



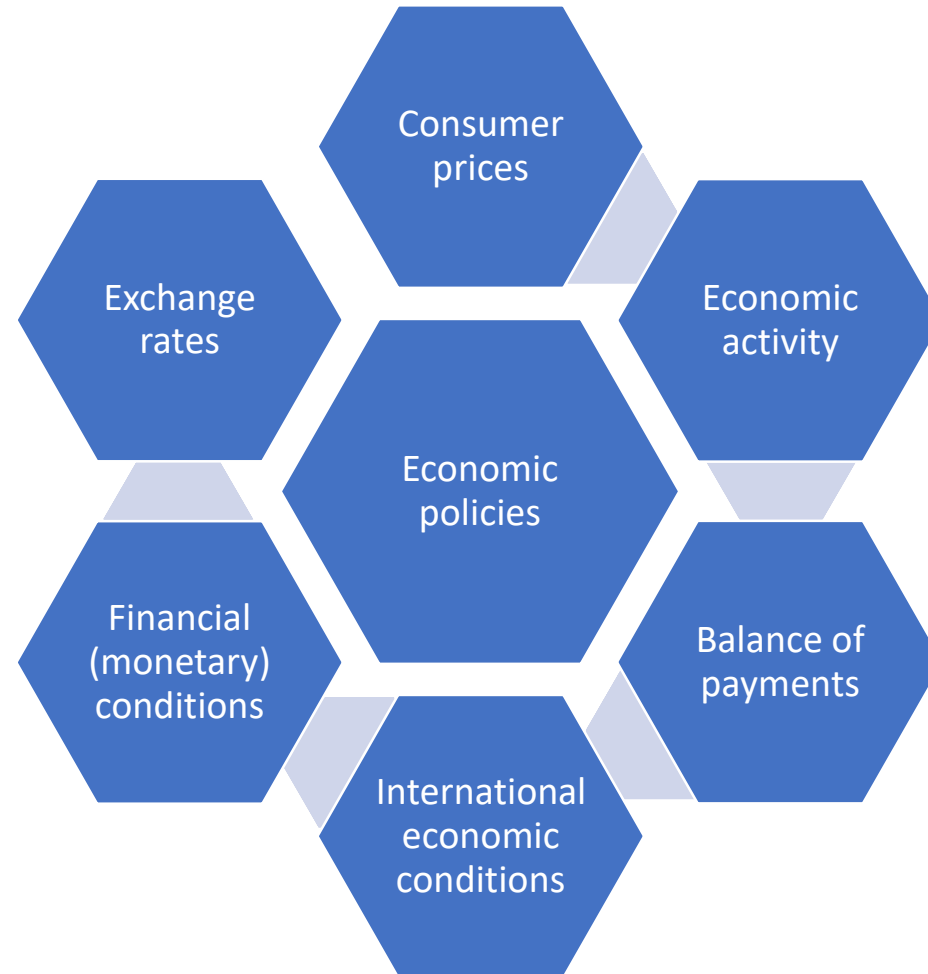
Assessment of monetary policy stance

Macroeconomic Analysis Course
Prepared for Capital Alliance, Sri Lanka

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Macroeconomic assessment roadmap



Objectives

- Understand why central banks monitor monetary policy developments
- Understand where the monitoring sits in terms of overall macroeconomic assessment
- Strengthen essential skills for experts monitoring these sectors
- Learn basic tools for monitoring monetary policy developments

Outline

1. Setting the scene
2. Key data
3. Key economic concepts
4. Key measurement techniques
5. Formulating monetary policy strategy



Setting the scene

Why do central banks employ experts to monitor monetary policy developments?

What information are the sector experts expected to provide to policymakers?

What signals should they look for in the data?

Why do central banks employ experts to monitor monetary policy developments?

- What do you think?
- Monetary policy is why countries have central banks
- Experts are needed to pre-process information for the Governors and the Monetary Policy Committee
- Distil the key messages, policy options and recommendations for decisions makers
- Decisionmakers then make decisions about policy

What information are the sector experts expected to provide to policymakers (MPC)?

- Assessment of the current monetary policy stance – is it still appropriate given current economic conditions?
- Before each MPC briefing, the staff should analyse the following questions:
 - Are the economic conditions developing according to MPC's expectations?
 - If economic conditions are different from expectations, is the monetary policy stance still appropriate?
 - Should policy stance remain unchanged or be modified?
 - What policy options should the Governors/MPC consider? What are their likely outcomes?

What signals should they look for in the data? – connecting the dots

- Is the economy performing as expected at the last MPC meeting?
 - changes in output gap estimates
- Is the exchange rate performing as expected at the last MPC meeting?
 - changes in real exchange rate gap estimates
- Are monetary conditions performing as expected at the last MPC meeting?
 - changes in the real interest rate gap
- Is inflation performing as expected at the last MPC meeting?
 - changes in inflation trend
- Are the policy objectives still likely to be met as planned?
 - If yes → no change in monetary conditions is needed → no change in monetary policy stance
 - If no → change in monetary conditions is needed → change monetary policy stance



Key data

Inflation (gap)

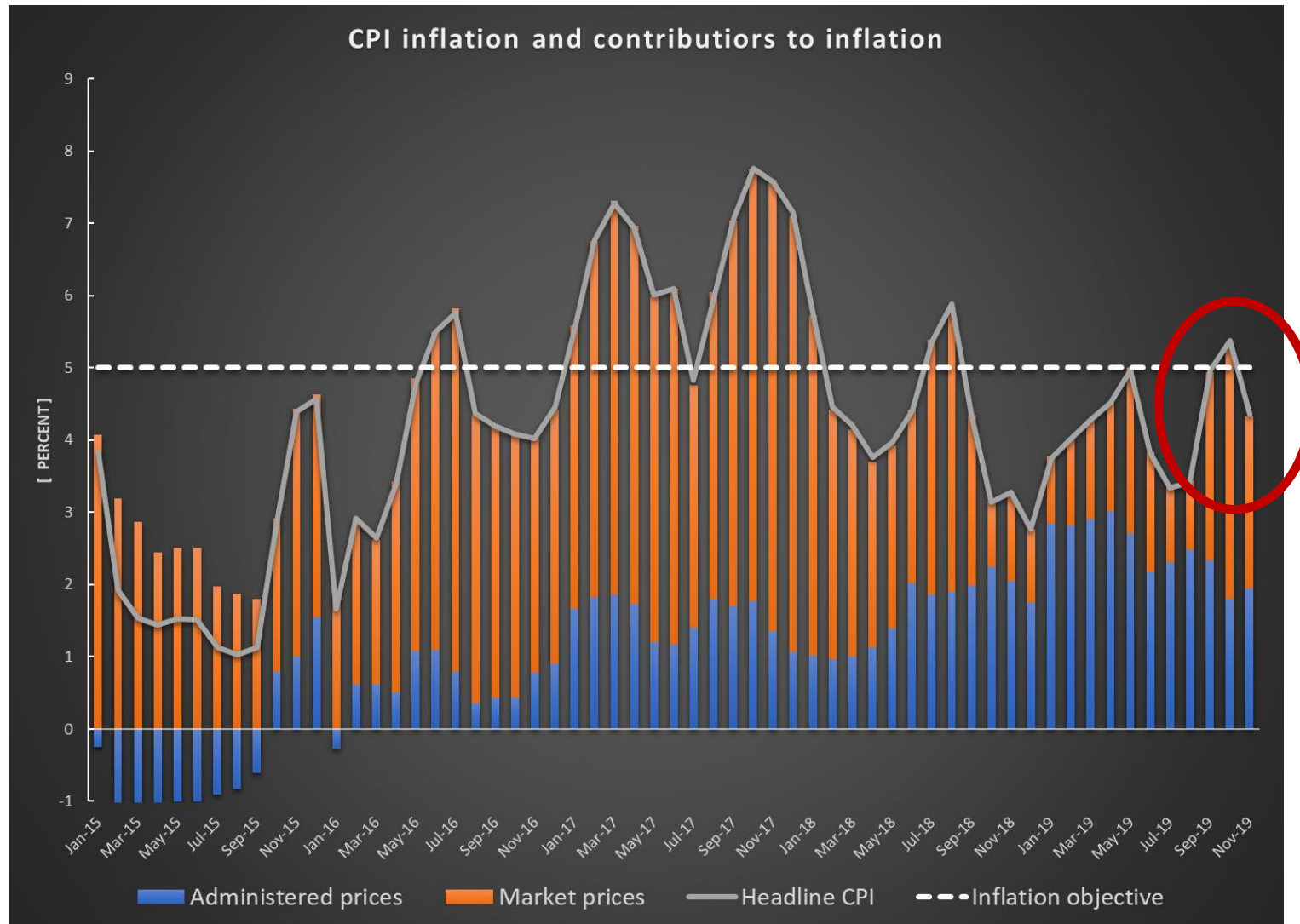
Output (gap)

