

# Monetary Policy Strategy for long term growth and price stability

**Bhanupong**

**Lecture 24**

**Chapter 8**

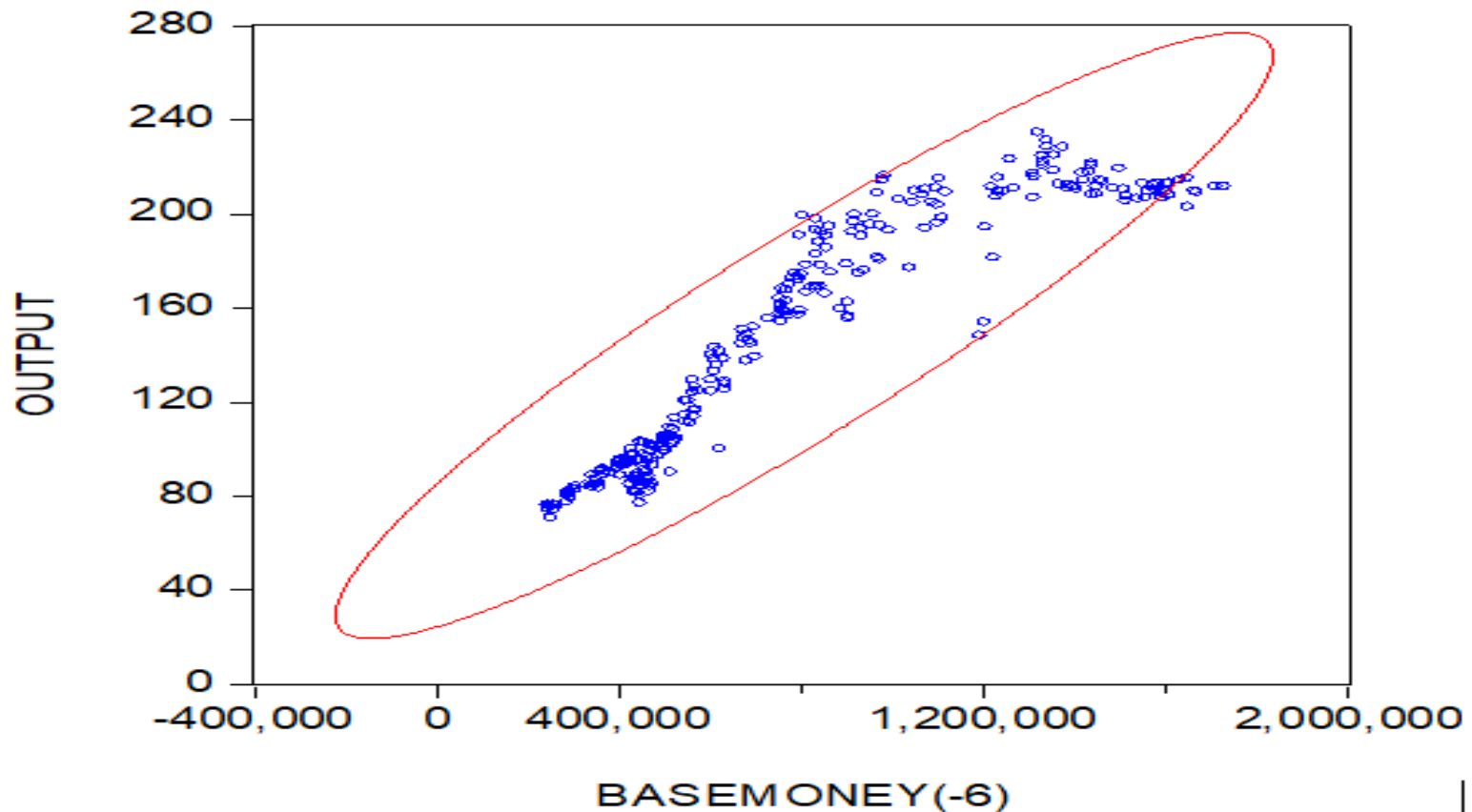
# Outline

1. Monetary aggregate and economic activity
2. Monetary policy transmission channels
3. Inflation targeting strategy: learning from the Turks
4. Asset price bubbles and monetary policy
5. Quantitative easing and impacts on Thailand

# 1. Monetary aggregates and economic activity

The importance of monetary aggregates

Figure 8.1



# Money and economic activity

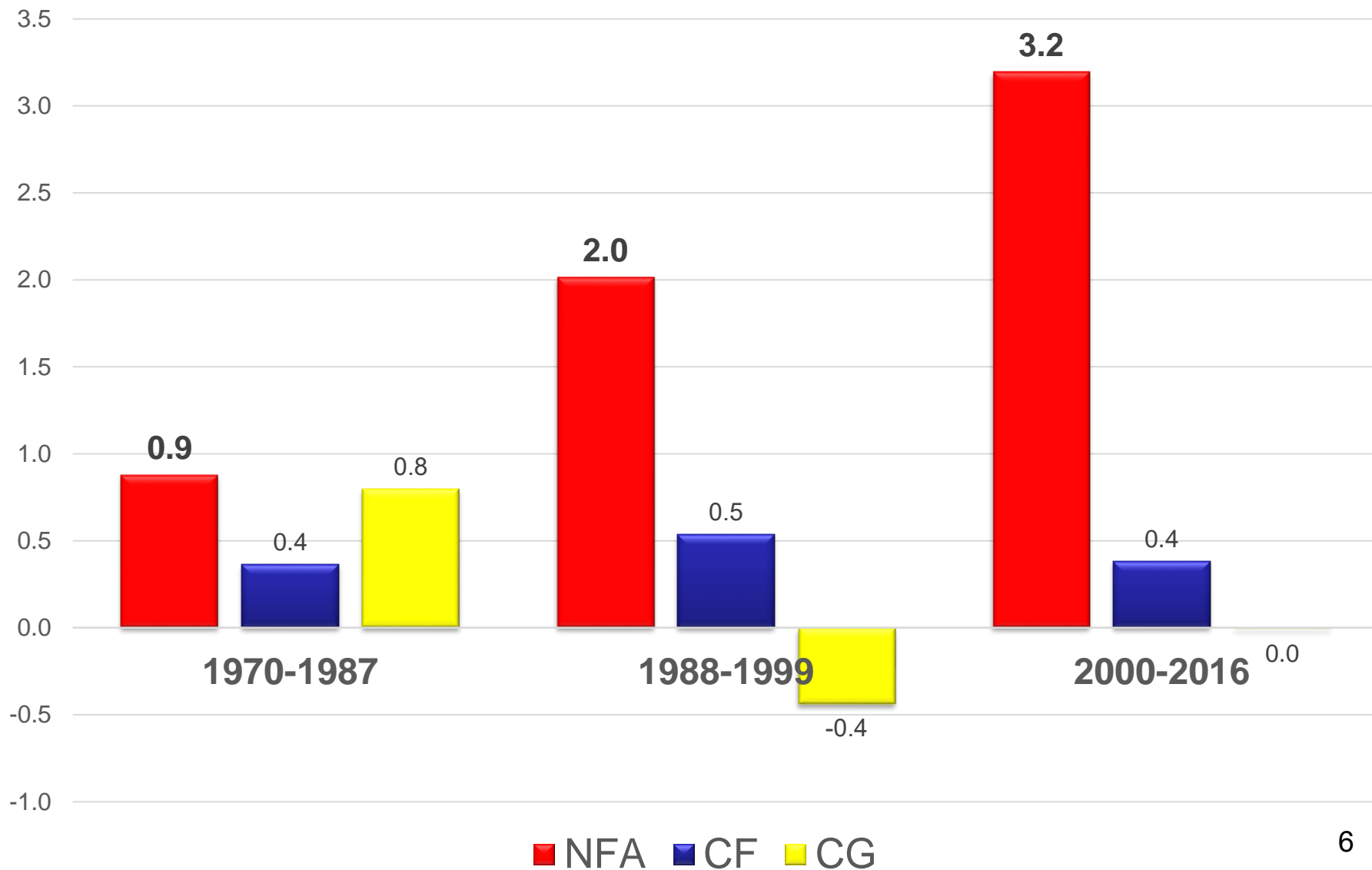
- There is a *long-run relationship* between output and monetary aggregates: monetary base (high-powered money), money supply, bank credit.
- **Growth in money supply** is not a perfect linkage to economic activity, but it provides *a rough measure of economic activity* in the medium term.
- Acceleration in the US money supply would generally be a good signal, and the slump of MS in China is a terrible thing.

# On the *asset* side of the balance sheet of the central bank

- Expansion of monetary base (MB) is caused by capital inflows, intervention in the foreign exchange market (NFA), and domestic credit expansion by the central bank in the form of net claims on government (CoG) and financial institutions (CoF).

$$**MB = NFA + CoG + CoF**$$

**Figure 8.2: Sources of Monetary Base  
Ratio to Monetary Base (period average)**



# On the liability side

- On the liability side of the central bank's balance sheet:  $MB = \text{currency} + \text{commercial banks' } \textit{required reserves} (R)$ .
- Whether banks extend loans depends on lending rate ( $r_L$ ) the cost of borrowing from the central bank ( $r_p$ ) rate)
- How do monetary ***policy instruments*** affect commercial bank lending?

