

# Is it Time to Normalize Monetary Policy? Evidence from Around the World

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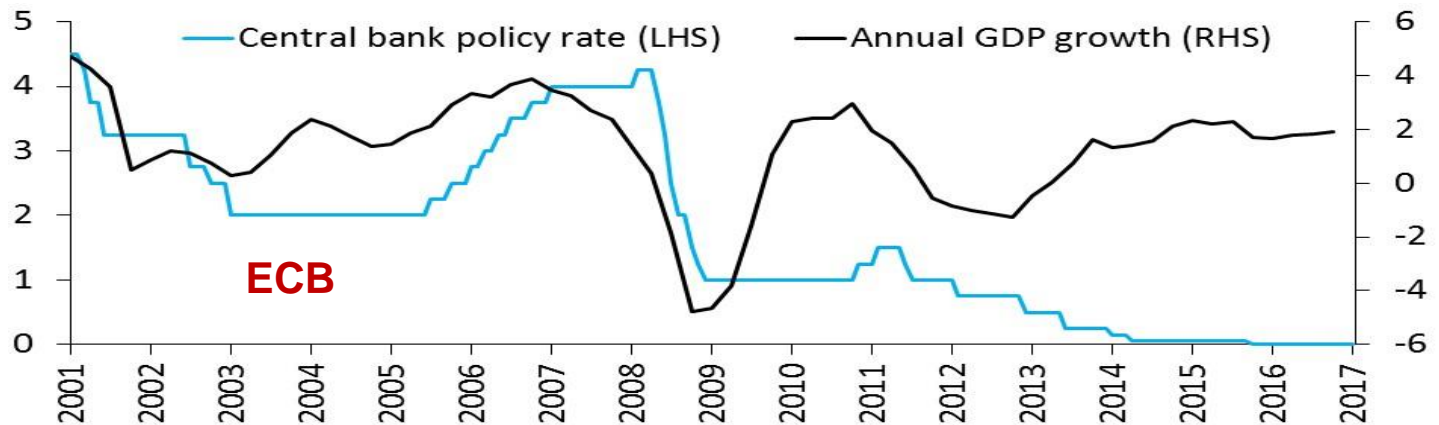
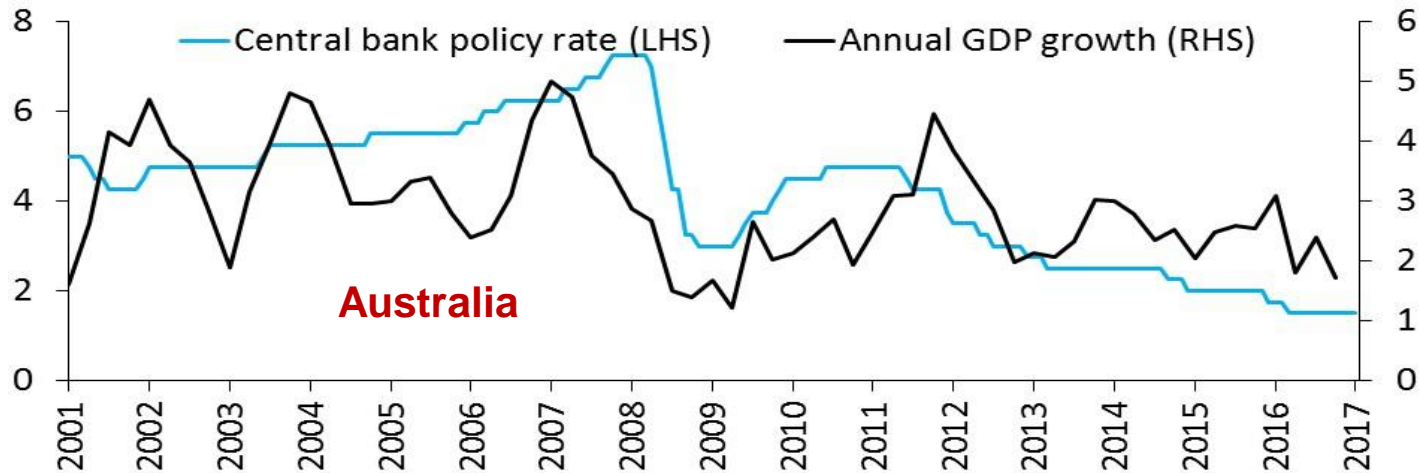
National Bank of Ukraine/Narodowy Bank Polski Conference  
Interaction of Fiscal and Monetary Policies  
May 31, 2018

