Monetary Policy Strategy
for long term growth and price stability

Bhanupong

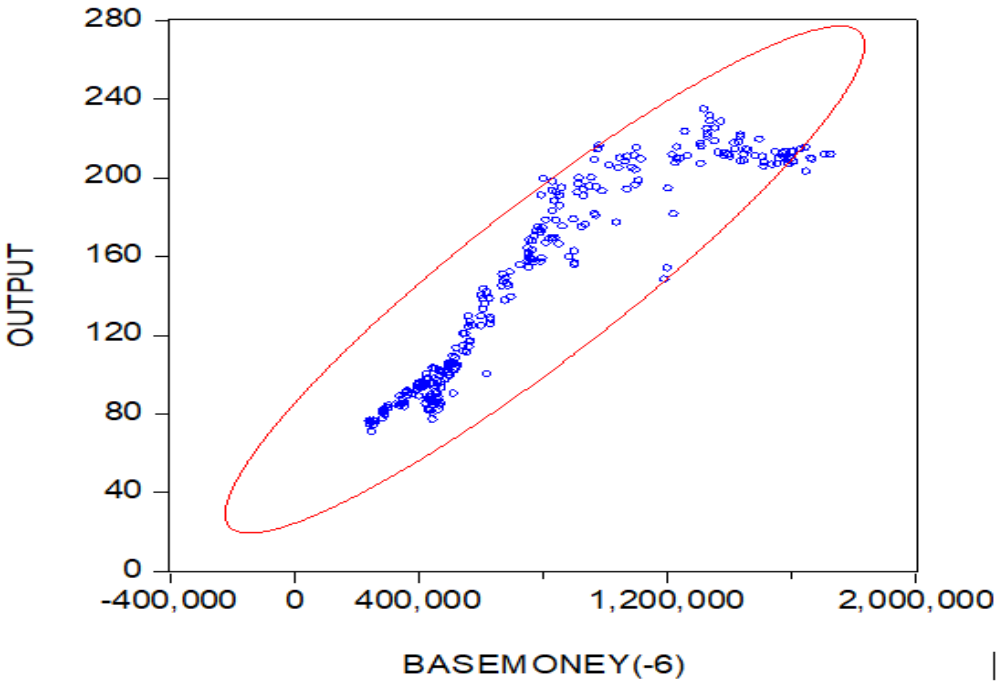
Lecture 24

Outline

1. Monetary aggregate and economic activity
2. Monetary policy transmission channels
3. Inflation targeting strategy
4. Asset price bubbles and monetary policy
5. Quantitative Easing and impacts on Thailand

1. Monetary aggregate and economic activity The importance of monetary aggregates

- What are monetary aggregates?
- There is a long-run relationship between output and monetary aggregates.



Money and economic activity

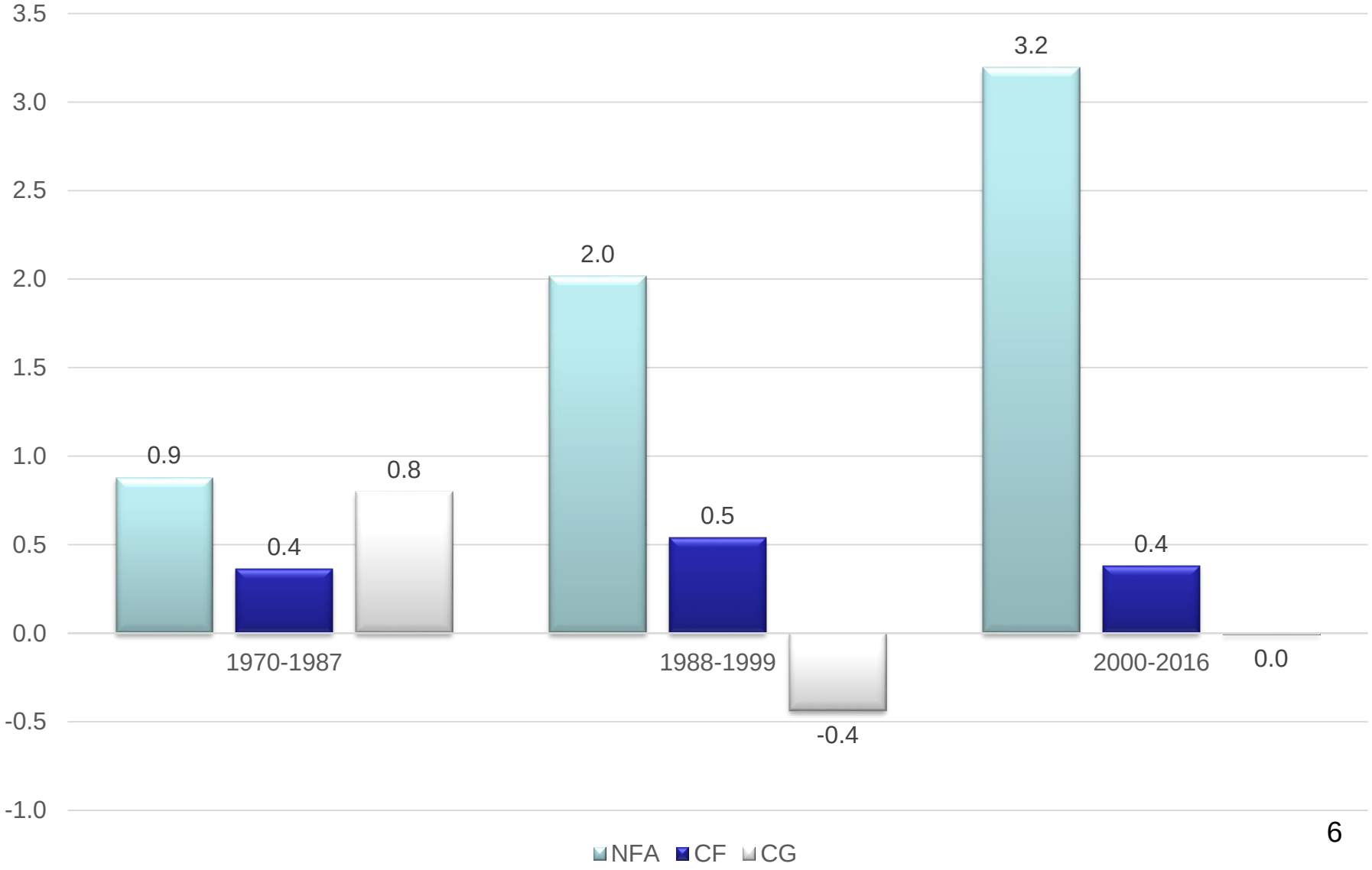
- **Broad money** which includes physical currency, some sorts of deposits in banks, and some sorts of very liquid securities — has slowed to the point at which it is slower than that of the US.
- **Growth in money supply** is not perfect, but it provides a rough measure of economic activity in the medium 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

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 = currency + 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 does monetary ***policy instrument*** affect bank lending?

$$Credit = \kappa MB$$

$$\kappa > 1$$

$$MB = NFA + CoG + CoF$$

$$MB = Currency + Bank\ reserves$$

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

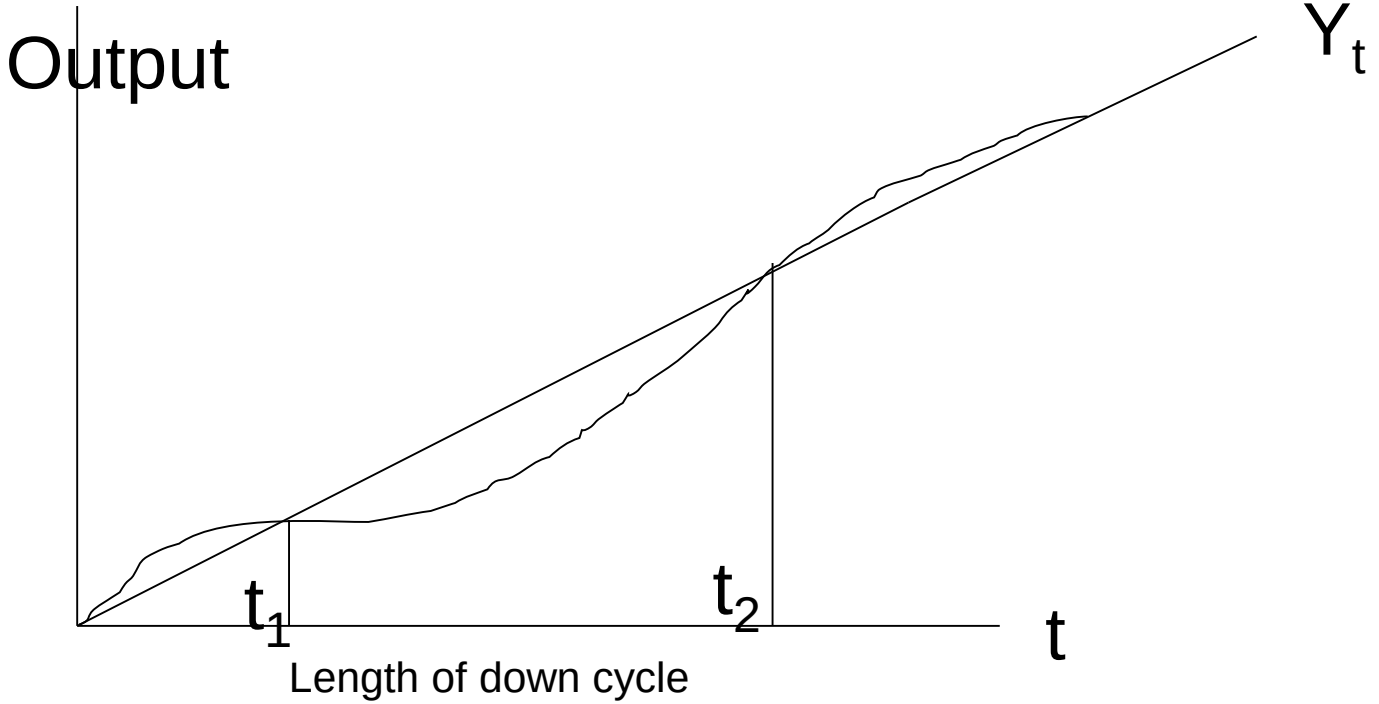
A bar superscript indicate policy instruments:
Reserve ratio, bank policy rate

