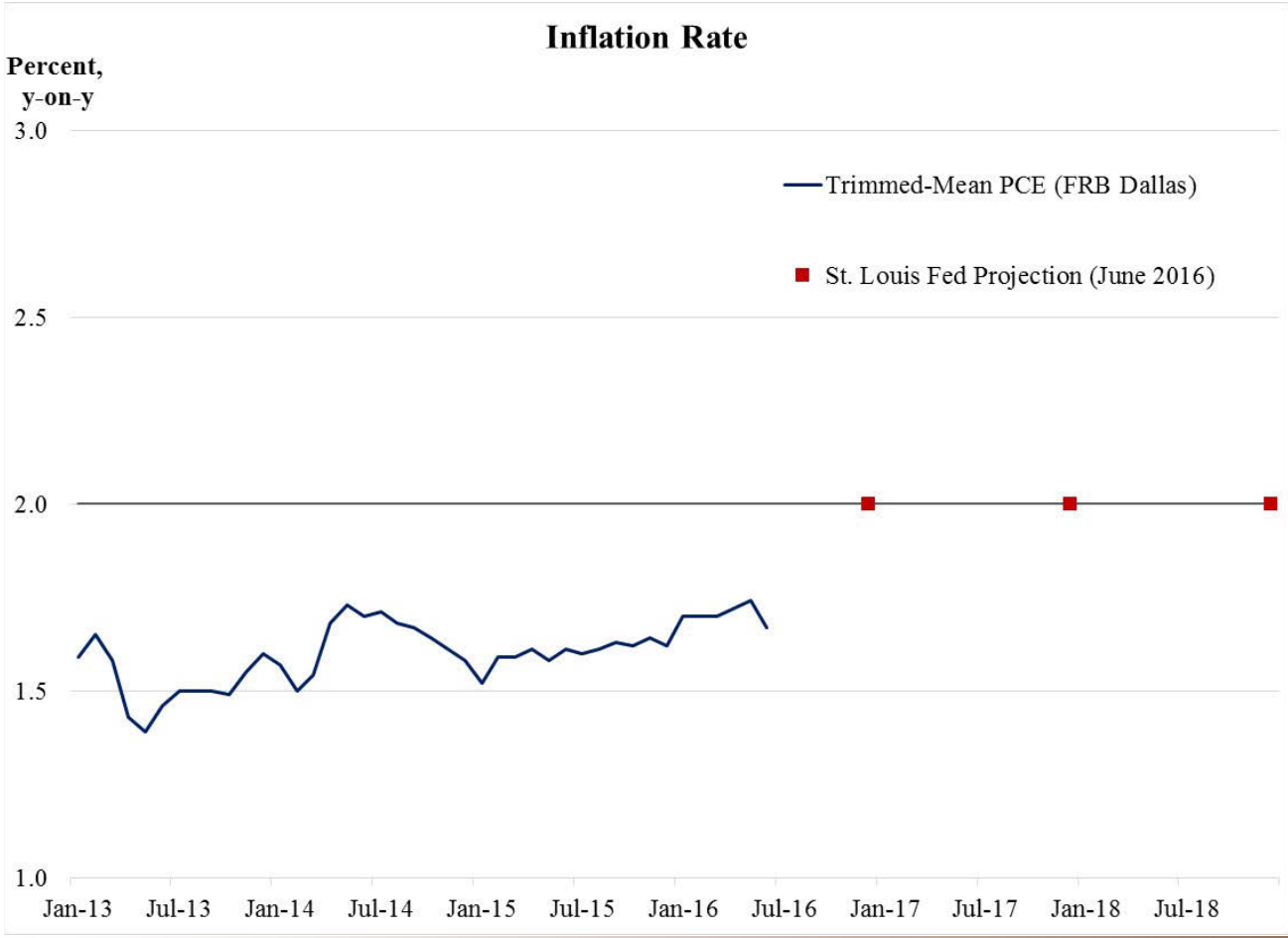
Real output growth has slowed



Unemployment has fallen to a low level



Inflation is closer to target



A New Narrative Based on Regimes

A new narrative based on regime-switching ideas

- An unsatisfactory aspect of the old narrative:
 - The policymaker is completely certain that the economy is converging to a long-run steady state, which is itself an average of past outcomes.
 - How to fix this?
- The new narrative: We want a manageable expression of the uncertainty surrounding medium- and longer-term outcomes.
 - One way to do this is to abandon the idea of a long-run steady state and instead think in terms of regimes that the economy may visit.
 - What are these regimes?