# Timing

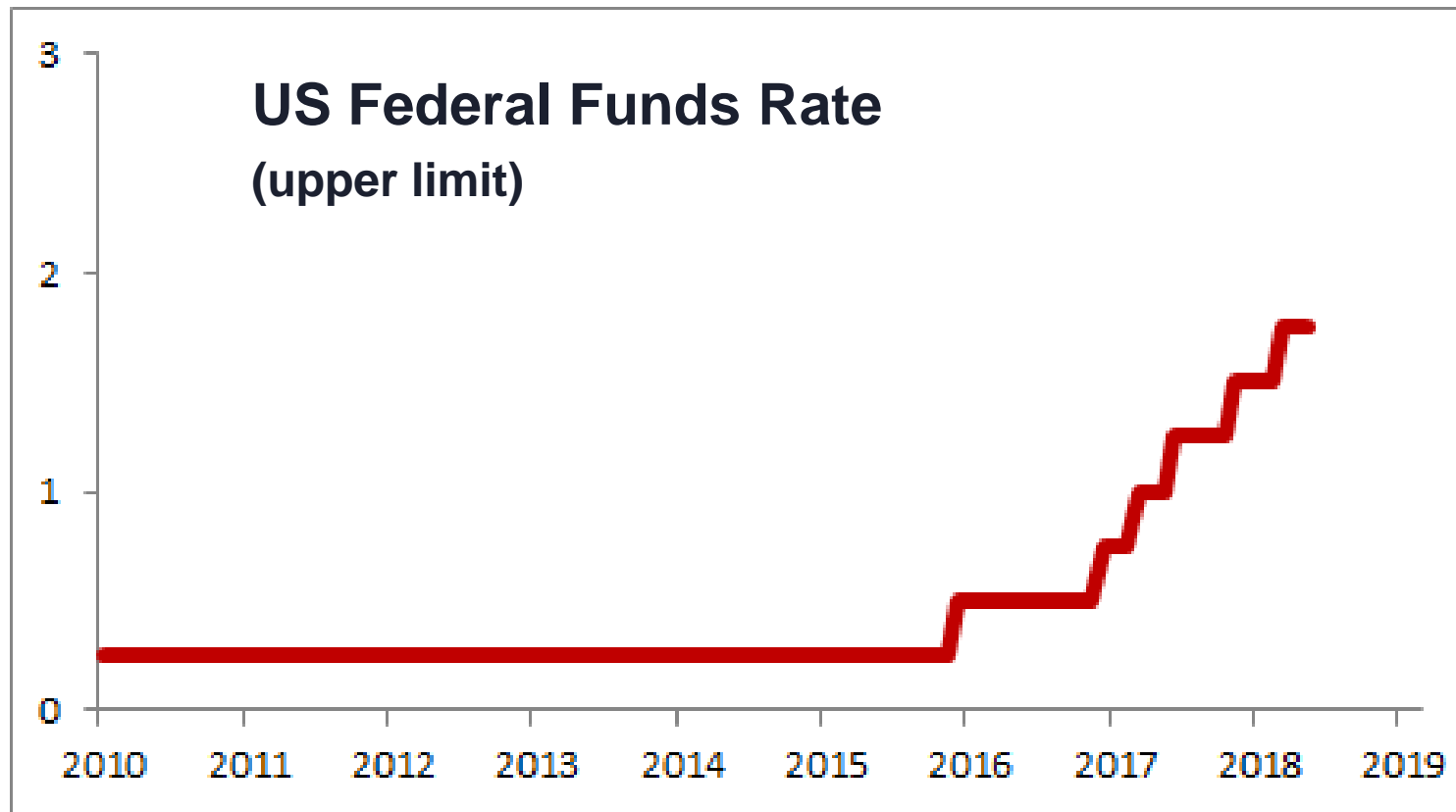
- **By many measures it is time:**
  - Almost 10 years since peak of crisis
  - Global GDP growth above 3% for 7 years
  - Sharp falls in unemployment, below pre-crisis in many AEs
  - Output gap about closed in many AEs (outside euro area)
- **But little normalization of interest rates**
- **“Failure to Launch”**
  - June 2017: no advanced economy in sample (other than the US) had maintained an ↑ policy rates since 2011
  - 9 “aborted” lift offs
  - All others: only lowered rates since the crisis



