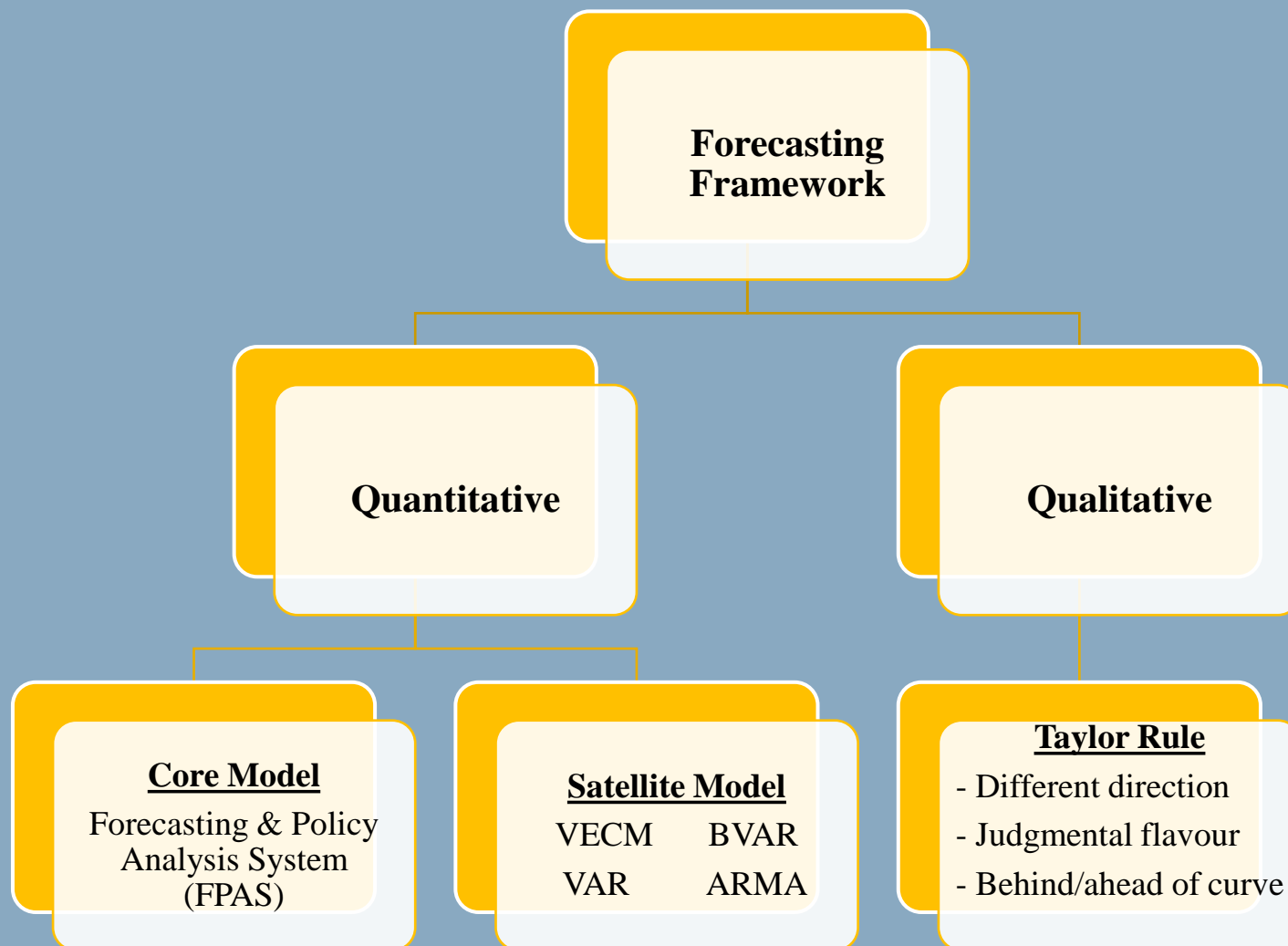# **Monetary Policy Committee**

Discretion versus policy rules:
Evidence from Taylor rule in Mauritius

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Forecasting Framework

Quantitative

Qualitative

Core Model

Forecasting & Policy Analysis System (FPAS)

Satellite Model

VECM   BVAR

VAR   ARMA

Taylor Rule

- Different direction
- Judgmental flavour
- Behind/ahead of curve

Contents

- Overview

- Application and Users

- Scenario building – Using various versions of Taylor rule
  - ❑ Backward-looking Taylor rule (1993)
  - ❑ Modified Taylor rule
  - ❑ Taylor rule adjusted for imperfect control over the domestic money market

- Summarised findings

- Concluding remarks

Overview

- Taylor (1993) postulated the idea of employing econometric policy evaluation research to set monetary policy rules in policymaking environment.

- Monetary policy decision making relies partly on the discretion of policymakers. However, the Taylor rule emphasizes the importance of a policy rule-like behaviour on part of central banks as a key conceptual framework in an environment committed to transparency and independence.