$$\textit{Credit} = \kappa \textit{MB}$$

$$\kappa > 1$$

$$\textit{MB} = \textit{NFA} + \textit{CoG} + \textit{CoF}$$

$$\textit{MB} = \textit{Currency} + \textit{Bank reserves}$$

$$\kappa = \kappa(\bar{R}, r_L, \bar{r}_p, \psi)$$

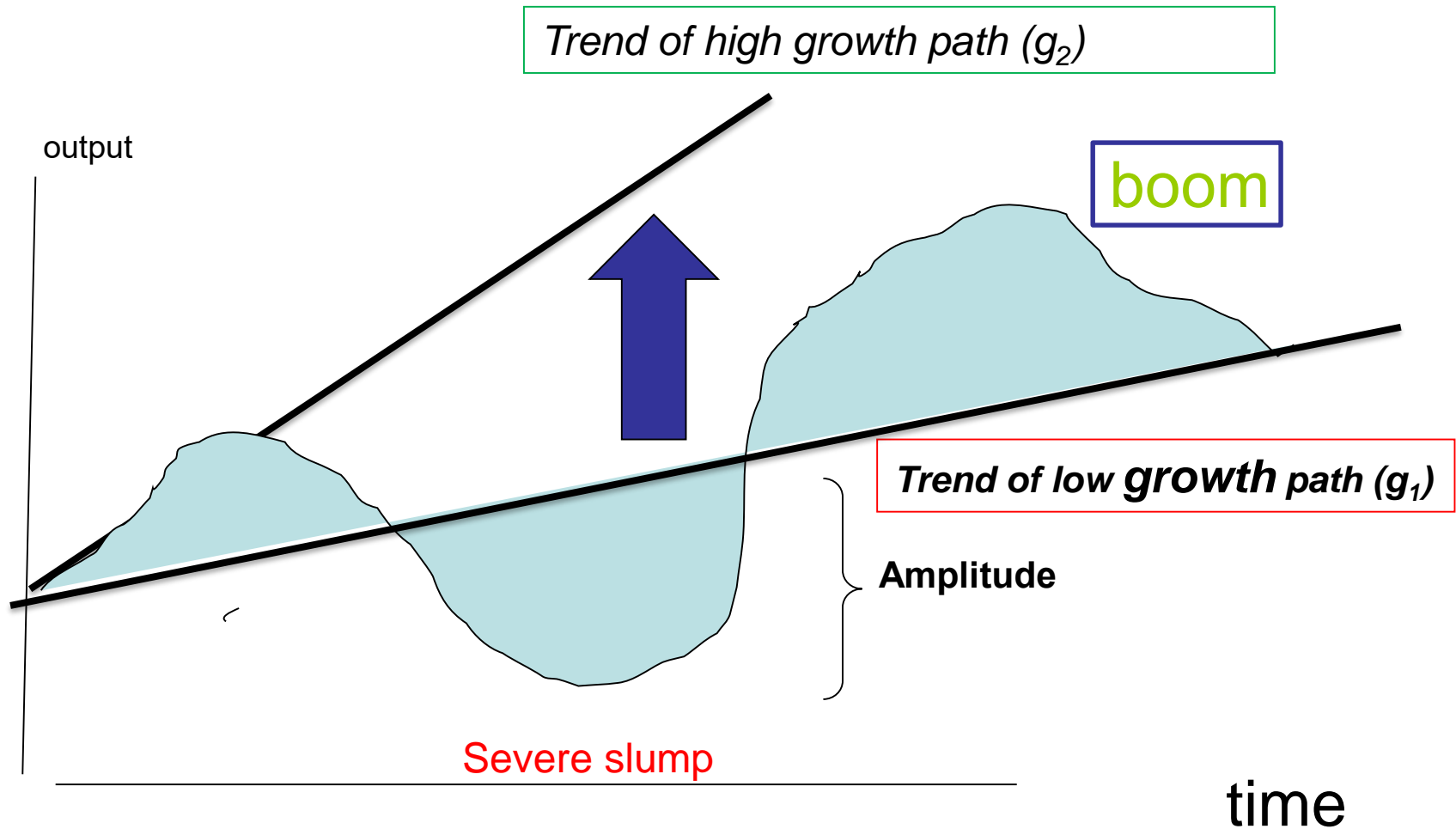
A bar superscript indicates policy parameters:  
Reserve ratio ( $\bar{R}$ ) central bank policy rate ( $\bar{r}_p$ )

$\kappa$  = credit multiplier = (Credit)/MB

# Shocks cause deviations from the long-term growth path

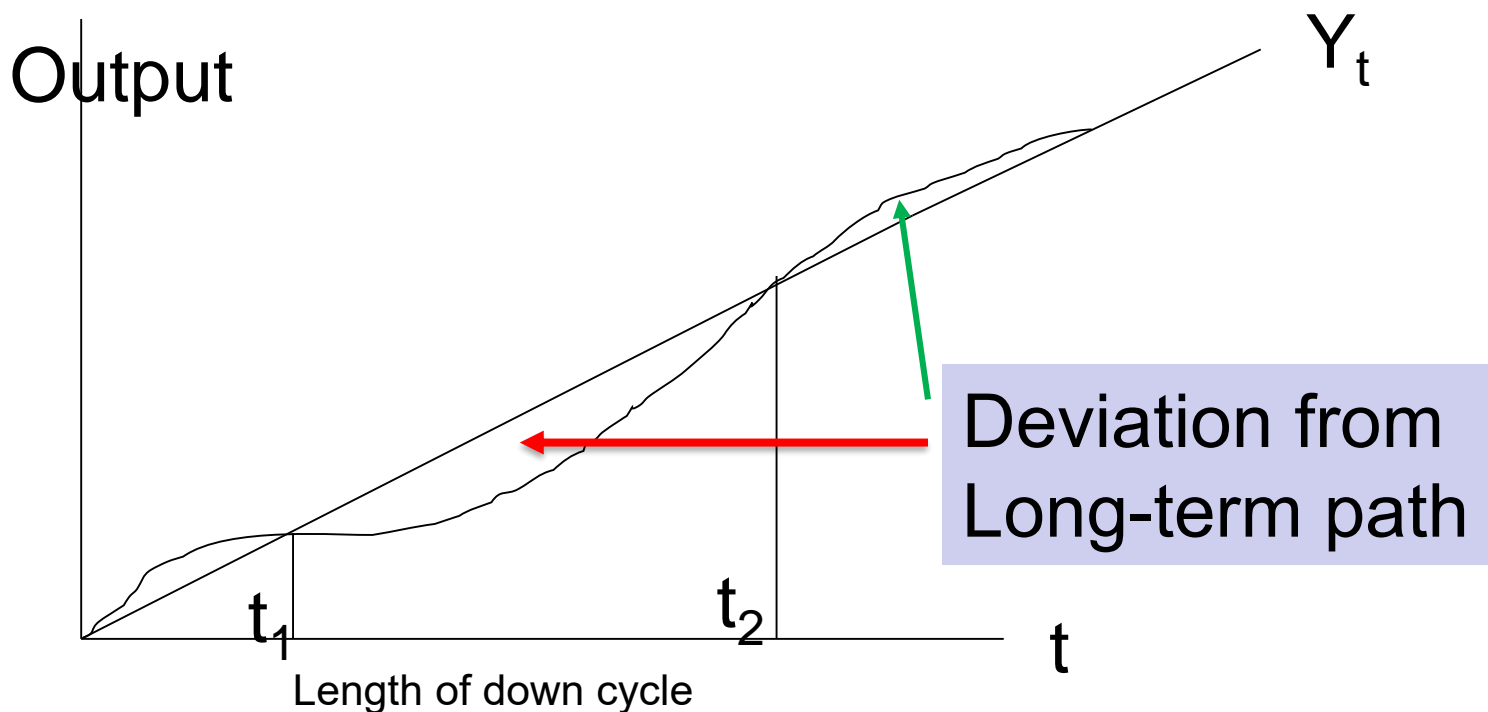
- Long-run output path is dictated by productive capacity (**technological innovation**) of the economy.
- Monetary aggregates must increase at the rate corresponding to the trend growth rate of real output.
- Credit booms and busts lead to deviations of output from its long-term growth path.

# A limitation to monetary policy



In a mild cycle, output oscillates around its long-term growth path

$$(Y_t = Y_0 e^{gt})$$



Monetary policy can shorten the duration of the downturn and reduce the amplitudes of the swings.

# Excessive cyclical movement of money leads to booms and busts

- Economic booms and busts can be attributed to **excessive** expansion and contraction of monetary aggregate, i.e., money supply, credit, and monetary base.
- In a **mild** cycle, without excessive cyclical movements of money, output growth oscillates around its rising trend: there is *no system-wide financial crisis*.

# Severe business cycles

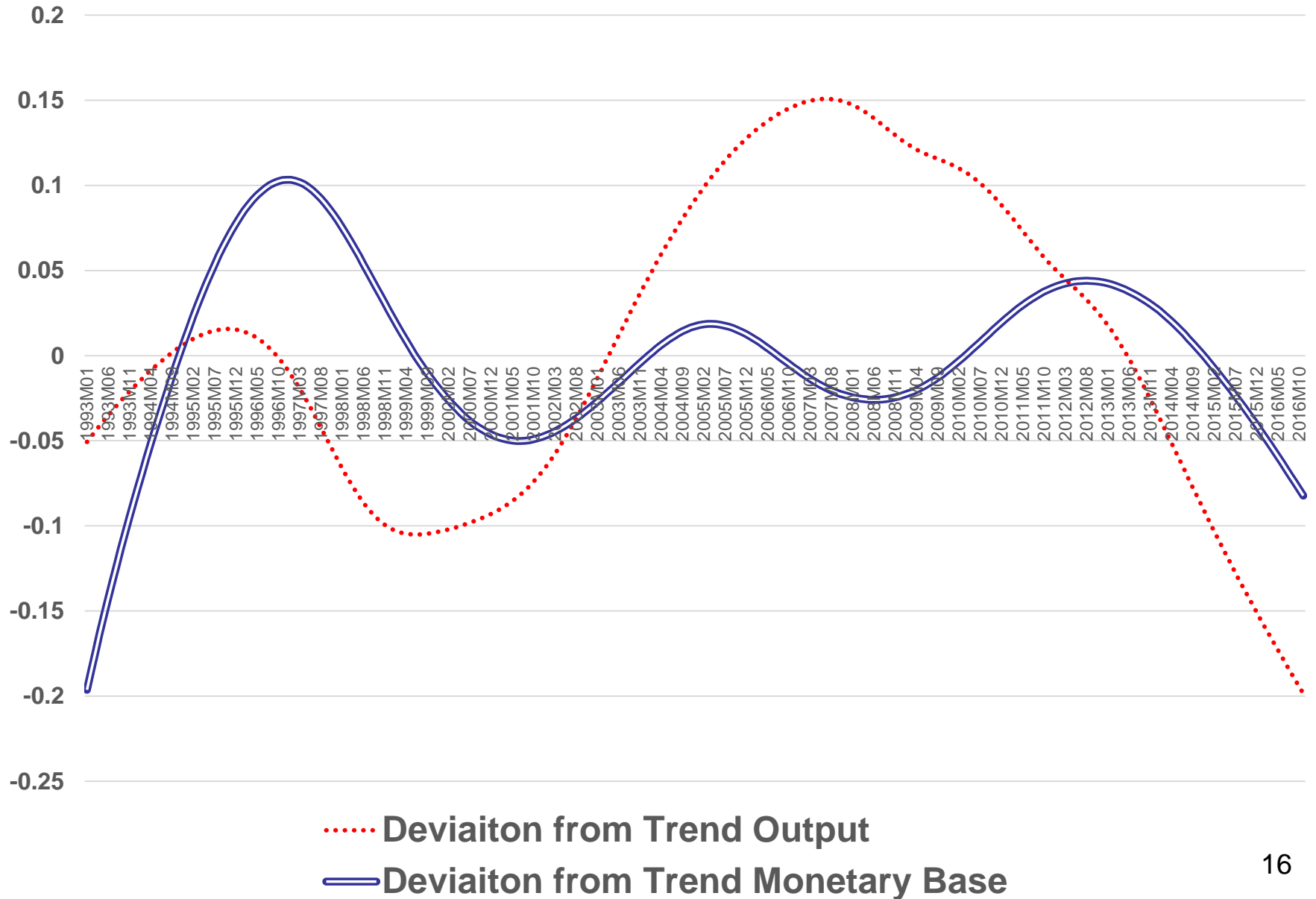
- In **severe** cycles, the soundness of the **whole** financial system is threatened.
- In this situation, we are dealing simultaneously with financial crisis and output depression.
- **Excessive growth** of money supply and its sharp reduction lead to wild swings in the business cycle.

- We observe a remarkable **positive relationship** between the degree of the cyclicalness of output and monetary aggregates (base money) in Figure 8.2.
- When base money exceeded its long-run trend, output also expanded at a rate faster than its normal growth path
- Similarly, when monetary aggregates contracted below their long-run trend, output growth slowed to beneath its trend.

# Lag impacts of monetary growth

- Peaks of monetary growth (lagged five months) were associated with peaks in manufacturing output; the deepest contraction in output synchronized with a trough in monetary cycles.
- The lead-lag relationship of two variables gives us a clue to the direction of causation.
- Statistical evidence supports the notion that money supply growth affects economic growth.
- Changes in output do not contain information useful for predicting the future movement of monetary aggregates.

# Figure 8.2: Output and Monetary Base Deviations from their trends (1993-2018)



# Output responses to cyclical movement in base money

- When the monetary base grew excessively over its long-term trend, output growth would expand at the rate faster than its average growth rate.
- When the monetary base contracted below its normal growth path, the economy experienced a downturn.

