

Monetary Policy Strategy for long term growth and price stability

Bhanupong

Lecture 24

Chapter 8

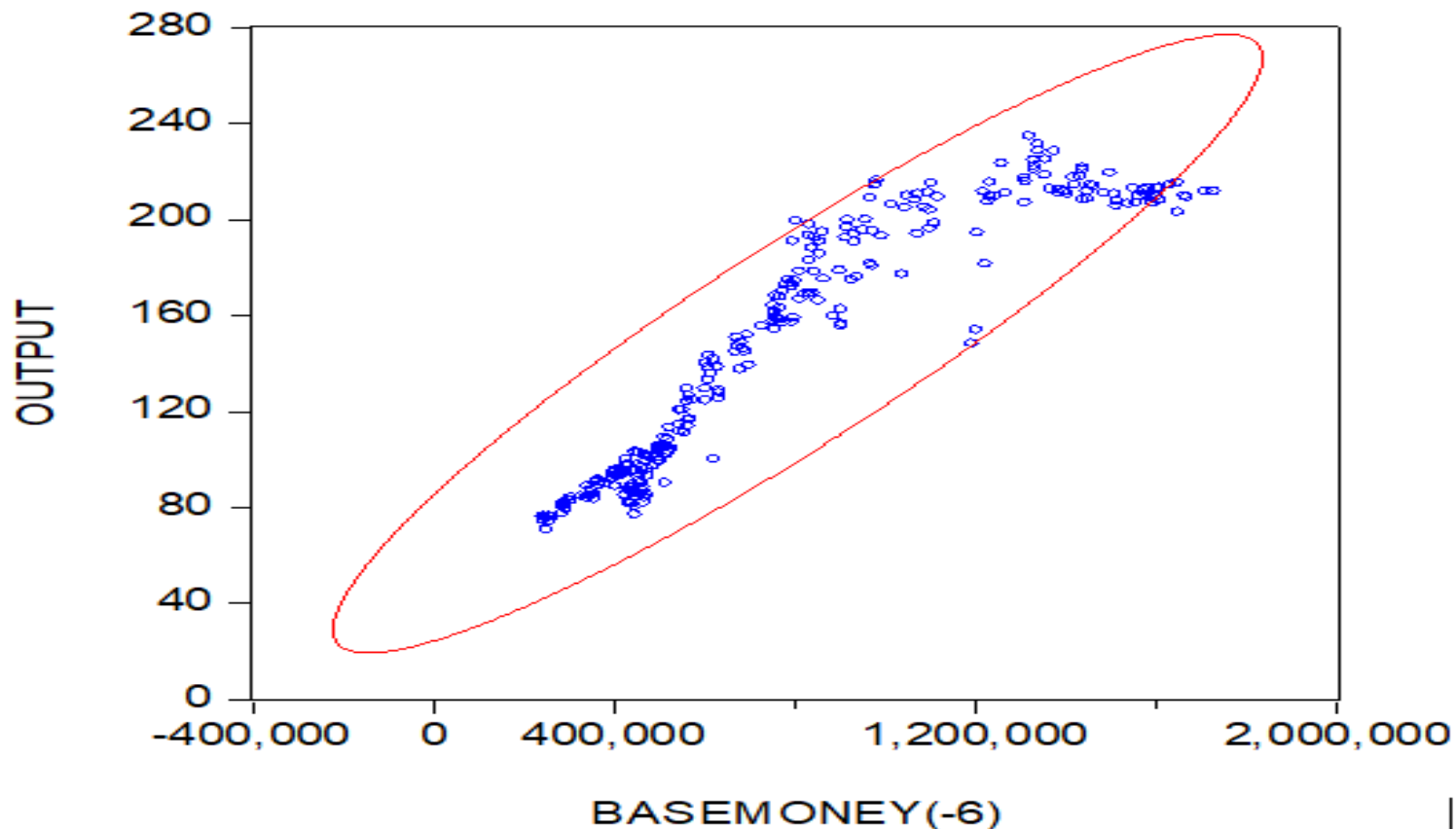
Outline

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

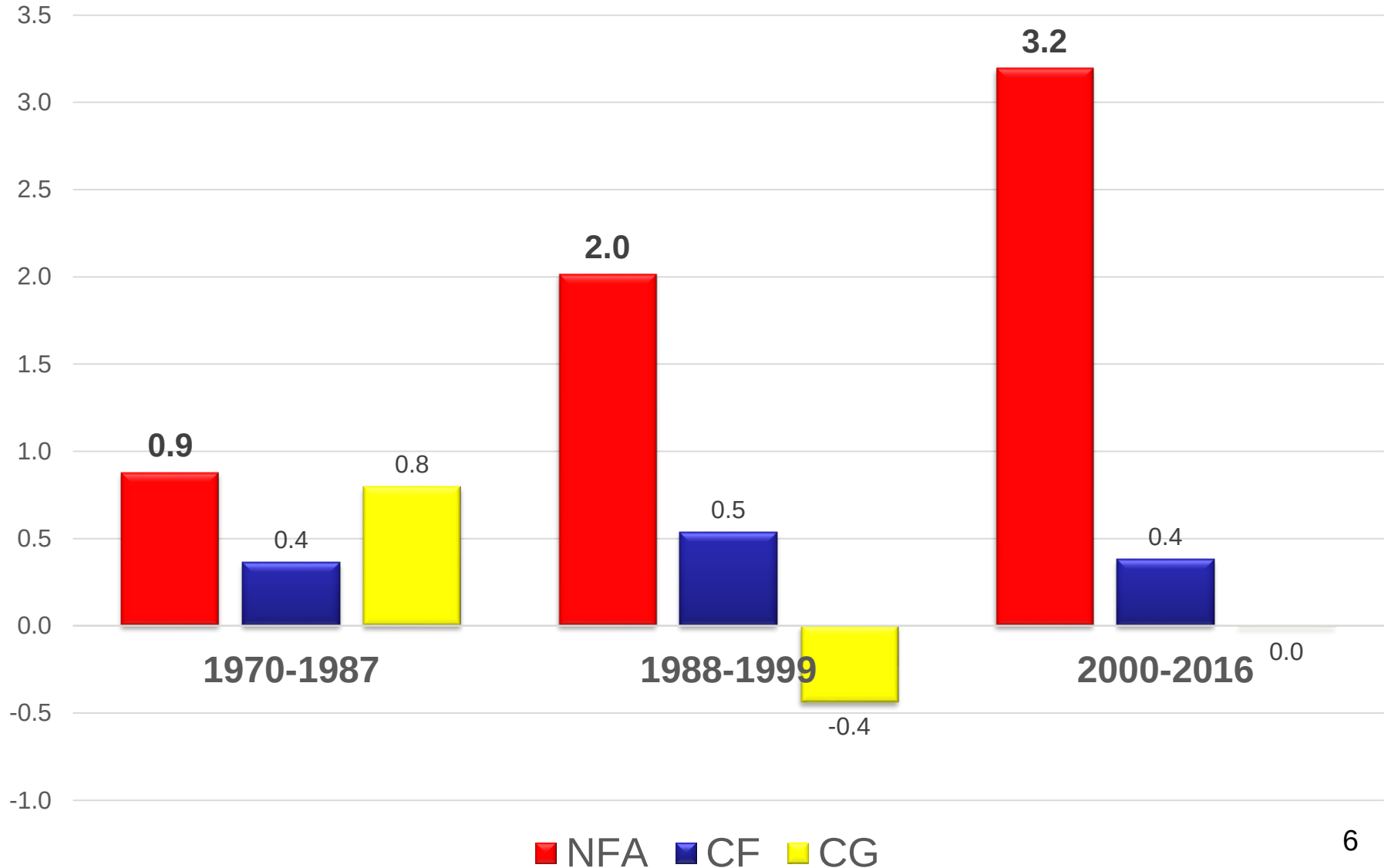
- There is a *long-run relationship* between output and monetary aggregates: monetary base, money supply, bank credit.
- **Growth in money supply** is not perfect, but it provides *a rough measure of economic activity* in the medium term, so acceleration in the US money supply would generally be a good signal, and the slump 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 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: $MB = \text{currency} + \text{commercial banks' required reserves (R)}$.
- 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?

$$Credit = \kappa MB$$

$$\kappa > 1$$

$$MB = NFA + CoG + CoF$$

$$MB = Currency + Bank\ reserves$$

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

A bar superscript indicates policy parameters:

Reserve ratio, central bank policy rate (r_p)

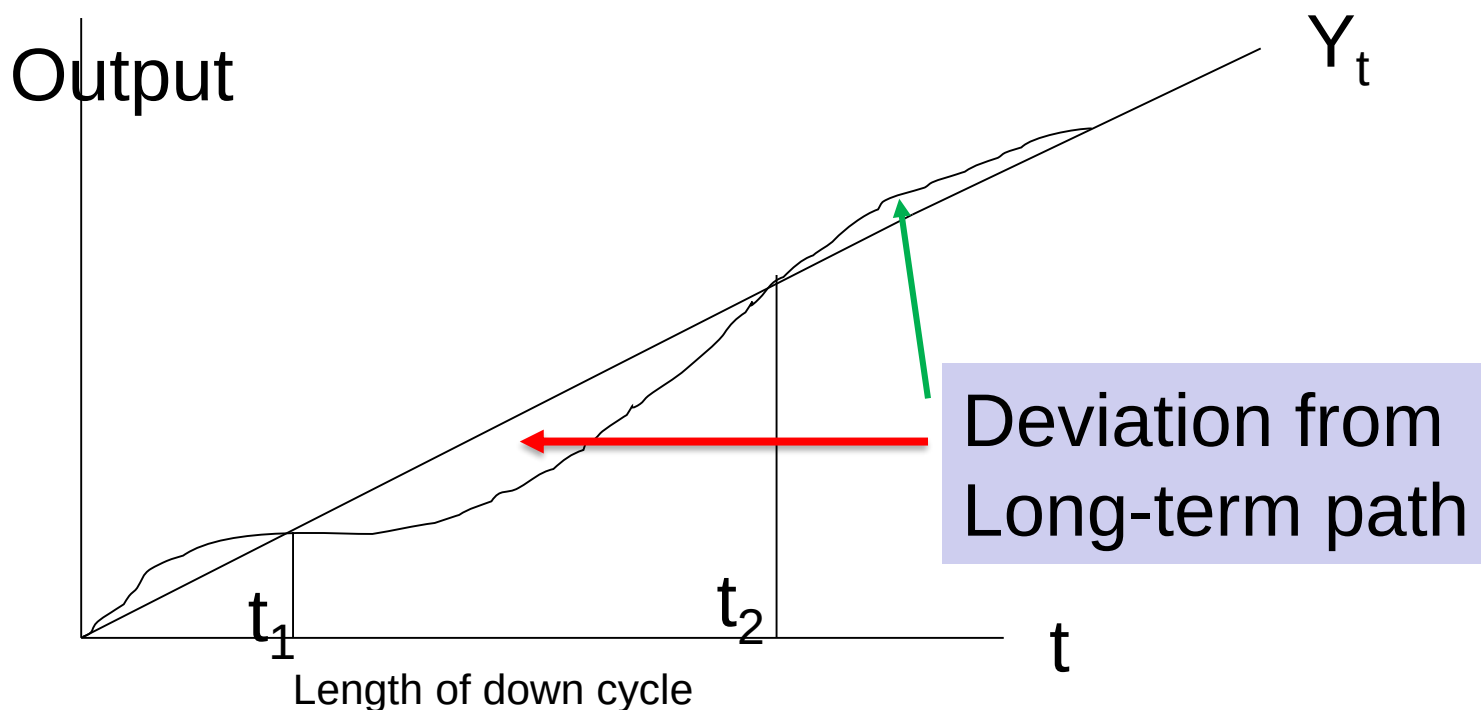
κ = credit multiplier

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.