- The Taylor rule has gained widespread influence because it can be implemented in policy regimes with a dual mandate for price stability and growth or in regimes where inflation is the primary target.
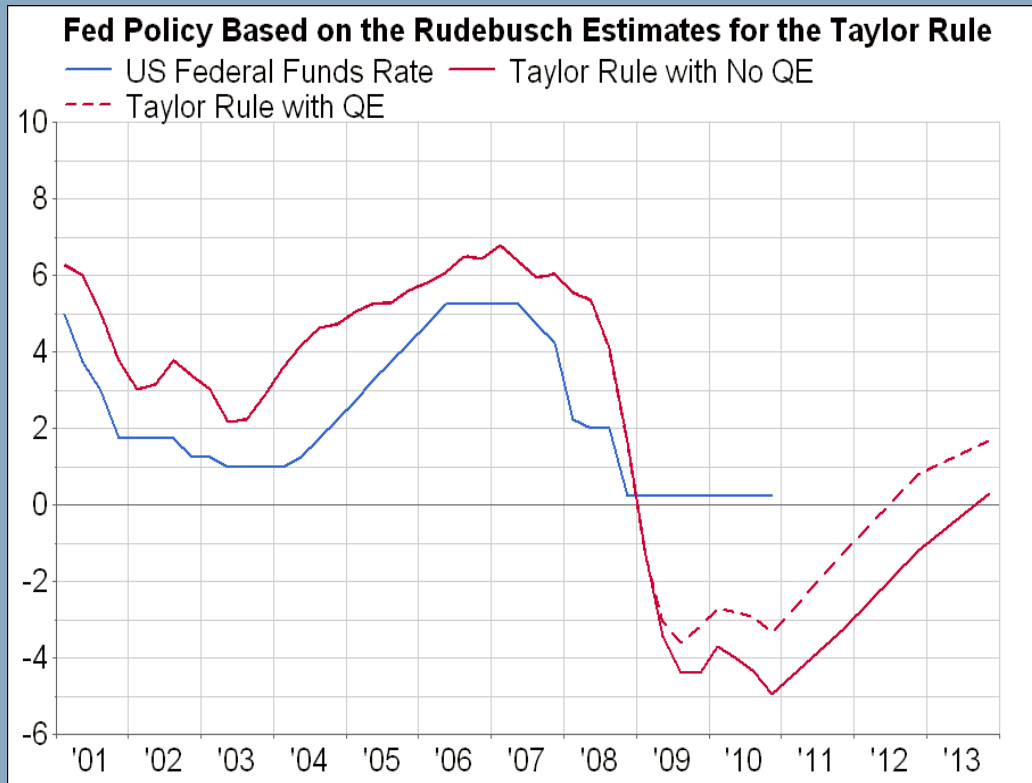
Application and Users

- Since 1993, the Taylor rule has been widely used in many central banks for policy making and has also been incorporated in macroeconomic forecasting models.

- Users include FED, ECB, BOJ, BOE, RBI and IMF.

Mauritius: 2009 Article IV Consultation

❑ Employed Taylor rule to test BoM's real policy interest rate reaction function.

❑Weights assigned:
- Output gap = 0.03
- Inflation gap = 1.1

Application and Users

Fed Policy Based on the Rudebusch Estimates for the Taylor Rule

Legend:
- US Federal Funds Rate
- Taylor Rule with No QE
- Taylor Rule with QE

Source: IMF estimates

- Taylor optimal policy rates were negative

- Fed hit by zero lower bound (where rates are at near technical zero)

Scenario-building

Scenarios

- Backward-looking Taylor Rule (1993)
  - Inflation target: 3, 4, 5 %
  - Average Historical Inflation 5.3%
- Modified Taylor Rule
  - Expected Inflation: VECM
  - Output Gap: Kalman Filter
- Taylor Rule adjusted for imperfect control over the domestic money market
  - - Calibration + Econometrics
    - Inflation target: 4%