Monetary conditions: real interest rate (gap); real exchange rate (gap)

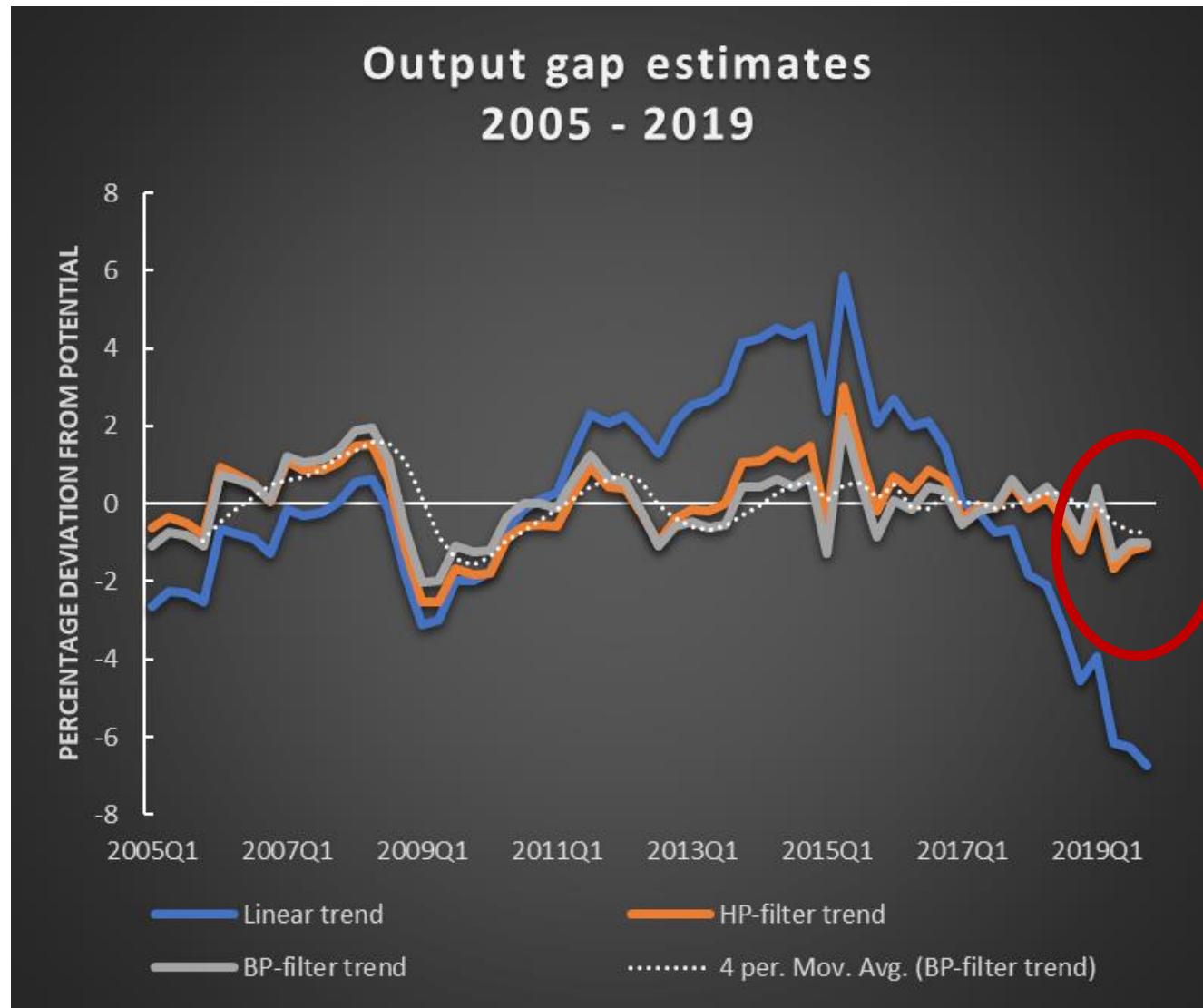
Fiscal impulse

External conditions