# From peaks to troughs of business cycles

- The peaks of monetary growth coincide associated with the peaks in manufacturing output.
- Similarly, the deepest contraction in output synchronized with the trough in the monetary cycle.
- Monetary base changes have a substantial impact on output fluctuations.
- Cyclical movements in the *monetary base and credit growth rate* can be used to predict the cyclical movement in industrial output.

# Monetary policy Implications

- Both monetary and output cycles are related.
- Shocks in the financial sector can be transmitted into the real sector and vice versa.
- The implication for stabilization policy is that monetary authority should ***avoid large swings*** in monetary aggregate.

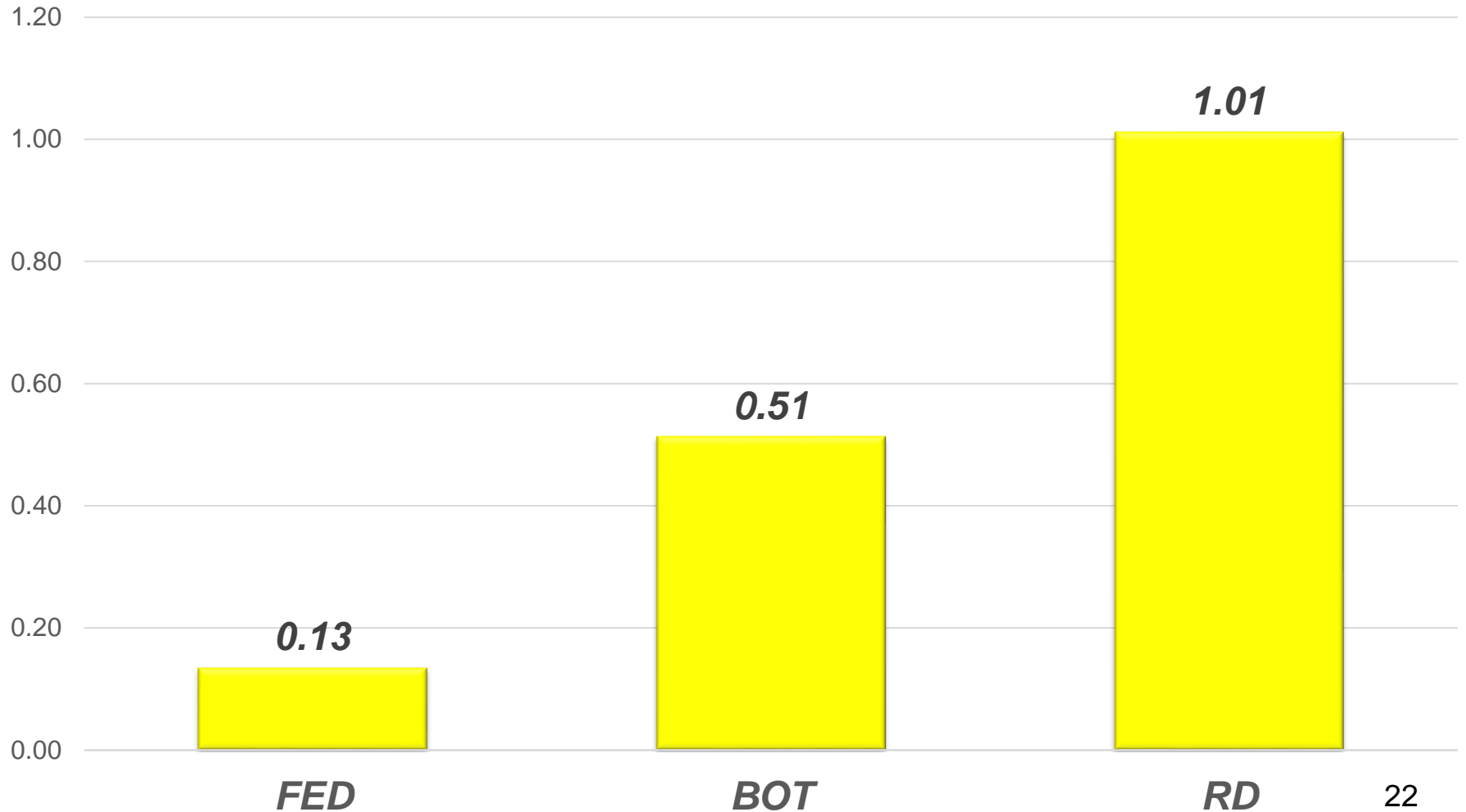
# Monetary policy strategy for stable growth

- The monetary base must be kept in line with output growth to maintain a stable growth path.
- There is at least *five months lag* impact of monetary expansion on output level.
- Monetary base affects money supply, and credit through money and credit multipliers.

## 2. Monetary policy transmission Channels: (1) interest rates

- Monetary policy instrument maybe effective if it can change the cost of capital.
- Whether the interest rate can exert an immediate impact on the real economy depends on the ***responsiveness of consumption and investment*** to the user cost of capital.
- That responsiveness depends mainly on the ***business confidence.***

**Figure: 8.7 Factors affecting MLR**  
**Interest rates: Federal funds, BOT repurchase, and**  
**bank saving deposits (RD)**  
**Source: FMOLS Estimated coefficients**  
**(Jan 1993-June 2017)**



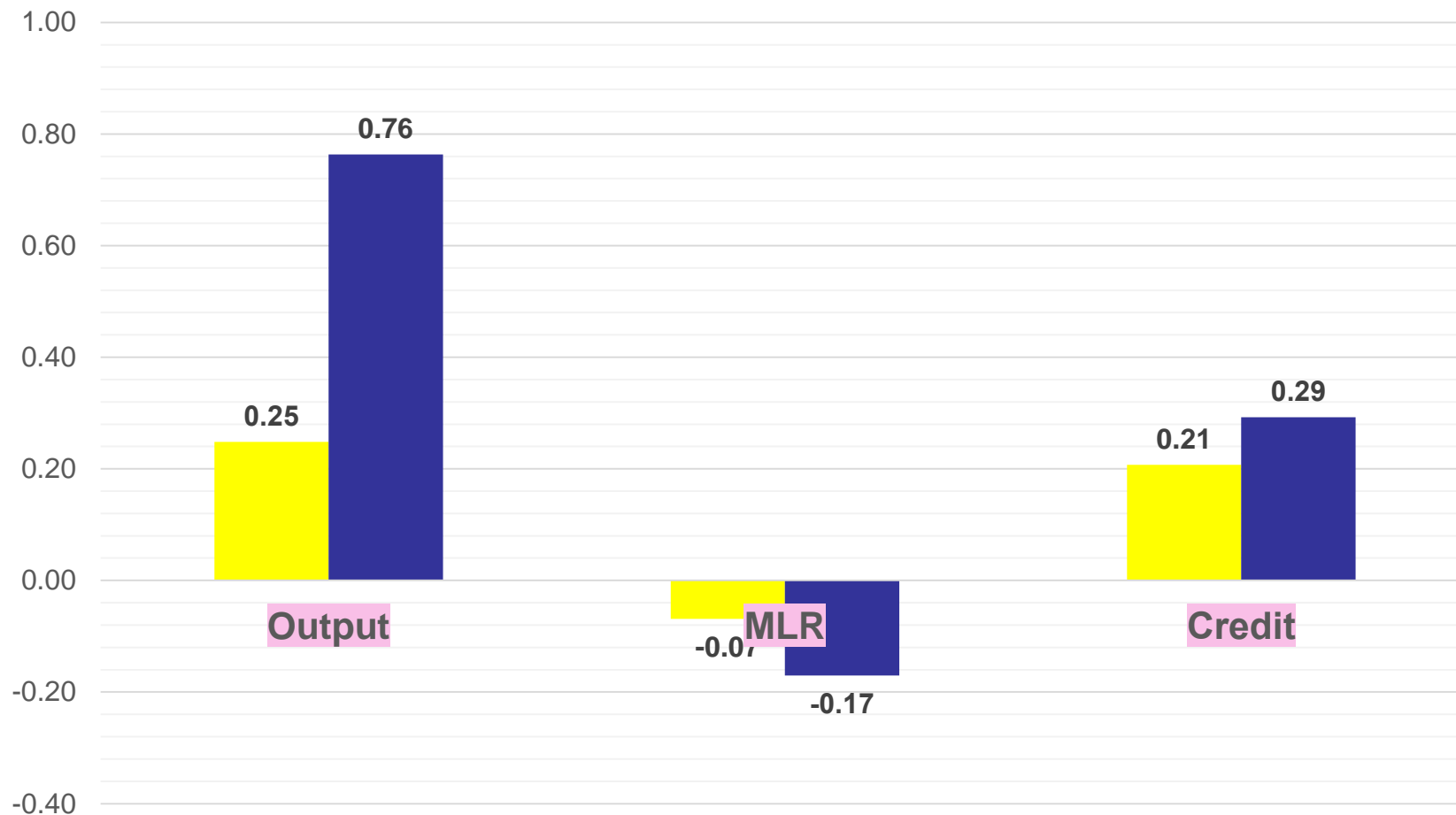
# Monetary policy transmission channel:

## (2) Credit availability channel

- It is not just the cost, but also the availability of credit.
- It is possible that the quantity of credit or credit availability is also vital to investment and durable consumption.
- But ***credit booms often end badly*** – and China is in the grip of a major one.

Figure 8.11: **Elasticities of Consumption and Investment** expenditures (trend)  
Source: FMOLS estimates (Jan 2000-June 2017)

■ Consumption ■ Investment



# IMF: Credit-to-GDP Ratio

## Risk of a financial crisis

- It is impossible to know the “appropriate” level of credit to GDP ratio.
- This ratio depends on the diversity of the financial system and the maturity of its banks, which itself is dependent on such factors as the **domestic regulatory environment, and culture**.
- *Rapid increases in credit is a telltale sign of deteriorating loan quality.*

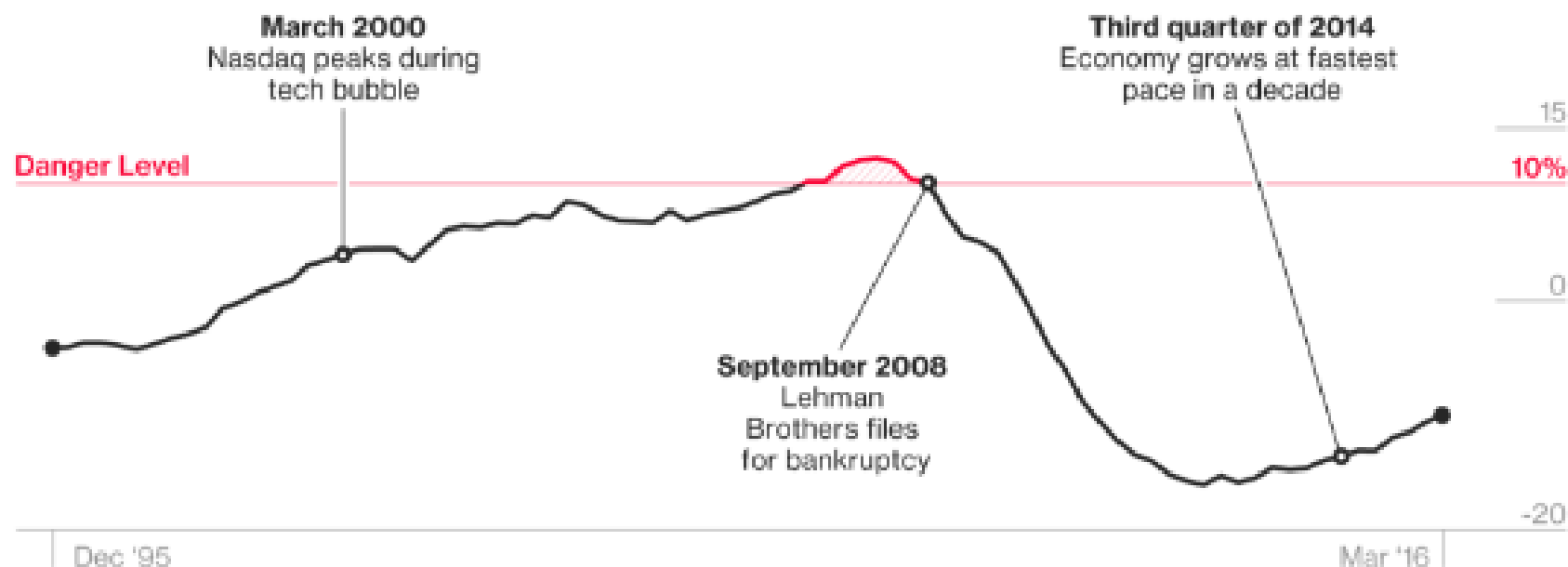
# The higher the Credit-to-GDP Ratio, higher risk of a financial crisis

- IMF researchers have found that increases in the credit to GDP ratio in **excess of 5 percentage points** in one year were associated with a heightened risk of a financial crisis.
- In Emerging Market (EM) aggregate, the credit ratio has increased about 25%-pts since 2008, or 4% per annum for six years straight.
- Importantly, the ratio **only** reflects bank loans, but **non-bank lending** also has been strong in some countries.