$$i_t = r^n + 1.5\pi_t - 0.5\pi^t + 0.5y_t$$

i_t = neutral rate

r^n = nominal interest rate

π_t = actual inflation

π^t = implicit inflation target

       historical inflation average

y_t = output gap

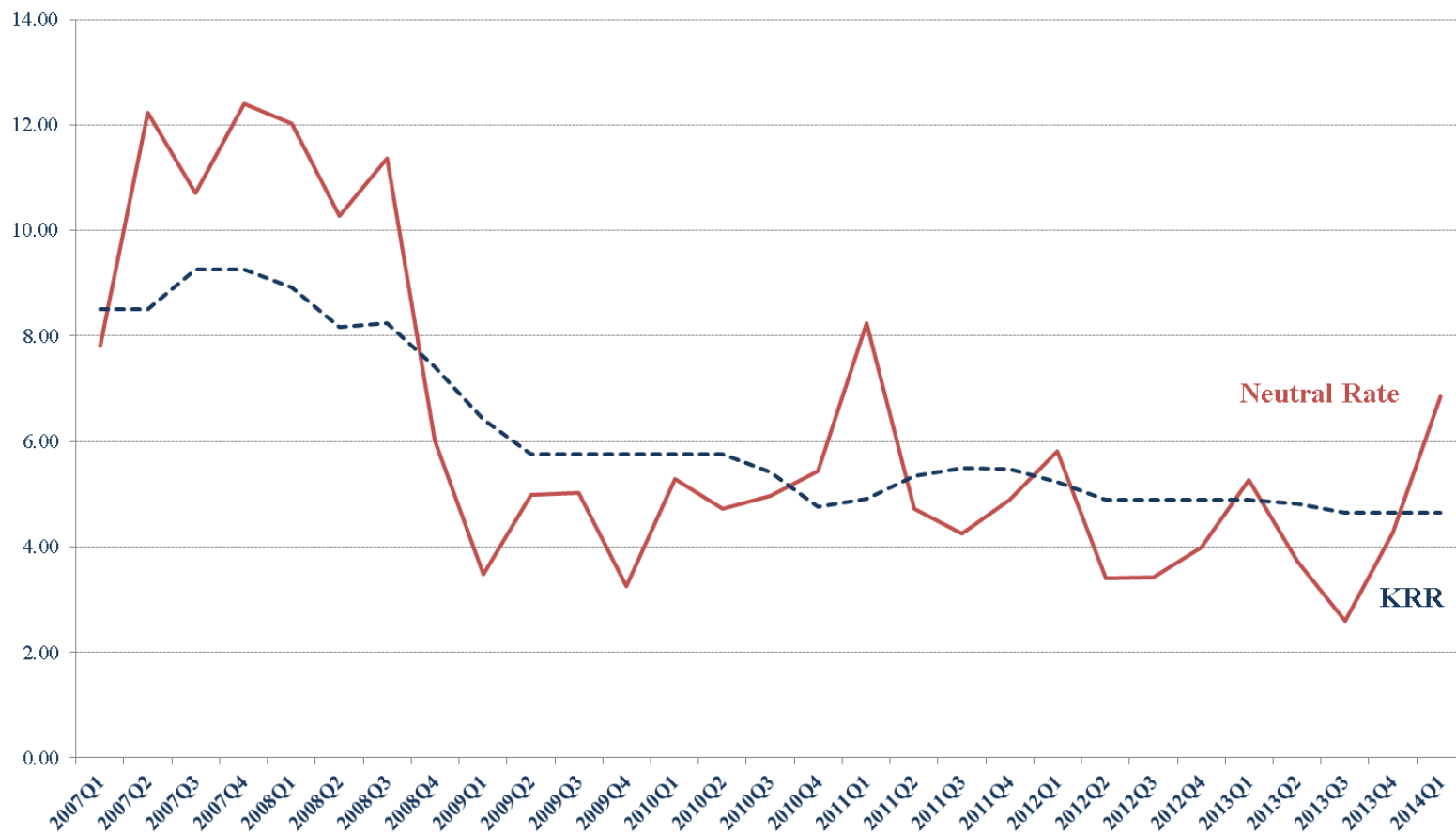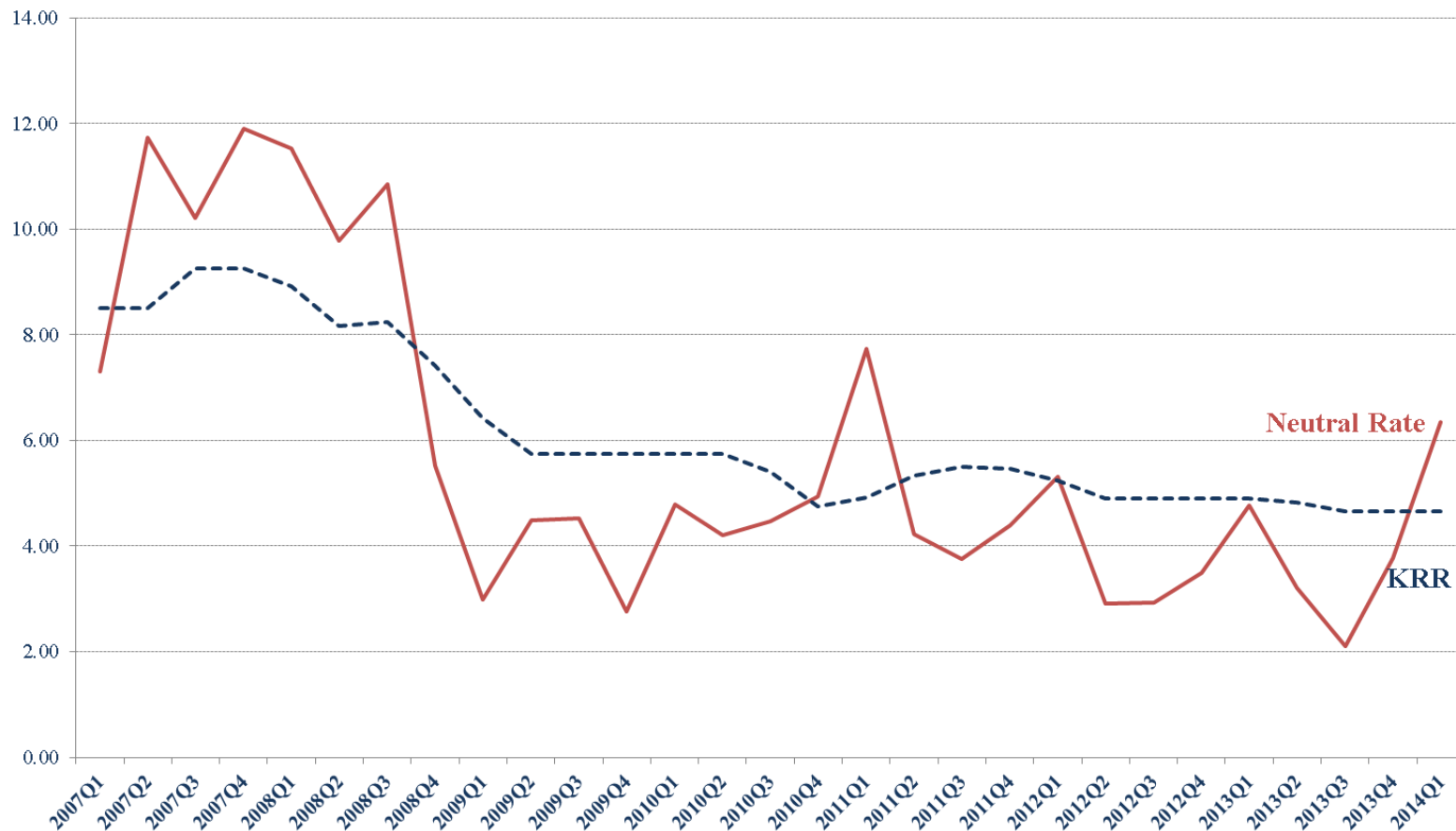Neutral rate v/s KRR - Inflation target: 3 percent