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



Monetary policy can shorten the duration and reduce the amplitudes of the deviations

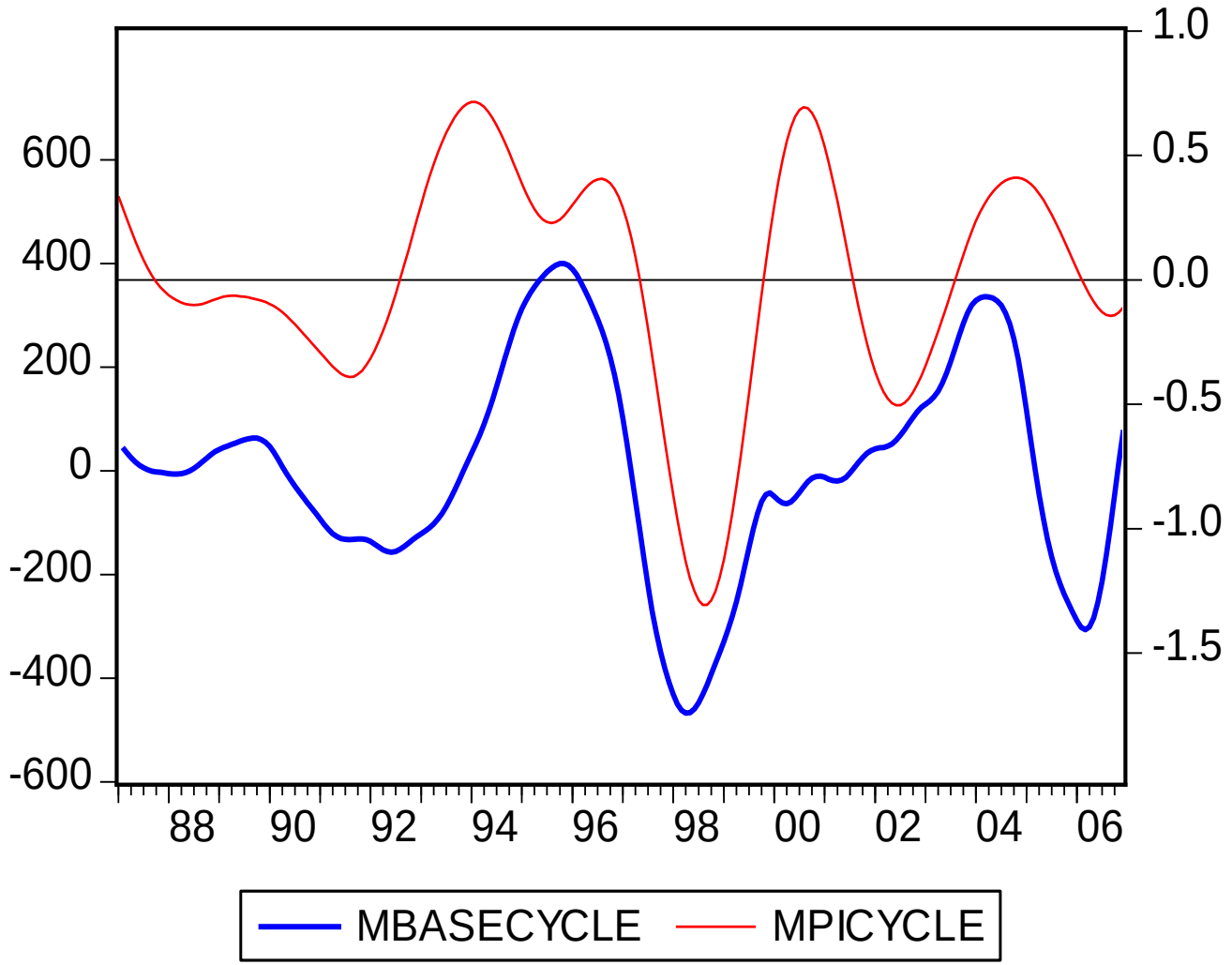
Cyclical Excess: Booms and Busts

- 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).

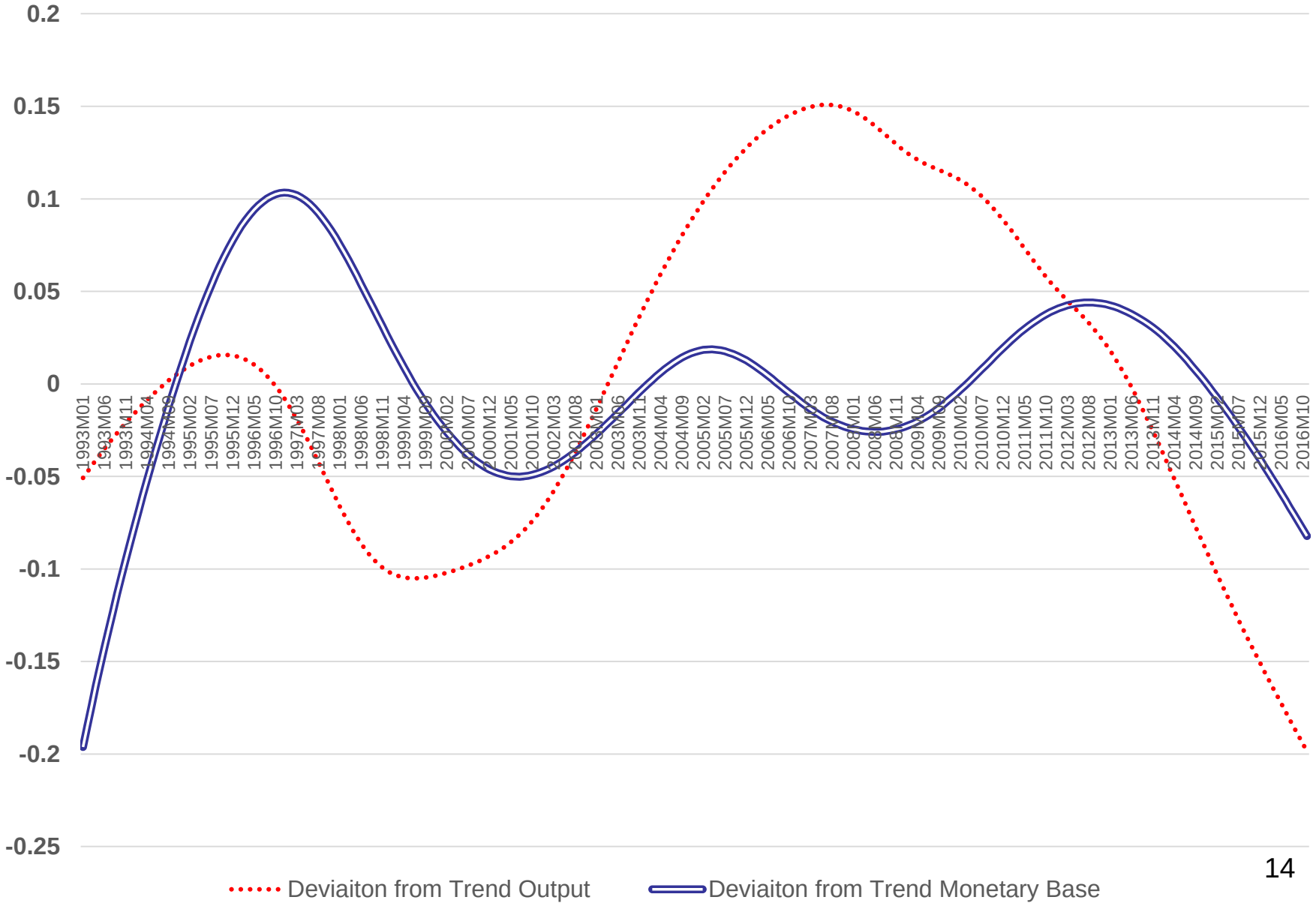
Severe cycles

- 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.