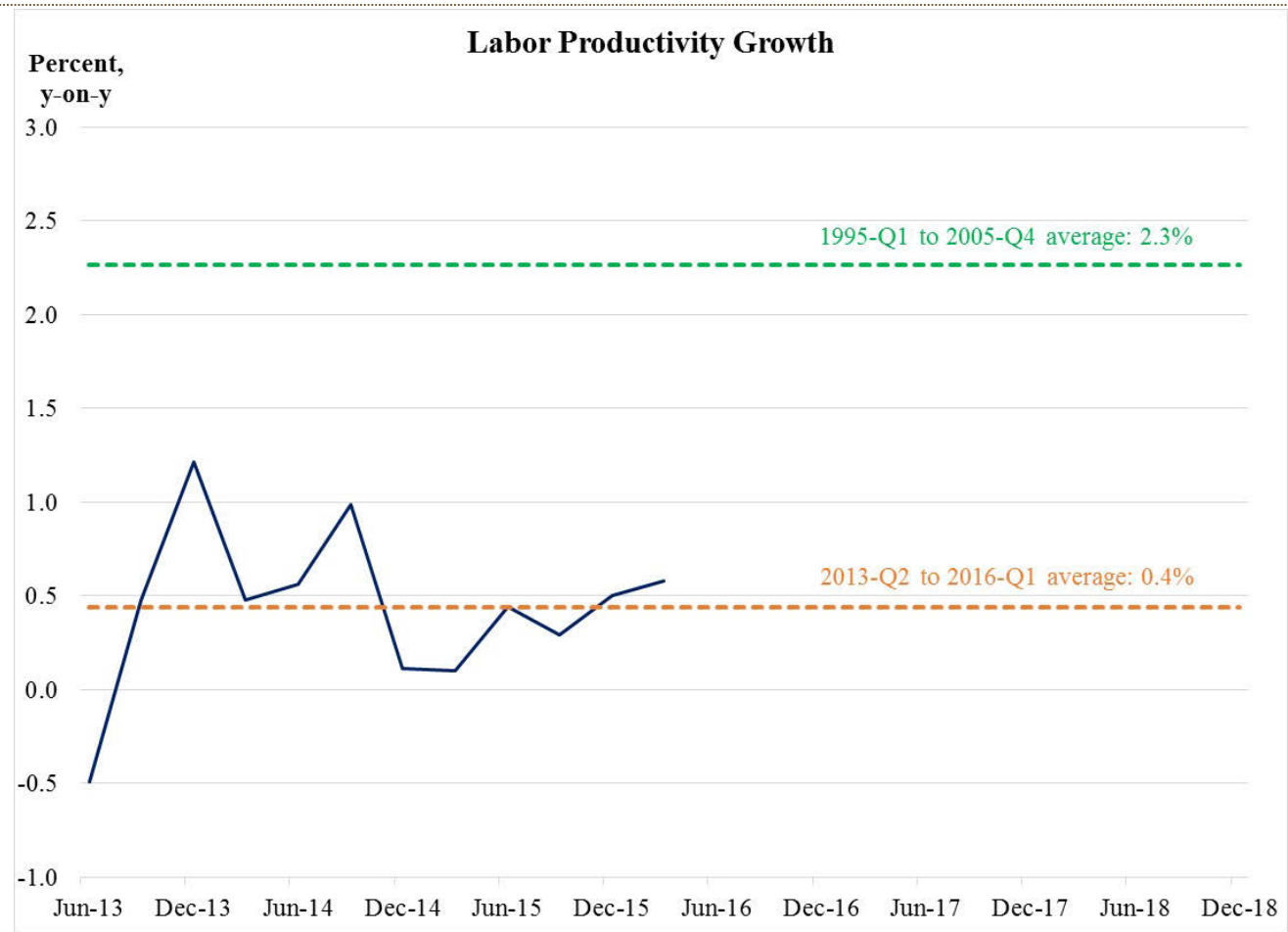
The nature of the regimes

- Fundamental factors determine the nature of the regimes:
 1. Productivity growth—high or low.
 2. Real interest rate on short-term government debt—high or low.
 3. State of the business cycle—expansion or recession.
- The “regime” can refer to any of these states or to the combination of all three.
- Optimal monetary policy is regime-dependent.
- Regime switches are not forecastable—viewed as “risks.”
- Forecast limited to a horizon of two and a half years—no long-run projections.

Productivity regimes

- One important fundamental is productivity growth.
- Average labor productivity growth has been low at least since 2011, which we view as a “low-productivity-growth regime.”