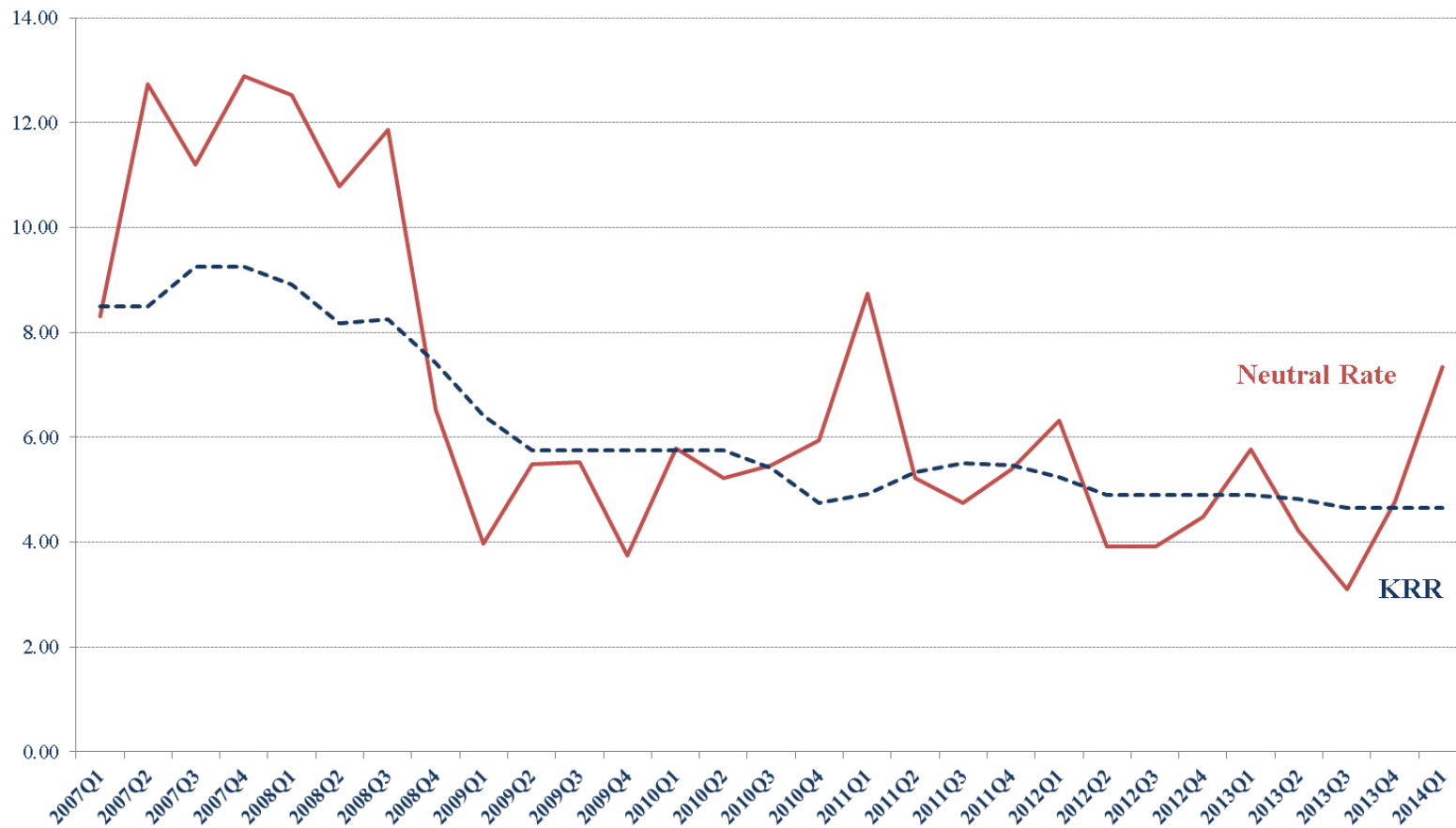
Neutral rate v/s KRR - Inflation target: 4 percent
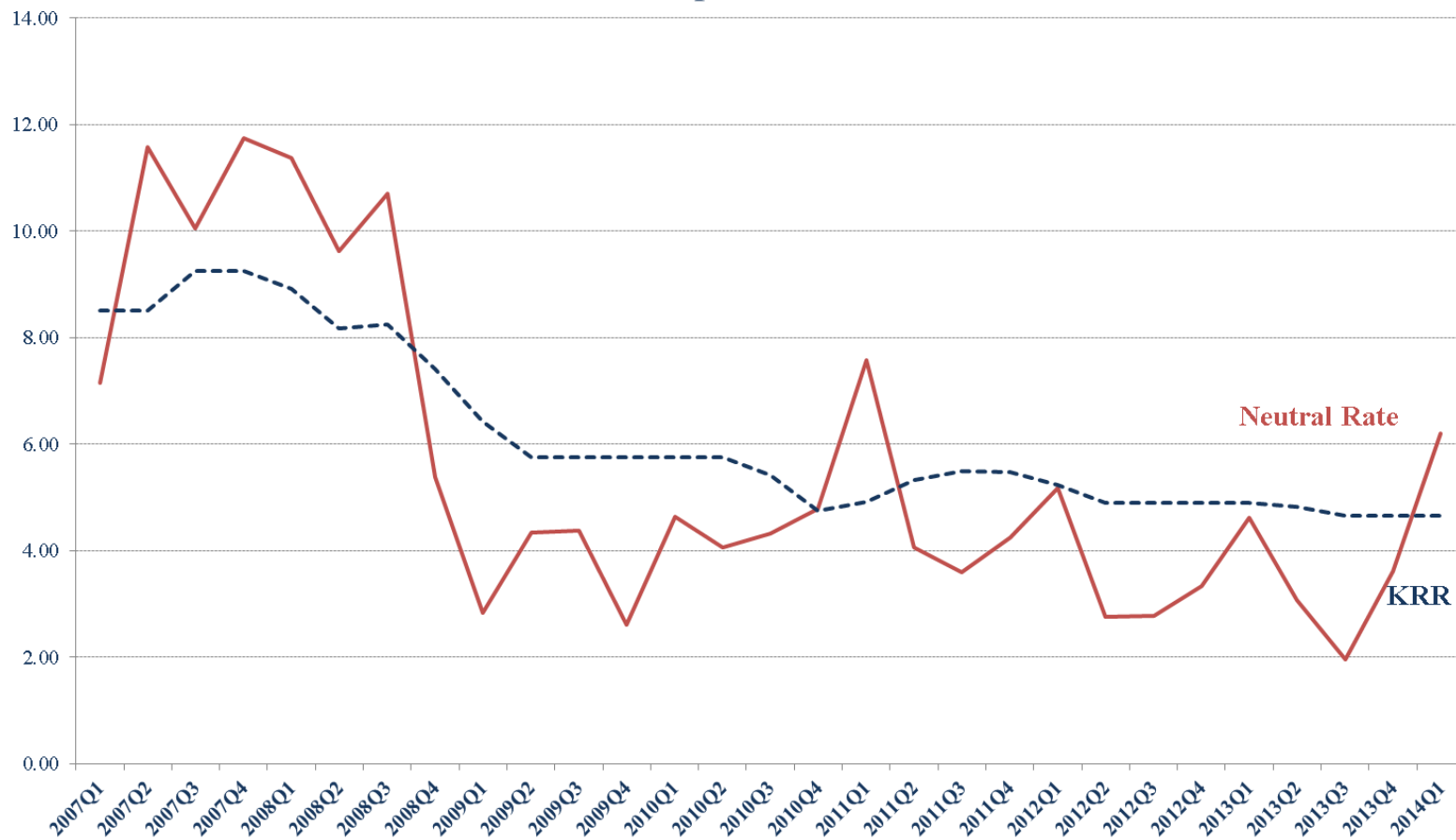
Scenario 1: Findings