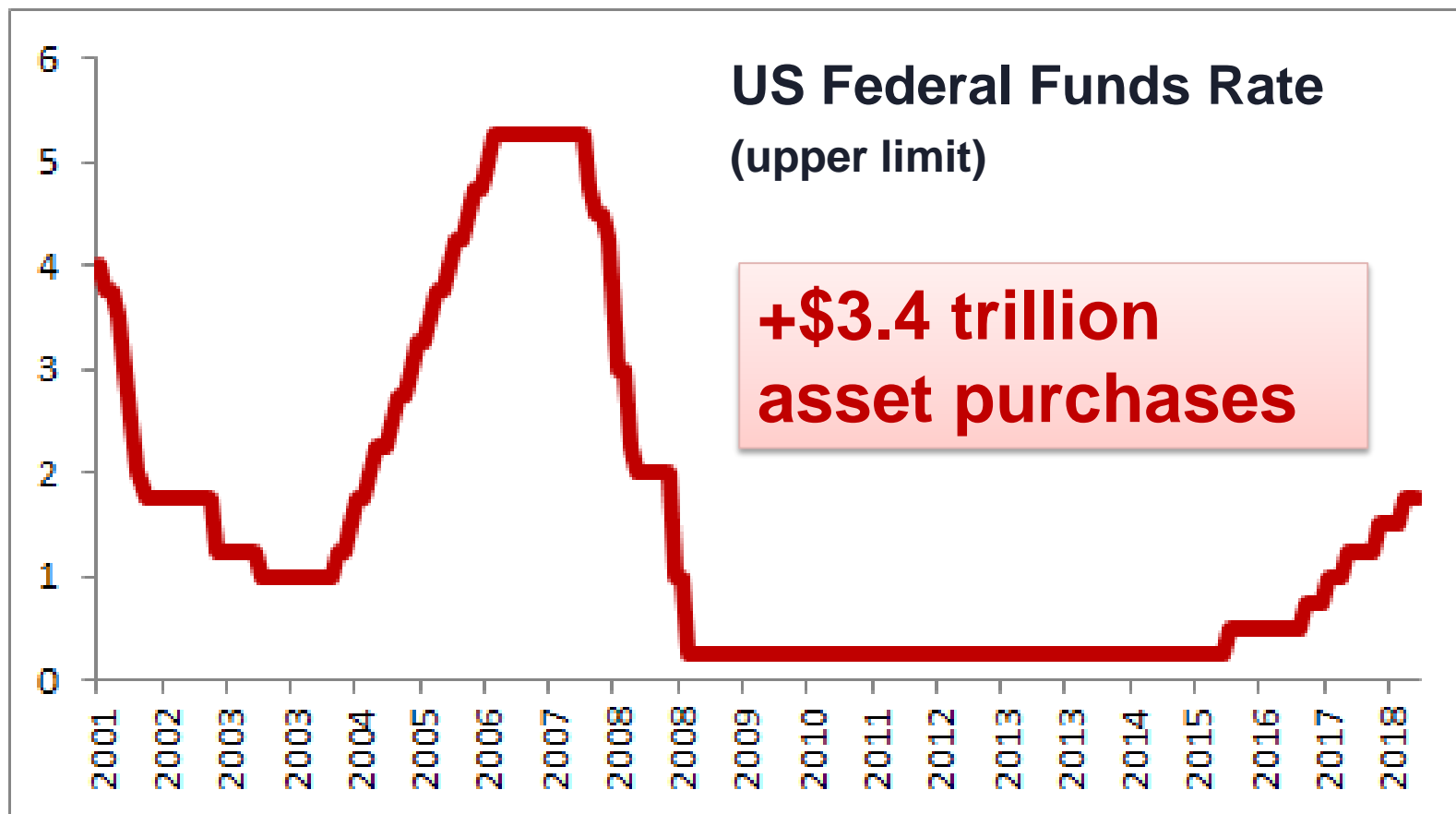
# Two Aborted Launches



# US: Leading the Pack



# US: The Leader in Context



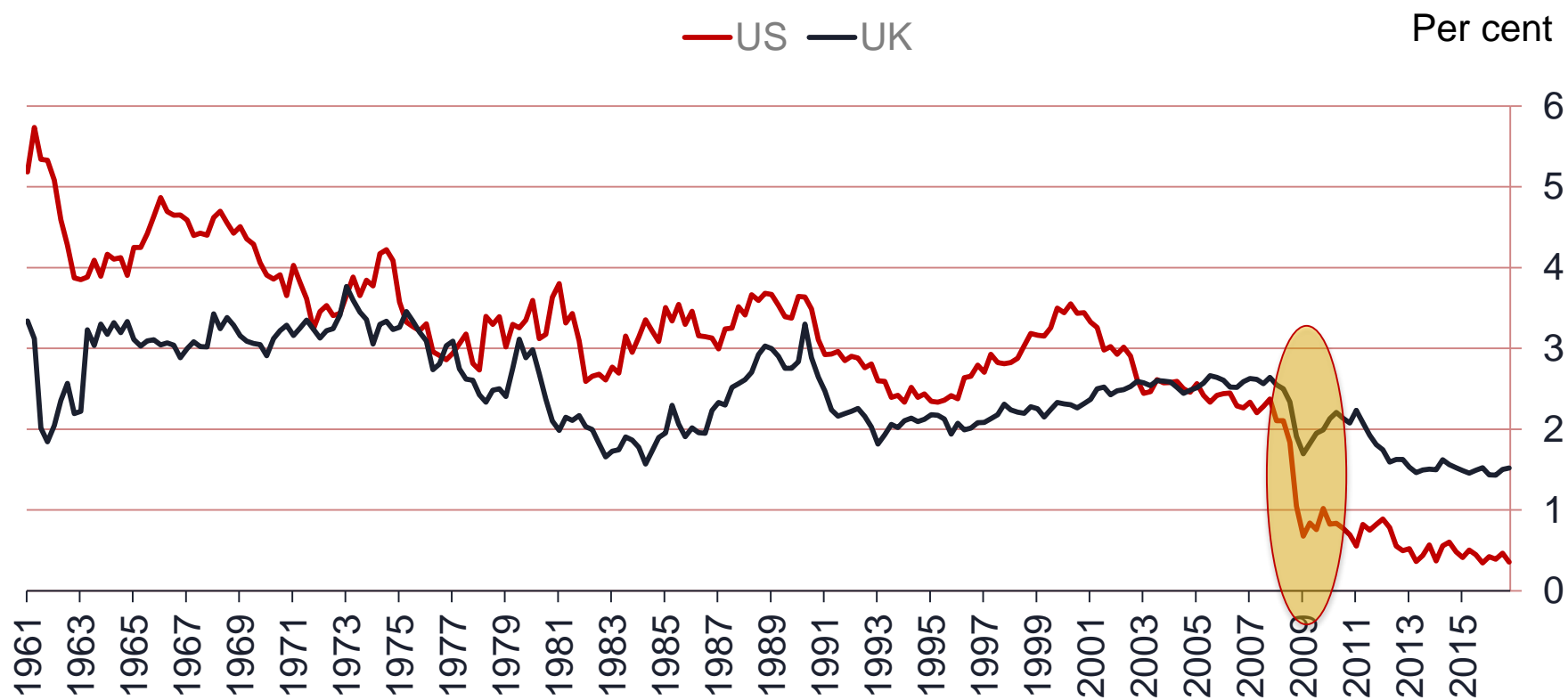
# Many Possible Explanations

## **1) Economic arguments/fragile recovery:**

- Headwinds/post-crisis effects
- Low  $r^*$
- “Unfortunate events”