- We assume that we will remain in the low-productivity (and hence low-real-GDP growth) regime through the forecasting horizon because regimes are persistent.
- Higher productivity growth was observed in the recent past.
- A switch back to a high-productivity-growth regime is an upside risk.

The high- and low-productivity-growth regimes



Real-interest-rate regimes

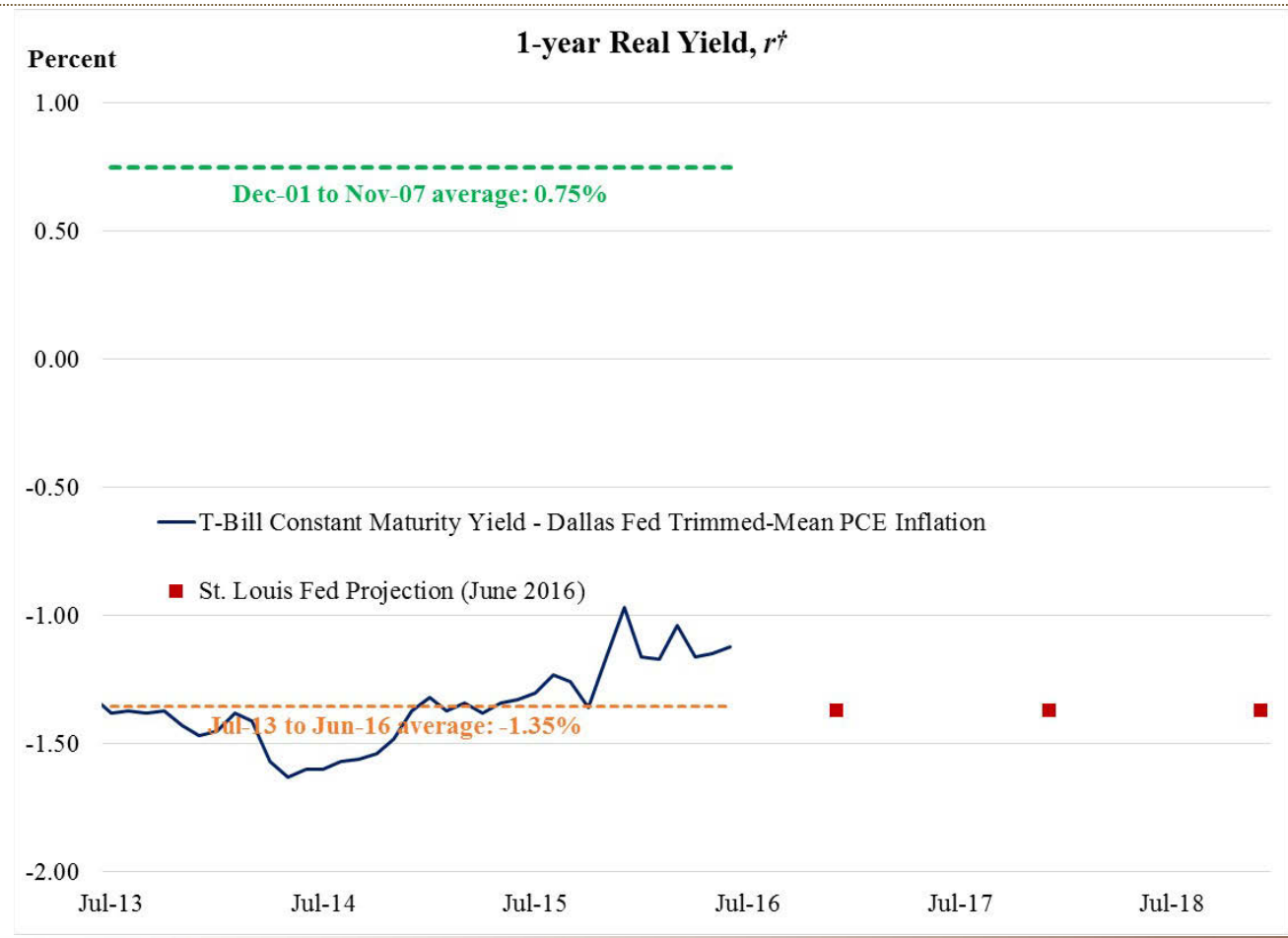
- The real rate of return on short-term government debt, r^{\dagger} , has been exceptionally low, which we view as a “low-real-rate regime.”
 - Appears to be highly persistent.
 - For forecasting purposes, we assume that we will remain in the low-real-rate regime through the forecasting horizon.
- The alternative regime has a relatively high real rate.
 - A switch to a high-real-rate regime is viewed as a risk.