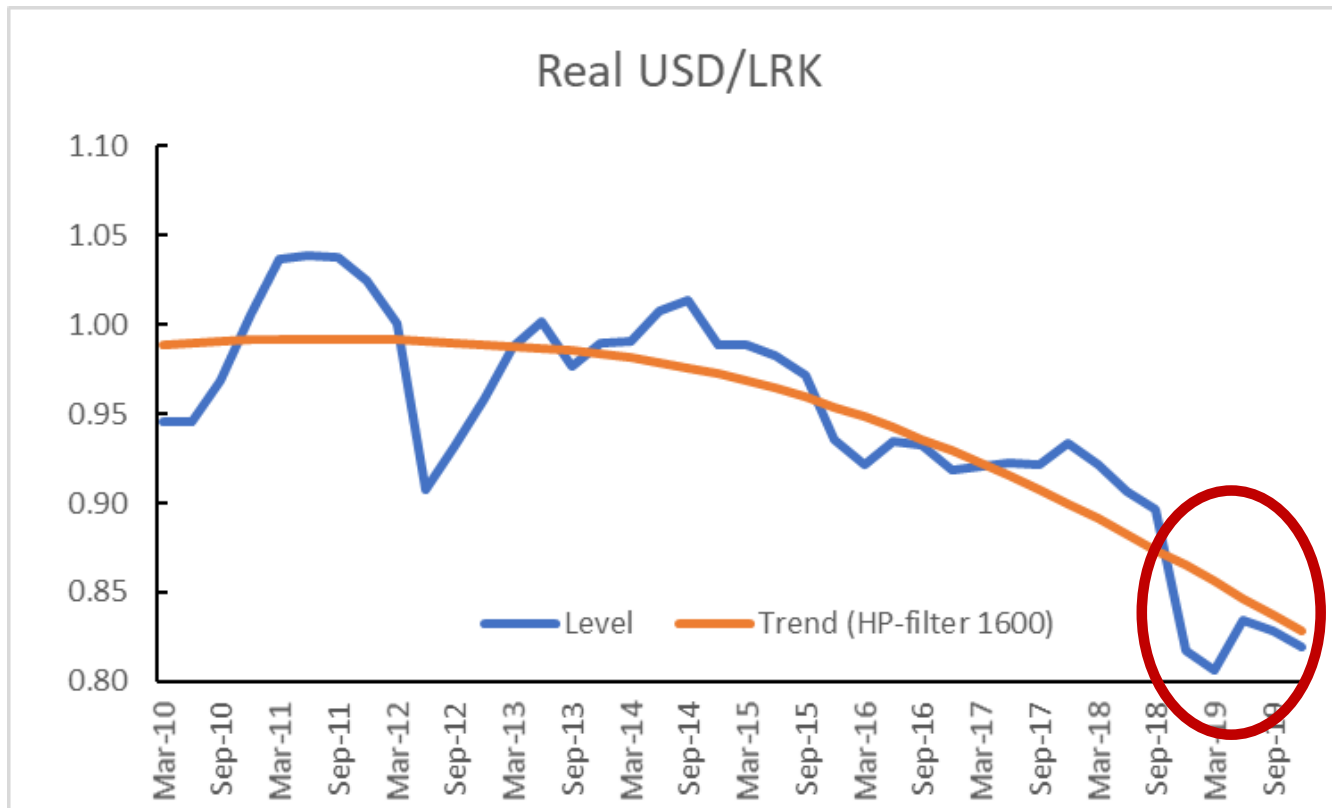
Inflation gap: -1 ppt



Output gap: -1%

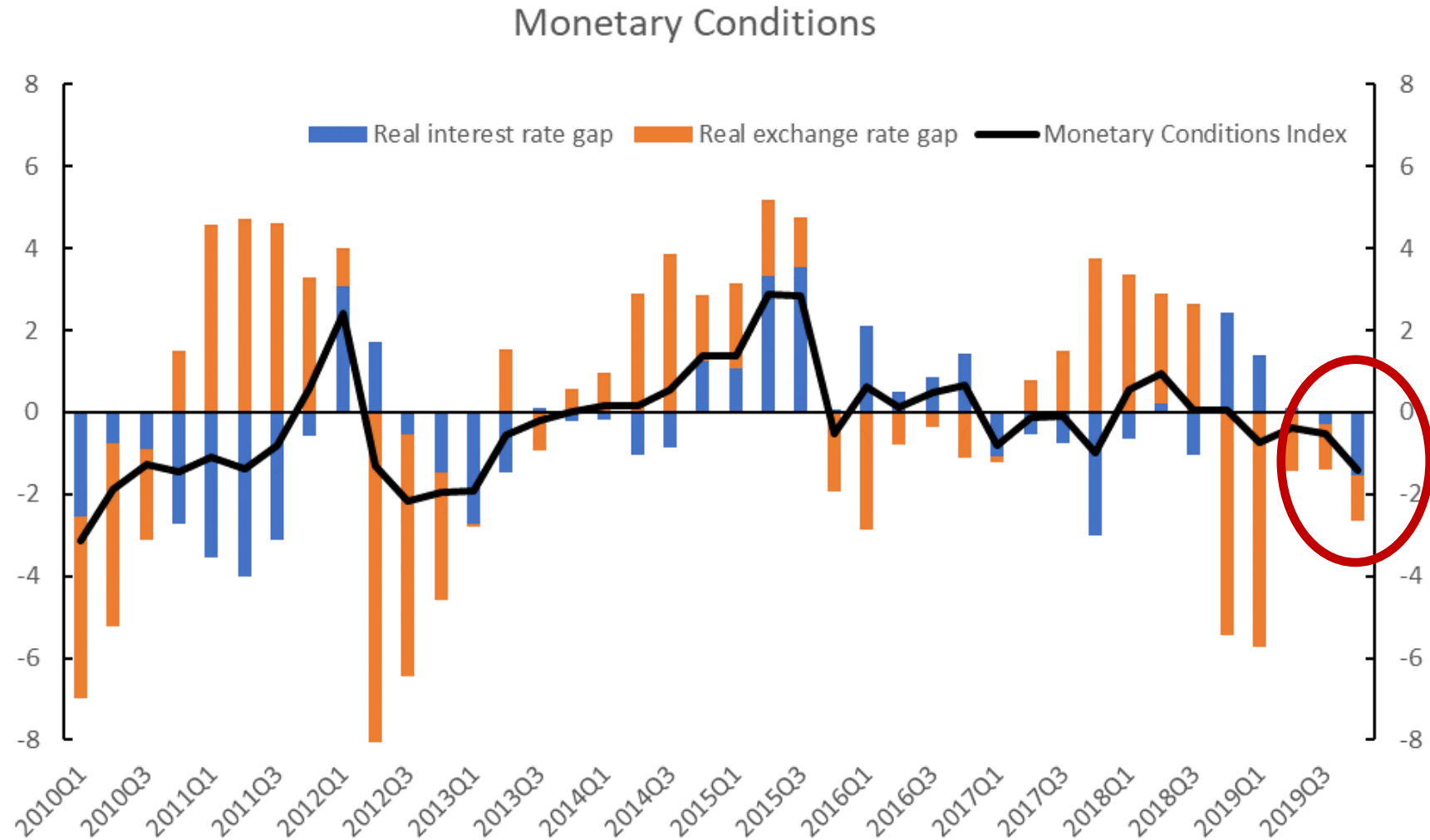


Real exchange rate gap: -5% (undervalued)