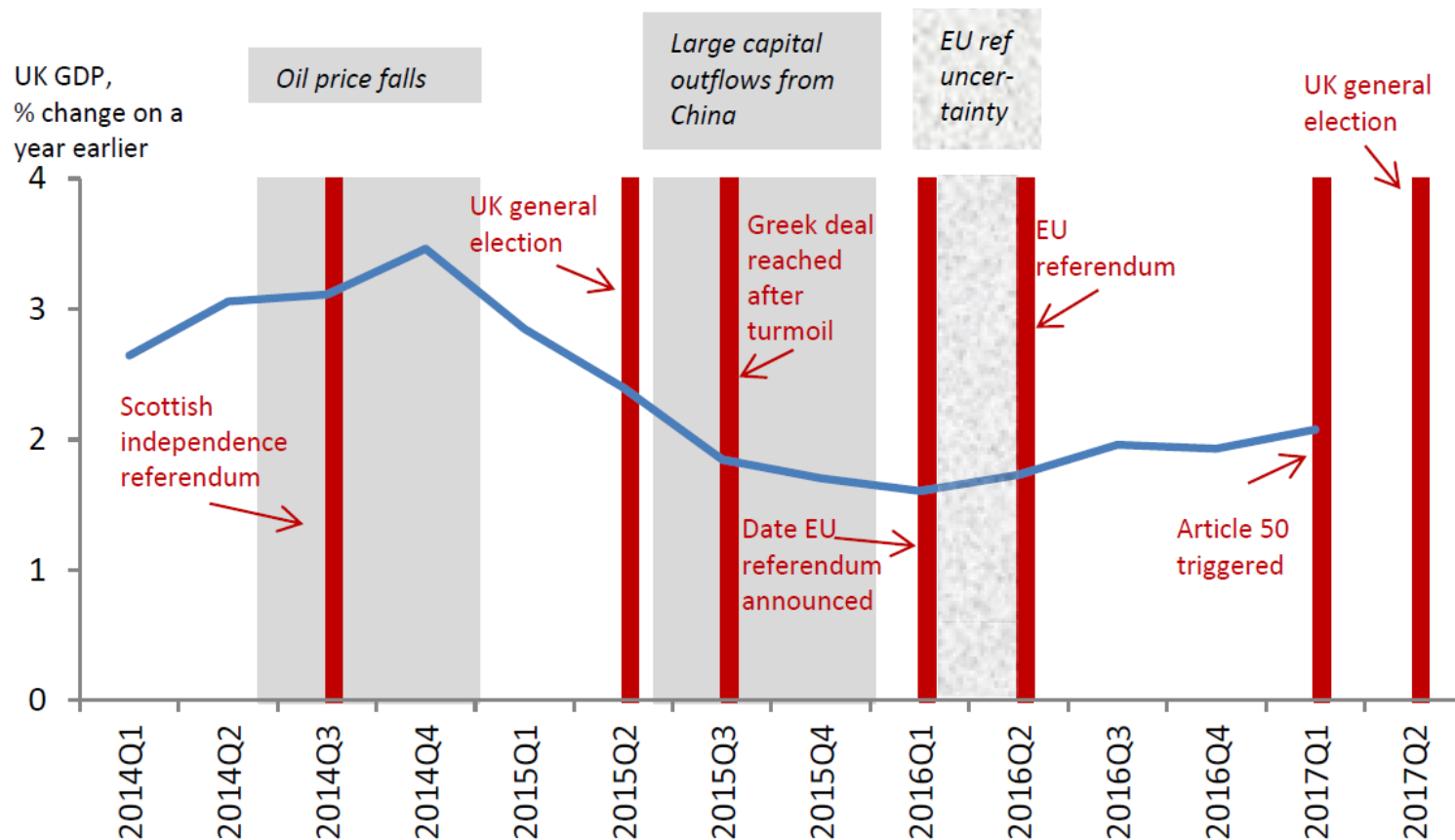
# Fall in $R^*$



Source: "Measuring the Natural rate of Interest: International Trends and Determinants," by Kathryn Holston, Thomas Laubach, and John C. Williams, forthcoming in the Journal of International Economics. Final data point: 2016:Q4.



# UK "Series of Unfortunate Events"





# Many Possible Explanations

## **1) Economic arguments/fragile recovery:**

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- Low  $r^*$
- “Unfortunate events”

## **2) Changes to monetary policy process:**

- New tools
- Expanded roles for central bankers
- Increased constraints (lower bound)



# How to Assess When to “Lift Off”?

- **Standard models currently provide limited guidance on when (and how much) to raise interest rates**
  - “Phillips curve” framework at heart of models not working well
    - Need to better control for changes in global economy?  
Forbes (2018)
  - Shifts in key economic variables (NAIRU,  $r^*$ )

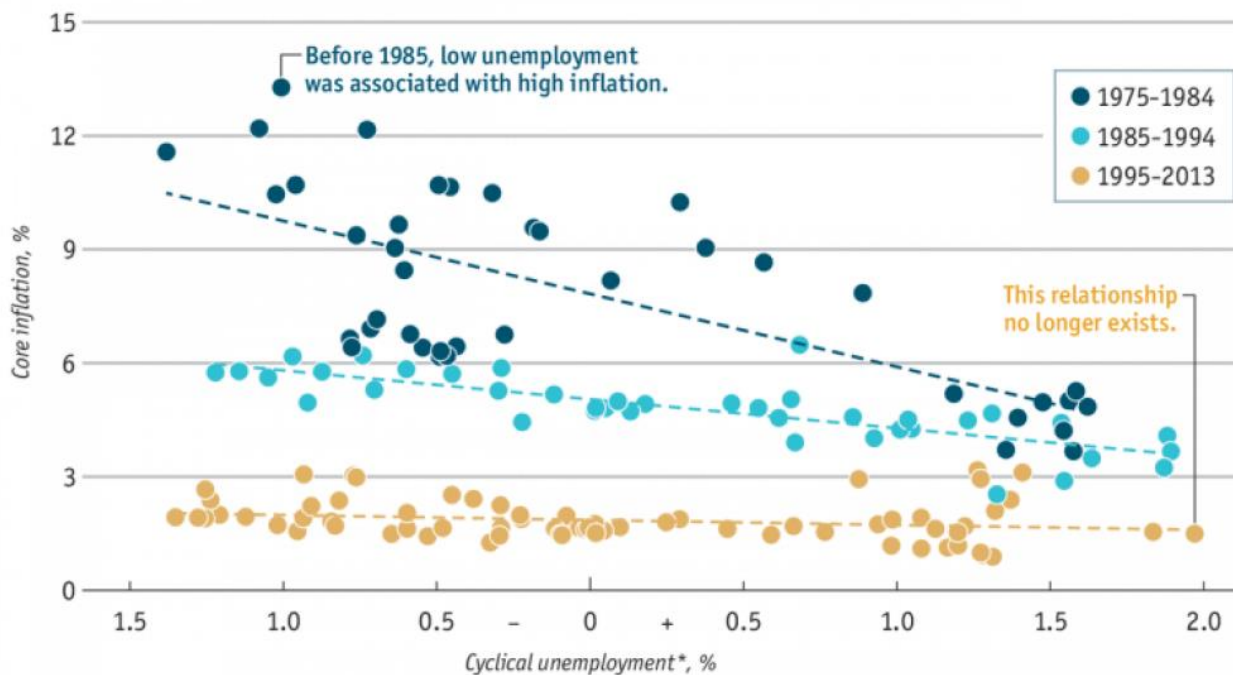


# Model Breakdown?

**“The Phillips Curve may be broken for good”**  
--*Economist*, November 1, 2017

## Flatlining

Inflation and cyclical unemployment, average across advanced economies, quarterly