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

$$(Y_t = Y_0 e^{g^t})$$



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

Cyclical Excess: Booms and Busts

The root cause

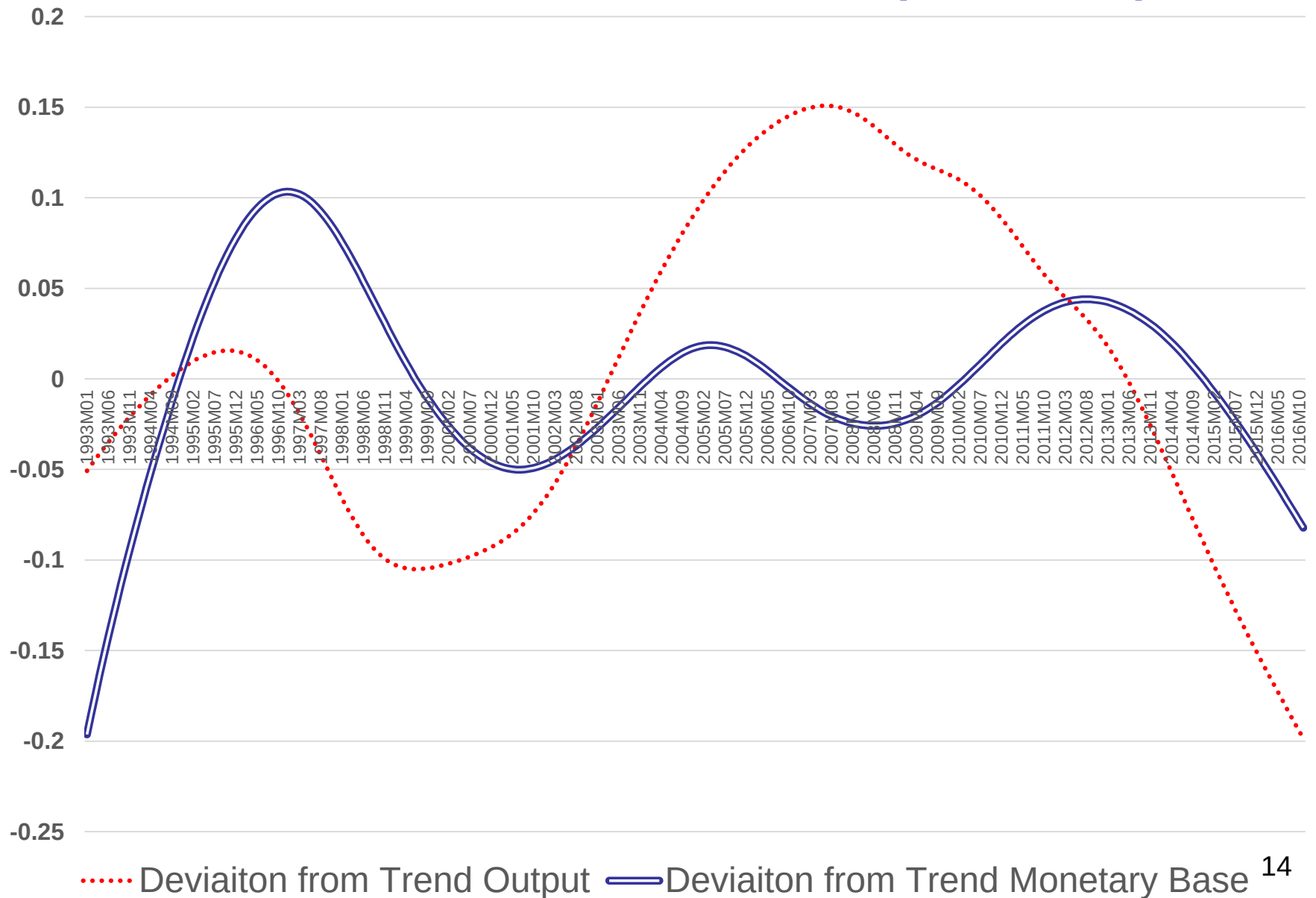
- In a *mild* cycle, output growth oscillates around its rising trend: there is no system-wide financial crisis.
- Economic booms and busts can be attributed to **excessive** expansion and contraction of monetary aggregates (money supply, credit, monetary base).

Severe cycles

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

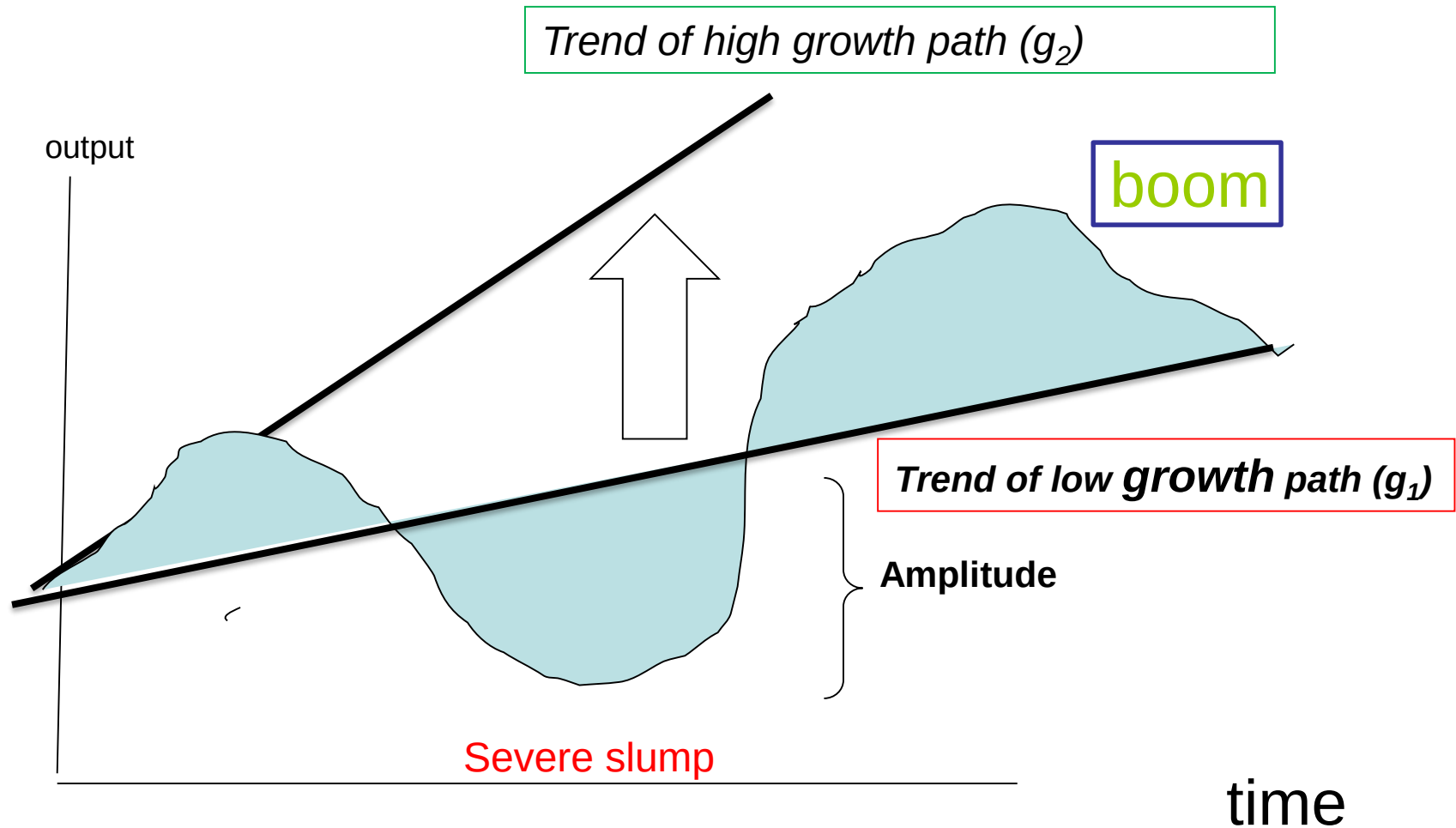
- We observe a remarkable positive relationship between the degree of the cyclicalness of output and monetary aggregates (broad money supply) in Figure 8.2.
- When broad money exceeded its long-run trend, output also expanded at a rate faster than its normal growth path. Similarly, when monetary aggregates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

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



- 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.
- However, output growth can be predicted by the growth rate of money supply lagged by two months.

Severe Business Cycles



Output responses to credit cycles

- 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.

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 **two months lag** impact of monetary expansion on output level.
- Monetary base affects money supply, and credit through money and credit multipliers.

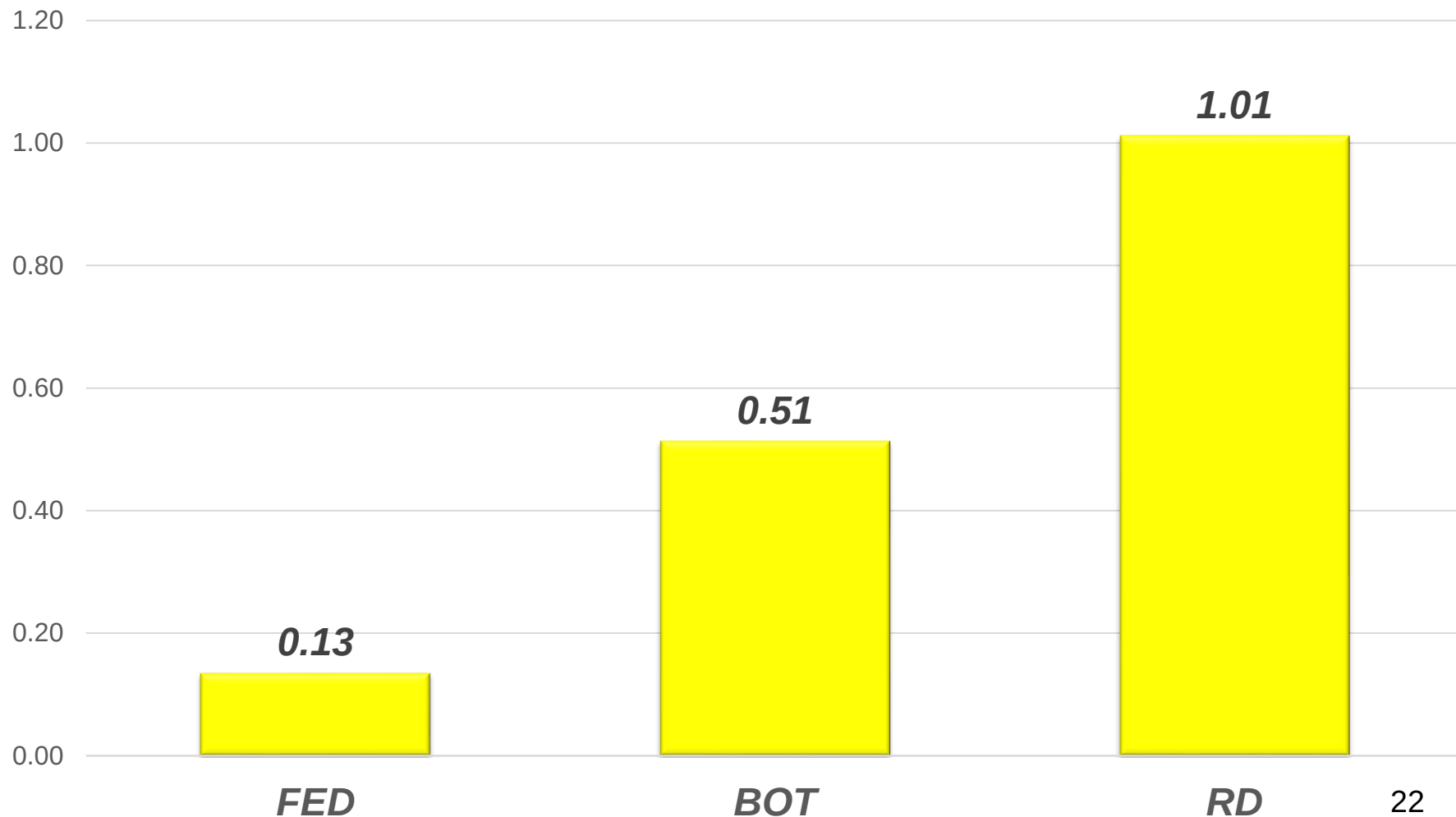
2. Monetary policy transmission

Channels: 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, repurchase, and
saving deposits (RD)