Nordic and Japanese crises in the late 1980s and early 1990s followed blow-outs and, likewise, the data flashed red for the U.S. during that country's boom, which morphed into the global financial crisis

## U.S. Financial Meltdown followed excessive monetary growth

### U.S. Financial Meltdown



Interest Rate in the U.S: A record low of 0.25 percent in December of 2008.

# 3. Inflation Targeting

- An **independent** central bank is a condition for successful inflation targeting.
- Inflationary expectations can be reduced, thanks to the credibility of monetary policy enhanced by both institutional and instrumental independence of the central bank.
- As more countries have abandoned fixed exchange rates ( $P^T = e^- \cdot P^{\$}$ ), previously
$$\pi^{Thai} = \pi^{US}$$

Set inflation Target =  $\pi^*$

Countries which abandoned the fixed exchanged rate desperately need a **nominal anchor** for the price level, since  $P^T = \tilde{e} P^{\$}$

$$\pi^{Thai} = \pi^*$$

# Taylor rule and inflation target: $\pi^*$

$i$  = Nominal interest rate set by the BoT as the key policy rate

Recall Fisher equation:  $i = r + \pi^e$

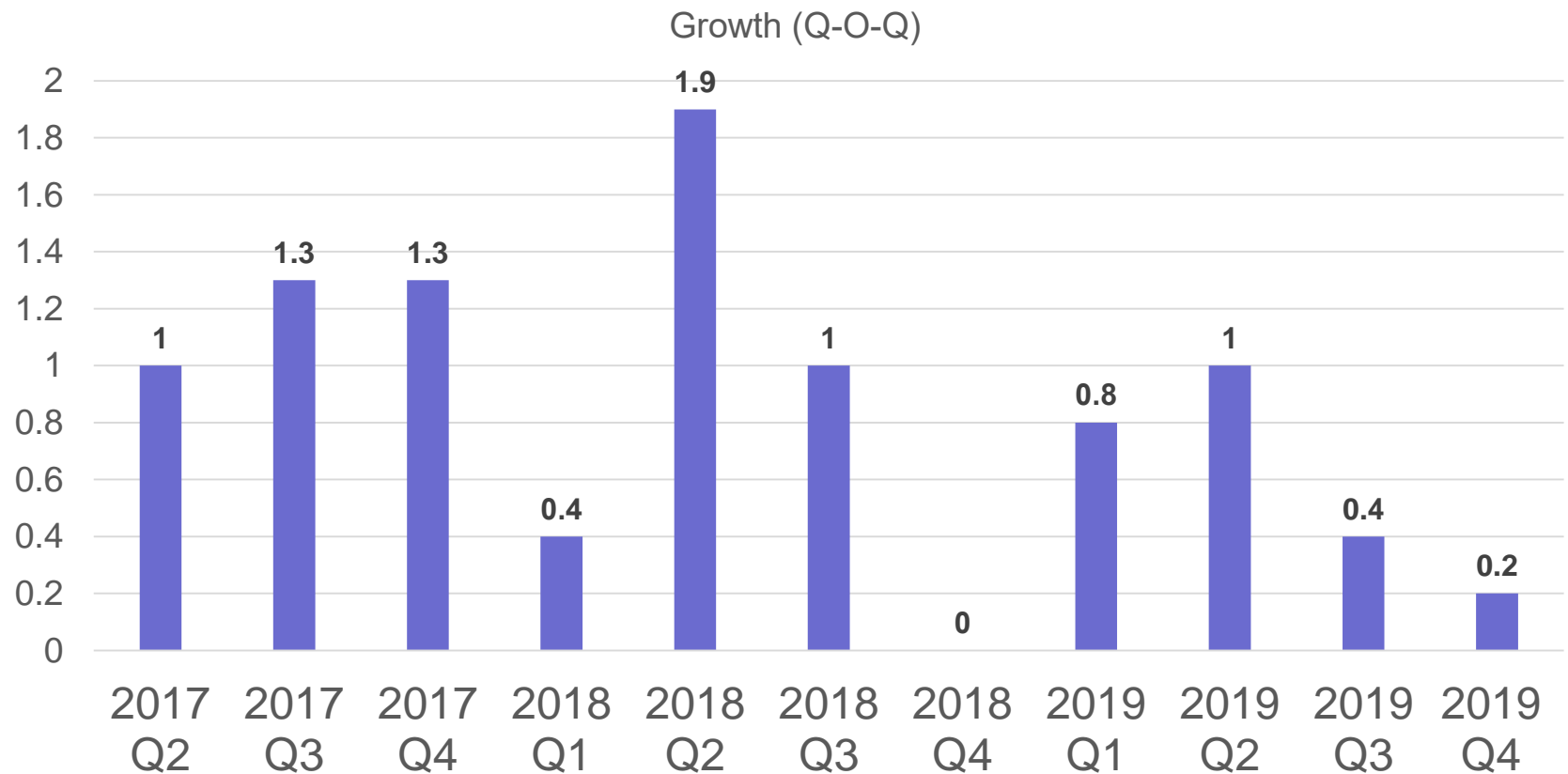
$$i_t = \rho + \pi_{t-1} + \phi_1(\pi_{t-1} - \pi^*) + \phi_2(y_t - y^p)$$

$\rho$  = the natural *real rate* of interest (constant)

$y^p$  = potential output

$\Phi_i$  = a positive reaction policy parameter

# Thailand's quarterly GDP growth



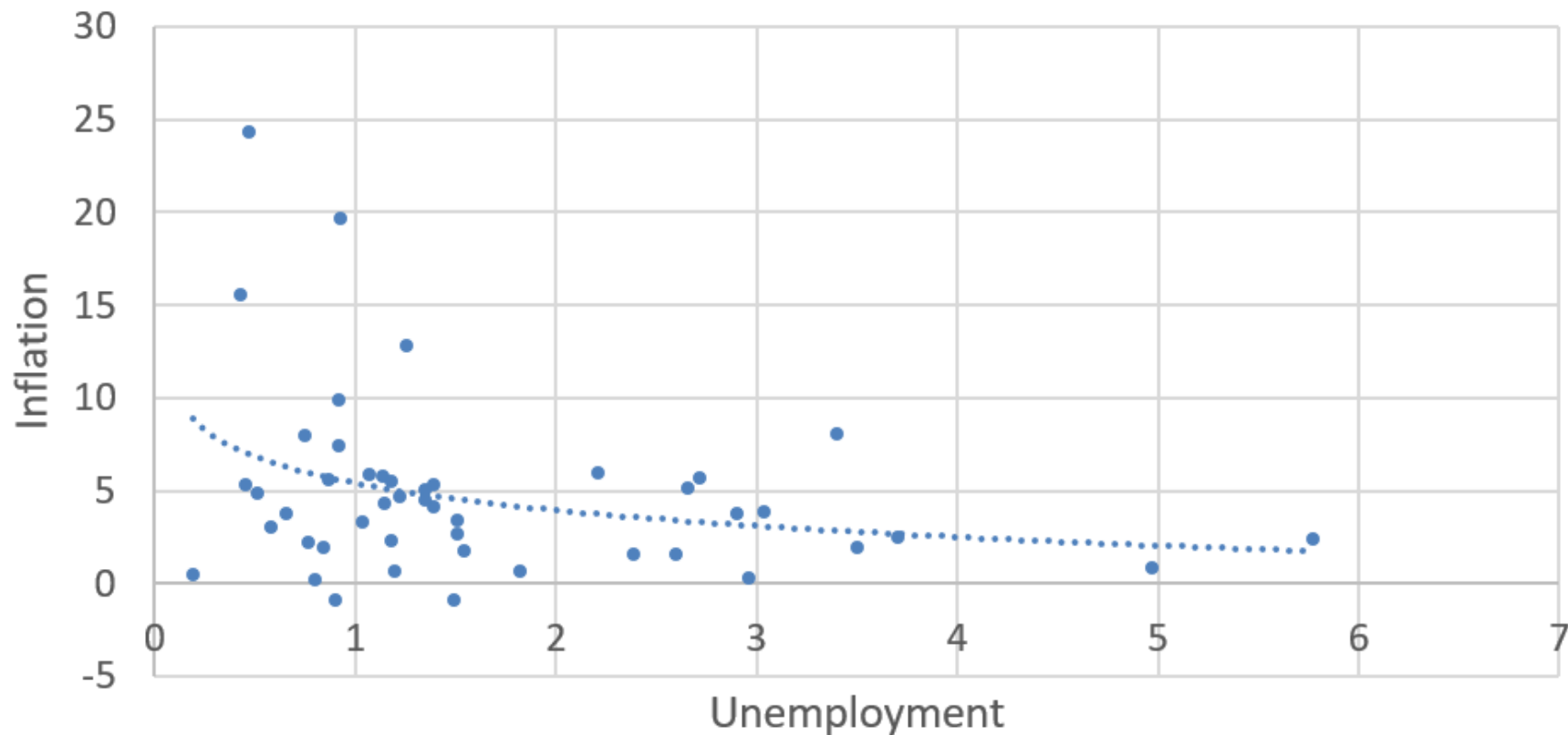
# Caveats on inflation targeting

- Adopting inflation targeting implies a commitment to no other nominal targets.
- But for countries that are highly dependent on external trade, ***inflation targeting is akin to targeting the exchange rate.***
- **When there is no close and stable relationship** between the short-run monetary instruments and long-term interest rates (due to underdeveloped bond market), a policy rule like Taylor's rule ***may not produce a desirable outcome.***
- In particular, if monetary policy has a long and variable lag effect.