Sources: OECD; IMF

Economist.com

\*Actual unemployment minus the "natural" rate of unemployment

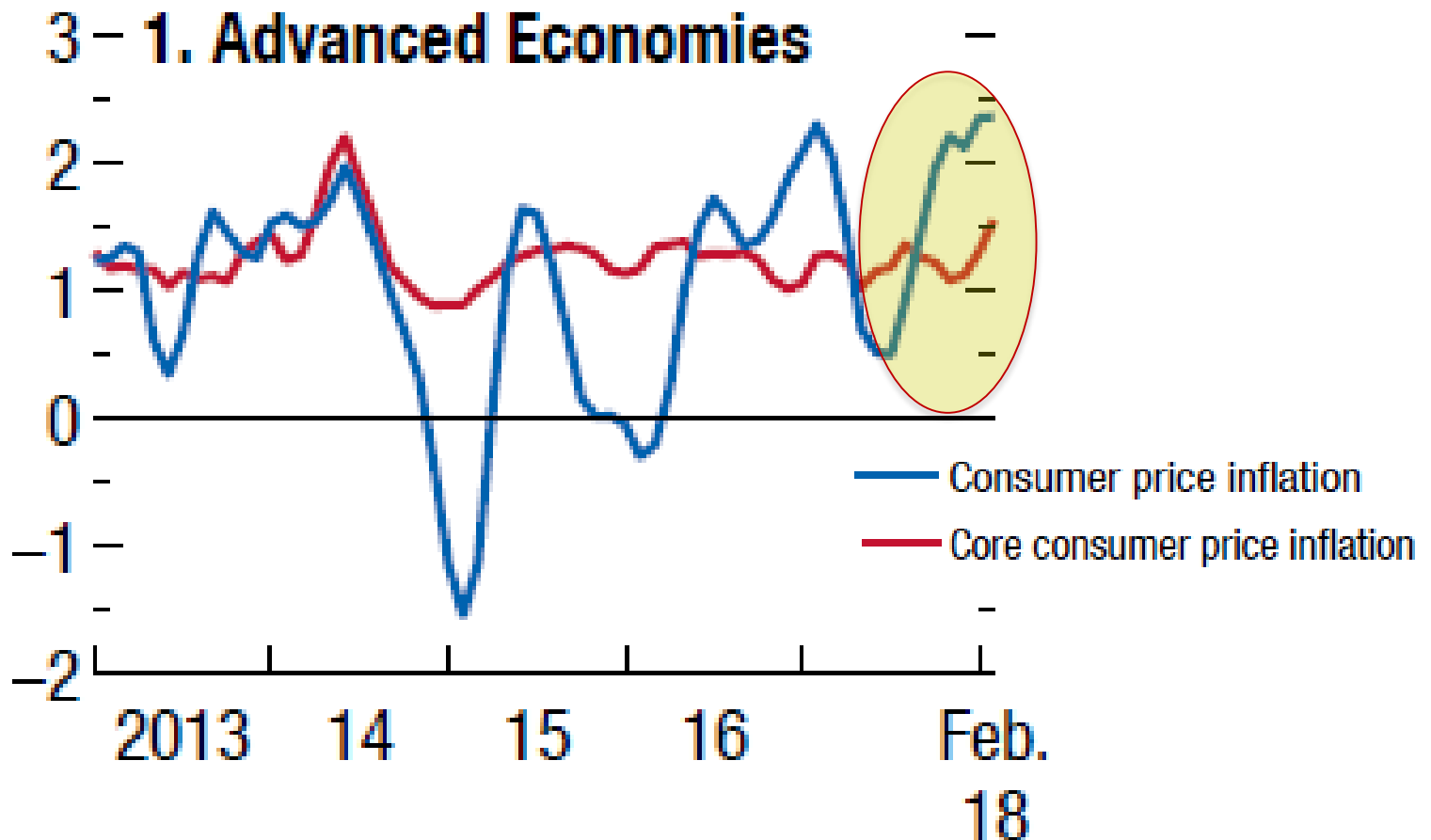


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Forbes (2018)
  - Shifts in key economic variables (NAIRU,  $r^*$ )
- **Greater importance of looking at the data**
  - When is inflation picking up to levels sustainable with target?
  - Large commodity shocks recently: complicate analysis



# Different Signals



Source: Figure 1.6, IMF's April 2018 *World Economic Outlook*.



# Trend-Cycle Analysis

- **Use time-series to separate inflation into 2 components**
  1. slow-moving and persistent “trend”
  2. temporary, cyclical movements around the trend
- Minimal assumptions & parameterization
- Flexibility over time
- **The Model:**
  - “ARSV” model developed in Forbes *et al.* (2017)
  - Combination of UCSV model in Stock and Watson (2007) & auto-regressive (ARUC) model in Chan, Coop and Potter (2013)
  - Allows trend to follow unit root ( $\tau_t = \tau_{t-1} + \varepsilon_t$ ) and captures the autoregressive process in deviations around trend as well as the stochastic volatility observed in the inflation data



# Technical Details

“ARSV” model developed in Forbes, Kirkham & Theodoridis (2017)

$$\pi_t - \tau_t = \varphi(\pi_{t-1} - \tau_{t-1}) + \sigma_{\eta t} \zeta_{\eta t} \quad (1)$$

$$\tau_t = \tau_{t-1} + \sigma_{\varepsilon t} \zeta_{\varepsilon t} \quad (2)$$

$$\zeta_{\eta t}, \zeta_{\varepsilon t} \sim \mathbf{N}(\mathbf{0}, \mathbf{1}) . \quad (3)$$

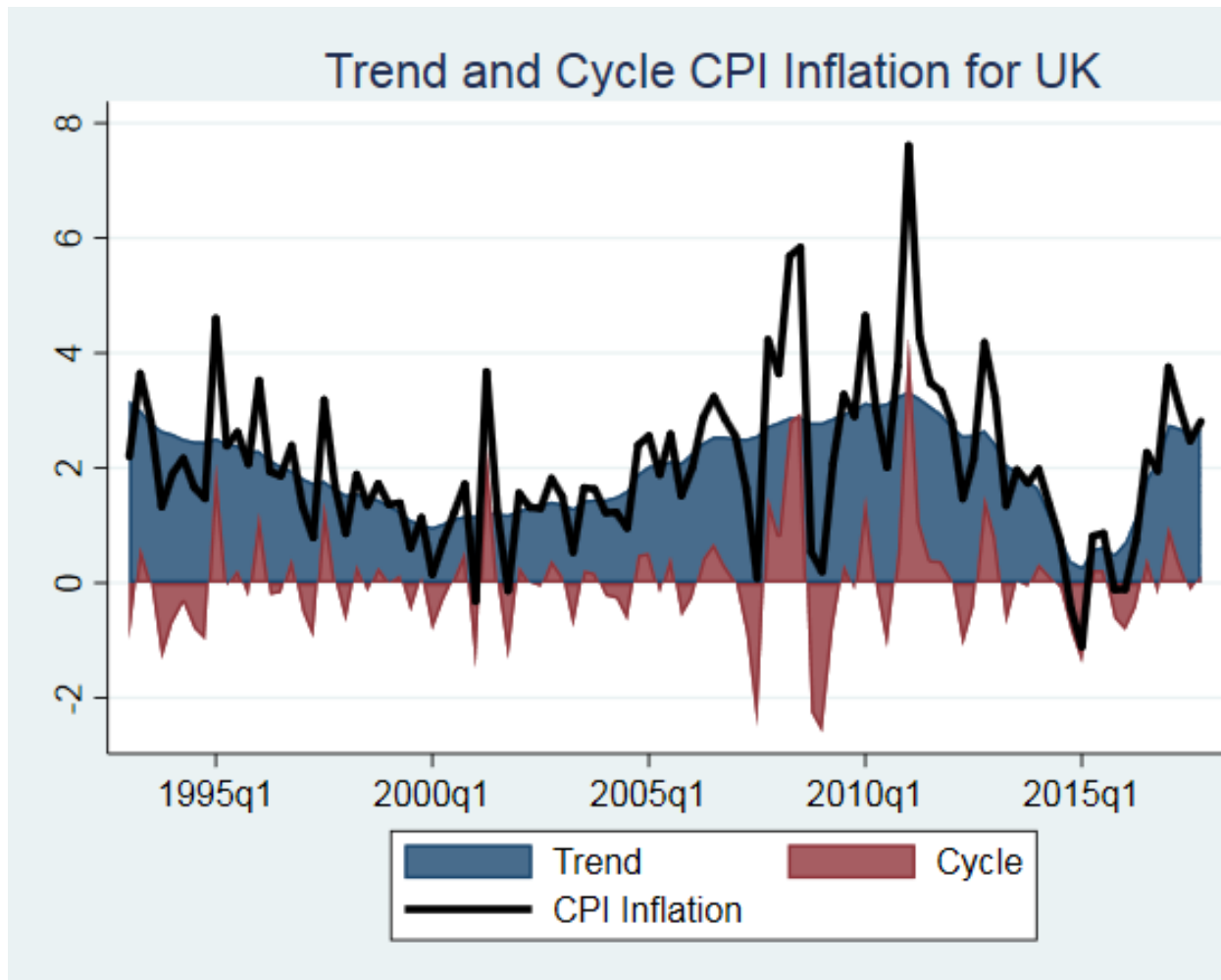
$$\ln(\sigma_{\eta t}) = \ln(\sigma_{\eta t-1}) + v_{\eta t} , \quad (4)$$