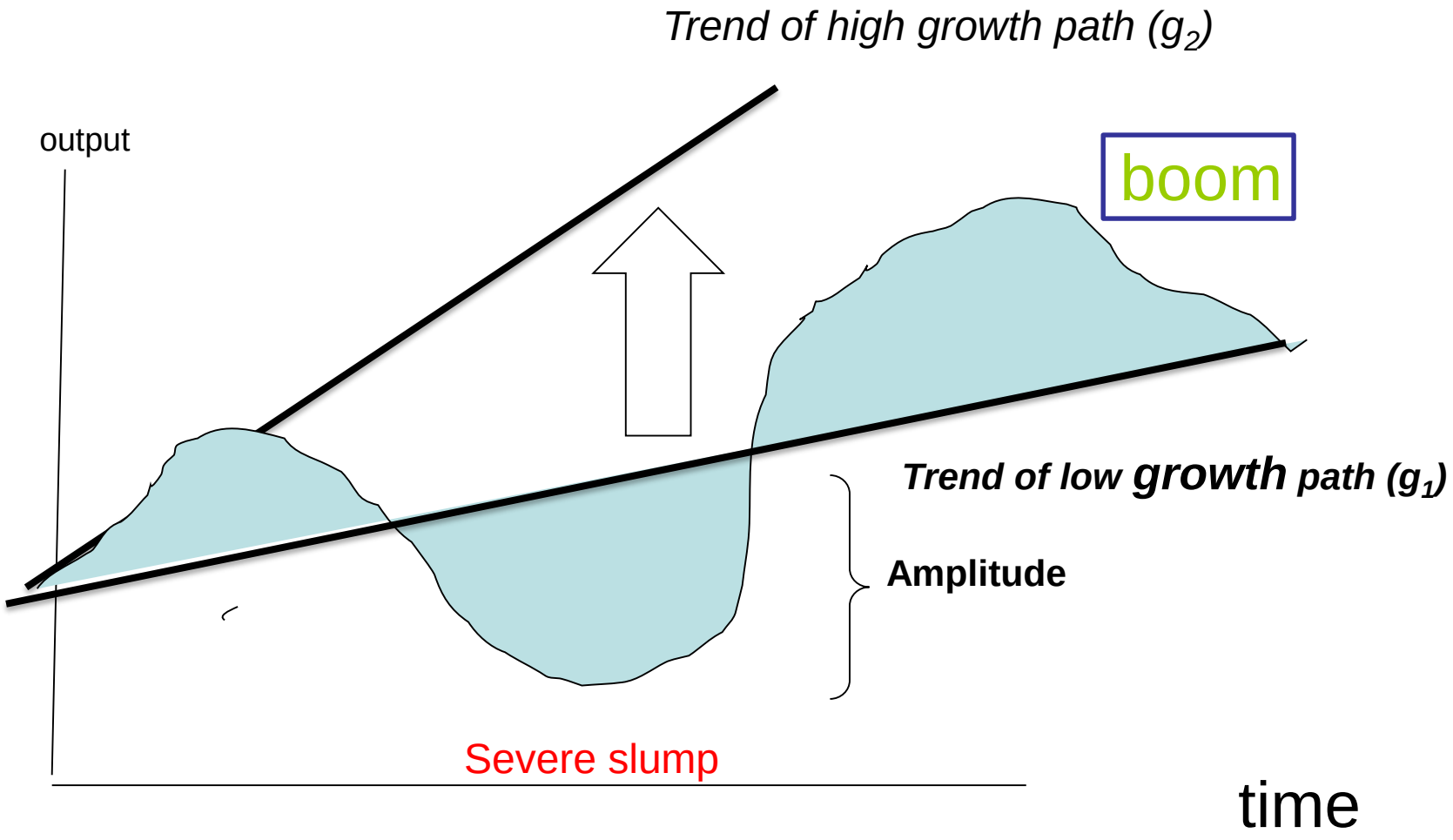
Monetary (MBASE) and output (MPI)cycles
Deviations from trend growth paths



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



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 economic 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.
- The causations run both ways.
- 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.

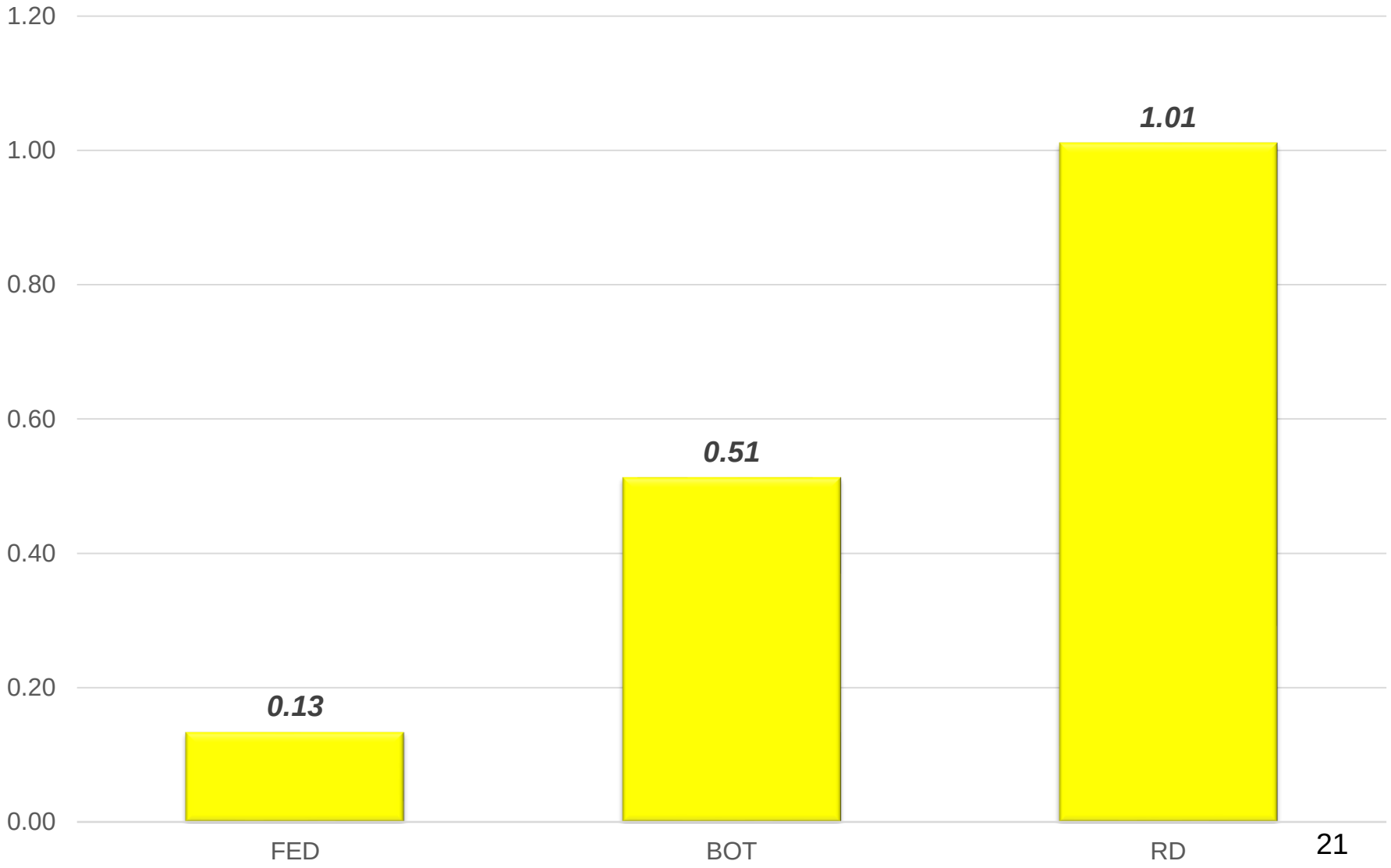
Monetary policy strategy for stable growth

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

2. Monetary policy transmission Channels : interest rates

- Monetary policy instrument is effective in changing 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.
- The business confidence index falls below 50 benchmark indicates deterioration of the confidence