Neutral rate v/s KRR - Inflation target: 5 percent

Scenario 1: Findings

Neutral rate v/s KRR - Historical Inflation Average (2007Q1-2014Q1): 5.3 percent

$$r = (p + rr) + 0.5(Y - Y^*) + 0.5(p - p^*)$$

r   = neutral rate
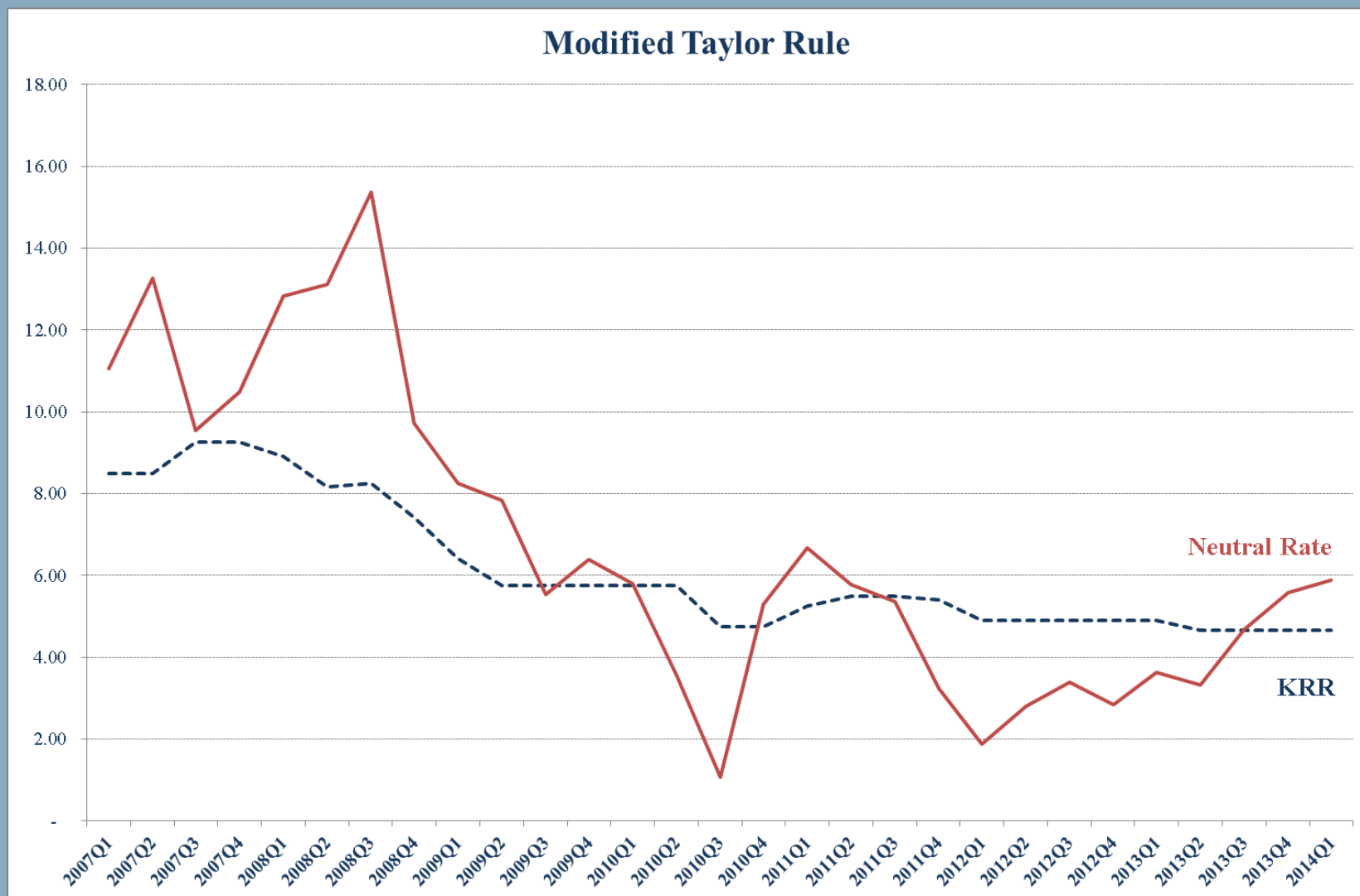
p = actual inflation rate in last four quarters

p^* = expected inflation rate

Y   = actual GDP growth

Y^* = potential GDP growth

rr = real interest rate (rr = nominal interest rate − p)