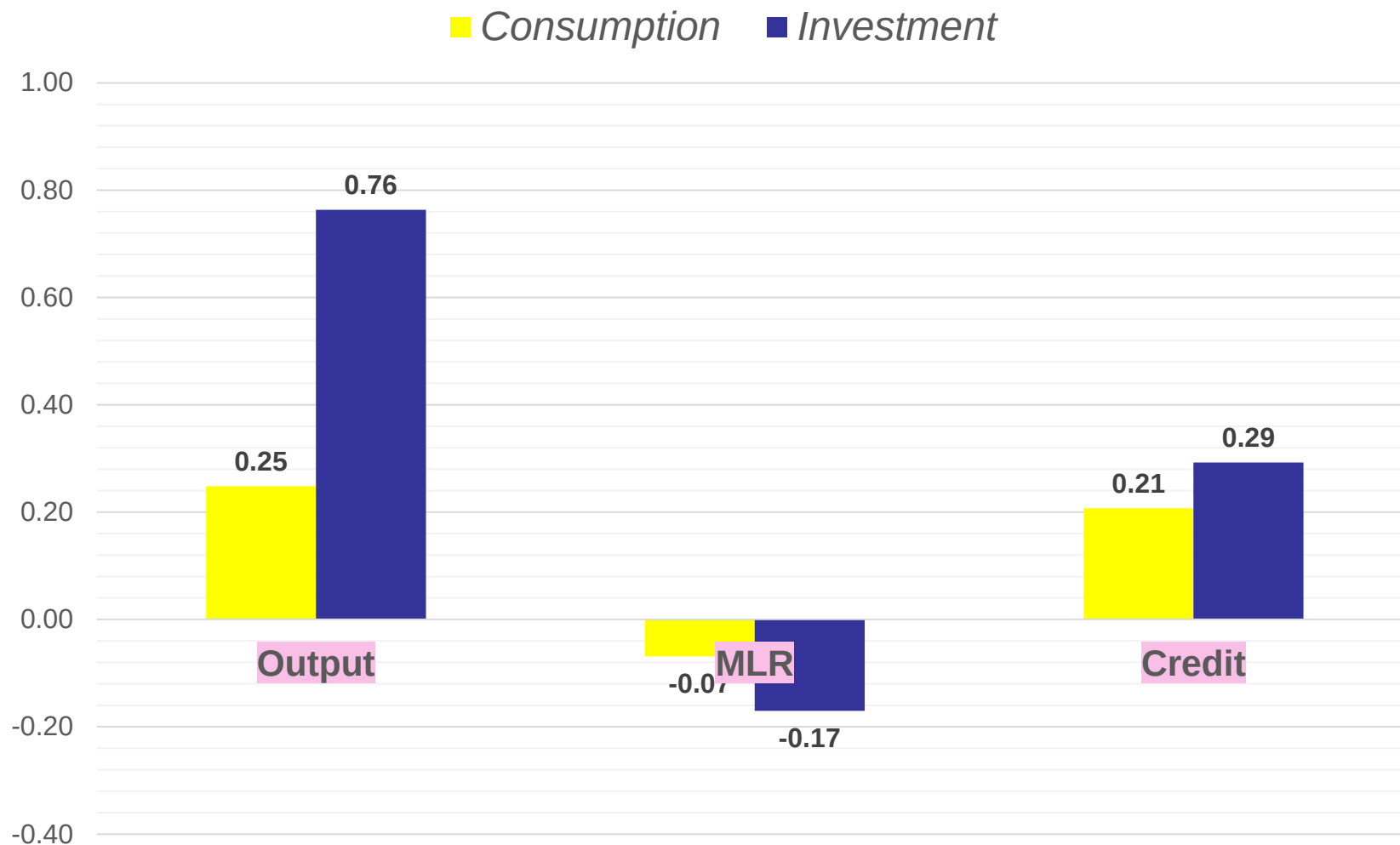
Source: FMOLS Estimated coefficients
(Jan 1993-June 2017)



Monetary policy transmission channel: 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)



IMF: Credit to GDP

Risk of a financial crisis

- It is impossible to know the “appropriate” level of credit to GDP.
- 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.
- It is easier to make judgments about the growth of credit.
- *Rapid increases in credit tend to be 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.

Emerging Markets

Asia Credit Exposure

- EM Asia credit exposure stands out, in terms both of the level and the expansion in the ratio of credit to GDP.
- China is central to the regional position but the country has company in Singapore, Hong Kong, Thailand, and Malaysia.
- Note that social finance in China, which also includes non-bank credit, stands close to 200% of GDP

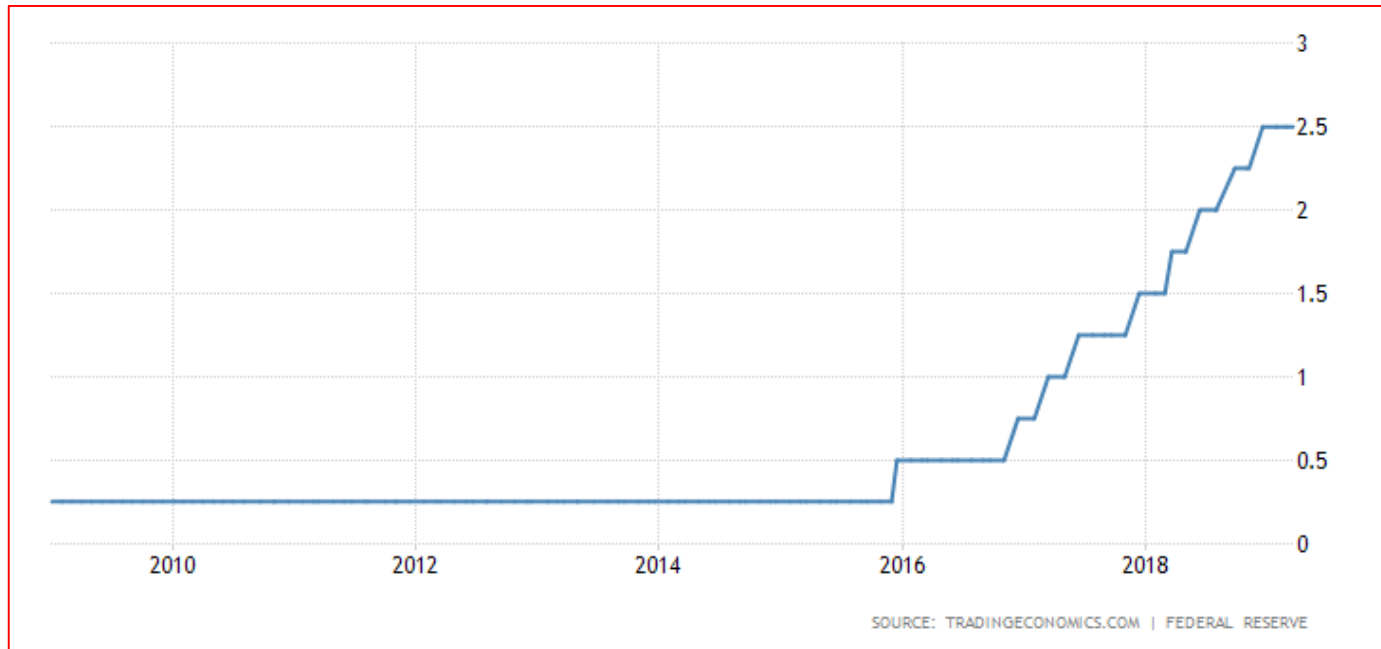
A possible trigger of the crisis: Fed's normalizing interest policy

- It is not clear how the buildup in EM private **leverage ratio** will end, or what its repercussions might be.
- One likely trigger is Fed tightening.
- History suggests a rise in US interest rates will pressure the emerging economies, draining portfolio flows and weakening currencies.

Federal Reserve policymakers expect rates to remain at current levels this year, compared to December's projection of two hikes. The FOMC also pledged to start slowing the shrinking of its balance sheet in May and stop the drawdown altogether at the end of September.

The economic-growth projections were also lowered for in 2019 by a full percentage point to 2.1 percent.

Interest Rate in the U.S. averaged 5.67 percent from 1971 until 2019, reaching an all time high of 20 percent in March of 1980 and a record low of 0.25 percent in December of 2008.



Rising debt services

- Domestic interest rates are likely to rise, especially in the more stressed countries where monetary authorities are compelled to tighten policy.
- To the extent that EM debt is short-term or floating, these rate increases will boost debt service.
- The likely increase in defaults and bankruptcies will signal banks to curtail lending more aggressively

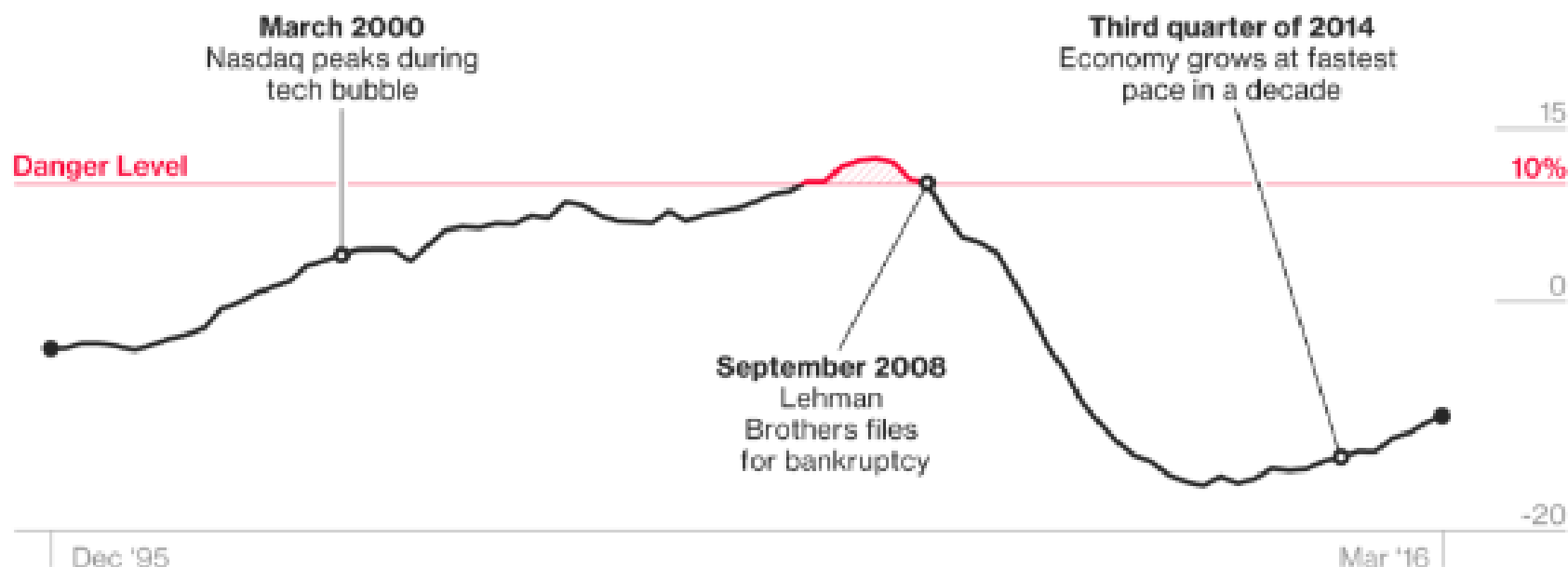
A vicious circle

- This process could become a vicious circle, feeding back on economic activity.
- Recall the two-way causations between monetary aggregates and output
- Some of this debt has been pushed out in duration and some has been issued in local currency, both of which will limit stress.
- The slowing of credit expansion and ultimate deleveraging (reduce borrowing) that has yet to begin poses a threat at a time when EM growth already has downshifted significantly.