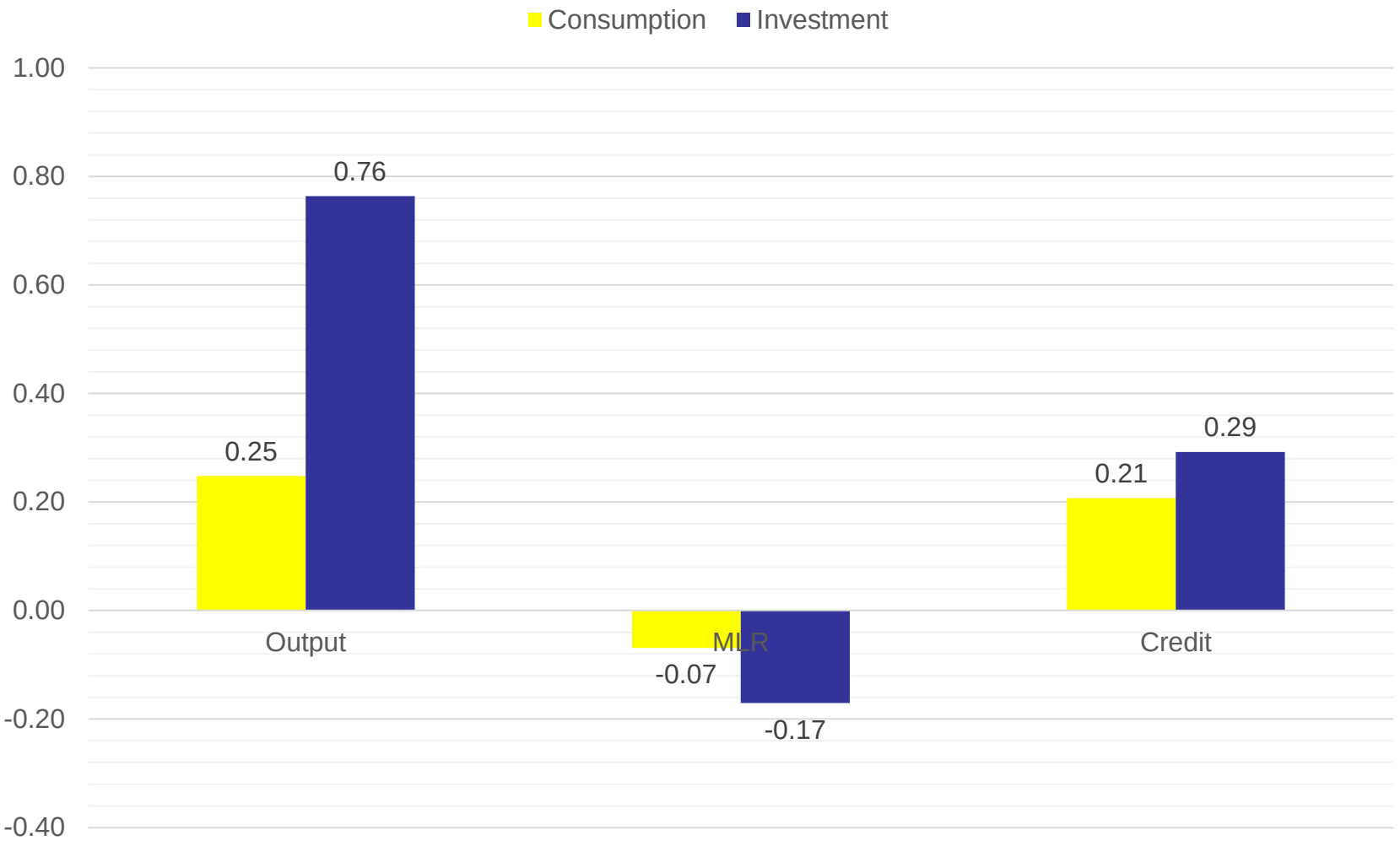
Factors affecting MLR
Source: FMOLS Estimated coefficients
(Jan 1993-June 2017)



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.

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



IMF Study: Credit to GDP and 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 (how bank-centric) and the maturity of its banks, which itself is dependent on such factors as the domestic regulatory environment, culture, and so forth.
- 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%-pts*** in one year were associated with a heightened risk of a financial crisis.
- In Emerging Market aggregate, the credit ratio has increased about 25%-pts since 2008, or 4%-pts per annum for six years straight.
- Importantly, the metric ***only*** reflects bank loans, but n**on-bank lending** also has been strong in some countries.

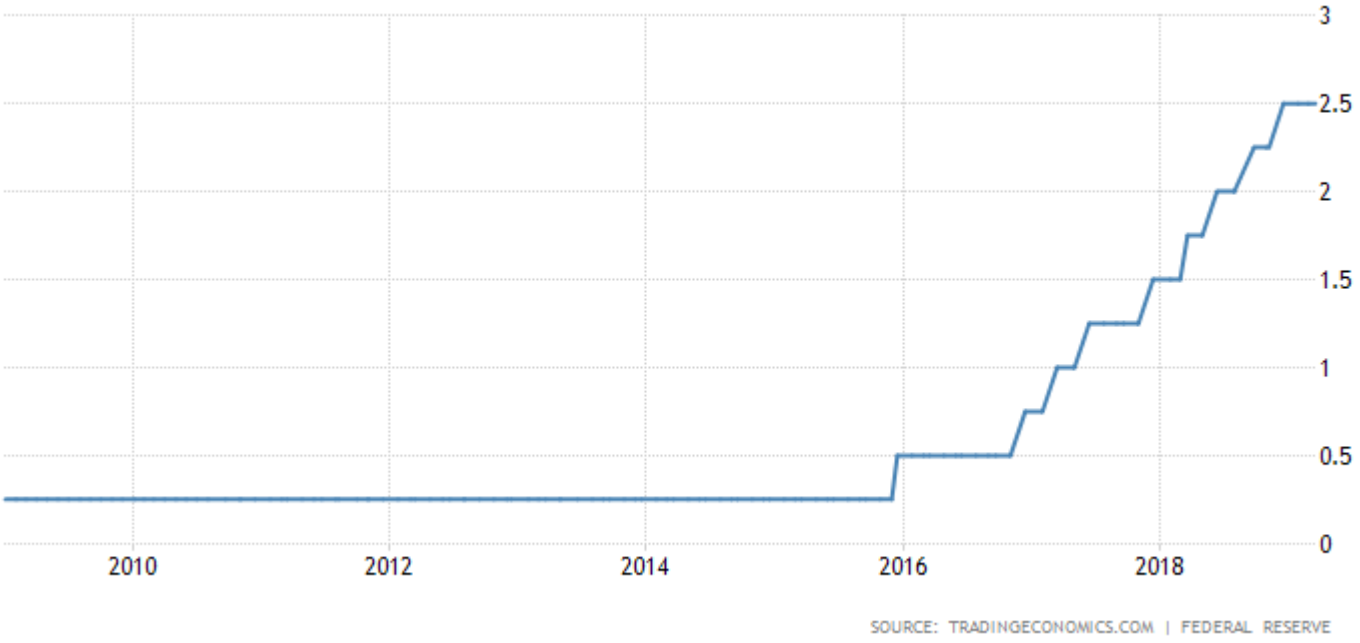
Emerging Markets
Asia Credit Exposure

- 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.)

The trigger of the crisis: Fed's normalizing interest policy

- It is not clear how the buildup in EM private leverage 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 this year by a full percentage point to 2.1 percent. Interest Rate in the United States 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 service

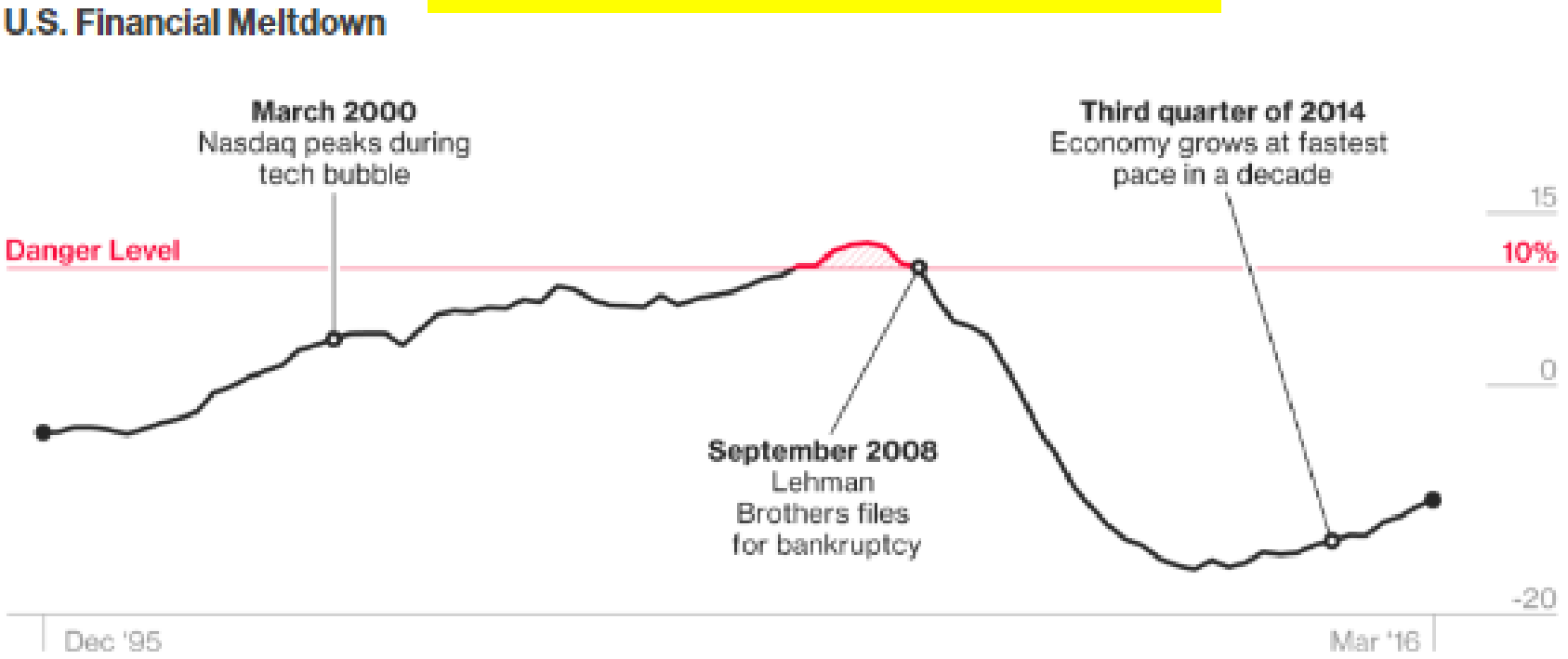
- Domestic interest rates are likely to rise, especially in the more stressed countries where monetary authorities are compelled to tighten policy.
- To the extent that EM debt is short-term or floating, these rate increases will boost debt service.
- The likely increase in defaults and bankruptcies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