# Why has the curve become flatter over the year?

Figure 8.4 The Phillips Curve: 1971-2017

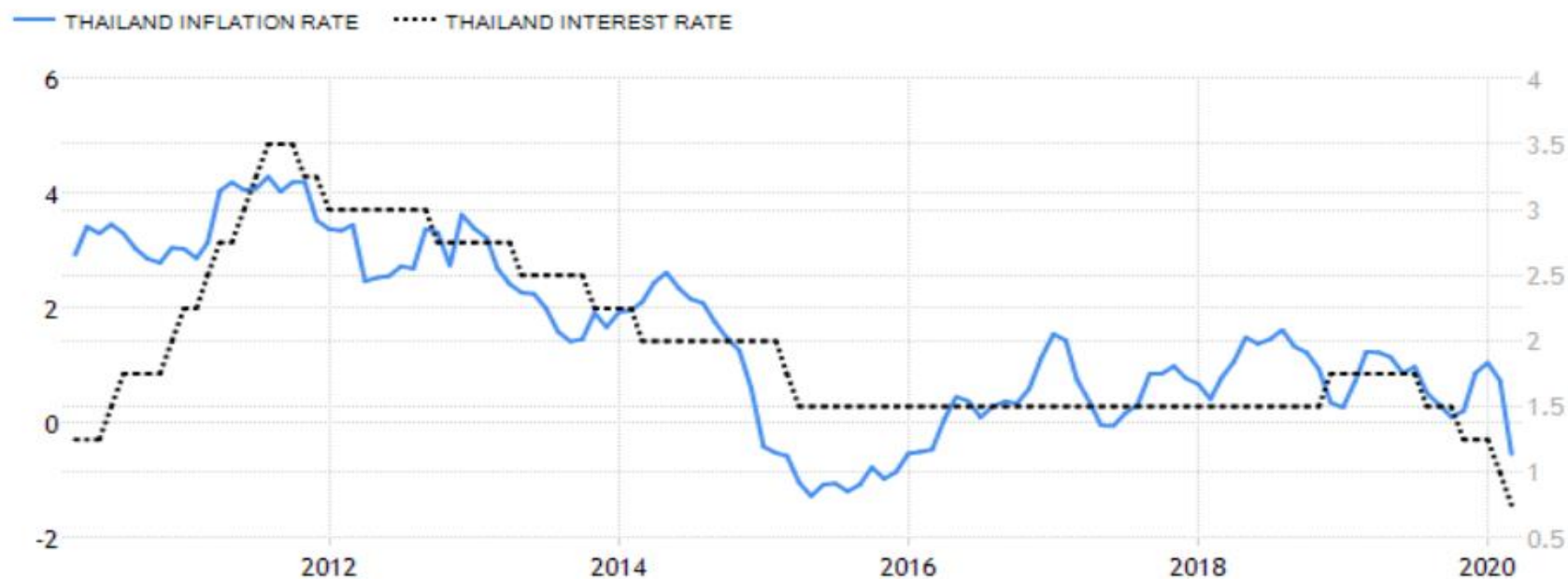
Source: Bank of Thailand



# *Flexible* inflation targeting strategy

- The central bank key interest rates responds to inflation ***and real exchange rate changes.***
- There had been an attempt to prevent the appreciation of the real effective exchange rates (fear of appreciation).
- How about property bubbles?
- Why not targeting stock and house prices?

Consumer prices in Thailand declined by 0.54 percent year-on-year in March 2020, compared with market expectations of a 0.6 percent drop and after a 0.74 percent rise in the previous month. This was the sharpest decrease in consumer prices since December of 2015



SOURCE: TRADINGECONOMICS.COM

# GDP growth will be -5.3% in 2020

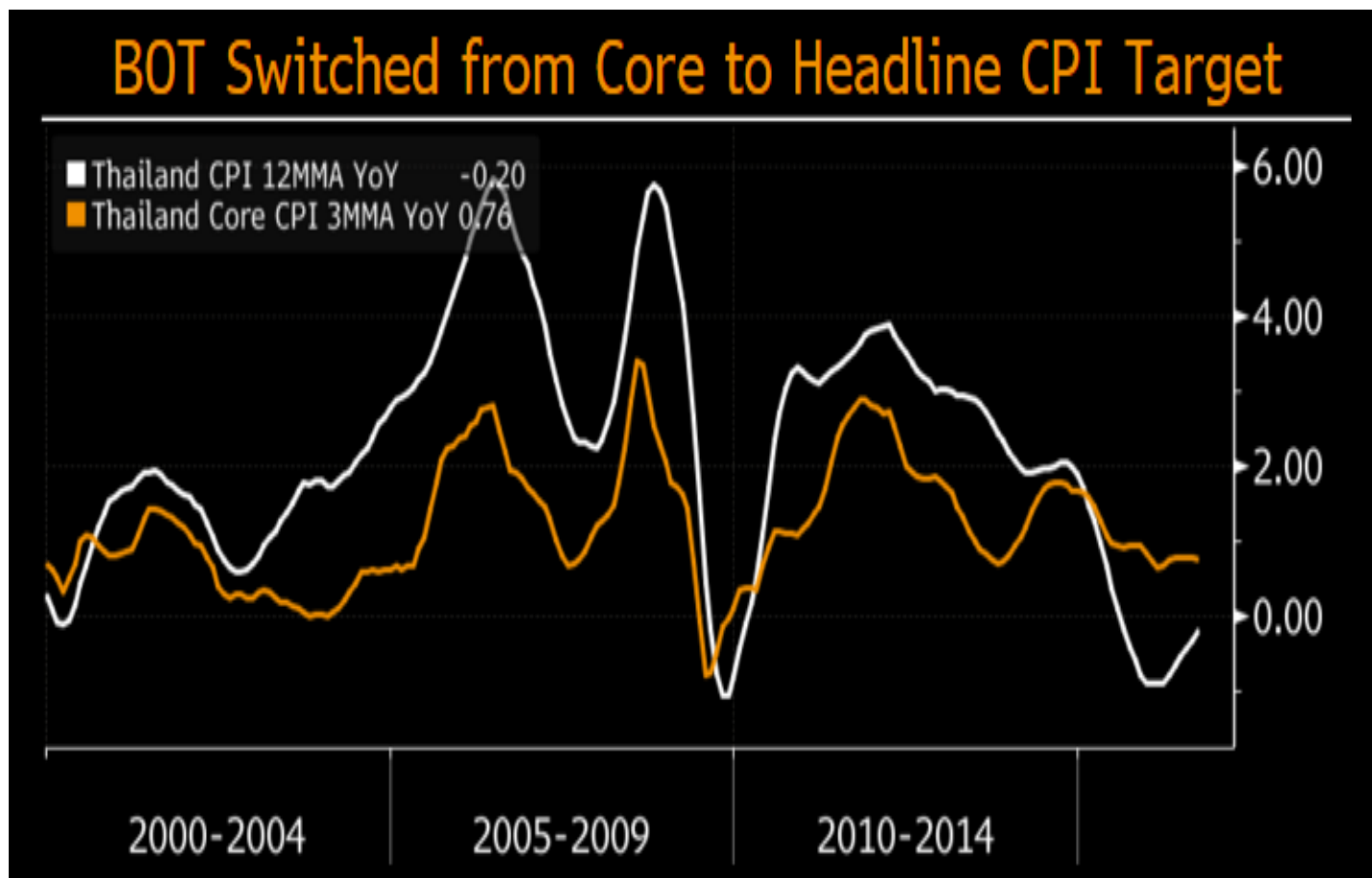
(prediction made by BoT in April 2020)

- The Bank of Thailand held its policy rate at 0.75 percent during its March meeting, defying market forecasts that suggested a fresh 25bps rate cut as the Covid-19 crisis escalates.
- Policymakers slashed interest rates by 25bps at an emergency meeting on March 20th, in an attempt to combat the impact of the pandemic on the economic outlook and domestic financial markets.
- Meanwhile, policymakers expect the Thai economy to shrink 5.3 percent in 2020, which would be the first contraction since the global financial crisis in 2009.

# BoT's Flexible Inflation Target

- The Bank of Thailand has a flexible inflation target framework, paying attention to both **economic growth** and ***financial stability***.
- The goal was previously defined as quarterly average **core inflation** in the range of 0.5-3% (2009-2014) and 0.0-3.5% (2000-2008).
- Since 2015, the objective has been annual average **headline inflation** of 2.5% +/- 1.5 ppt.
- Each year the target for the following period is set by the Monetary Policy Committee with agreement from the Minister of Finance and approval by the Cabinet.