$$\ln(\sigma_{\varepsilon t}) = \ln(\sigma_{\varepsilon t-1}) + v_{\varepsilon t}, \quad (5)$$

$$v_{\eta t} \sim \mathbf{N}(\mathbf{0}, \gamma_1) , v_{\varepsilon t} \sim \mathbf{N}(\mathbf{0}, \gamma_2), \quad (6)$$



# Trend-Cycle Estimates: *Headline CPI Inflation in UK*

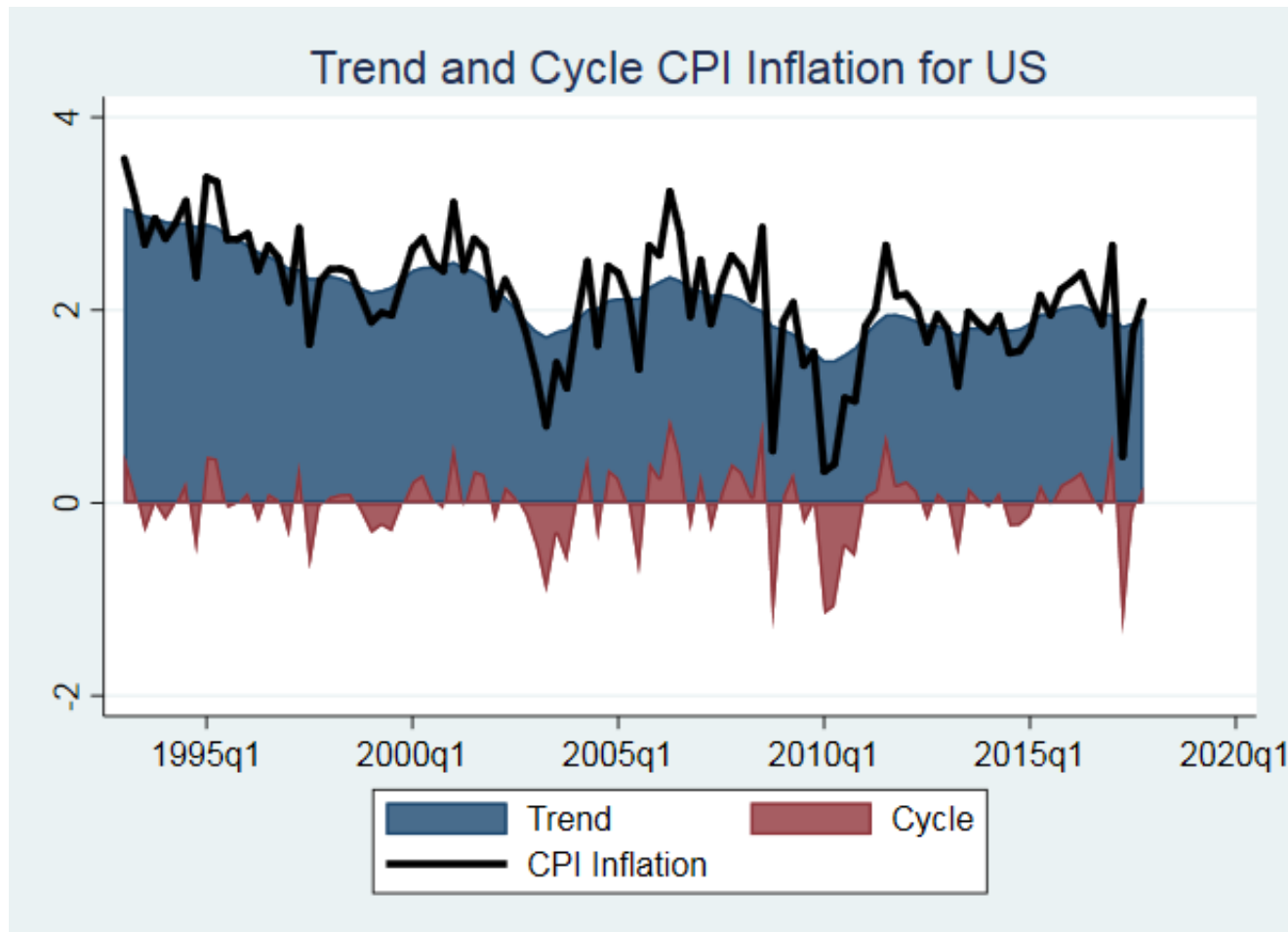


Source: Forbes (2018, forthcoming). Based on framework developed in Forbes, Kirkham and Theodoridis (2017). Estimates model for CPI inflation, quarterly and seasonally adjusted, at an annualized rate. Model allows for stochastic volatility in the innovations to the inflation process as well as allows deviations in trend inflation to follow an autoregressive process.