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

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 requirement for successful inflation targeting.
- Inflationary expectations can be **reduced** since credibility of monetary policy is enhanced by both institutional and instrumental independence of the central bank.
- As more countries have abandoned fixed exchange rates, they desperately need a **nominal anchor** for the price level.

Taylor rule and inflation target π^*

i = Nominal interest rate: key policy rate

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

ρ = the natural real rate of interest
(constant)

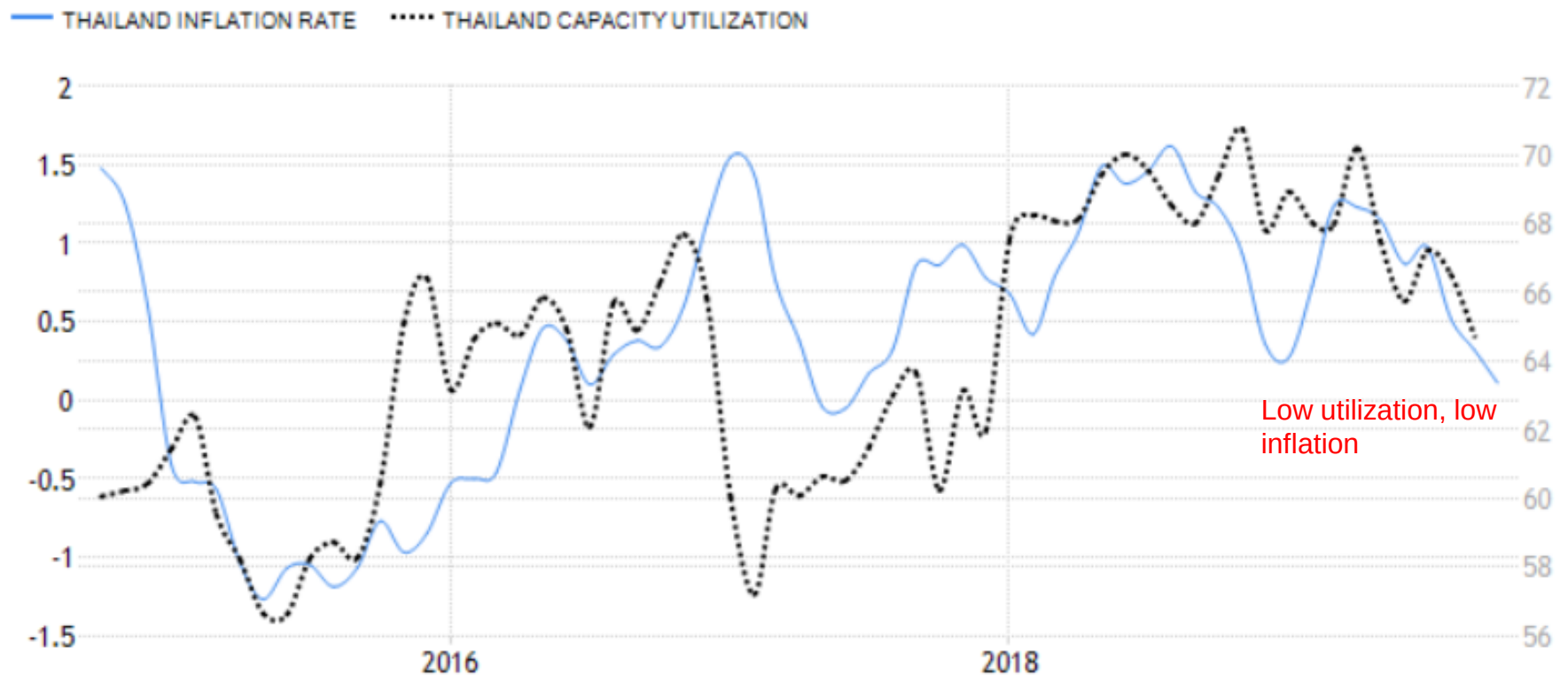
y^p = potential output

Φ = a positive reaction parameter

Caveat on inflation targeting

- For countries that are highly dependent on external trade, ***inflation targeting is akin to targeting the exchange rate.***
- Adopting inflation targeting implies a commitment to no other nominal targets.
- **When there is no close and stable relationship** between the short-run monetary instruments and long-term interest rates (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.

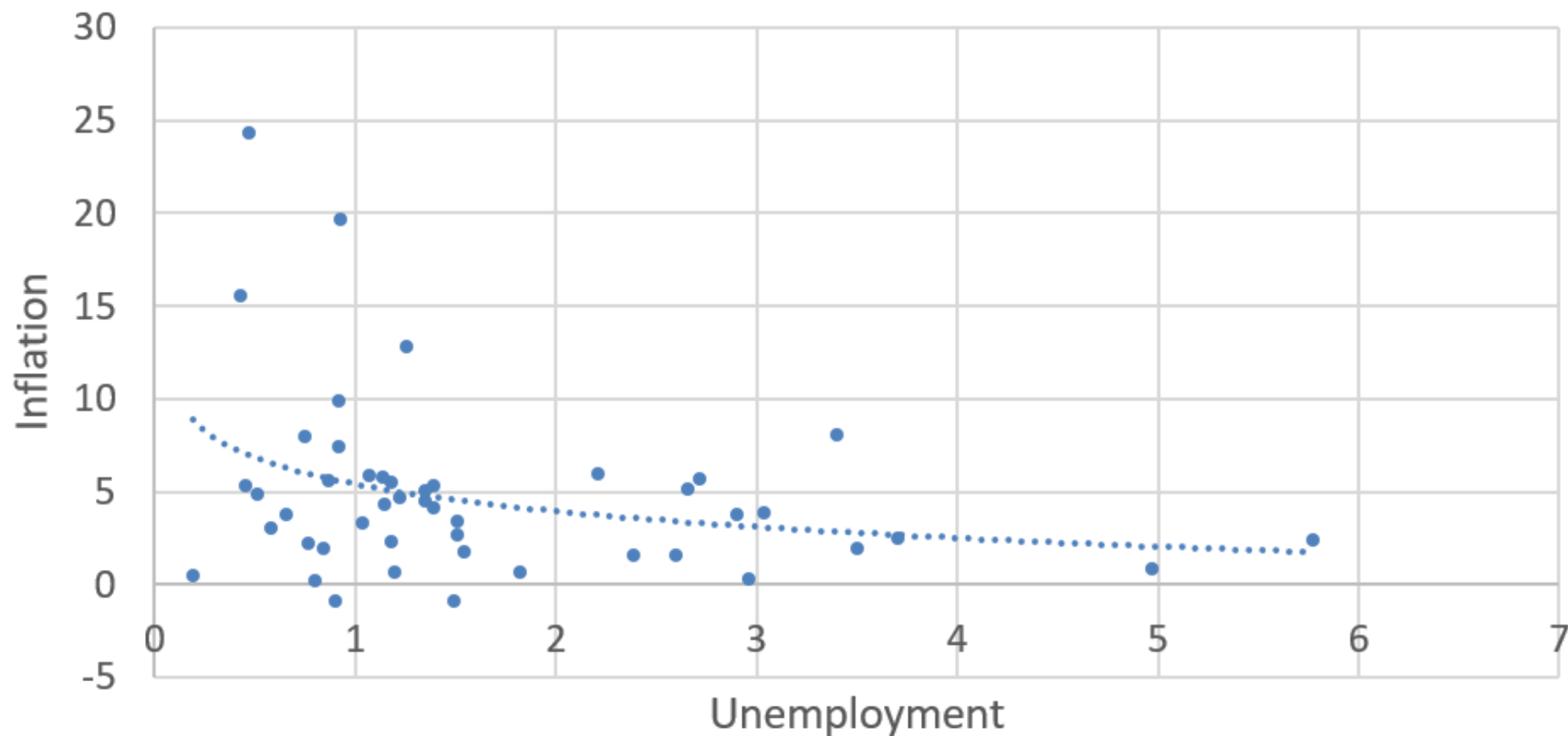
Capacity utilization represents the output supply and demand gap: The higher the utilization, the closer to the full employment level of output and higher inflation



Why has the curve become flatter over the year?

Figure 8.4 The Phillips Curve: 1971-2017

Source: Bank of Thailand



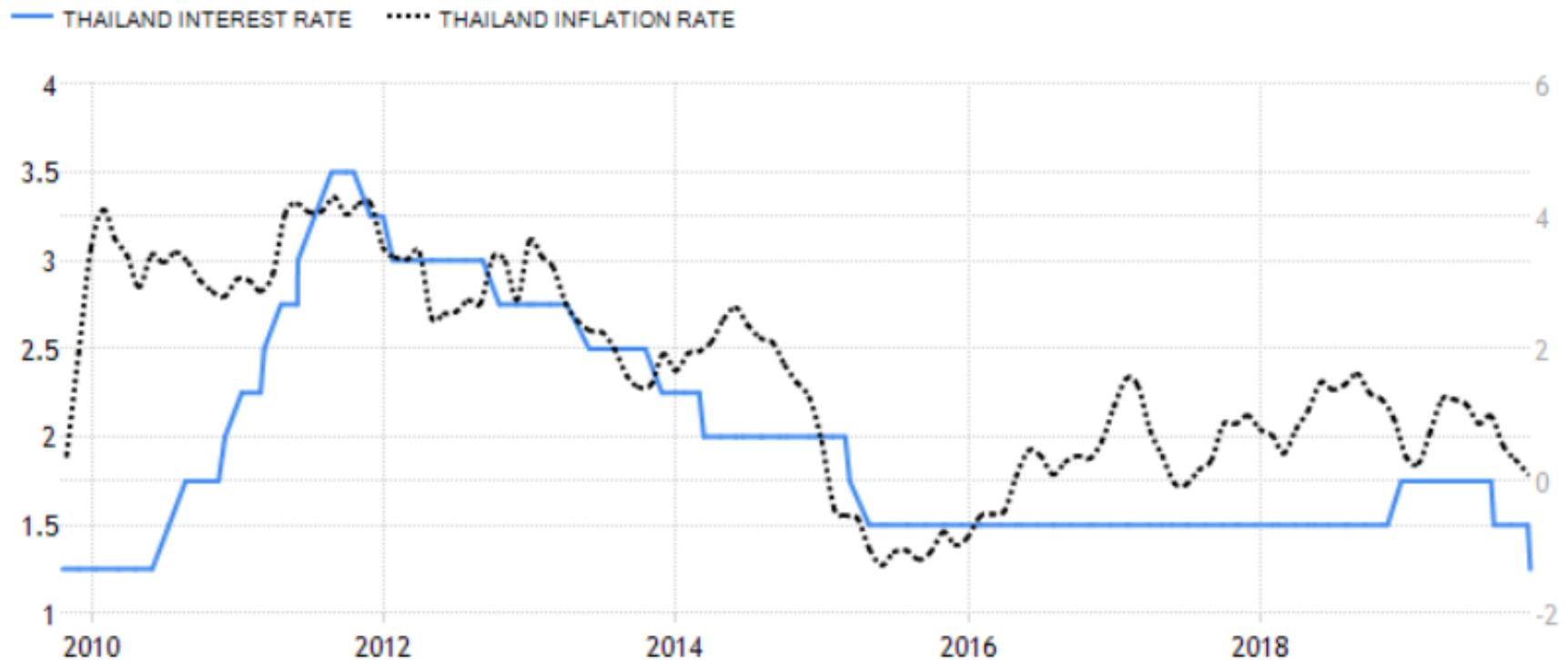
Need a new monetary policy strategy

- We are now entering an episode of a slowdown in growth.
- Growth depends less on consumption and investment.
- Fiscal policy has become less effective in stimulating growth.