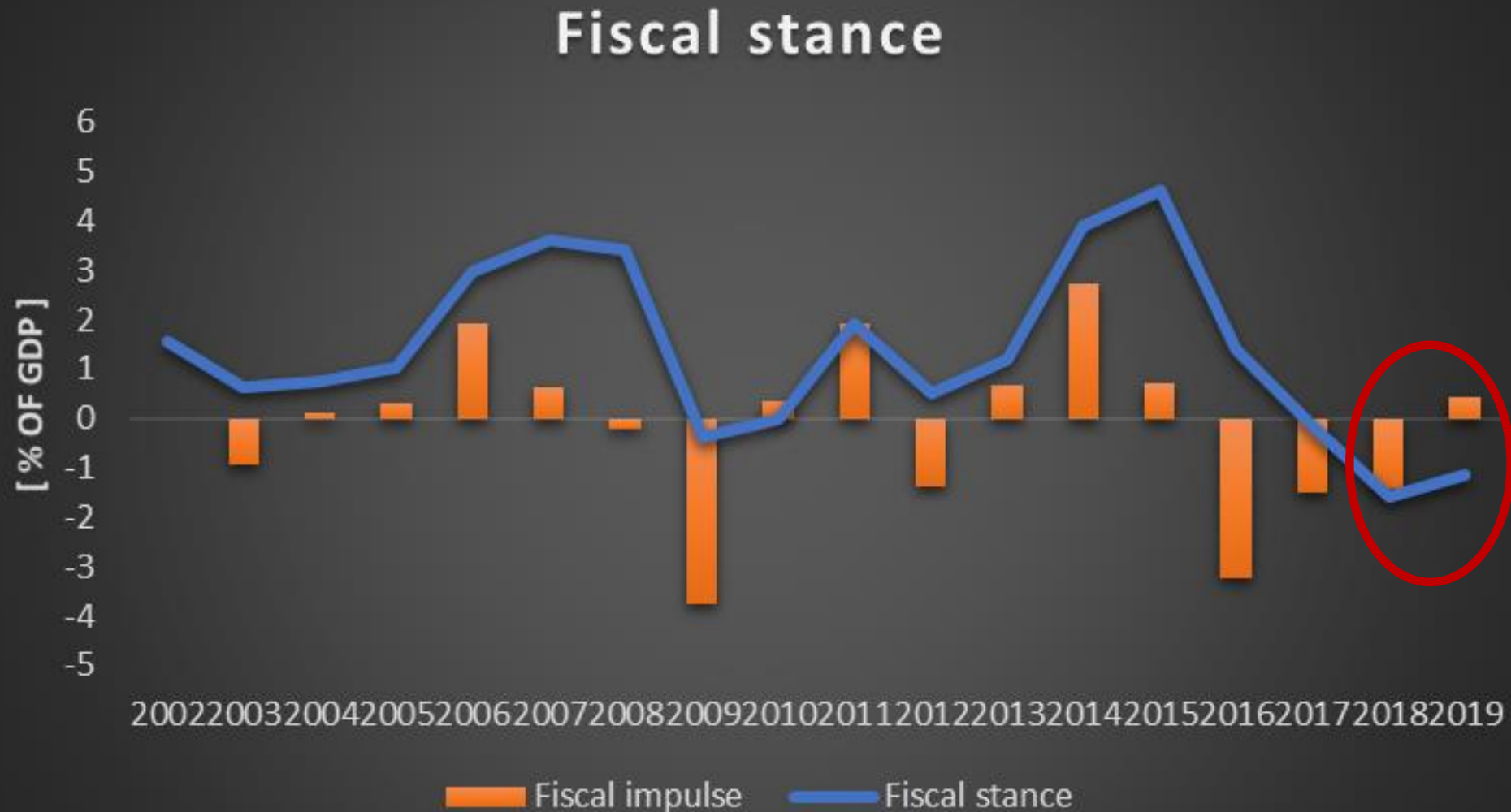


| | MB | | | | ERER | | | ES | | | |
|------------------------------|-------------|----------|----------|---------|------|-------------|---------|----------|---------|----------|---------|
| QUESTION: | | | | | | | | | | | |
| Variable | CA/GDP norm | CA under | CA elast | REERgap | REER | Actual REER | REERgap | NFA 2019 | CA norm | CA under | REERgap |
| Year | 2019 | WEO 2019 | 2019 | 2019 | 2019 | WEO 2019 | 2019 | WEO 2019 | 2019 | WEO 2019 | 2019 |
| Sri Lanka (Sri Lanka Rupees) | -3.02 | -2.80 | -0.13 | -1.74 | 1.00 | 0.91 | -9.33 | -62.24 | -4.75 | -2.80 | -15.23 |

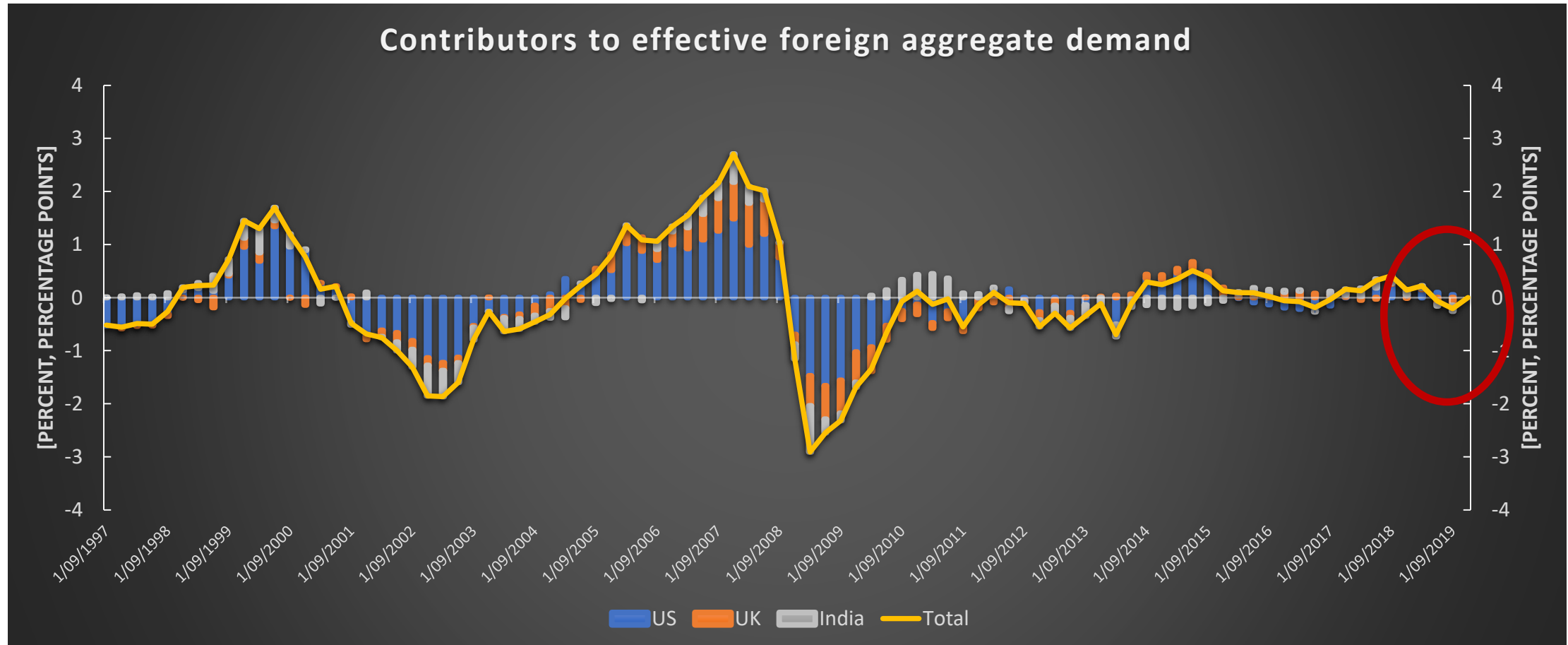
Monetary conditions index: -2%



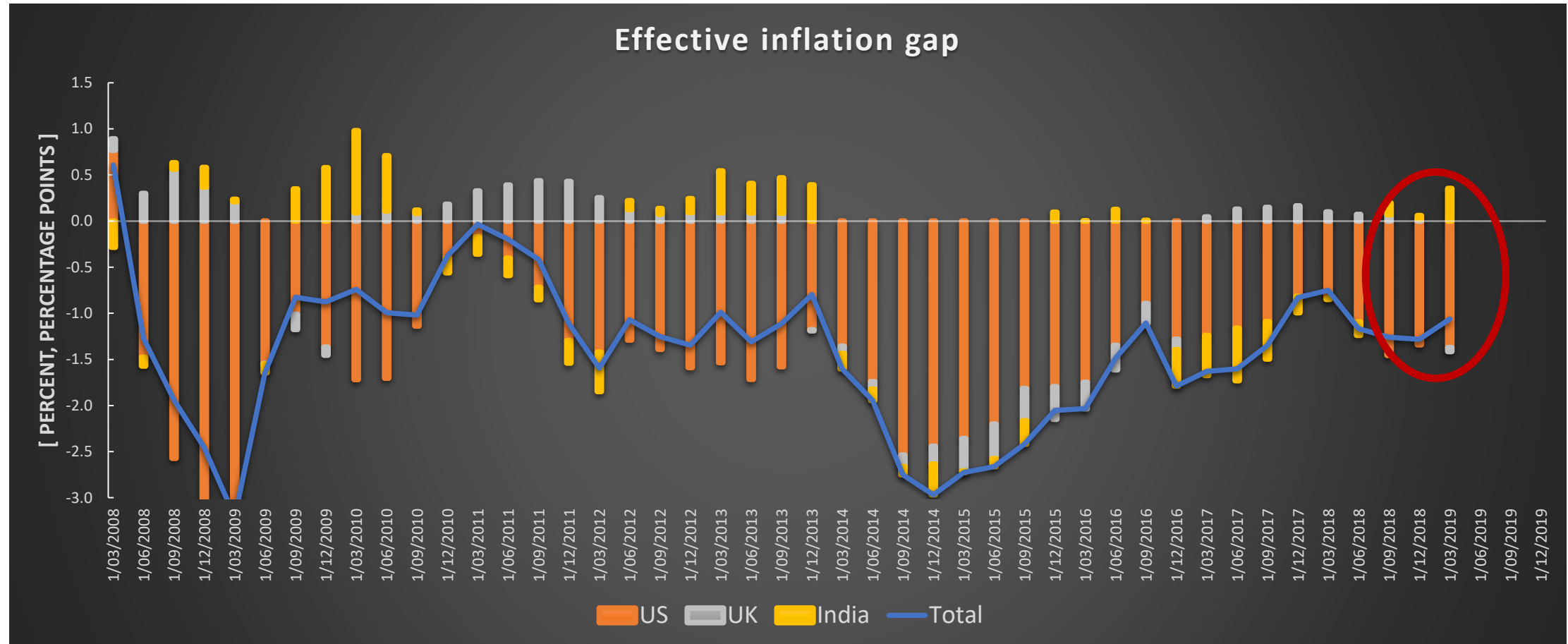
Loose fiscal stance but positive fiscal impulse +0.5% of GDP