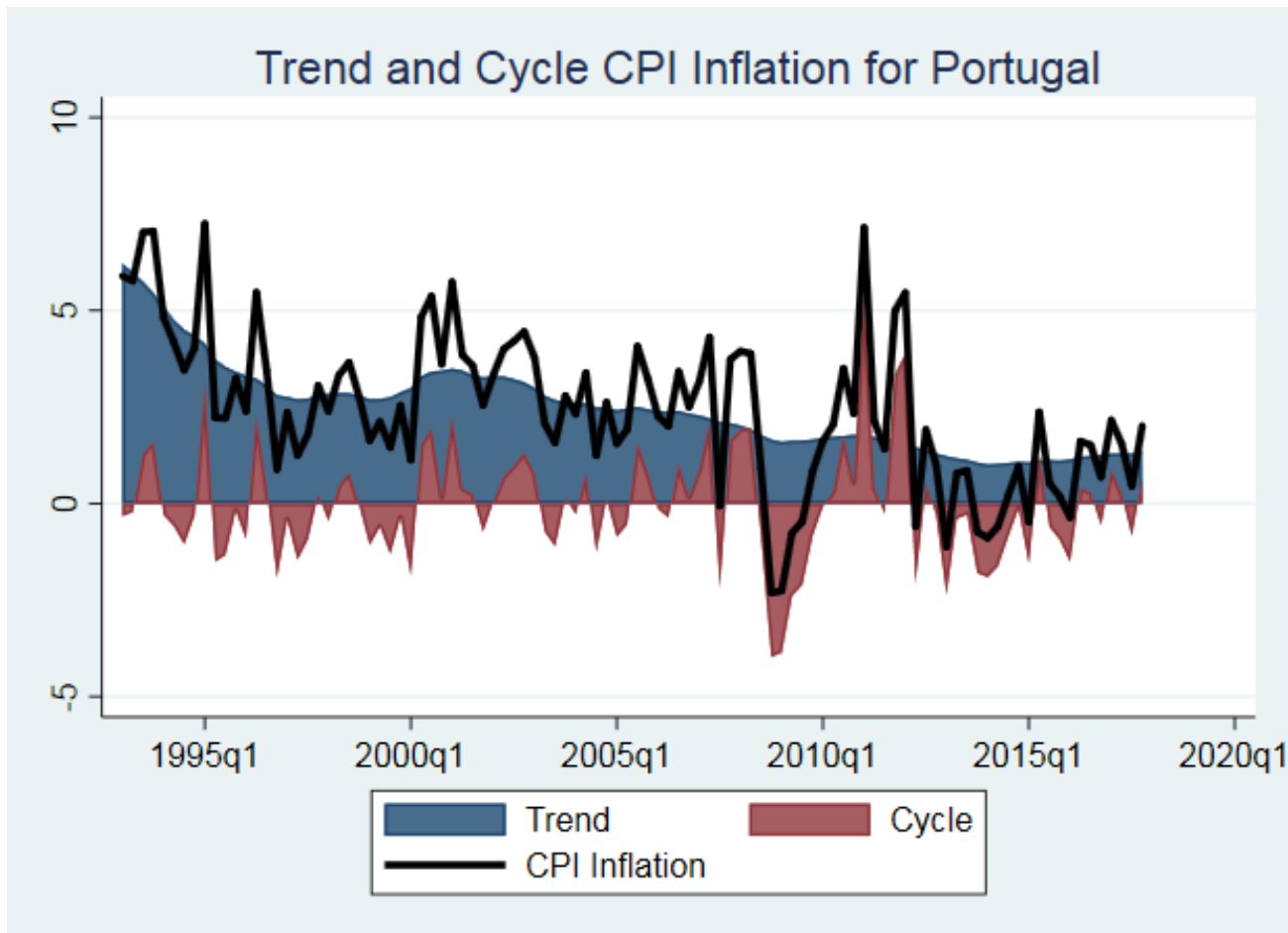
# Trend-Cycle Estimates: *Core CPI Inflation in US*



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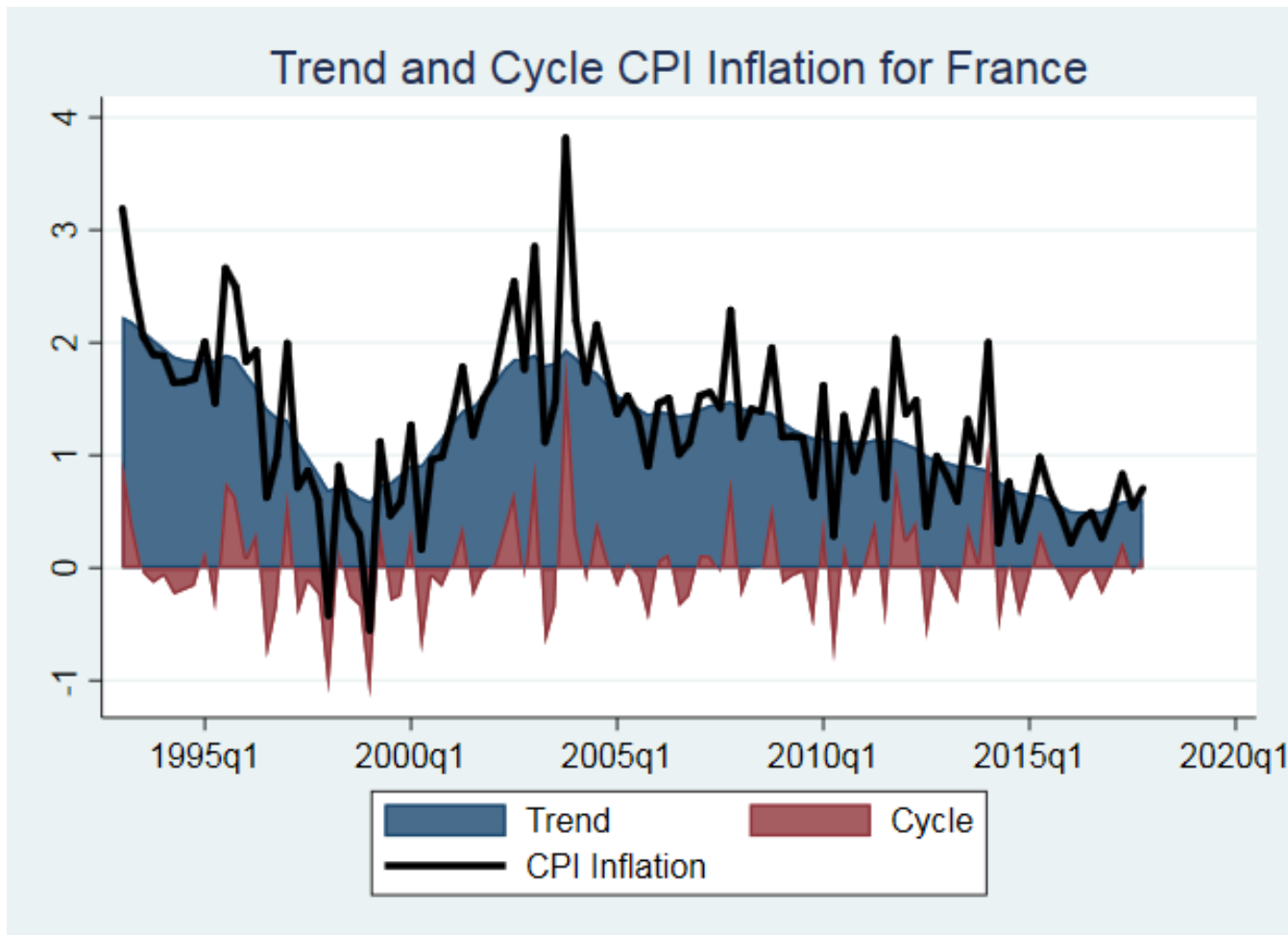
# Trend-Cycle Estimates: *Headline CPI Inflation in Portugal*