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?
- Wrong targeting? Why not targeting stock and house prices?

The Bank of Thailand lowered its policy rate by 25 bps to 1.25 percent during its November 2019 meeting, bringing the rate to its lowest since 2009, saying that a more accommodative monetary policy stance would contribute to economic growth and support the rise in headline inflation toward target. The bank also announced it will ease rules on outflows in an attempt to curb a stronger currency

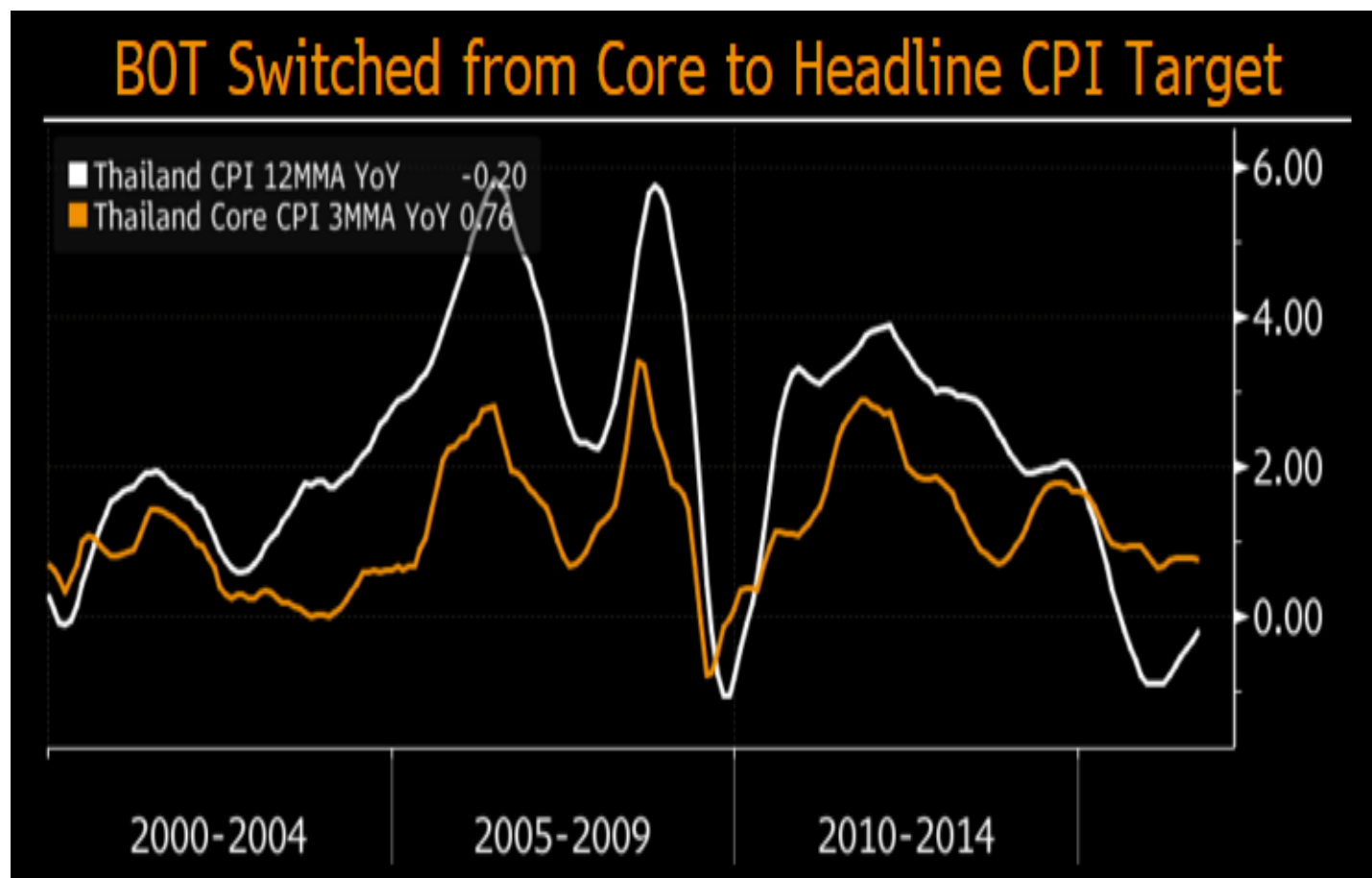


SOURCE: TRADINGECONOMICS.COM

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

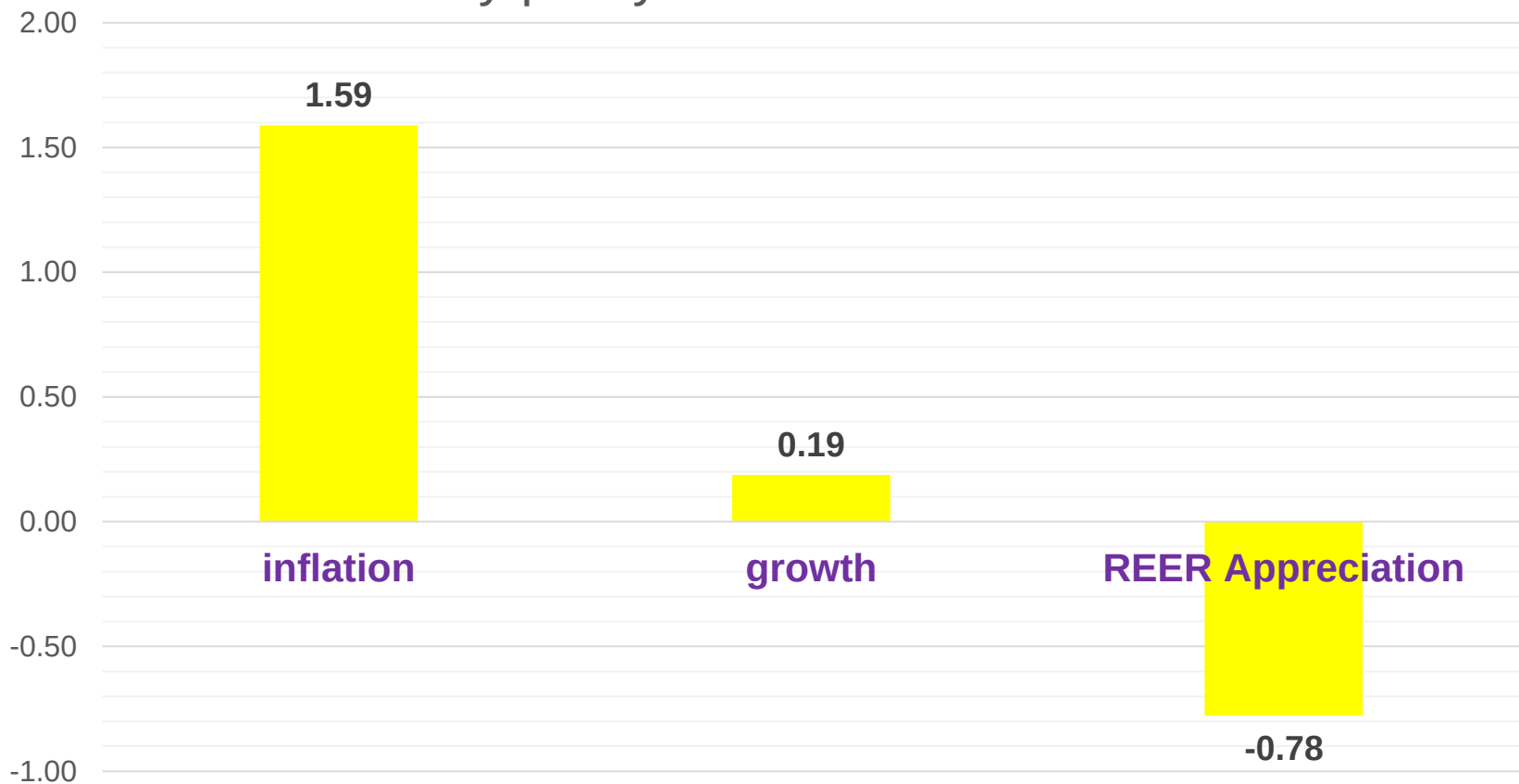
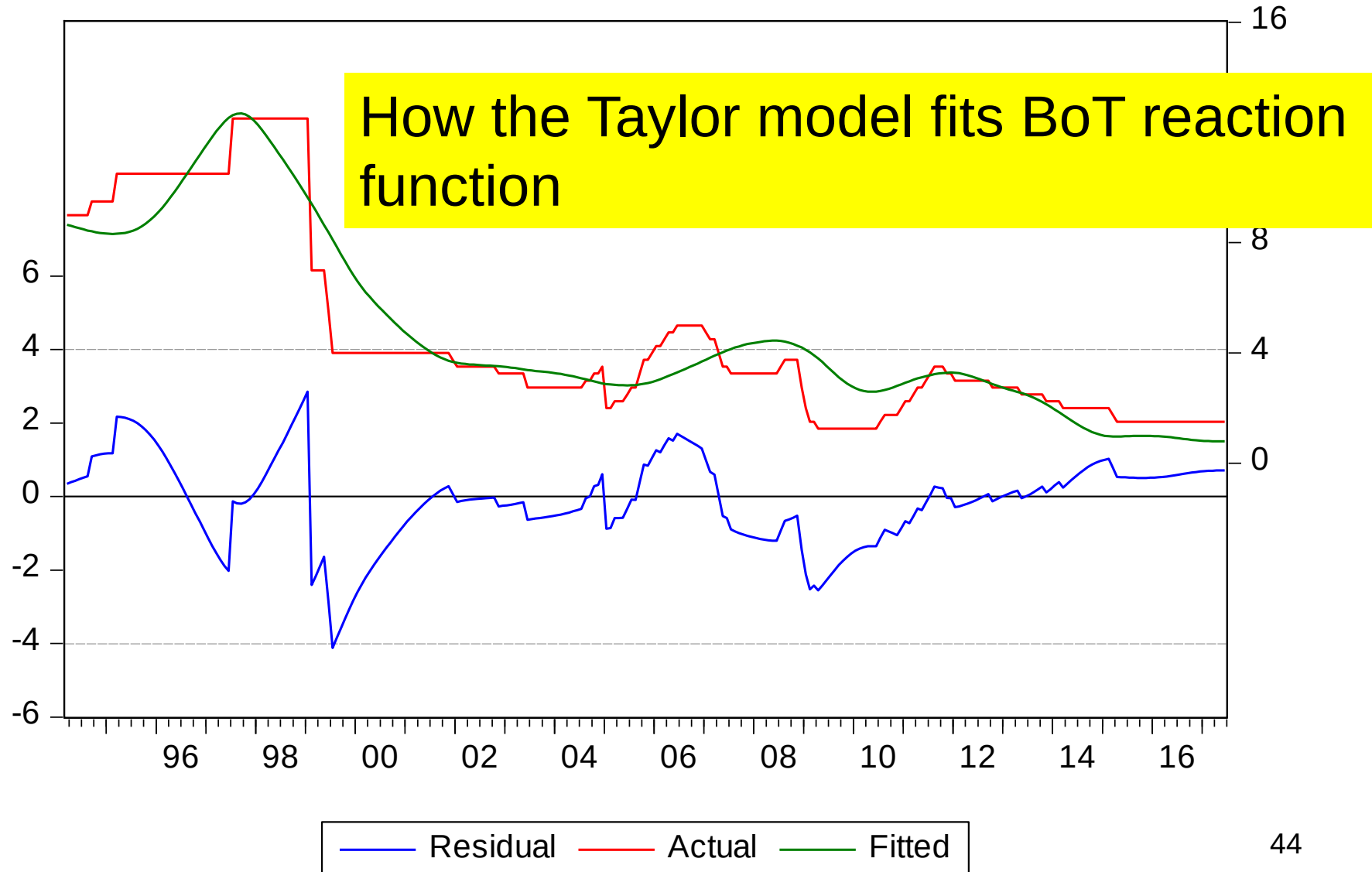