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

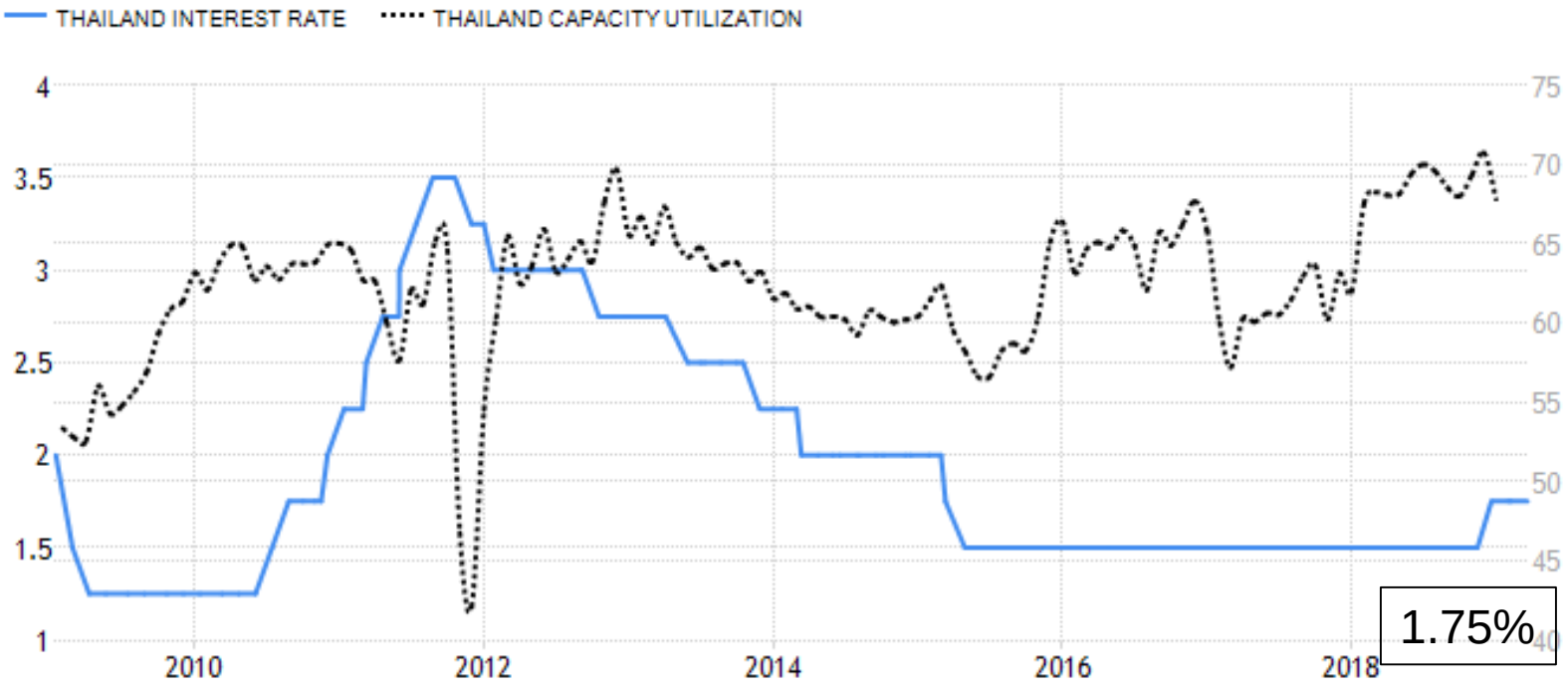
- For countries that are highly dependent on external trade, inflation targeting is akin to targeting the exchange rate.
- Adopting inflation targeting implies a commitment to no other nominal targets.
- **When there is no close and stable relationship** between the short-run monetary instruments and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

Flexible inflation targeting

- 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.

Capacity utilization represents the output gap: the higher the utilization, the closer the full employment level of output

BoT Interest rate (left scale)



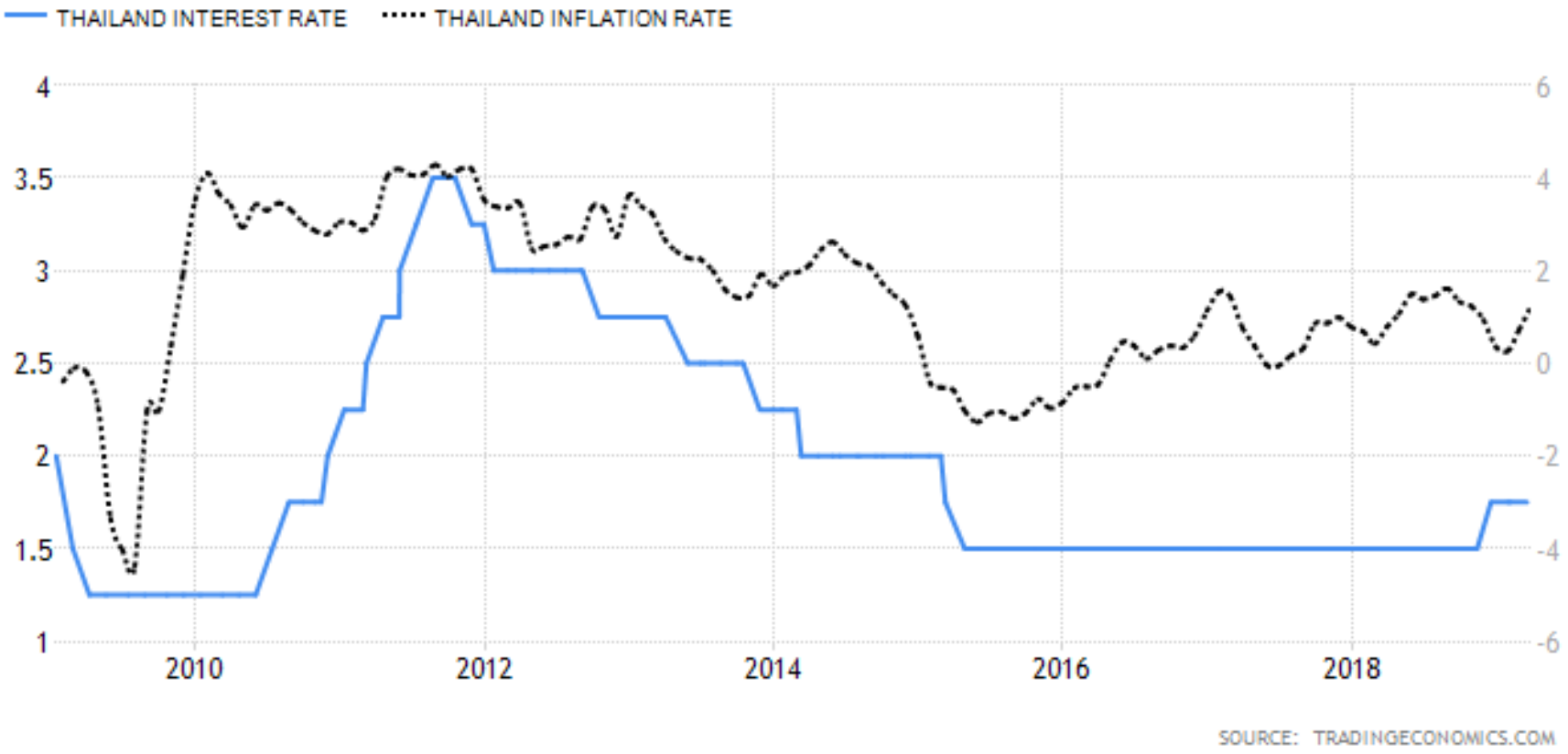
42.1 % (November 2011)

Source: Tradingeconomics.com

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
- Wrong target? CPI vs. House Prices?