Real-interest-rate regimes

- Interpretation:

- We think of low real rates of return on government paper (safe assets) as reflecting an unusually high liquidity premium on government debt.
- Real returns on capital as calculated from GDP accounts are not particularly low.*
- Therefore, not all real returns in the economy are unusually low.
- Nevertheless, the real returns on safe assets are the ones most closely linked to monetary policy.

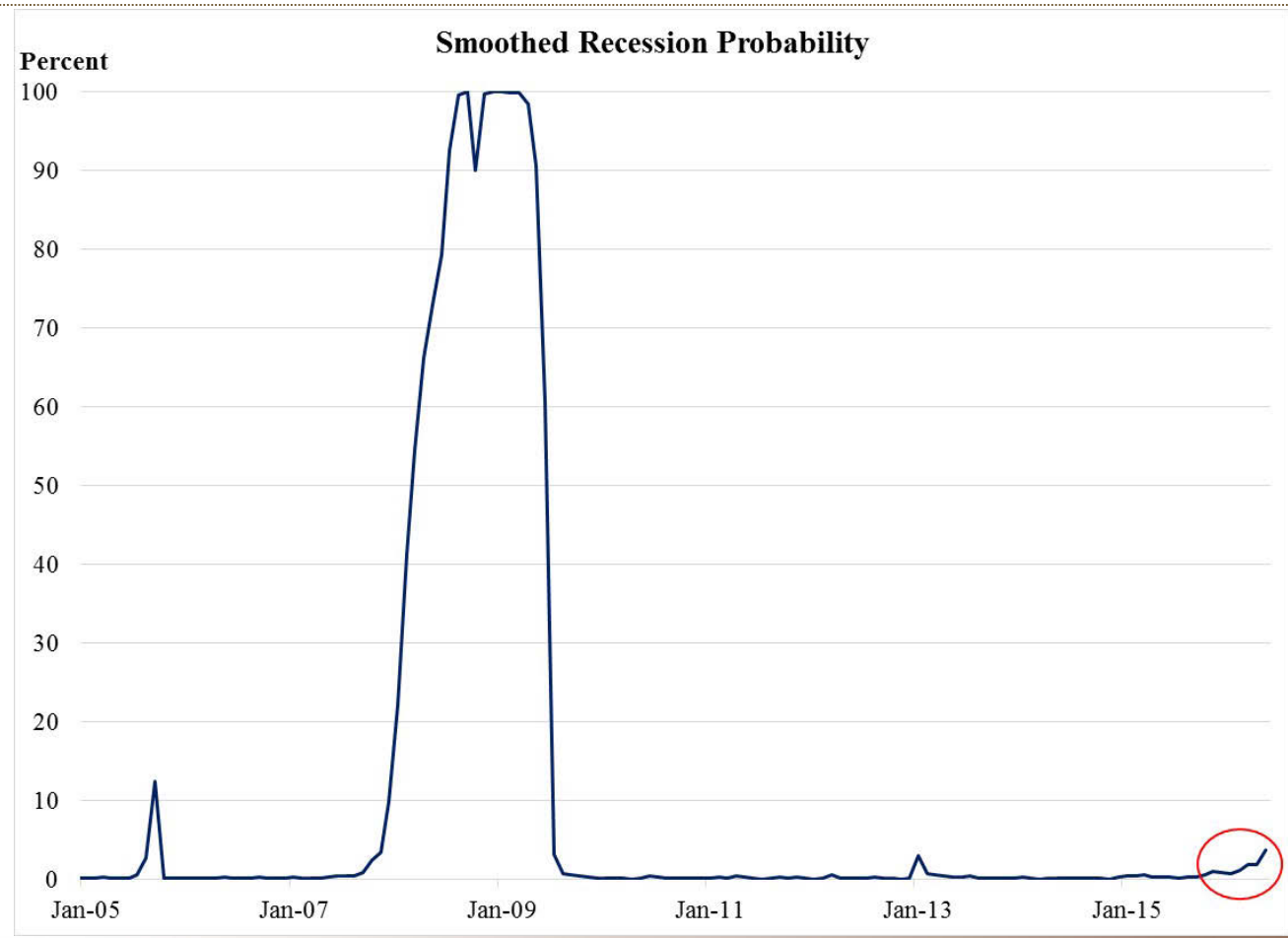
Real rate of return on short-term government debt, r^{\dagger}



The state of the business cycle

- Another important fundamental is the possibility of recession.
- Currently we are in a “no-recession regime,” but it is possible that we could switch to a recession state.
- All variables would be affected, but most notably, the unemployment rate would rise significantly.
- We have no reason to forecast a recession given the current state of the U.S. economy.
- The possibility of a recession is a risk to the forecast.

Recession probability is low



Source: FRED, based on M. Chauvet and J. Piger, "A Comparison of the Real-Time Performance of Business Cycle Dating Methods," Journal of Business and Economic Statistics, January 2008, 26(1), 42-49. Last observation: May 2016.

Summary: The current regime

- In summary, we think the current regime is characterized by:
 - Relatively low probability of recession in the near term.
 - Low real interest rate on short-term government debt.
 - Low productivity growth.
- In addition, business cycle dynamics have played out, and current unemployment and inflation gaps are near zero.
- Given the current regime, what is the optimal path for the policy rate?