Figure 8.5: Modeling BoT key policy rate



Inflation in Turkey has fallen steeply

As predicted by the Taylor model

Sorry decline

Turkey



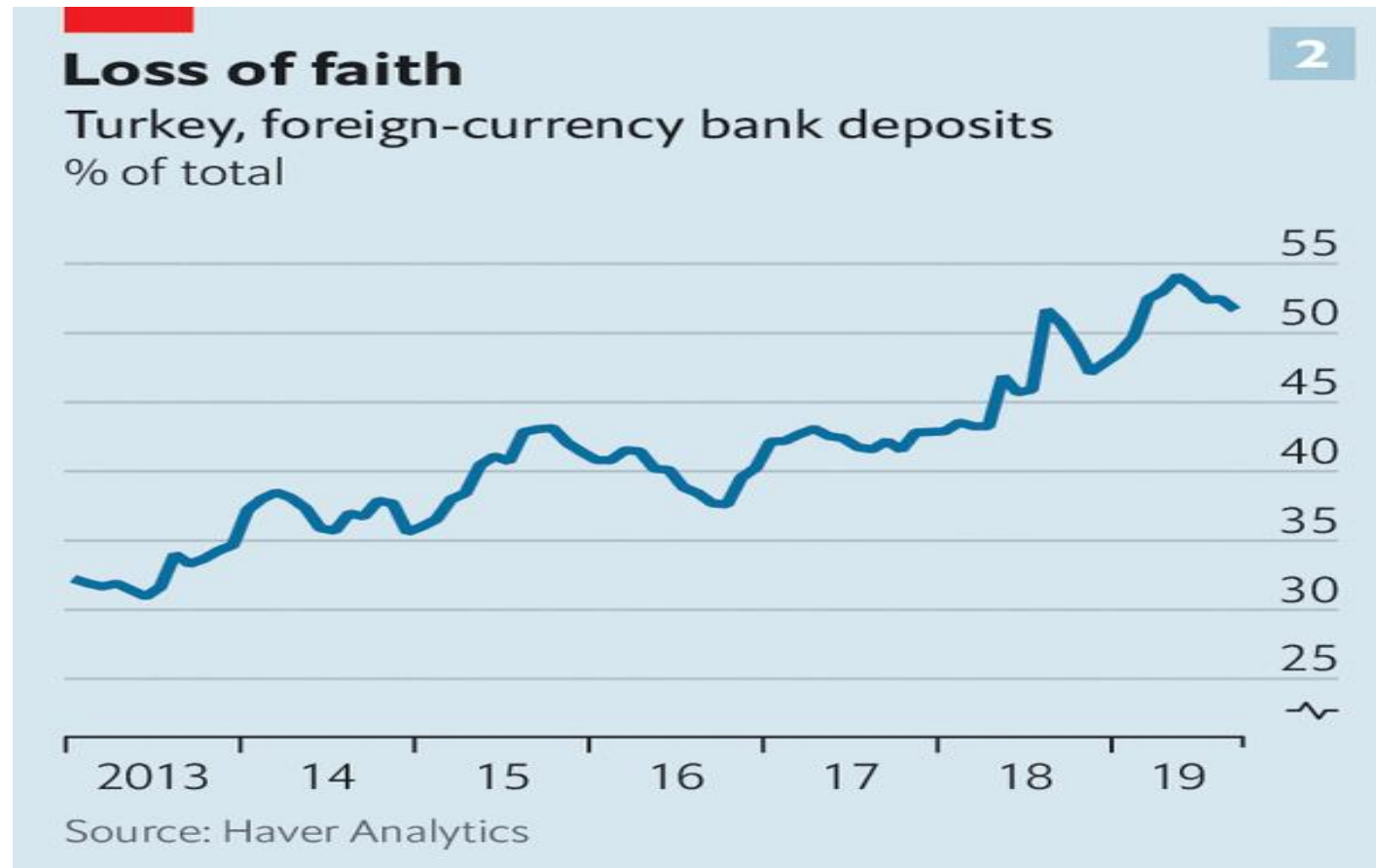
Sources: Haver Analytics; Central Bank of the Republic of Turkey

After last year's aggressive tightening, easing now makes some sense.

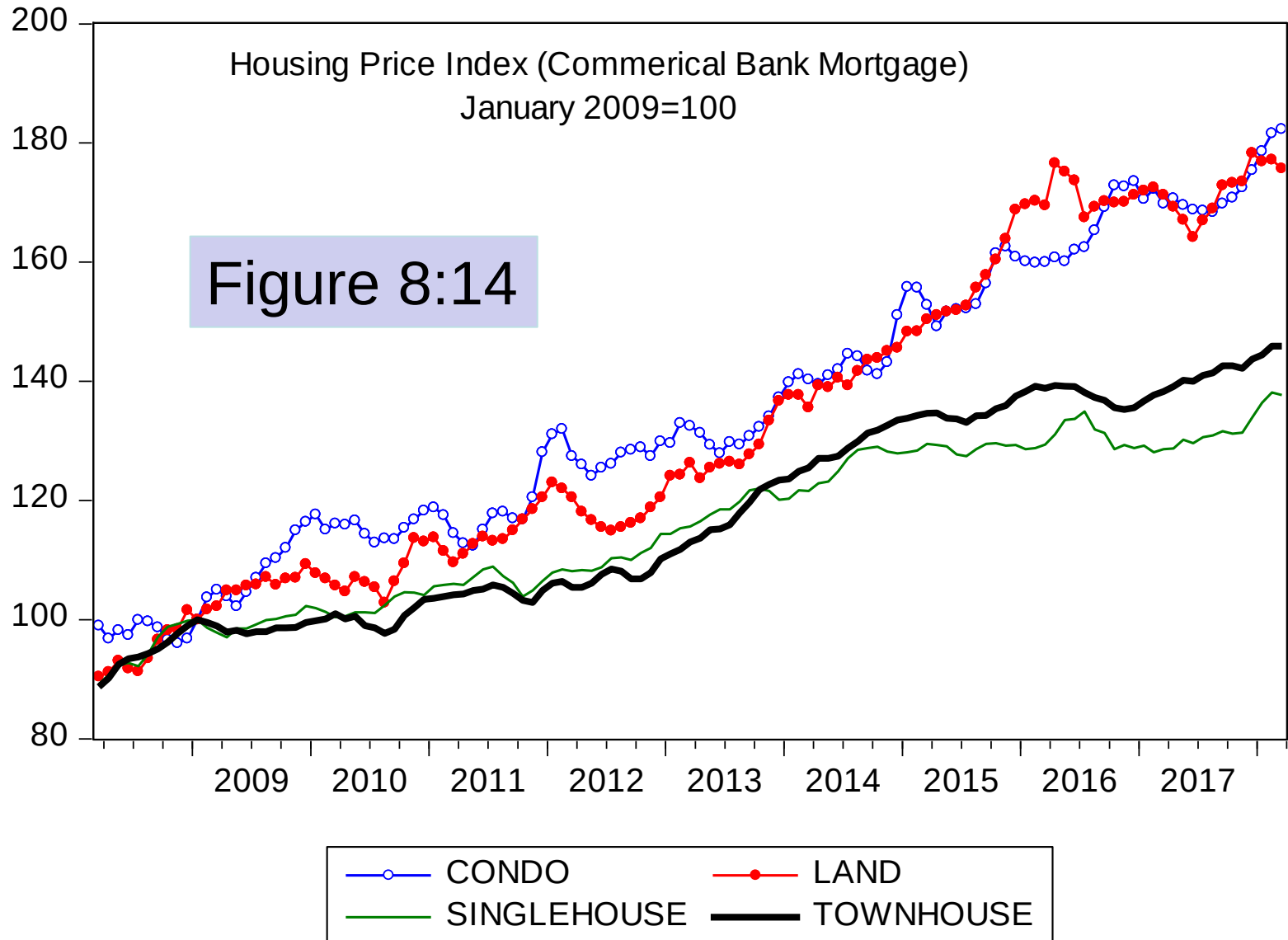
Inflation is back in single digits, after passing 25% last autumn.