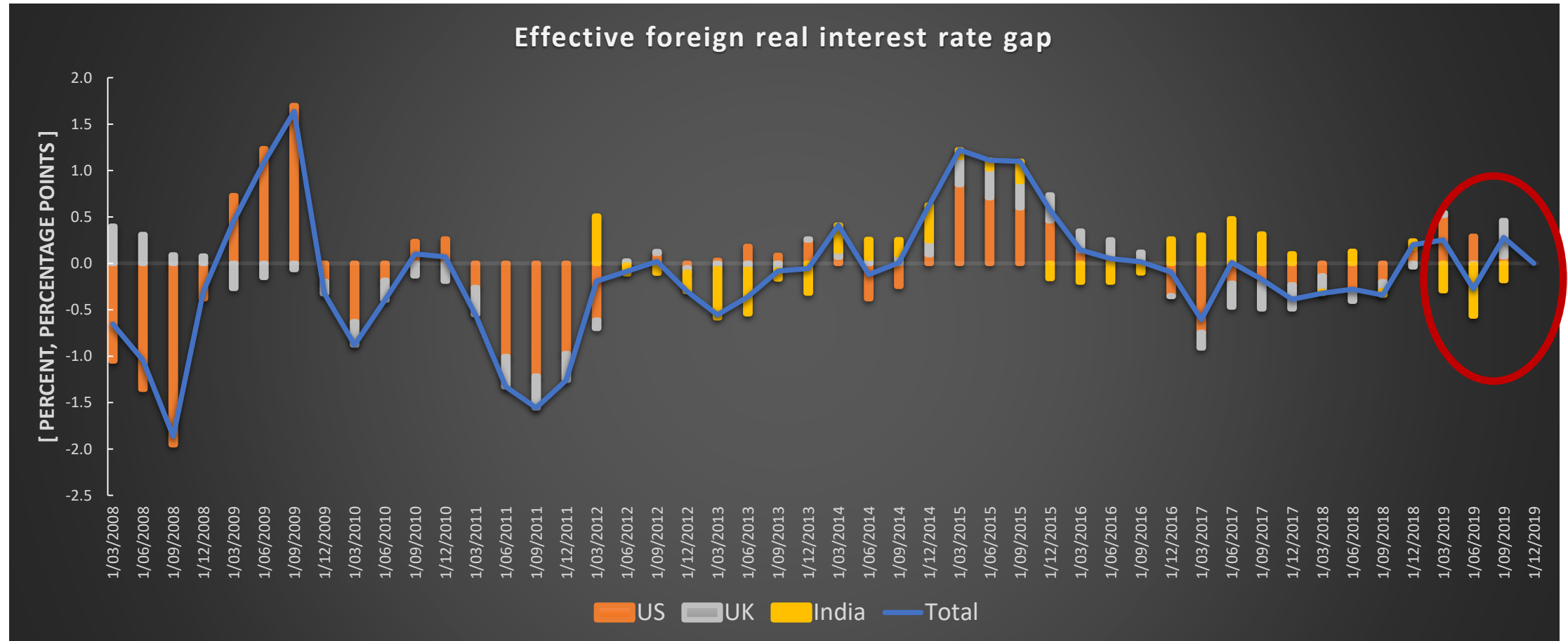
Foreign demand modest but tentative signs of strengthening



Foreign inflation very weak: -1% persistently below desired levels



Foreign real interest rates near neutral levels





Key economic concepts

Monetary policy rule (interest rate, money growth)

Neutral nominal interest rate

Monetary policy stance

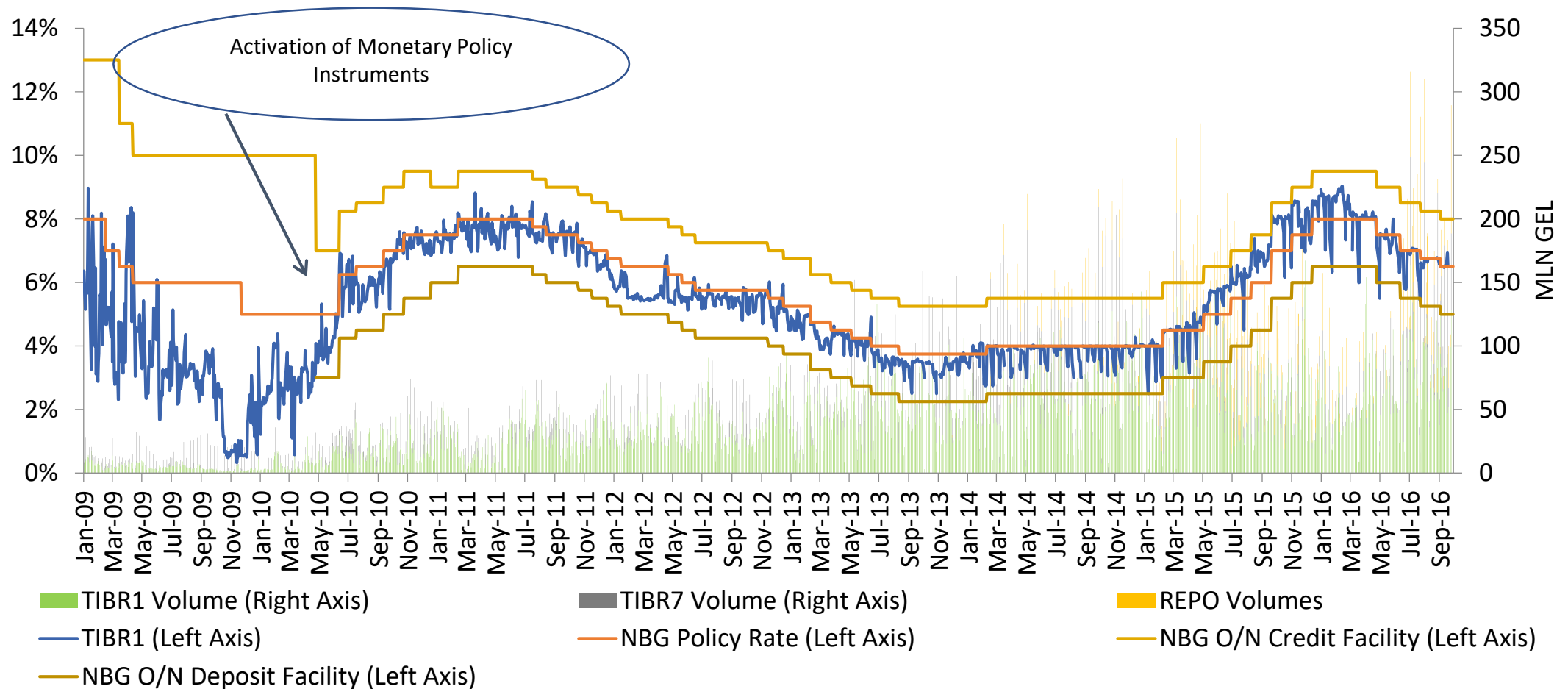
Monetary policy rules

- Monetary policy rule represents the systematic part of monetary policy decision making
- It supports monetary policy transparency and predictability, which are crucial elements of credible policy
- Through its credibility central bank's policy supports the goal of macroeconomic stability – specifically, anchoring expectations (inflation, etc.)
- Mechanically, monetary policy rule prescribes desired levels for monetary policy instruments, so called *monetary policy stance*