The Policy Rate Path Based on the New Narrative

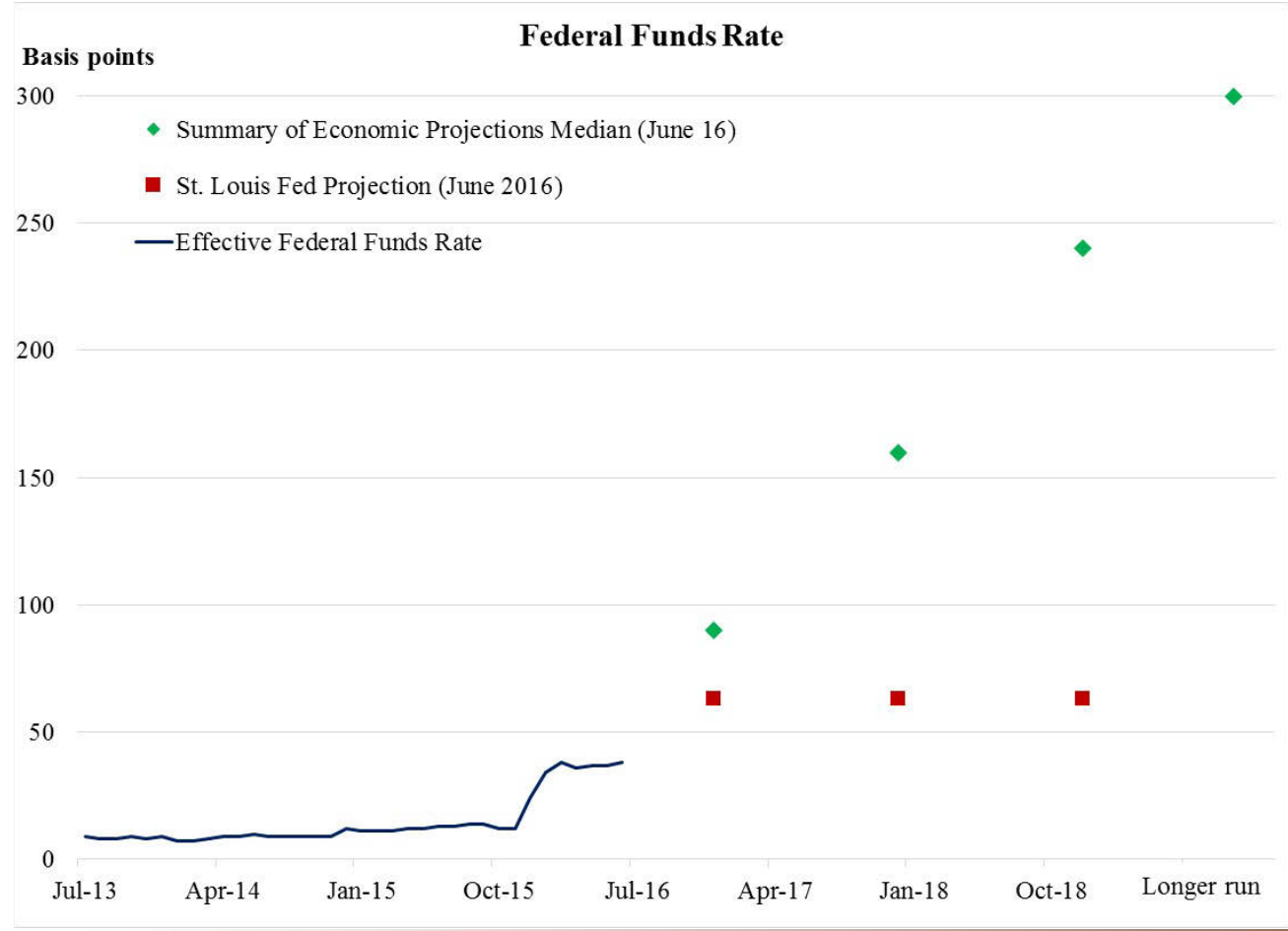
The policy rate path

- The policy rate path (63 basis points) supporting our output, unemployment and inflation forecasts is regime-dependent.
- Unemployment and inflation gaps ≈ 0 .
- A Taylor-type rule collapses to a Fisher equation

$$i = r^{\dagger} + \pi^e + \phi_{\pi} \pi^{GAP} + \phi_u u^{GAP} = r^{\dagger} + \pi^e$$

- $i = 0.63\%$ and $\pi^e = 2\%$ imply $(i - \pi^e) = -1.37\%$
- Very close to $r^{\dagger} = -1.35\%$, the one-year ex post real interest rate on government debt.