In 2015, the headline inflation target was set at between 2.5 % and -0.5%



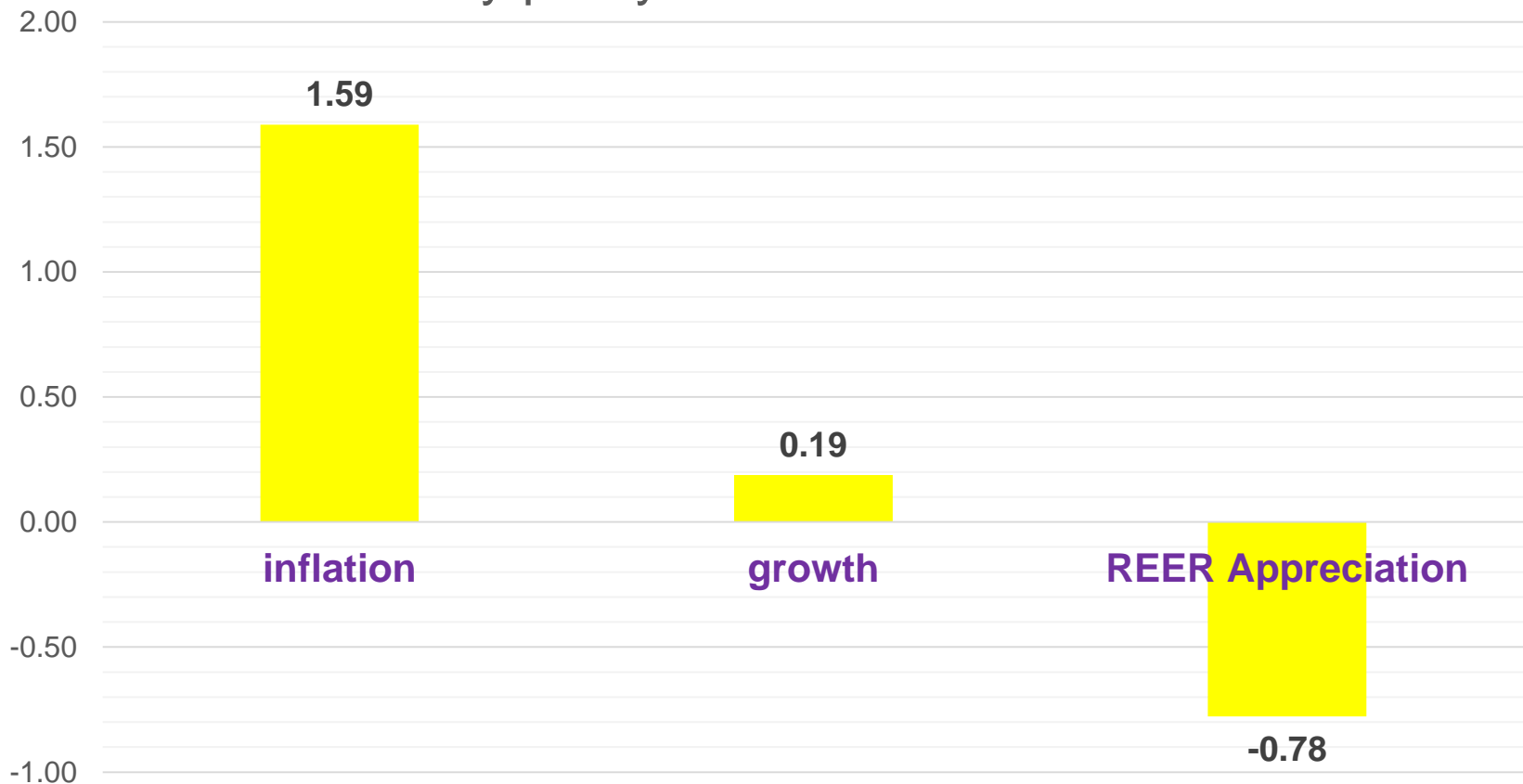
0.0% - 3.5%

0.5 - 3%

-0.5-2.5%

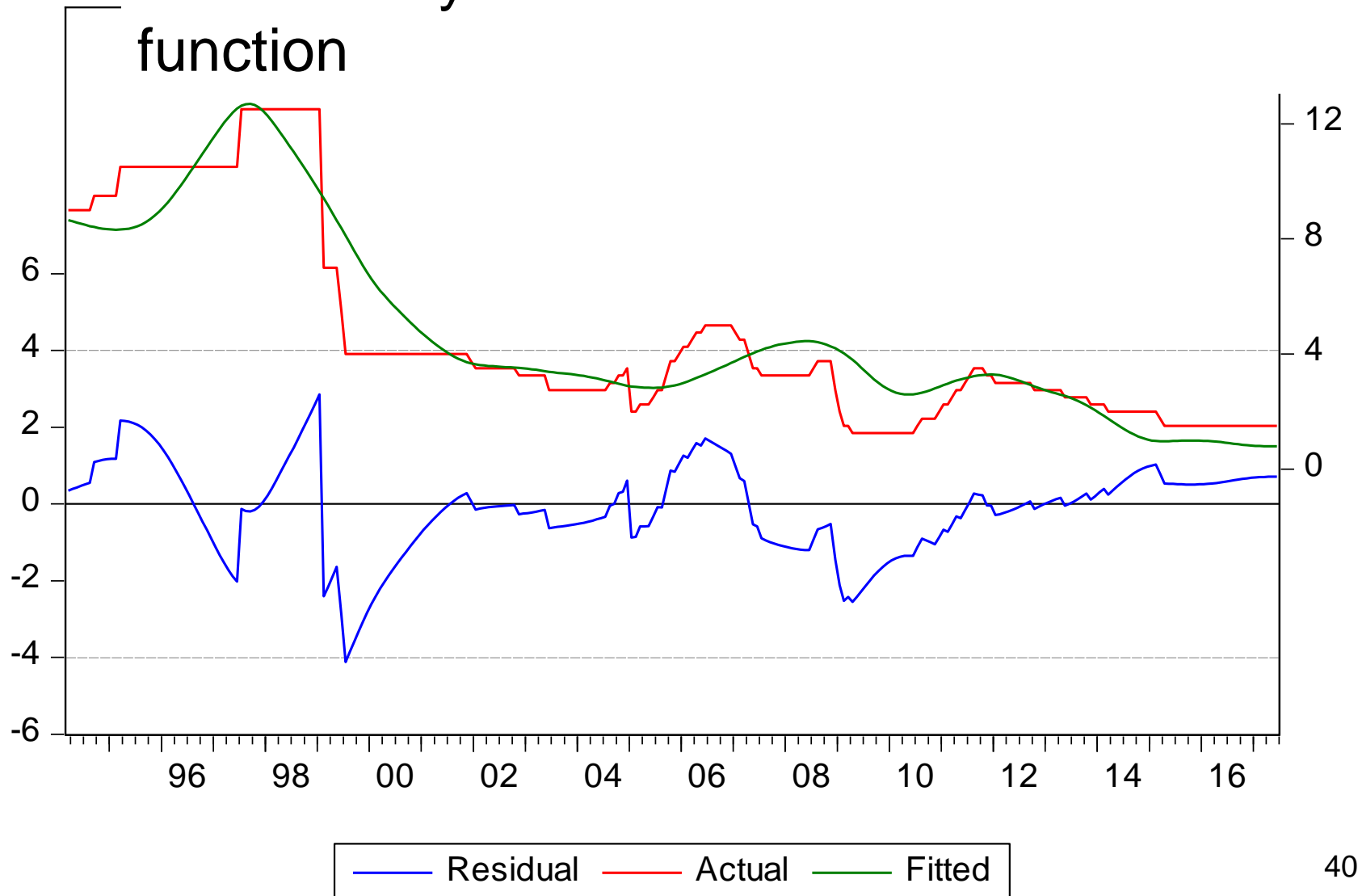
$$i_t = +\phi_1(\pi_{t-1} - \pi^*) + \phi_2(y_t - y^p) + \phi_3(e_t - e^*)$$

Figure 8.6 Normalized coefficients in the monetary policy reaction function

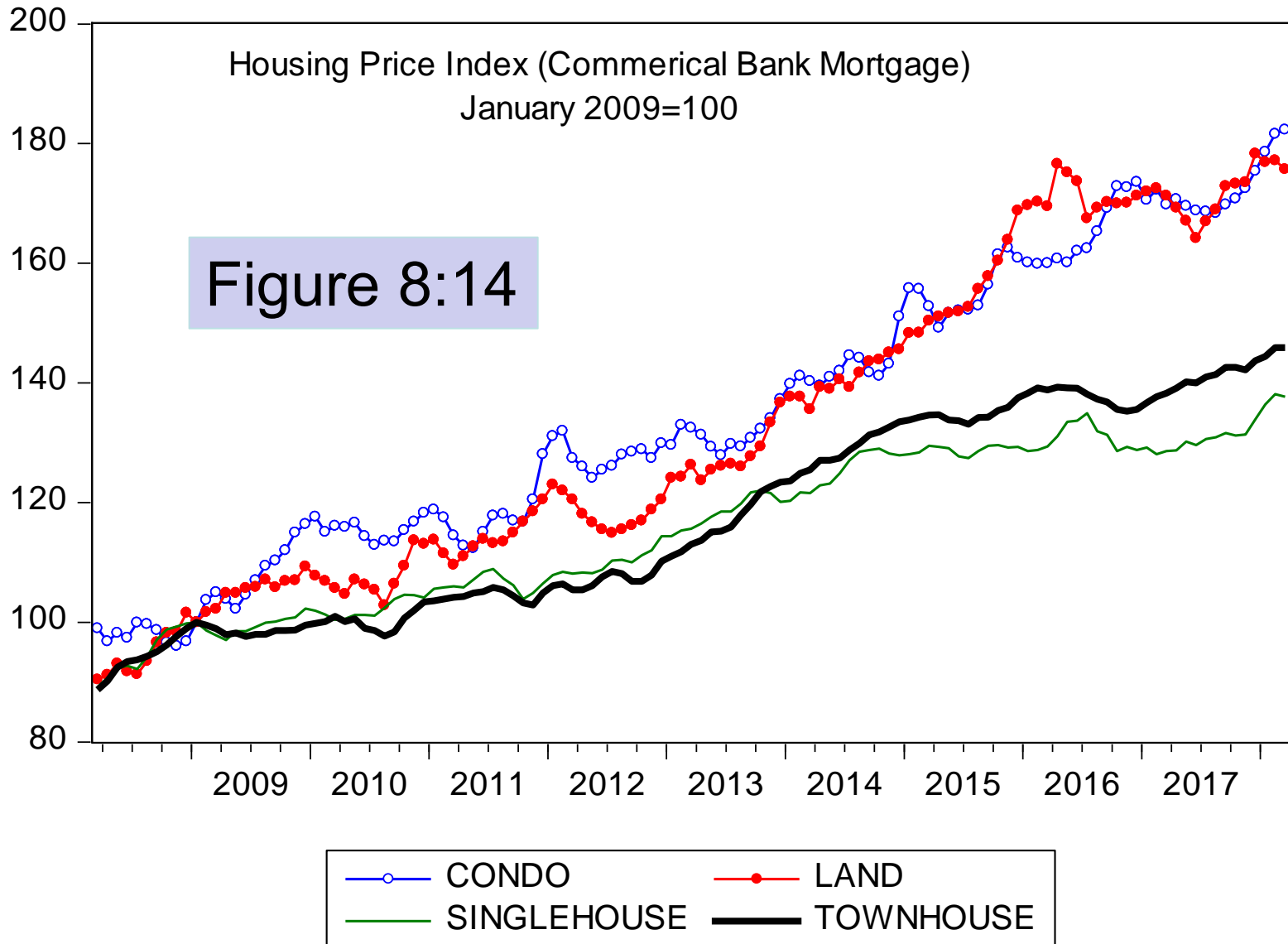


# Figure 8.5: Modeling BoT key policy rate

## How the Taylor model fits BoT reaction function



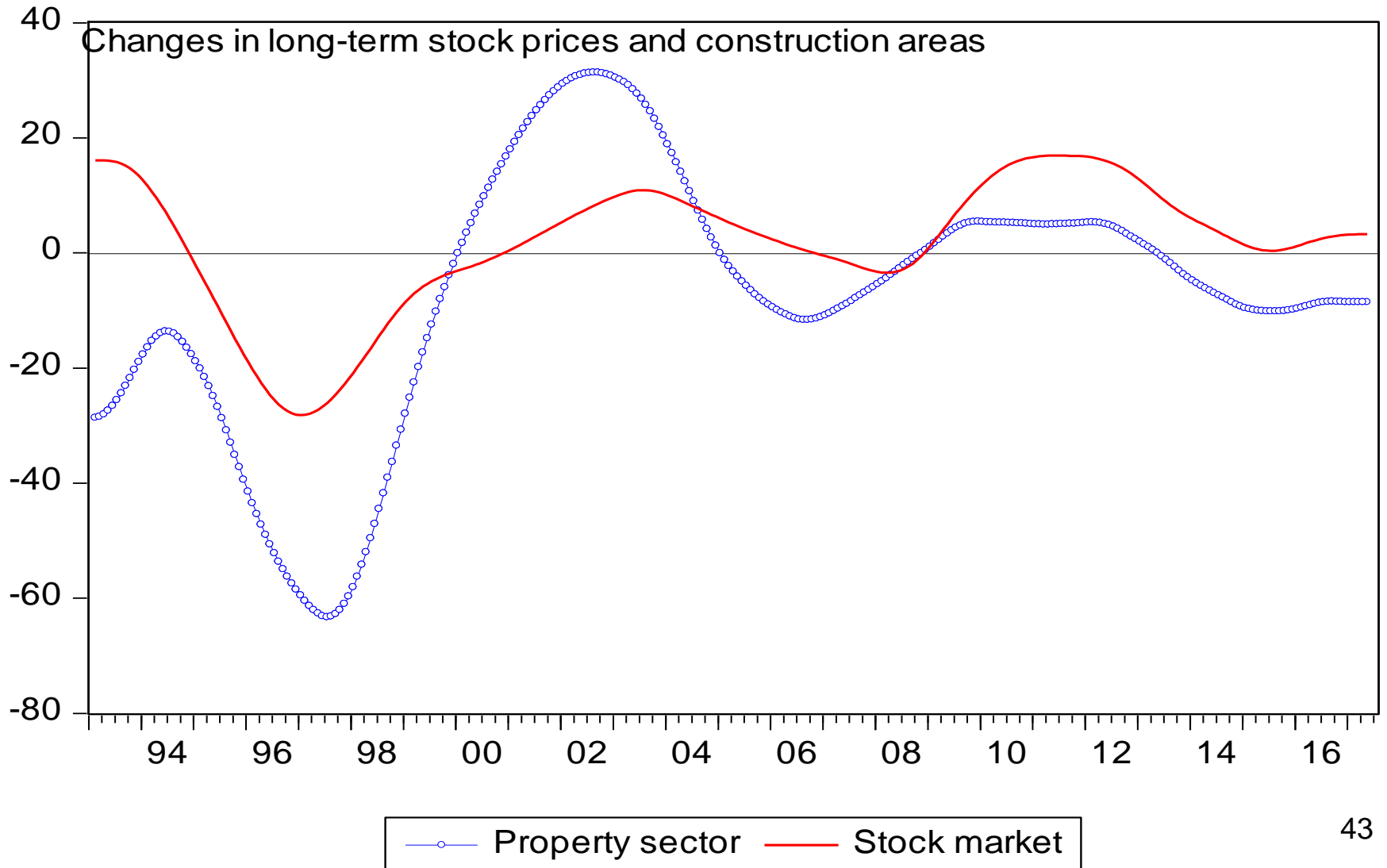
# 4. Asset price bubbles



# Approximation of hidden asset bubbles

- The size of the property bubble can be approximated by the **change** in the HP(Hodrick-Prescott Filter) trend of construction activity, represented by permitted construction in urban areas, lagged by six months.
- The size of the stock price bubble can be similarly captured by the **change** in the HP trend of the SET.