BoT key policy rate vs CPI inflation

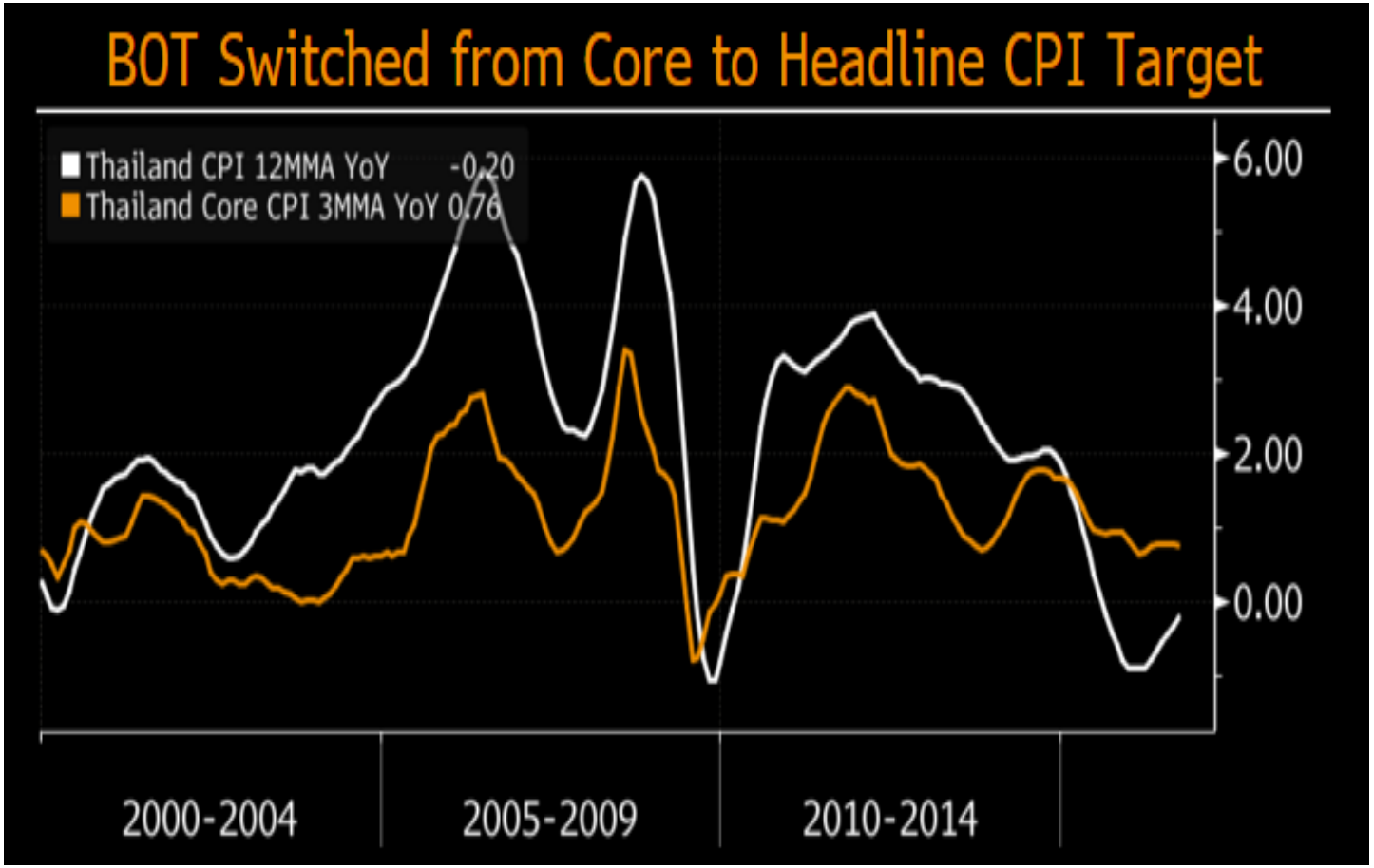


The BOT uses the one-day bilateral repurchase transaction rate to signal its monetary stance. Decisions are made by a seven-member MPC currently led by the BoT Governor, whose five-year term began on Oct. 1, 2015.

BoT's Flexible Inflation Target

- The Bank of Thailand has a flexible inflation target framework, paying attention to economic growth and ***financial stability***.
- Since 2015, the objective has been annual average headline inflation of 2.5% +/- 1.5 ppt.
- 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).
- 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, Headline inflation target was set at between 2.5 % and -0.5%