But the Turkish economy remains vulnerable to external shocks

Dollarization and Euroization



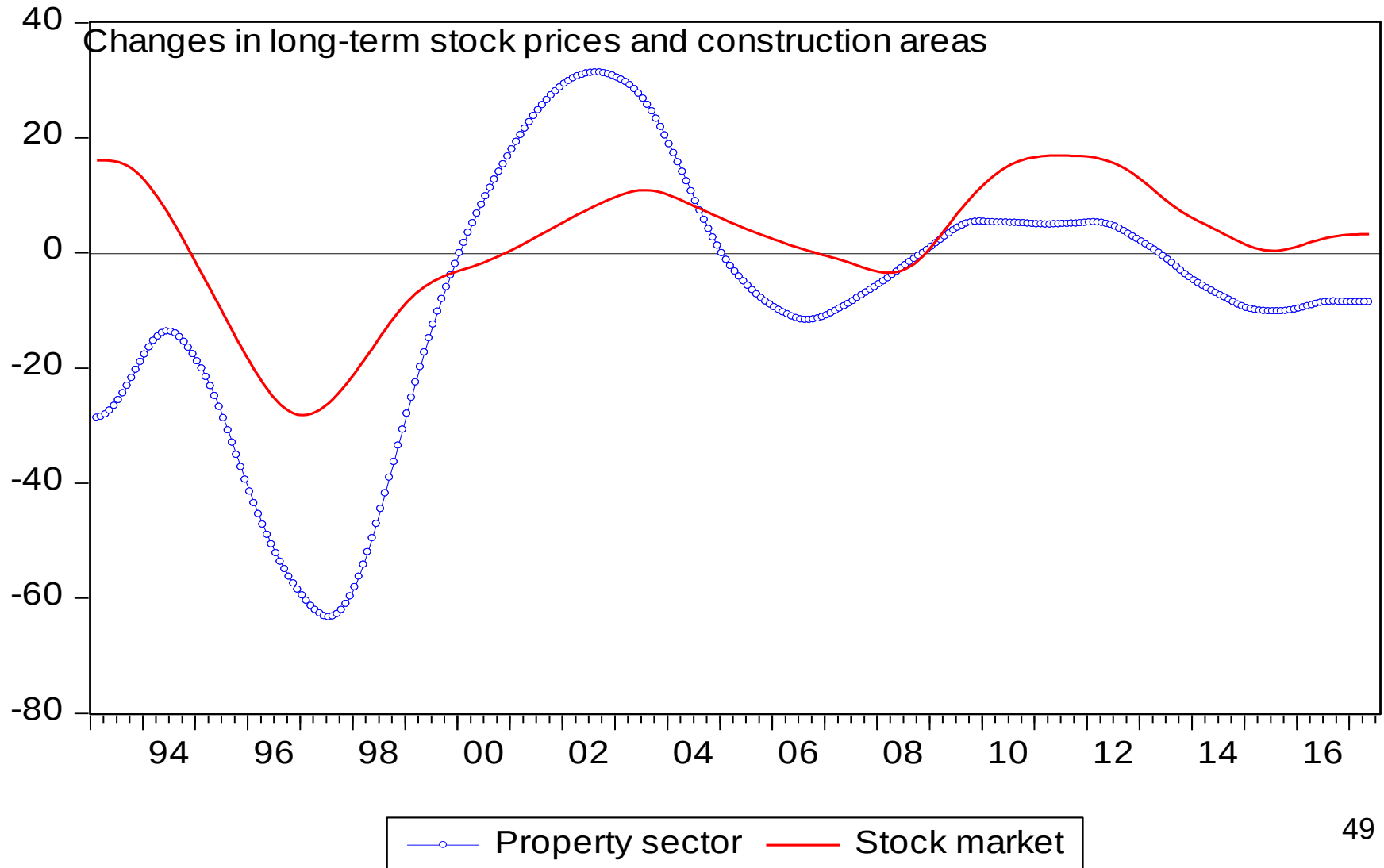
4. Asset price bubbles



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.

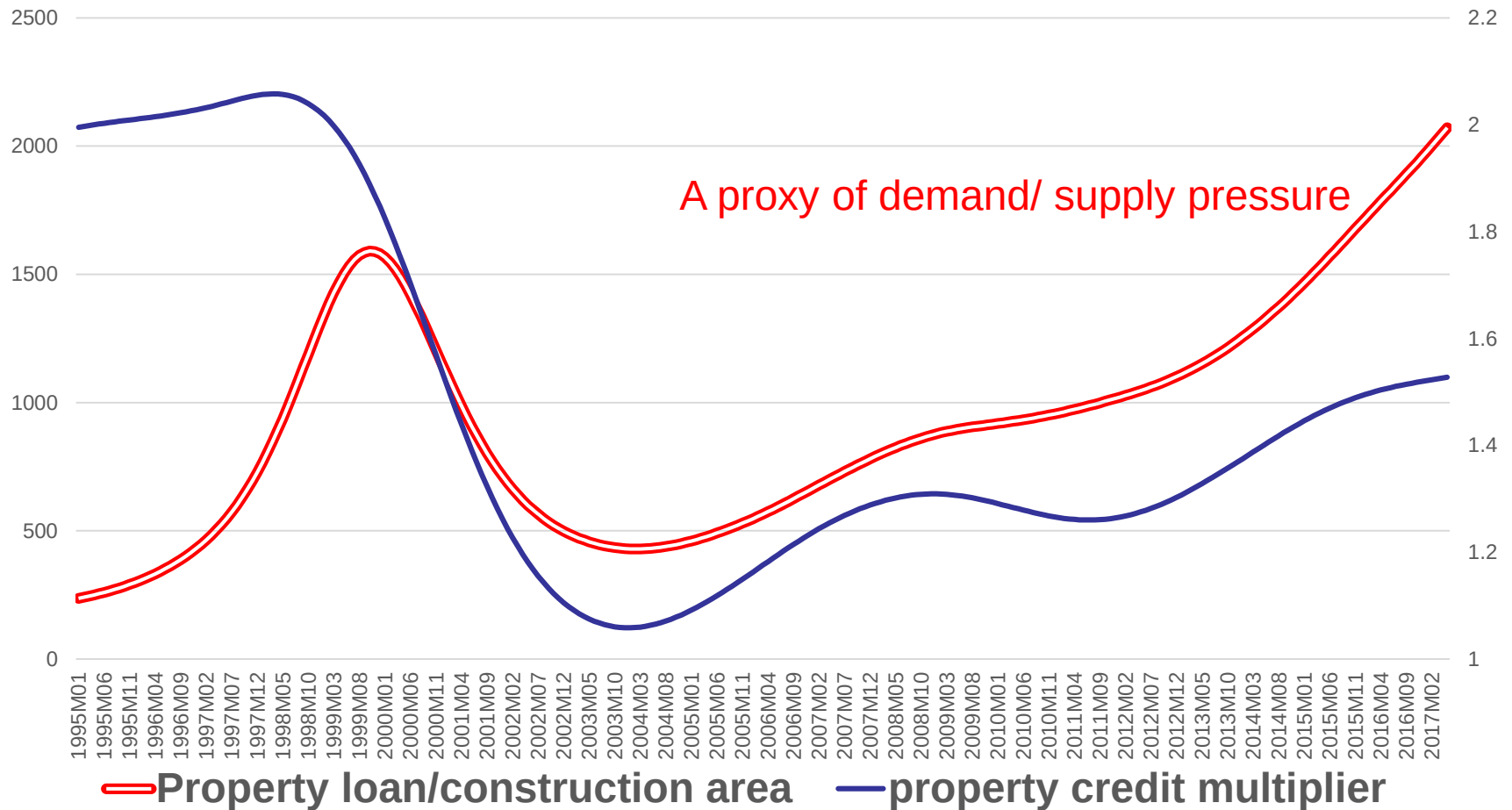
$$Credit = \kappa MB$$

$$MB = NFA + CoG + CoF$$

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

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 $\Delta(\text{credit/GDP})$ 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*. (See critical thinking I)

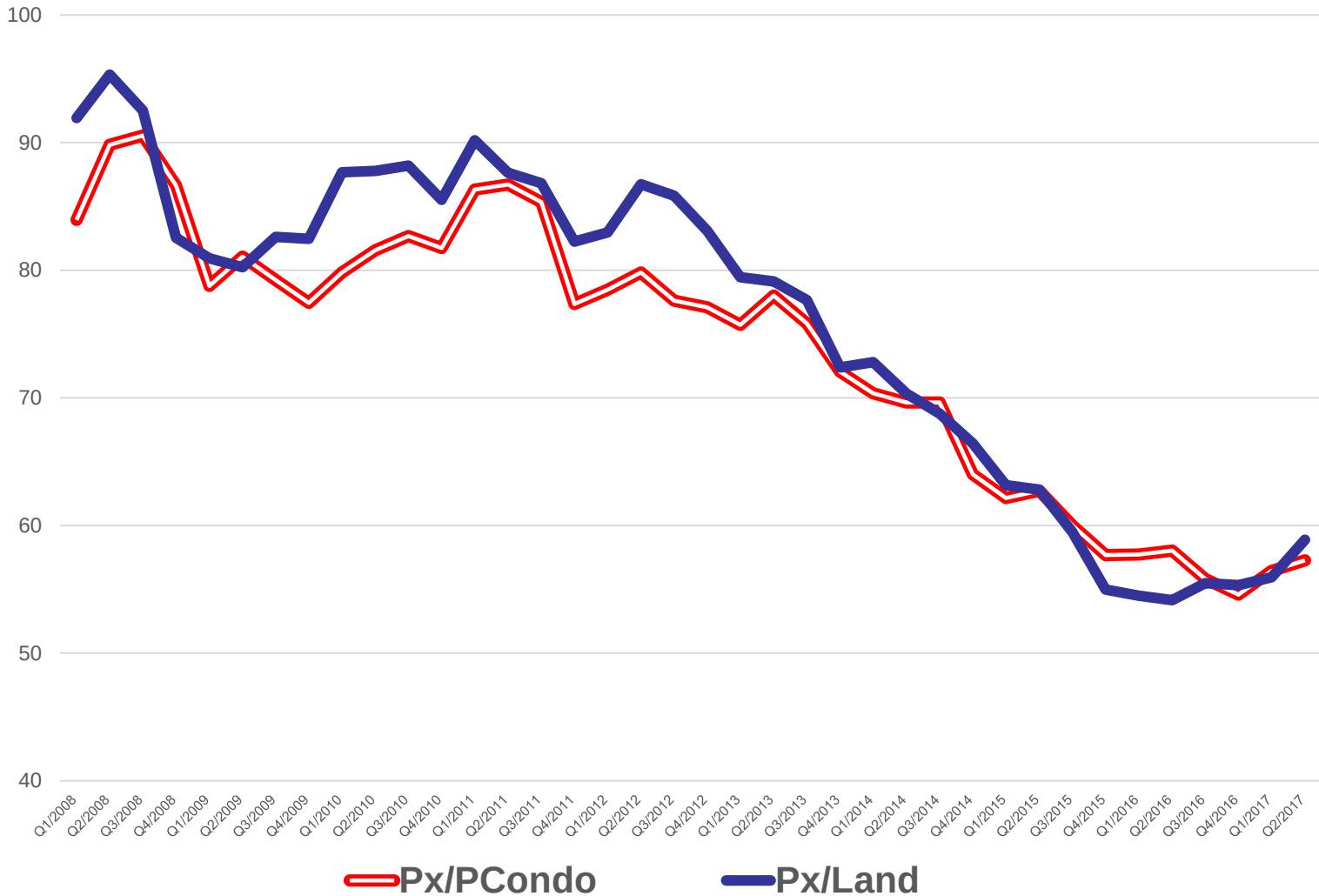
The root cause from the supply side: Slow supply adjustments

- 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



In 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.

The Bank for International Settlements reported residential property prices in Bangkok have increased 49% over the past decade. The increase in condominium prices has been sharper, at 78% during the period.

Banks' credit underwriting standards for mortgages have deteriorated because a greater proportion of newly originated mortgages have higher LTV and lower debt-servicing capacity, said Moody's.

The share of high-LTV mortgages, those with ratios above 90%, increased to 49% of newly originated loans at the end of the first half from 34% at the end of 2013.

The median loan-to-income ratio rose to around 3.8 times at the end of this year's first quarter, up from 2.7 times in 2013.

For Thai banks, housing loans are the only consumer loans where the non-performing loan (NPL) ratio has been increasing, as NPLs in other retail segments still remain stable or have improved, said Moody's.

The housing NPL ratio rose steadily to 3.4% as of June 2018 from 2.4% three years ago. Household leverage also remained high in Thailand at 77% of GDP at the end of June, although growth has slowed, said the service.

"Mortgages are a big business for Thai banks, accounting for 17% of system-wide loans and about 50% of total retail loans at the end of the first quarter," said Moody's.

"As such, the deterioration in mortgage underwriting quality can have a significant effect on banks if property prices decline substantially. The macro-prudential guidelines from the Bank of Thailand follow similar guidelines issued by other countries in the region the past few years."