# Figure 8.12



# Selective control measures

- We can predict the property bubble from speculative activities in the stock market.
- Measures to curb stock market speculation are necessary to prevent bubbles in the property sector.
- It does not imply that the stock market index should be included in the monetary policy reaction function.
- Selective control measures may be used directly to stamp out speculative lending in the stock market.

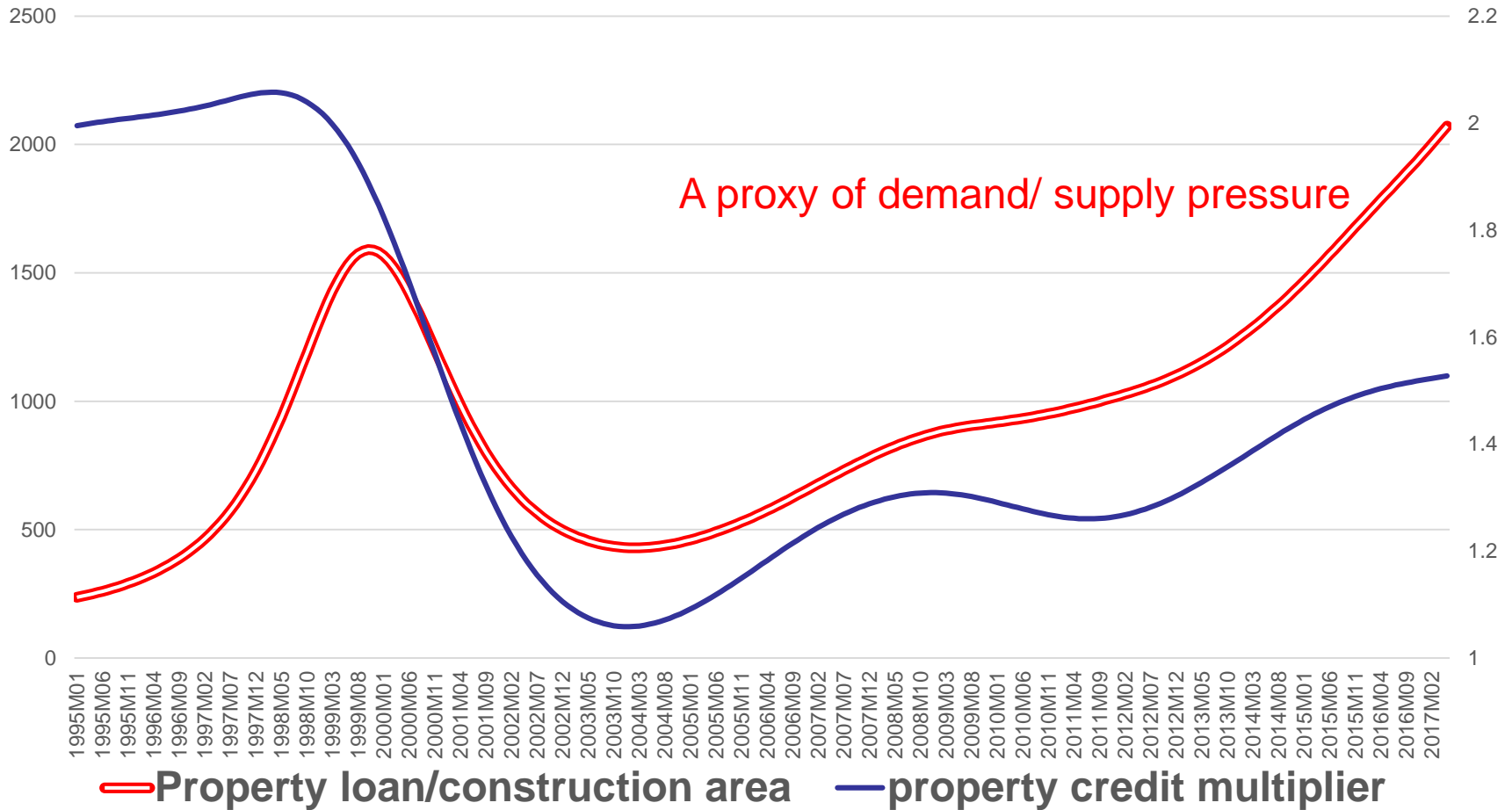
$$Credit = \kappa MB$$

$$MB = NFA + CoG + CoF$$

$$\kappa = \kappa(\bar{R}, r_L, \bar{r}_p, \psi)$$

Prior to the economic crisis in 1998, there was excessive lending, which can be captured by the rapidly rising **credit multiplier**.

# Figure 8.13: Excessive Expansion in Property Credit



# An early warning indicator

- Property credit multiplier increased abnormally high during speculative bubbles.
- We can monitor the financial sector by using the credit multiplier as an early warning indicator for over-lending.
- Recall the IMF hypothesis on  $\Delta(\text{credit}/\text{GDP})$  growth and Frederick Hayek's hypothesis.

# The central bank can prick the bubble by controlling the credit multiplier

- Rising bank minimum lending (MLR) rate increases the credit multiplier, while the BOT's lending rate reduces it.
- There is a significant degree of inertia in bank lending.
- When interest rate is high, commercial banks are willing to take more risk to obtain higher returns from their assets, which later on become NPAs.
- If the Bank of Thailand raises the interest rate on its lending facilities, banks would be discouraged in lending, thereby causing a decline in the credit multiplier.
- When the Fed reduces the funds rate, the BoT faces a *policy dilemma*.

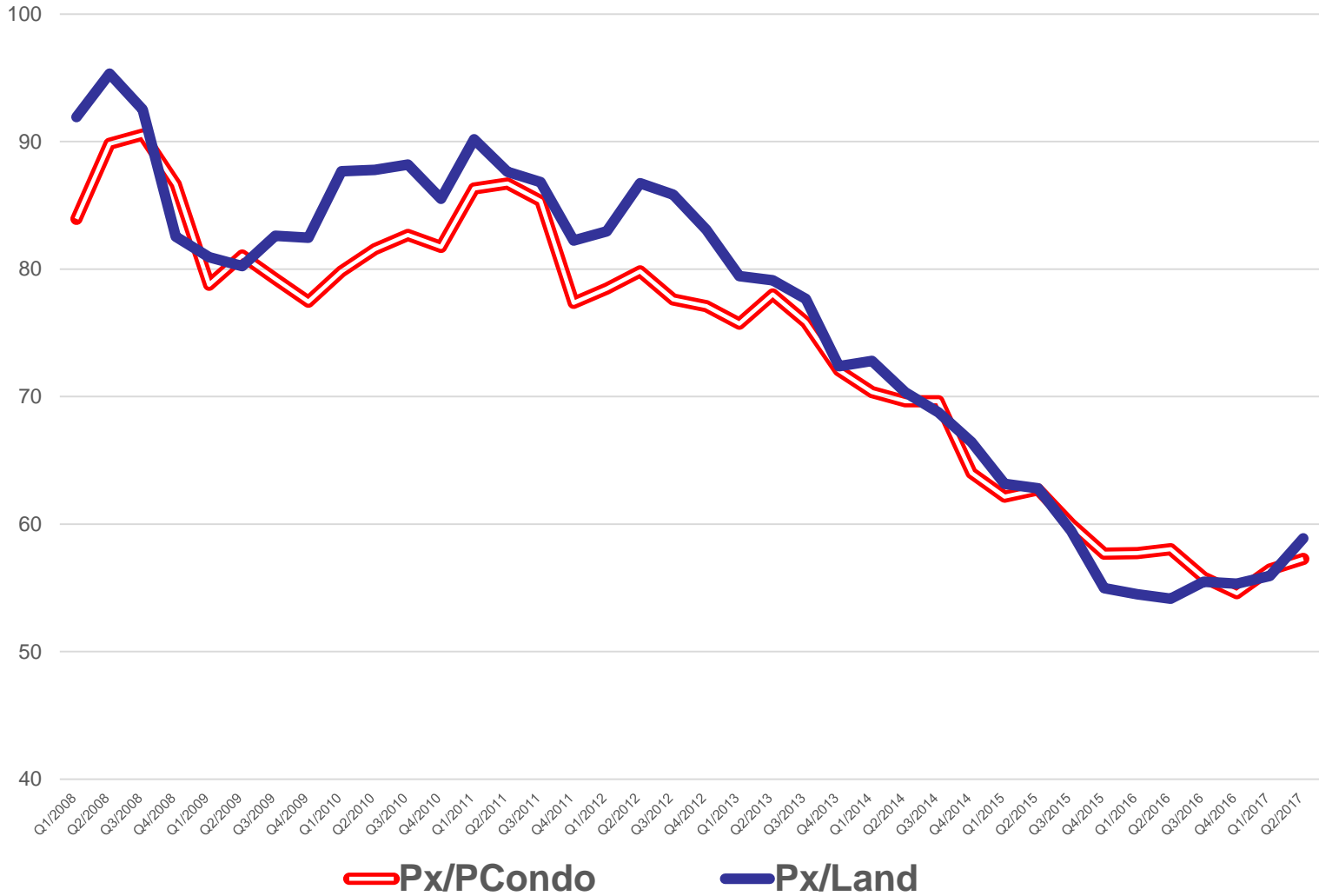
# The root cause from the supply side: Slow supply adjustments

- Quantity demand adjusts *faster* than the quantity supply, thanks to the long gestation period of property development
- ***Downward price rigidity*** prevents market clearance.
- Expectations change rapidly, much more rapidly than the supply of property development.
- Property gluts are a natural consequence of credit booms.

# Figure 8.15 Index of the Dutch Disease

Export price-to-property price ratio

Source: Calculation based on BoT data



# October 2018

BIS has warned Thailand: Bangkok condominium price has gone up 78% from the last decade.

The Median Loan-to-income ratio went up 3.8 times.  
Housing loans are the only consumer loans where NPLs are rising.

Mortgages account for 17 % of total loans.  
Housing NPLs went up to 3.4% in June 2018.

By imposing the maximum Loan-To-Value ratio (LTV) and the loan-to income-ratio (LTI), the central bank  
This is an example of macroprudential policy of the Central bank.