The policy rate path



Risks to the forecast

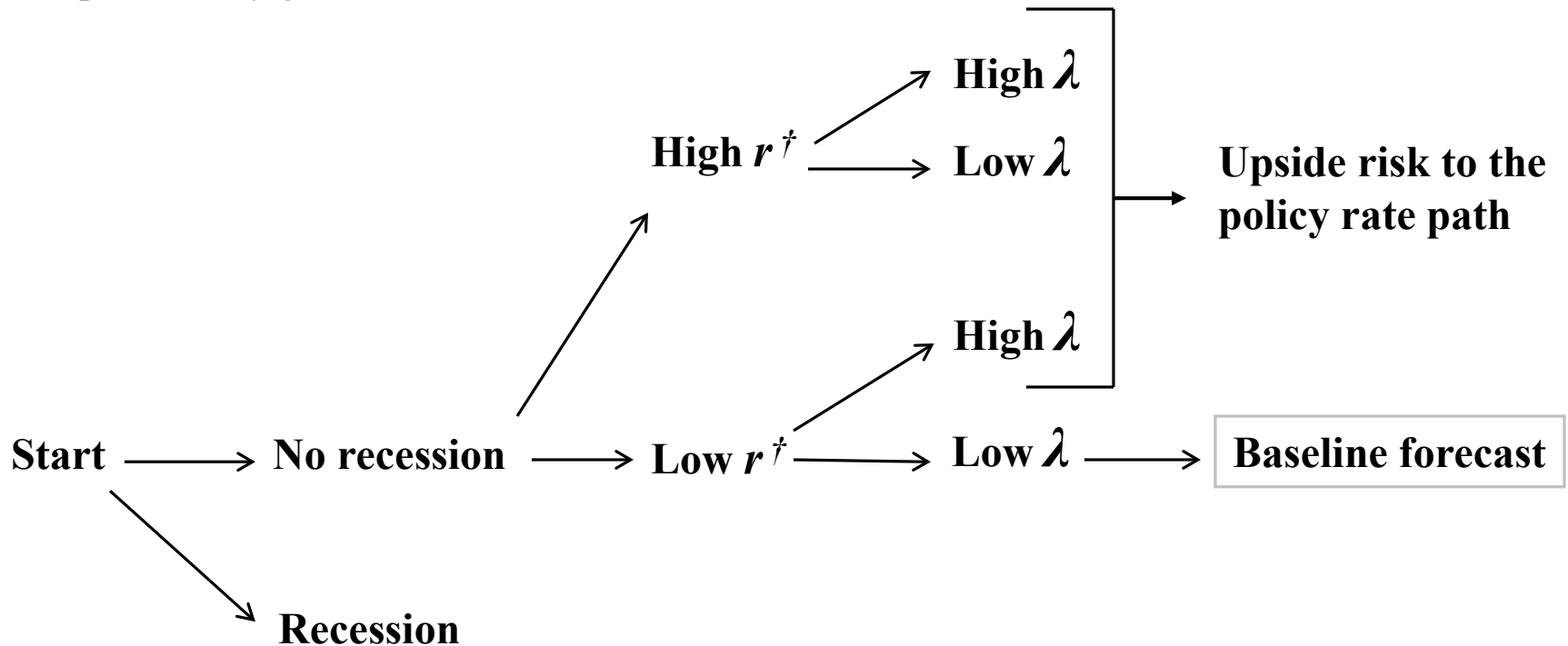
- Fundamental factors could switch into new regimes, in which case monetary policy would have to react.
- Phillips curve effects:
 - In our narrative, a strong labor market (low unemployment) does not put significant upward pressure on inflation.
 - A risk is that Phillips curve effects could reassert themselves and drive inflation higher.
- Inflation expectations:
 - Low market-based measures are at odds with our forecast.
- Asset price bubbles are not addressed in this framework.

Conclusion

St. Louis Fed's characterization of the macro outlook

r^{\dagger} = real rate of return on short-term government debt

λ = productivity growth



Conclusion

- The projected policy rate path is the main difference in the new approach.
 - For other variables, the St. Louis Fed's forecast under the new approach is similar to private-sector forecasts.
- Old narrative:
 - Relatively steep policy rate path, dictated by convergence to the single, long-run steady state.
- New narrative:
 - Flat policy rate path, conditional on the current regime.
 - If a regime switch does occur, the policy rate path would have to change appropriately—it remains data-dependent.



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