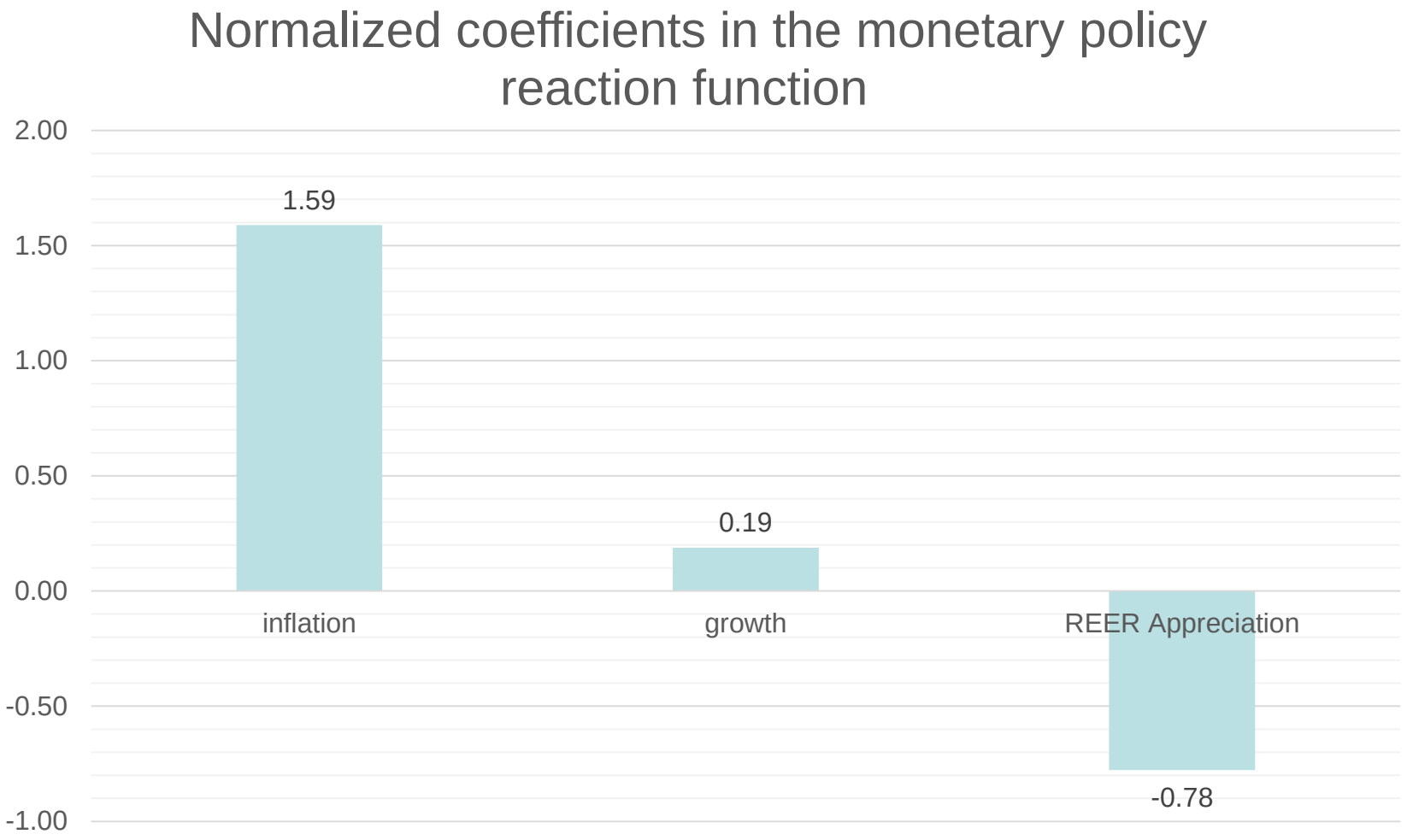


0.0% - 3.5%

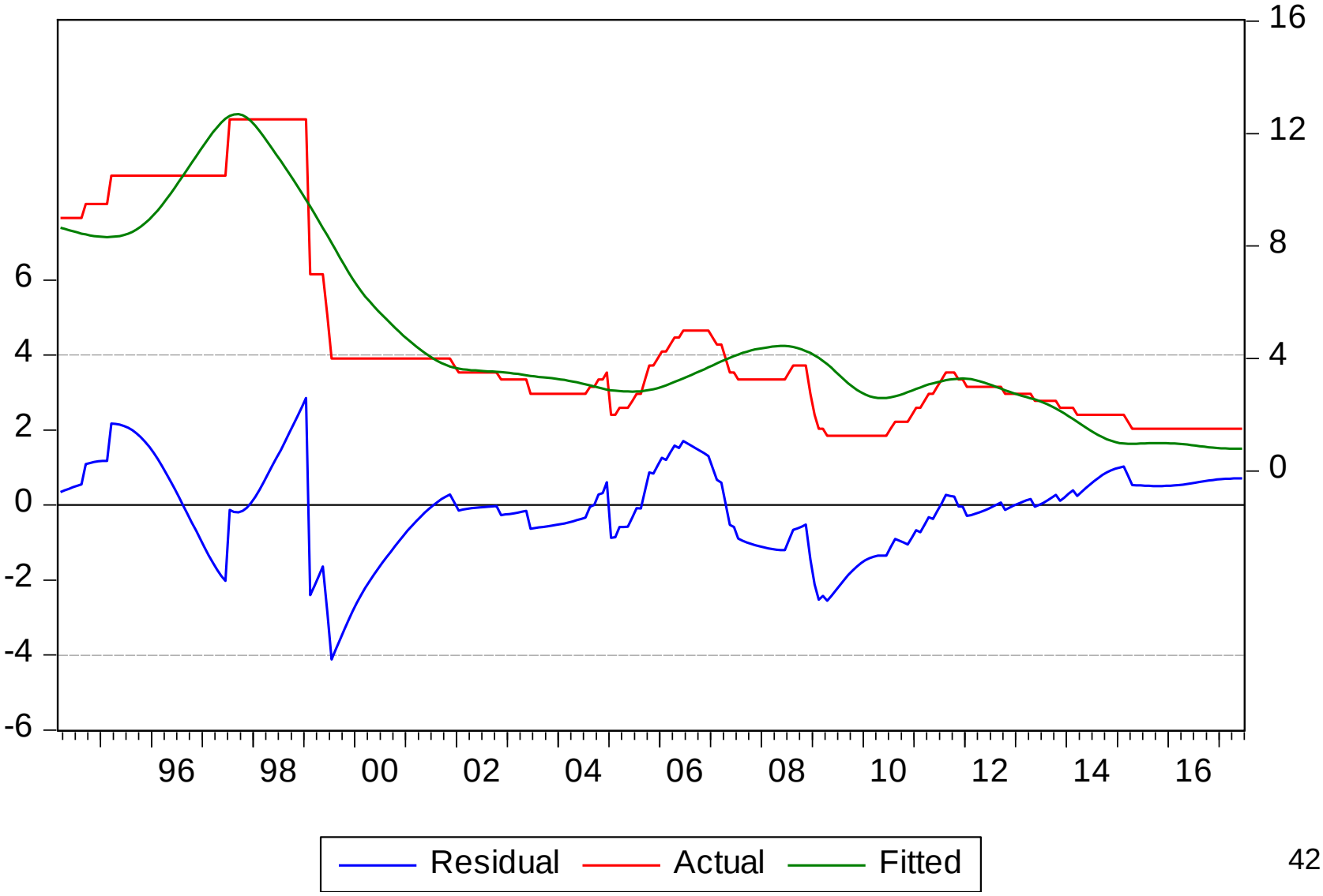
0.5 - 3%

-0.5-2.5%

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



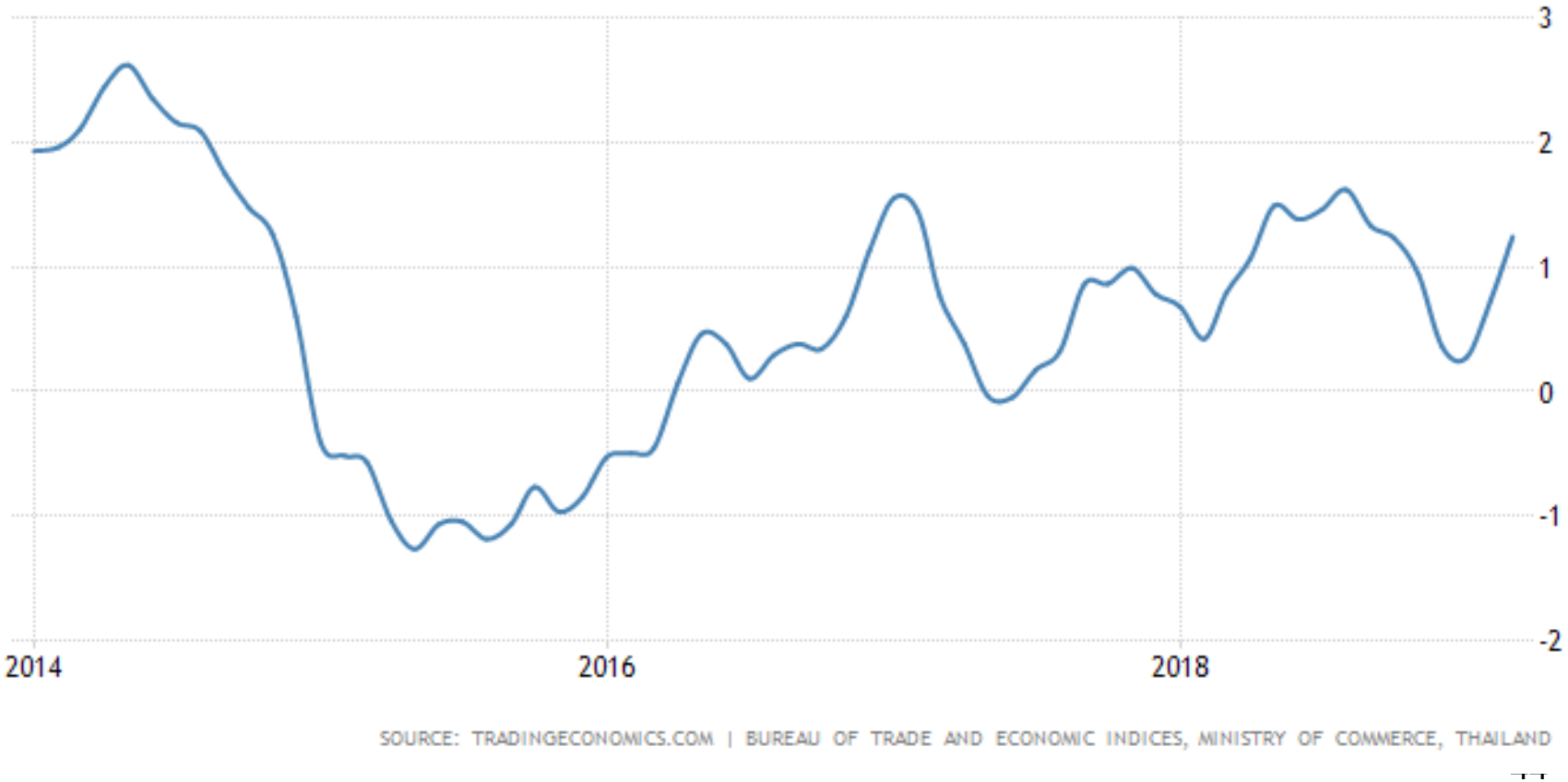
BoT has maintained the key policy rate at *1.5 % September 2018*



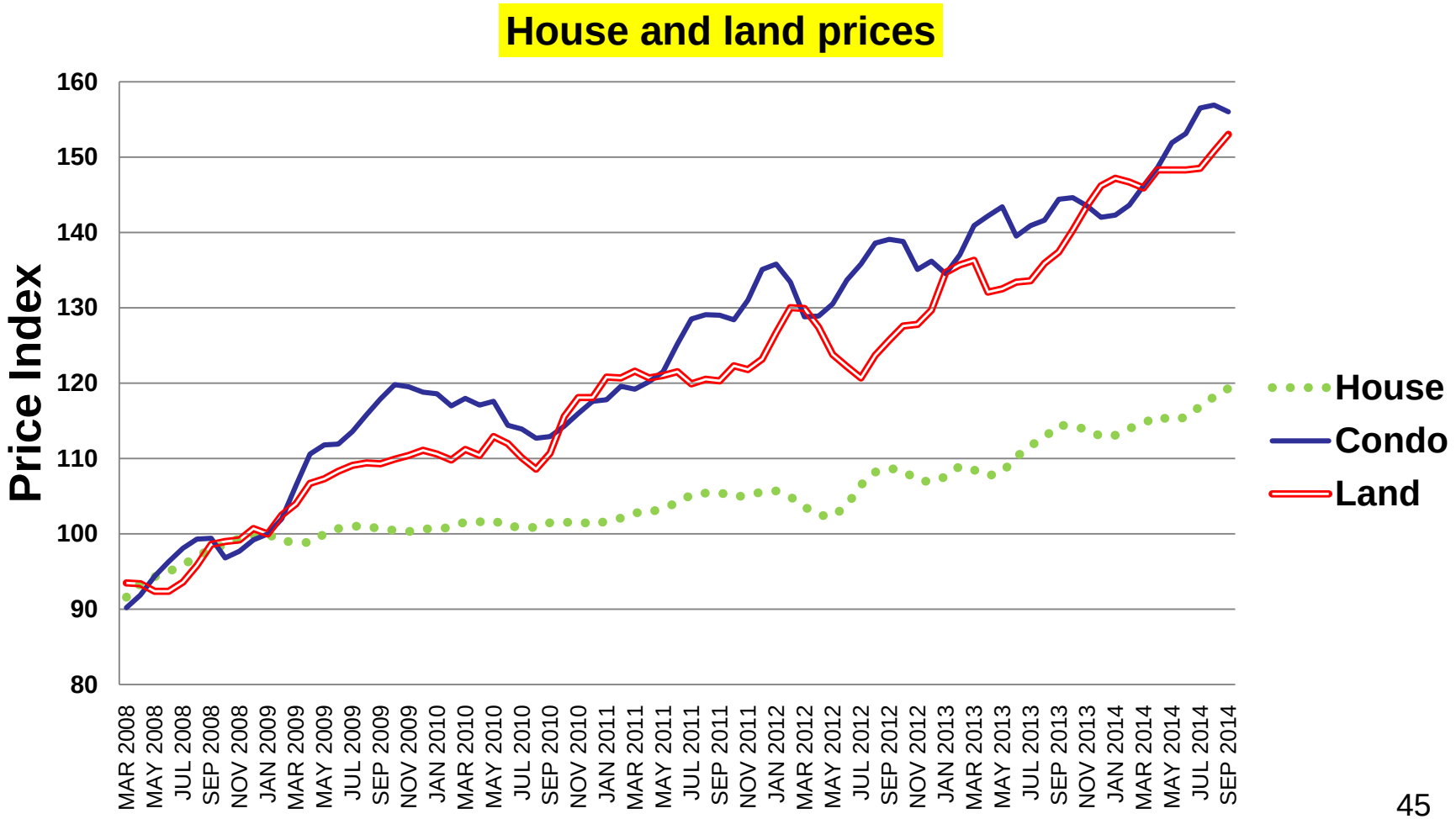
Monetary Policy Committee

- The Bank of Thailand voted by five to two to maintain the policy rate at 1.5 percent on September 19th 2018, as widely expected.
- The Committee said that the current monetary policy stance continued to support economic growth and should support the increase of inflation rate toward its target.
- Annual inflation rate increased to 1.6 percent in August from 1.5 percent in July.
- Still, two members voted to raise the policy rate by 25bps to 1.75 percent.