Monetary policy rules depend on the form of monetary regime

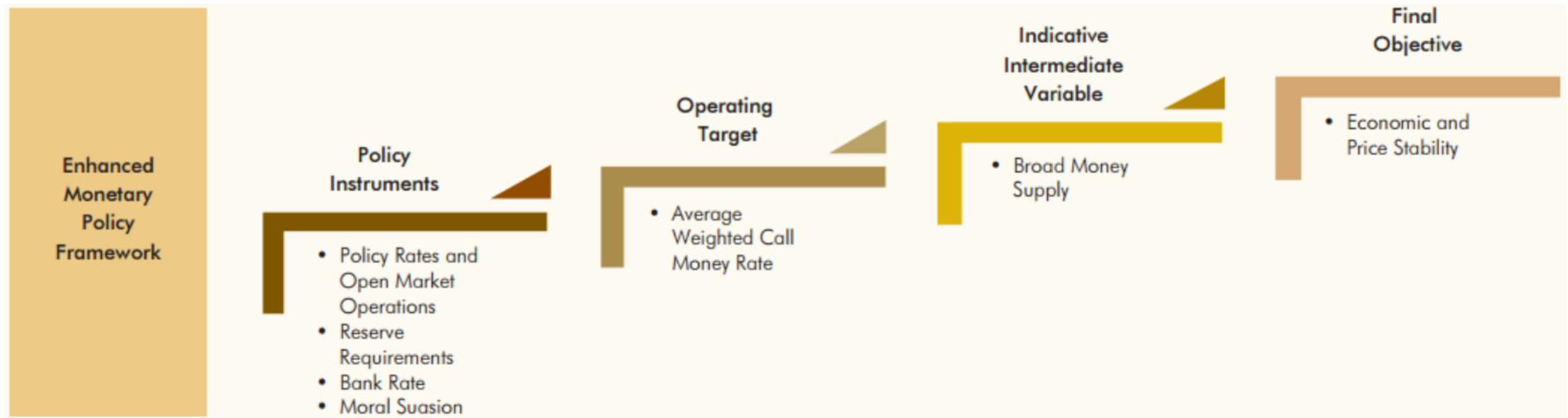
- Typically, central banks use interest rates as their main instrument
- Monetary policy is implemented through open market operations or standing facilities
- The *operational target* is the level of short-term interest rates
- In monetary targeting regime, the growth of reserve money is the main instrument
- Monetary policy is implemented through active open market operations
- *Operational target* is the growth of net domestic assets (NDA)

Illustration of implementation of monetary policy: Georgia



Source: National Bank of Georgia

CBSL's policy framework



Source: CBSL

Interest rate rule

- A representative monetary policy rule is the so called Taylor rule for the short-term interest rates

$$R_t = \theta_0 R_{t-1} + (1 - \theta_0) [\bar{R}_t + \theta_1 (\pi_t - \pi_t^{Target})] + \varepsilon_t$$

where R_t is the short-term interest rate, \bar{R}_t is the neutral nominal interest rate, π_t is annual CPI inflation, π_t^{Target} is the desirable medium-term level of CPI inflation. ε_t is the residual term allowing for a short-term deviations from the rule. $\{\theta_0, \theta_1\}$ are the policy rule parameters.

- Taylor principle: $\theta_1 > 1$, guarantees that monetary policy actively responds to inflation deviations from the desired target, and manages expectations of market participants

Neutral nominal interest rate, \bar{R}_t

- \bar{R}_t is defined as

$$\bar{R}_t = \bar{r}r_t + \pi_t^{Target}$$

where $\bar{r}r_t$ is the long-run level of real interest rate. π_t^{Target} is the medium-term target for inflation.

- It is the equilibrium level of nominal interest rates that you should expect (consider as normal) when inflation hovers at the desired level (target), economic activity hovers at its potential (output gap is zero), and exchange rate and balance of payments is aligned with their fundamentals
- It is a benchmark for judging the monetary policy stance

Monetary policy stance

- It is defined as the gap between the actual level of short-term interest rates (operational target) and their neutral level

$$MPS_t = R_t - \bar{R}_t$$

- If $MPS_t > 0$ nominal interest rates are above its neutral levels, which means monetary policy is in an restrictive stance – leaning against inflationary pressures
- If $MPS_t < 0$ nominal interest rates are below its neutral levels, which means monetary policy is in an accommodative stance – providing back winds for inflationary pressures

Monetary policy stance

- Monetary policy stance measure tells that interest rates are more accommodative or more restrictive than “usually” ...
- ... but it doesn't tell us whether the monetary policy stance is accommodative or restrictive enough, given the macroeconomic situation
- That information is provided by the monetary policy rule, specifically by comparing the accrual interest rate level to the level predicted by the policy rule

$$R_t - \hat{R}_t \equiv R_t - \{\theta_0 R_{t-1} + (1 - \theta_0)[\bar{R}_t + \theta_1(\pi_t - \pi_t^{Target})]\} = \varepsilon_t$$