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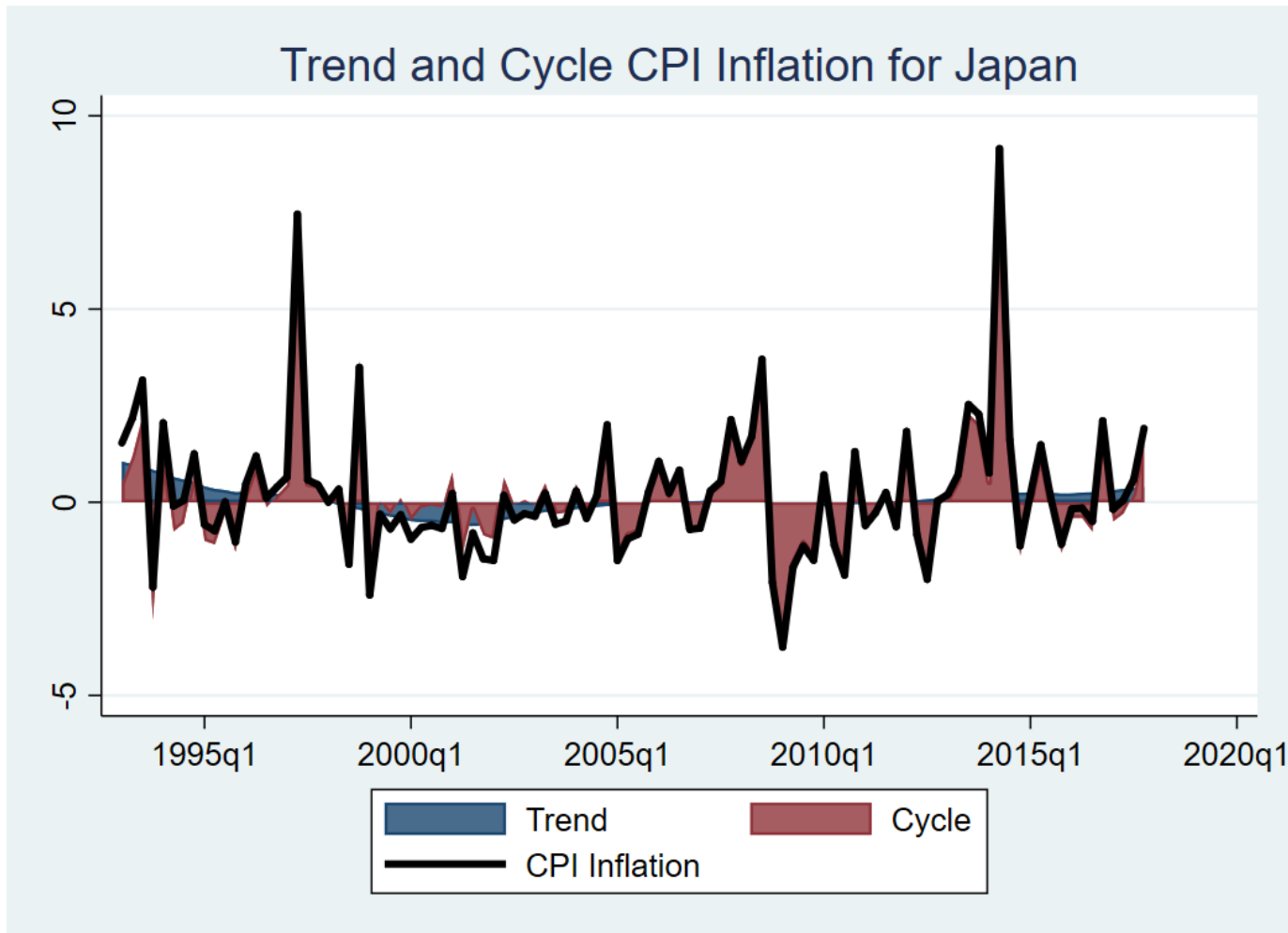
# Trend-Cycle Estimates: *Headline CPI Inflation in France*



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# Trend-Cycle Estimates: *Core CPI Inflation in Japan*



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# Final Thoughts

- **Slow start to normalization**
  - “Normalization” will be to lower rates than pre-crisis
  - Unwinding asset purchases
- **Trend-cycle analysis suggests different countries in very different situations**
  - Supports rate increases in some countries (US, UK)
  - Caution justified in others (Euro area, Japan)
- **Rates likely to remain low for extended period in many countries**
  - Build-up of other risks?
  - Importance of macroprudential policy