# Thailand's richest man is building Bangkok's tallest skyscraper

- “It embodies what our company aims to do -- set new trends and lift the benchmark,” said Asset World’s Chief Executive Officer and Charoen’s daughter, Wallapa Traisorat.
- The skyscraper will be a “new landmark” and draw more visitors to Thailand.
- Recall the *skyscraper effect* hypothesis

Standing at 318 meters, the Magnolias Waterfront Residences at IconSiam is Thailand's tallest building.



April 2020

## Thailand's richest man is building Bangkok's tallest skyscraper

- The planned construction, however, comes at a difficult time for the Southeast Asian nation's property and tourism markets.
- Bangkok is facing an apartment glut with 100,000 empty units and more to come.
- ***And Chinese investors, who for years have propped up the real estate sector, are staying away because of the travel curbs and economic havoc caused by the coronavirus.***

January 21, 2020

## **BoT relaxes LTV rule for mortgages**

*Central bank tweaks debt-servicing period*

- The Bank of Thailand is easing loan-to-value (LTV) regulations governing mortgage lending, shortening the minimum debt-servicing period for first mortgages for those seeking a second for homes priced below 10 million baht.
- Another tweak is lowering the minimum down payment for first mortgages for homes valued 10 million baht or more.

# Failure to resuscitate

- Those who buy residences valued less than 10 million baht and apply for a first mortgage are also allowed to take out a top-up mortgage of up to 10% on top of the housing loan, constituting as much as 110% for the mortgage bundled with the top-up.

# NEW LOAN -TO-VALUE REGULATIONS



Home price	Number of mortgage contracts	Minimum down payment	
		New	Previous
< 10 million baht	■ First	- No minimum requirement but borrowers can seek home loan up to 110% if that top-up mortgage is included	- No minimum requirement but the loan was capped at 100% if a top-up mortgage was included
	■ Second	- 10% if the first mortgage has been paid $\geq$ 2 yrs - 20% if the first mortgage has been paid for < 2 yrs	- 10% if the first mortgage has been paid for $\geq$ 3 yrs - 20% if the first mortgage has been paid for < 3 yrs
	■ Third and Subsequent	30%	30%
$\geq$ 10 million	■ First	10%	20%
	■ Second	20%	20%
	■ Third and Subsequent	30%	30%

# Concluding remarks

- It is desirable and possible to prick the bubble by using a tight credit policy to curb excessive credit growth.
- Monetary policy is effective in stabilizing the economy, but it should be employed in line with the fiscal policy stance and take into account the impact of the exchange rate (when there is no FX intervention).
- Some novel goals of inclusive and quality growth require another policy mix to bring about the benefits of growth to the vulnerable.

# 5. QE and impacts on Thailand



*The Developing Economies* 54, no. 1 (March 2016): 80–102

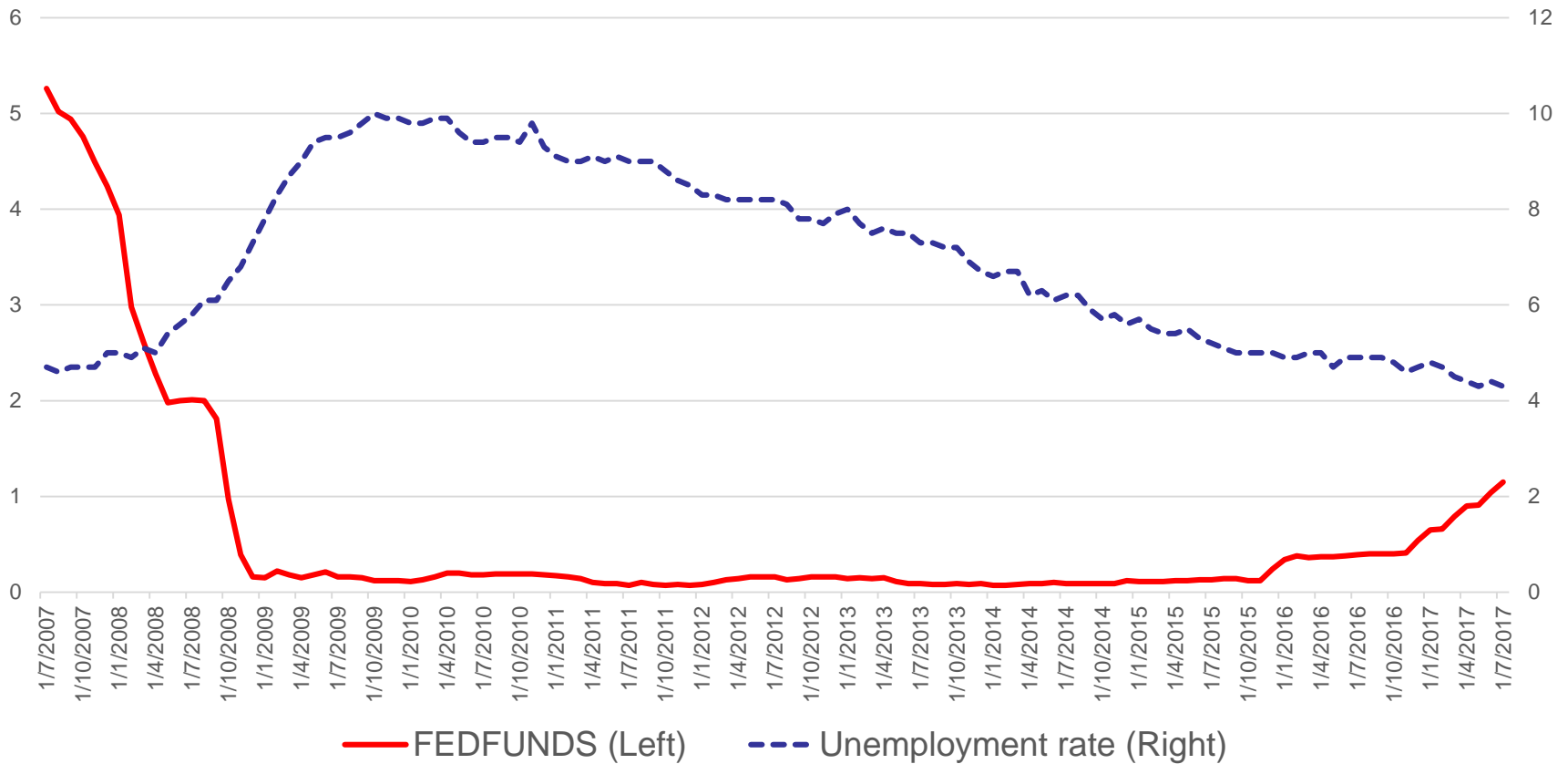
## IMPACTS OF QUANTITATIVE MONETARY EASING POLICY IN THE UNITED STATES AND JAPAN ON THE THAI ECONOMY

BHANUPONG NIDHIPRABHA\*

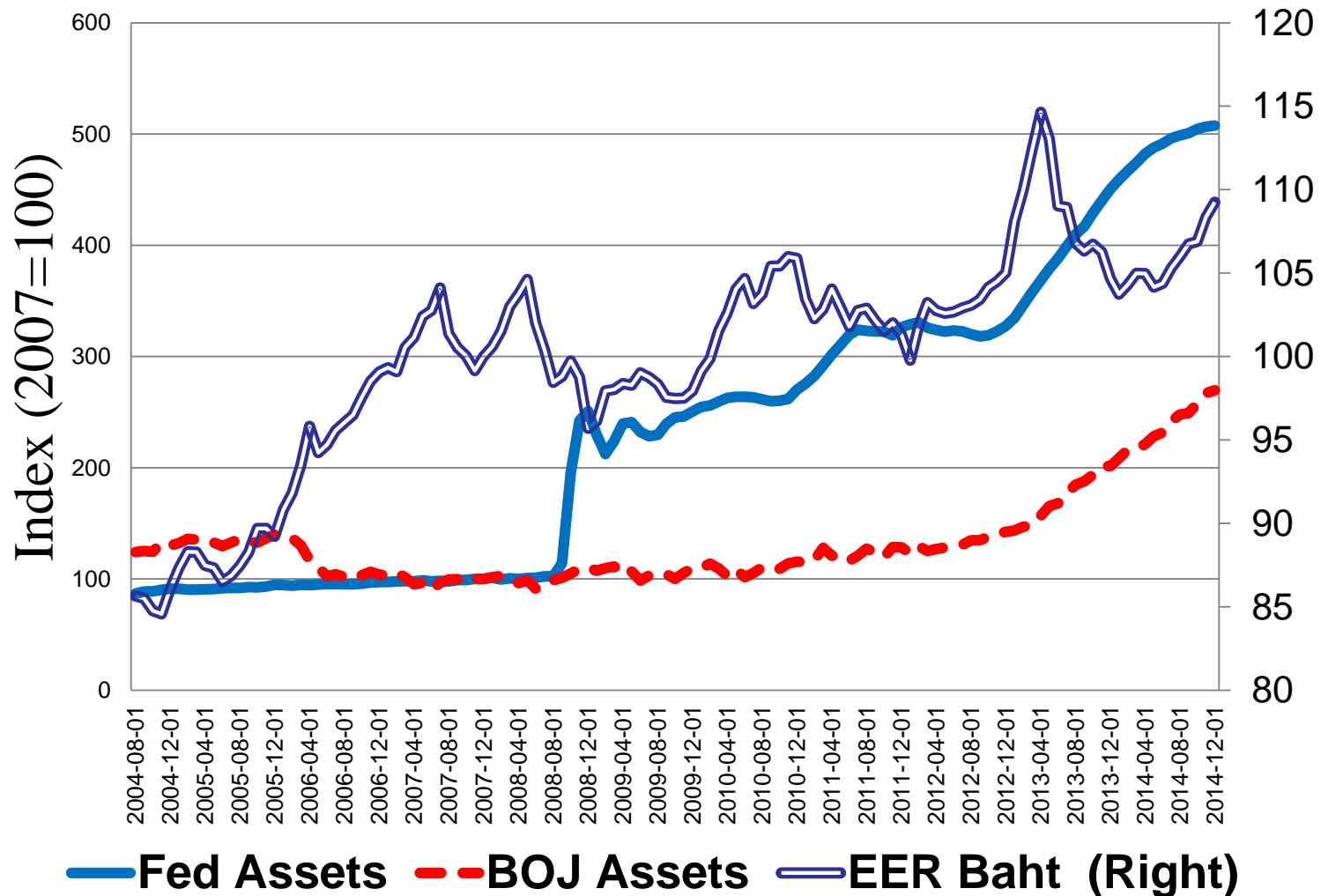
*Department of Economics, Thammasat University, Bangkok, Thailand*

# Taylor's rule is an activist rule

## The Fed and Unemployment Rate



# Quantitative Easing (QE) Index and Thailand's international Competitiveness: Broad Real Effective Exchange rate (EER)



# Conclusions

This paper compares and contrasts the impact of quantitative easing (QE) monetary policy conducted by the Federal Reserve Bank and the Bank of Japan on the Thai economy. The impact of the first round of QE policy is related to Thailand's export market exposures, trade, and financial linkages with the United States and Japan. In the short run, QE has either an expansionary or contractionary effect on Thailand's output depending on whether the baht depreciates or appreciates against the US dollar and the Japanese yen. In the long run, when QE stimulates world output expansion, Thailand's manufactured output and exports respond positively to world economic recovery. In the medium run, the impact of QE is related to the appreciation of the Chinese yuan and the slowing of the Chinese economy, which further depresses Thailand's exports and prolongs Thailand's output recovery.

*Keywords:* Quantitative easing; Monetary policy; Emerging economies; Thai economy

*JEL classification:* E40, E58