Key measurement techniques

Monetary policy rule decomposition

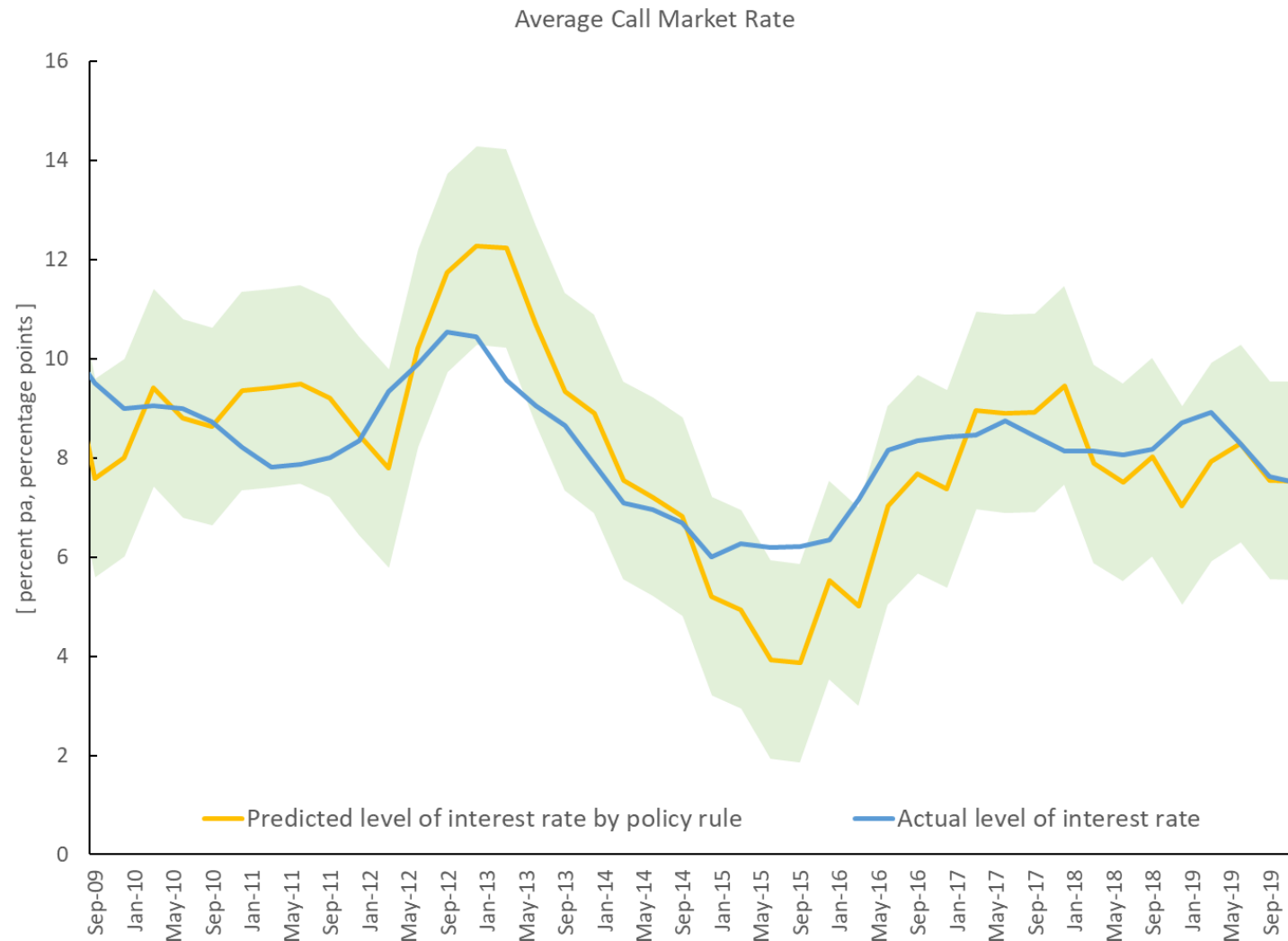
Monetary policy rule decomposition

- Use the Taylor rule to quantify the individual factors driving nominal interest rates:

$$R_t = \theta_0 R_{t-1} + (1 - \theta_0) [\bar{R}_t + \theta_1 (\pi_t - \pi_t^{Target})] + \varepsilon_t$$

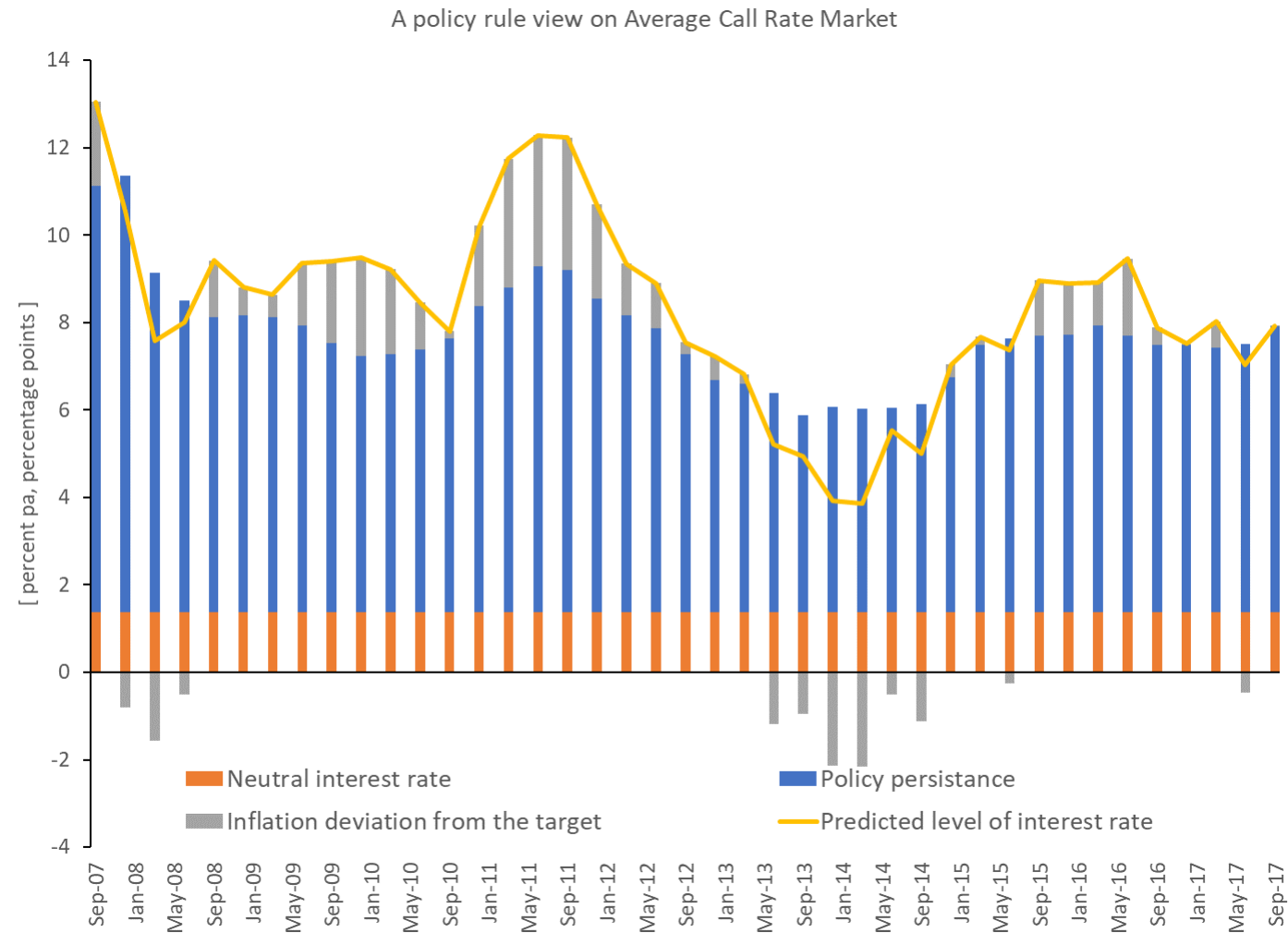
- It will help us understand the underlying forces that justify observed levels of interest rates

Actual and predicted level of short-term interest rate using a policy rule



Source: CBSL, author's calculations

Actual and predicted level of short-term interest rate using a policy rule decomposition (cont.)