REGULATORY RESTRICTIONS ON MORTGAGE LOANS AND REAL ESTATE LENDING IN SOUTHEAST ASIA

Country	First property	Second property onwards
 Thailand	Maximum LTV: 80% for property greater than 10 million baht	Maximum LTV: 80% irrespective of property value
 Indonesia	No LTV-based restriction	Maximum LTV: 80-90% depending on the size of the property
 Singapore	• Maximum LTV: 80% (public housing); 75% (private housing) • Minimum debt-servicing ratio: 30% (public housing); 60% (private housing) • Additional buyers stamp duty (ABSD): ABSD for citizens from second property; non-citizens subject to ABSD from first property	Maximum LTV (only applicable for private housing): 45% second property; 35% third property 
 Malaysia	• Maximum LTV: 60% for non-individuals • Maximum tenure: 35 years	• Maximum LTV: 70% for third property onwards • Maximum tenure: 35 years
 The Philippines	• No LTV-based restrictions • Banks are subject to a real estate stress test • Maximum real estate exposure of banks limited to 20% of total loan portfolio	

30% down payment for 3rd mortgage

BoT lowers 2nd housing loan bar to 10-20%, LTV unchanged for first-timers buying under B10m

Published: 10 Nov 2018 at 06:00  3 comments

NEW MORTGAGE LENDING REGULATIONS

	Required minimum down payment	
	For homes priced below B10m	For homes priced at B10m or higher
First mortgage 	0-10%	
Second mortgage 	10% if the first mortgage was borrowed for three years and longer 20% if the first mortgage was borrowed less than three years Note: In case that the first mortgage is not paid off yet	20% In case that the first mortgage is not paid off yet
Third and subsequent mortgages 	30% In case that others are not paid off yet	30% In case that others are not paid off yet

Top-up mortgage

All types of top-up mortgage, excluding loans for mortgage reducing term assurance (MRTA) and SMEs and fire insurance, are required to be counted into a single amount with mortgage.

Effective for mortgage contract signed from April 1, 2019 onwards, but the requirements are not applied to those with land sale contracts signed or those paying down before Oct 15, 2018, refinancing in case of single mortgage and mortgage for building homes on own land.

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

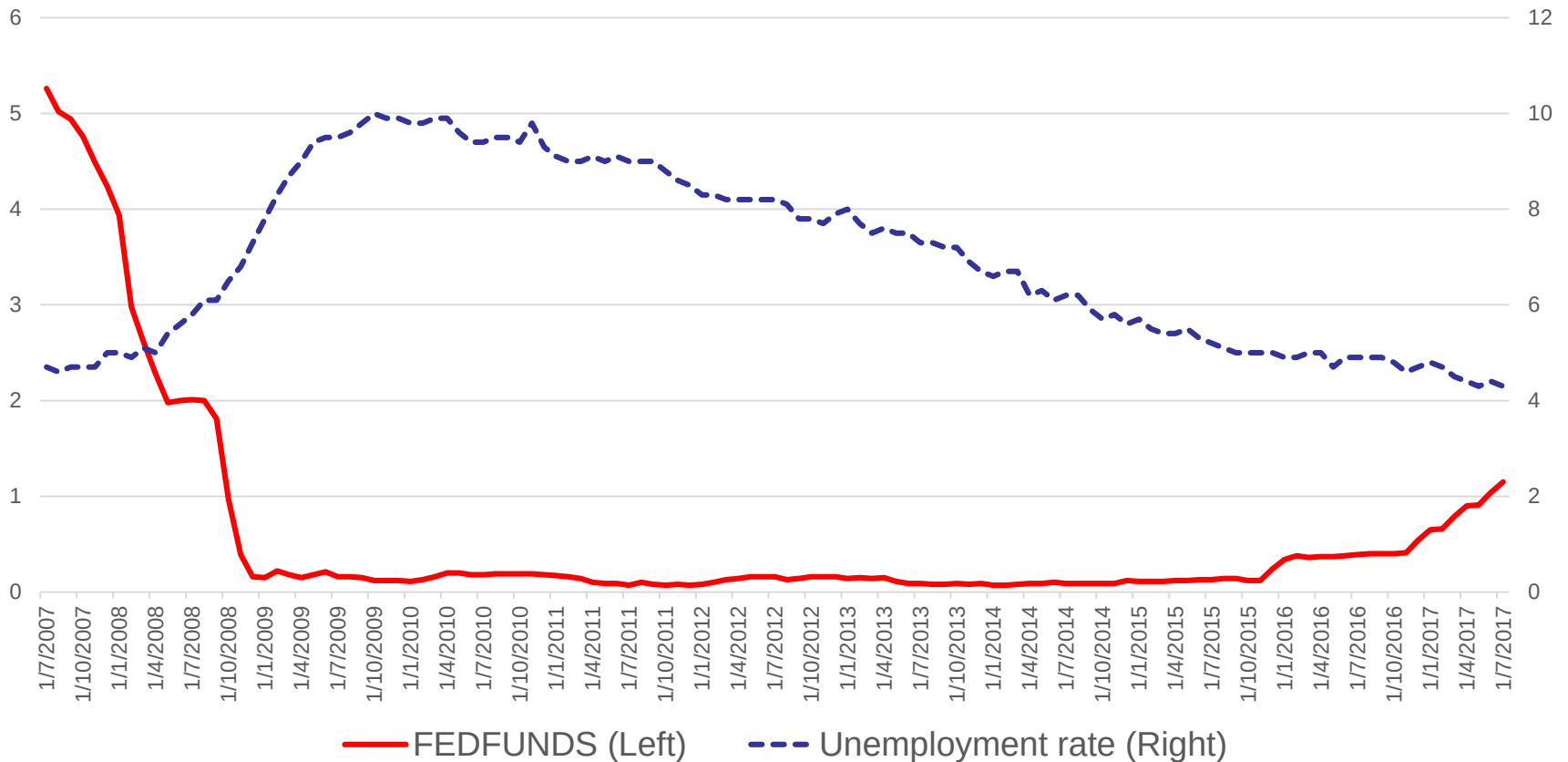
IMPACTS OF QUANTITATIVE MONETARY EASING POLICY IN THE UNITED STATES AND JAPAN ON THE THAI ECONOMY

BHANUPONG NIDHIPRABHA*

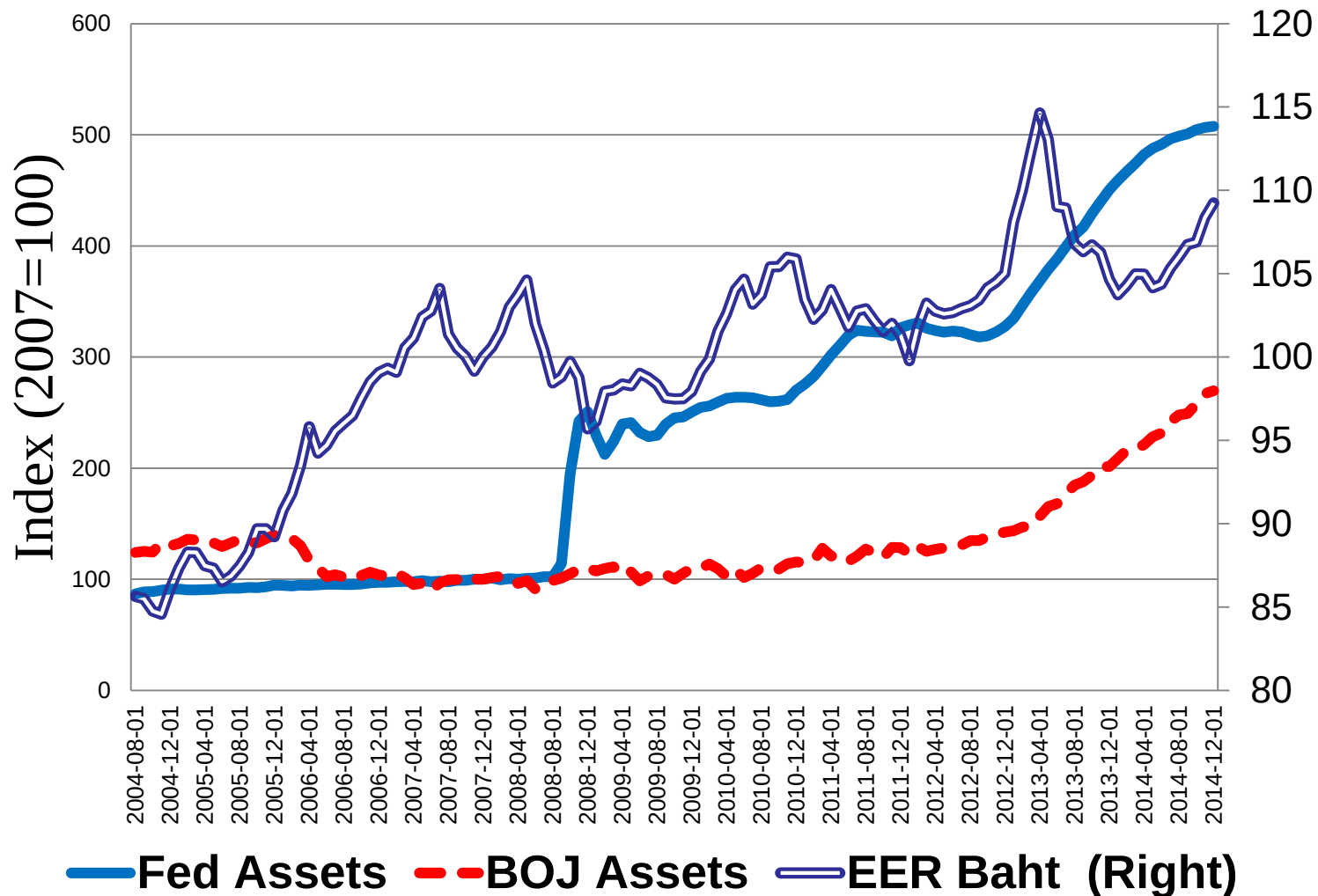
Department of Economics, Thammasat University, Bangkok, Thailand

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

Critical Thinking I

- On November 6, the Monetary Policy Committee reduced its benchmark interest rate by 0.25% to 1.25%, a record low last seen during the global financial crisis.
- On November 7, SCB and GSB took the lead in passing on the Bank of Thailand's rate cut to customers, putting pressure on the lenders' profits.
- Kbank and Bangkok Bank cut their prime lending rates by 25 basis points on November 11, 2019.
- Both banks' minimum lending rates will drop to 6.0%, which they said would help clients reduce costs and support economic growth.

Critical Thinking II

BoT relaxes capital controls

To stimulate capital outflows and lessen pressure on the baht to reduce massive current account surplus

What will be the far reaching impact on the Thai economy?

1. The central bank will allow exporters to keep foreign currency proceeds overseas. Exporters with proceeds below US\$200,000 per bill of lading shall be allowed to keep the proceeds abroad, without a time limit, a relaxation from the current \$50,000 threshold.

Critical Thinking II

BoT relaxes capital controls

To stimulate capital outflows and lessen pressure on the baht to reduce massive current account surplus

What will be the long-term impact on the Thai economy?

2. Retail investors will be allowed to invest up to \$200,000 per year in foreign securities. The aggregate investment limit allocated to investors regulated by the Securities and Exchange Commission will also be increased to \$150 billion.

Critical Thinking II

Move aims to rein in baht's appreciation

Will there be undesirable side effects on these policy measures?

3. Individuals who want to relocate abroad or transfer funds to relatives abroad shall be able to do so freely. Those who want to purchase real estate abroad shall be allowed to do so up to \$50 million per year as previously, but the property can now be in the name of a family member [rather than their own name]

Documentation shall no longer need to be provided to commercial banks when conducting outward transfers of less than \$200,000. This is an increase from the current \$50,000 threshold.

Critical Thinking II

BoT eases up on foreign investment rules

Move aims to rein in baht's appreciation

Will it prevent baht from appreciation?

4. Thai investors shall be allowed to trade gold in foreign currencies, through foreign currency deposit accounts opened with onshore commercial banks, with designated gold trading companies that have received approval from the central bank.