Modified Taylor Rule

$$r = g1*(4*(ls\_usd(+1) - ls\_usd) + rs\_us + prem)$$
$$+ (1-g1)*(f1*rs(-1) + (1-f1)*(rr\_eq + E\_d4l\_cpi + f2*(E4\_d4l\_cpi - target) + f3*lgdp\_gap))$$

r   = neutral rate

g1= BoM's control of the money market and its short term rate (Calibration: 0.5)

ls_usd(+1) = spot MUR/USD for 1 quarter ahead

ls_usd = spot MUR/USD

rs_us = US interbank rate

Prem = Risk premium

r = g1*(4*(ls_usd(+1) –ls_usd) + rs_us + prem) + (1-g1)*(f1*rs(-1) + (1-f1)*(rr_eq + E_d4l_cpi + f2*(E4_d4l_cpi – target) + f3*lgdp_gap))

f1 = policy rate persistence (OLS regression, 0.7)

rs(-1) = lagged nominal interest rate

rr_eq= real interest rate trend

E_d4l_cpi = inflation rate for 1 quarter ahead
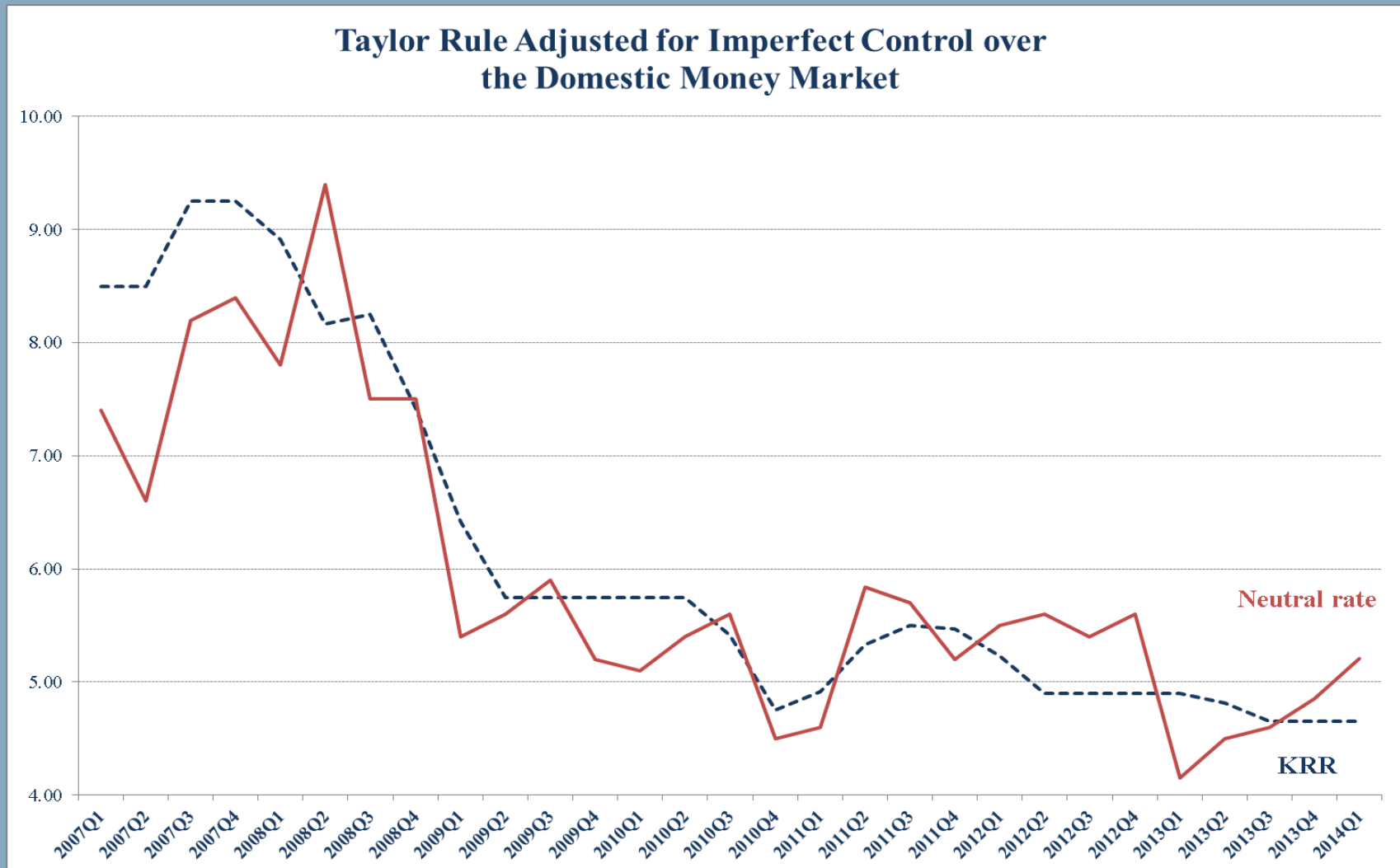
f2= weight on inflation gap (Calibration: 1.5/0.5)