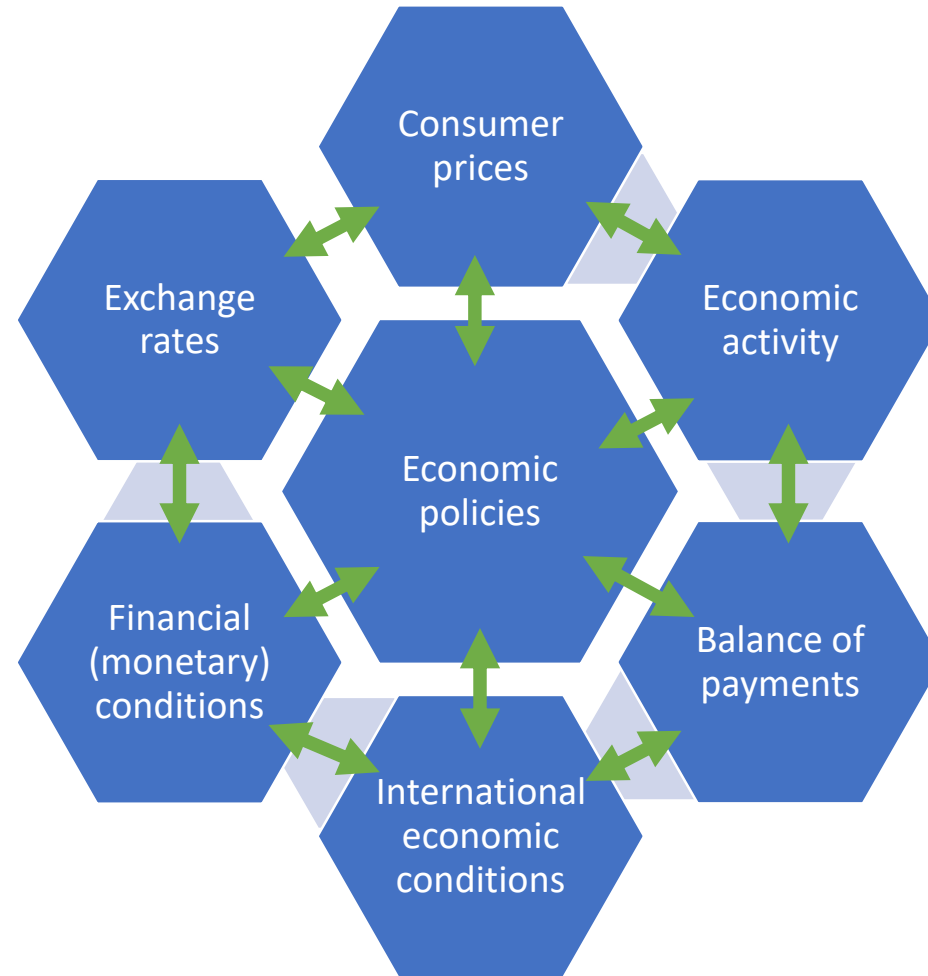


Source: CBSL, author's calculations



Formulating monetary policy strategy

Assessment of economic situation – connecting the dots



Use macroeconomic models for assessing the comprehensive economic situation in a coherent way

- Various approaches available
 - (S)VAR models, ECM
 - Dynamic Stochastic General Equilibrium models
 - Macro-econometric models
- New-Keynesian business cycle model creates a typical core of analytical and forecasting tools used by central banks today

Why models?

- Models can be used for
 - Forecasting
 - Analyzing and comparing policy scenarios
 - Story telling
 - Assessing risks

Why models?

- Models' strength is in their simplicity -- they are less about predicting every detail of the economy
- In principle a model serves a specific purpose
 - Answer specific questions

"All models are wrong, but some are useful" (George P.E. Box)

- We always have to think critically about their insights, always question them, never take them as the ultimate truth. Only then policy will benefit from the insights that models provide

Key equations of the New-Keynesian business cycle model

Aggregate demand

$$\hat{y}_t = a_1 \hat{y}_{t-1} - a_2 mci_t + a_3 \hat{y}_t^* + a_5 fimp_t + \varepsilon_t^y$$

Short-term aggregate supply

$$\pi_t = b_1 \pi_{t-1} + (1 - b_1) \pi_{t+1}^e + b_2 rmc_t + \varepsilon_t^\pi$$

Uncovered interest rate parity

$$s_t = s_{t+1}^e + (i_t^* - i_t + prem_t) + \varepsilon_t^s$$

Monetary policy rule

$$i_t = f_1 i_{t-1} + (1 - f_1) [i_t^n + f_2 (\pi_{t+1}^e - \pi^T) + f_3 \hat{y}_t] + \varepsilon_t^i$$

Long-term output growth

$$\Delta \bar{y}_t^{SS} = \Delta \bar{y}_{t-1}^{SS} - h_1 (rr_t - rr_{t-1}) + h_2 \varepsilon_t^{ce} + h_3 (rev_t - rev_{t-1})$$

Country risk premium

$$prem_t = \rho^{prem} prem_{t-1} + (1 - \rho^{prem}) (prem_{SS} + p_6 (b_t - b_{SS}^{tar})) + \varepsilon_t^{prem}$$

Monetary policy transmission mechanism in the model

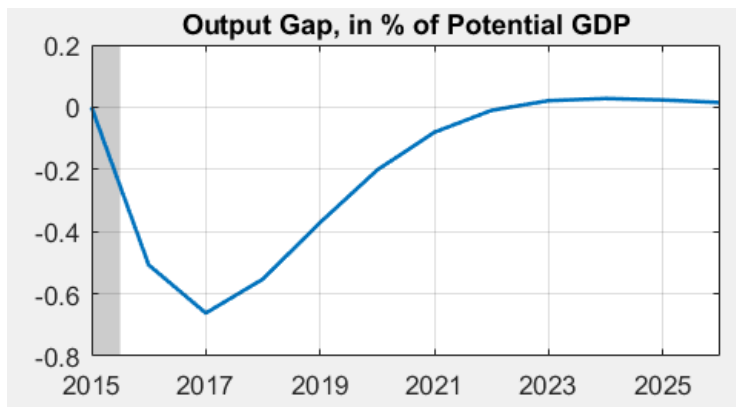
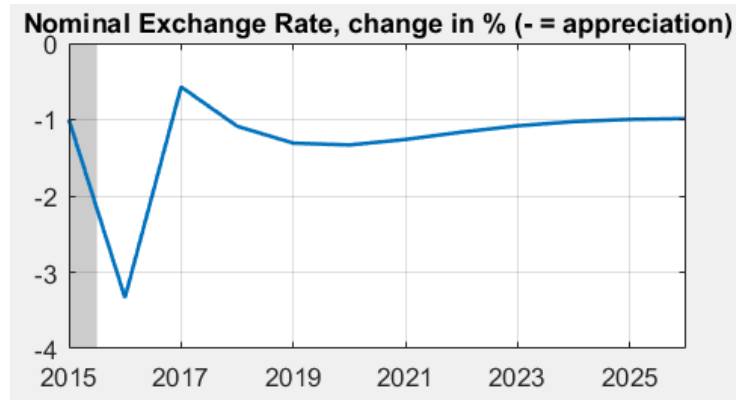
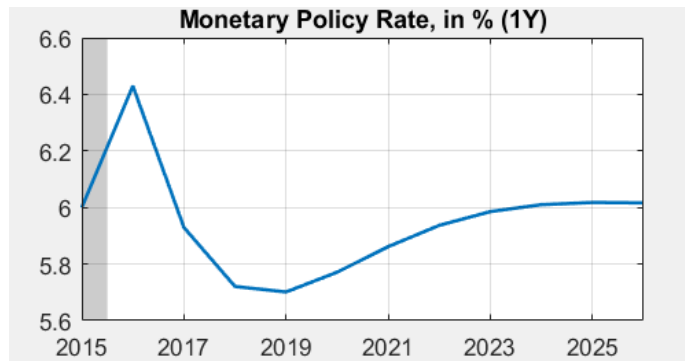
↑ R



↓ S ↓ Y



↓ P



Source: Model simulations

Optimal monetary policy response to selected economic shocks

Open the “**Interest rate reckoner**” tool to simulate the implications of the following economic shocks for the policy interest rate:

- Demand shock – increase in government expenditures
- Oil price shock or increase in GST
- Country risk premium shock

Summary of economic assessment and expected implications for the future monetary policy stance

- Review the template you have in the course packet
- Combining the situation in individual sectors gives prediction for the monetary policy
- We use the model in other course more extensively
- In the workshop here, we are going to use the model transmission mechanism to summarize and weight the impact on the policy stance



Conclusion

Key takeaways

- Short-term interest rate is the main object of focus for monetary policy assessment
- Monetary policy stance is summarized by the deviation of the short-term interest rate from the neutral interest rate
- The tightness or looseness of monetary policy stance is measured by the gap between actual interest rate level and the level predicted by a monetary policy rule, and the real exchange interest rate gap.