E4_d4l_cpi= inflation rate for 4 quarters ahead

target = inflation target 4%

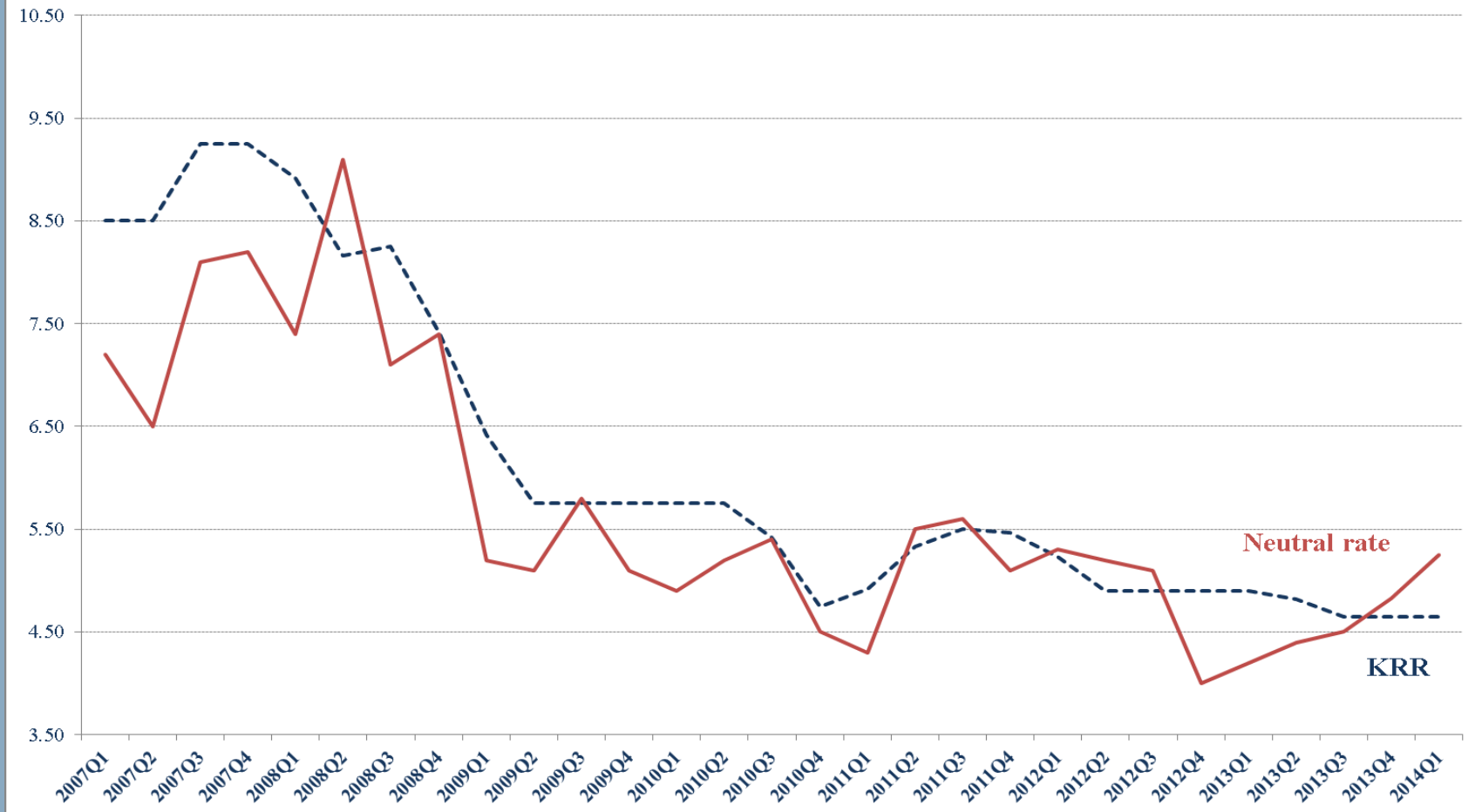f3= weight on output gap (Calibration: 0.3/0.5)

lgdp_gap= output gap

Taylor Rule Adjusted for Imperfect Control over the Domestic Money Market

Taylor Rule Adjusted for Imperfect Control over the Domestic Money Market

Summarised findings

Scenarios		Does the neutral rate exceed the KRR?	When does the neutral rate exceed the KRR?	By how much does the neutral rate exceed the KRR?
Backward Looking Taylor Rule	Inflation target - 3%	Yes	2014Q1	270 bps
	Inflation target - 4%	Yes	2014Q1	220 bps
	Inflation target - 5%	Yes	2014Q1	170 bps
	Historical Inflation Average	Yes	2014Q1	150 bps
Modified Taylor Rule		Yes	2013Q4 - 2014Q1	110bps : 120bps
Taylor Rule adjusted for imperfect control over the domestic money market	$W_{Inflation} = 1.5$ $W_{GDP} = 0.3$	Yes	2013Q4 - 2014Q1	21bps : 56 bps
	$W_{Inflation} = 0.5$ $W_{GDP} = 0.5$	Yes	2013Q4 - 2014Q1	18 bps : 60 bps

Concluding remarks

- The Taylor rule has a defining role to play in policy making, especially in periods of prolonged low interest rate.

- Generous allocation of weights for GDP gap (from 0.03 to 0.3 & 0.5)

- All the 3 scenarios indicate that the neutral rate has exceeded the KRR on a consistent and significant basis during the period 2013Q4-2014Q1

- Are we behind or ahead of the curve? Forward-looking nature of monetary policy?

- Is this the start of a trend?

- Is it time for interest rate normalisation?

Thank you