Thailand's annual inflation rate rose to 1.24 percent in March 2019 from 0.73 percent in February and above market consensus of 0.93 percent. It was the highest inflation rate since September last year, amid a faster rise in cost of food & non-alcoholic beverages (2.4 percent vs 1.9 percent in February) and a sharp rebound in cost of transport & communication prices (0.8 percent vs -0.7 percent).



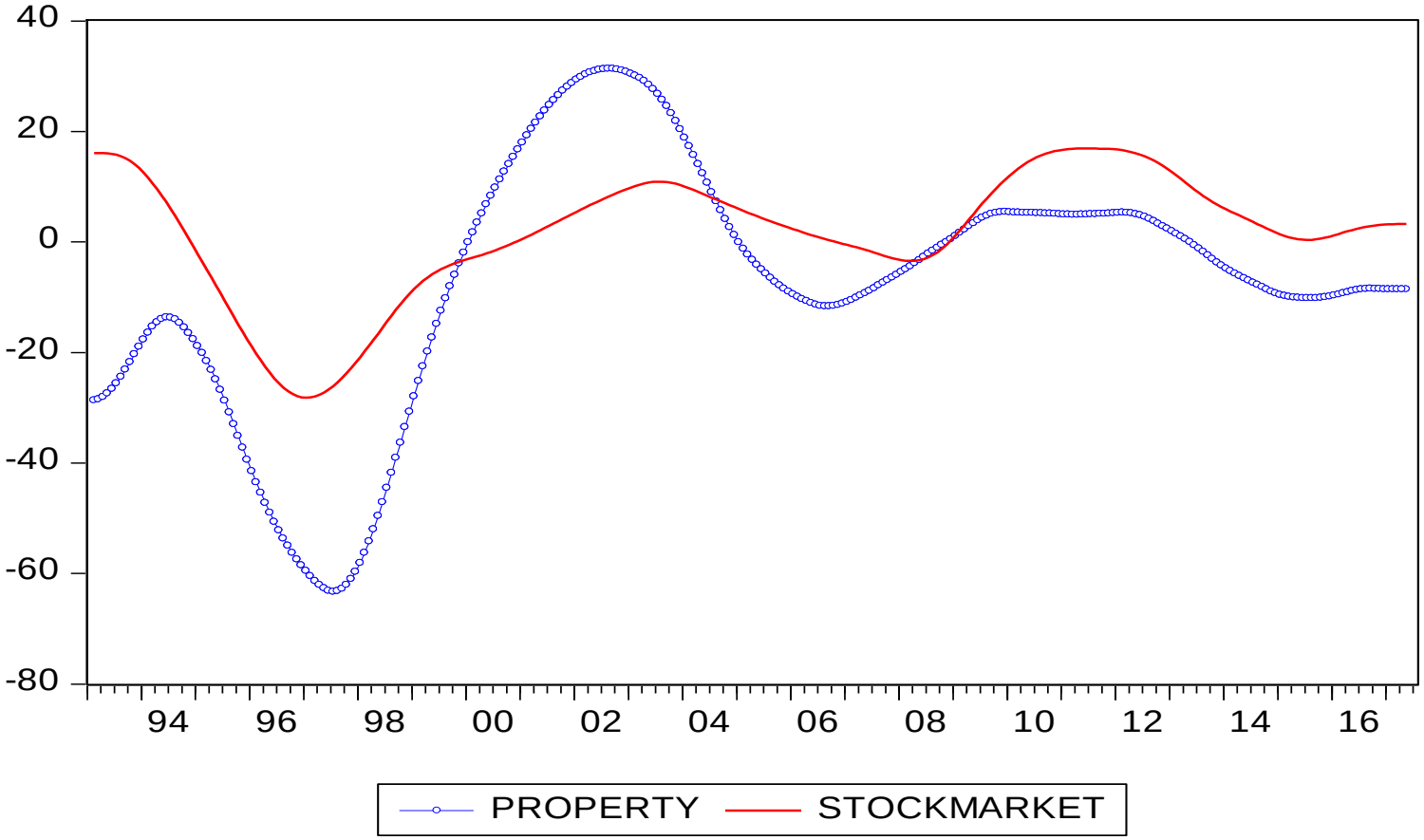
4. Asset Price Bubbles



Approximation of hidden asset bubbles

- The size of the property bubble can be approximated by the ***change*** in the HP 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.

Correlates of Stock prices and property sector activity



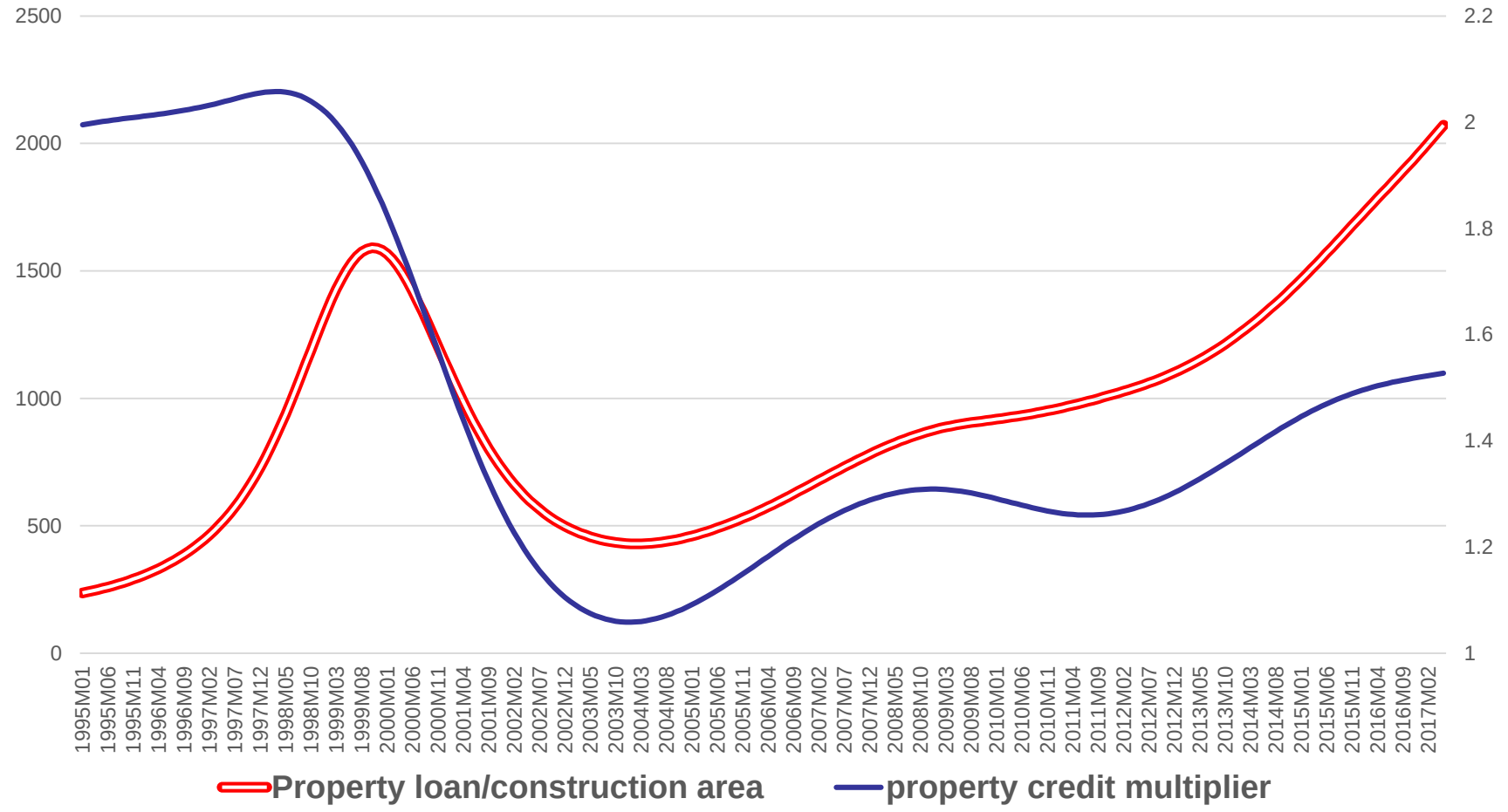
$$Credit = \kappa MB$$

$$MB = NFA + CoG + CoF$$

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

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

Excessive Expansion in Property Credit



An early warning indicator

- Credit multiplier increased abnormally high and deviated entirely from the behavior of deposit and money multipliers.
- We can monitor the financial sector by using the credit multiplier as an early warning indicator for over-lending.

The central bank can prick the bubble

- Rising bank minimum lending (MLR) rate increases the credit multiplier, while the BOT's lending rate reduces the credit multiplier.
- Deposit multiplier does not lead to a significant change in credit multiplier as the behavior of savers is entirely different from banks.

The central bank and the control of credit multiplier

- 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.
- 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.

Root cause: Slow supply adjustments

- Quantity demand adjusts faster than the quantity supply
- 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.

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	

Sources: Central banks and Moody's Investors Service

BANGKOK POST GRAPHICS

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%**	**20%** In case that the first mortgage is not paid off yet
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)	
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.

Source: Bank of Thailand

BANGKOK POST GRAPHICS

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
IDE-JETRO

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

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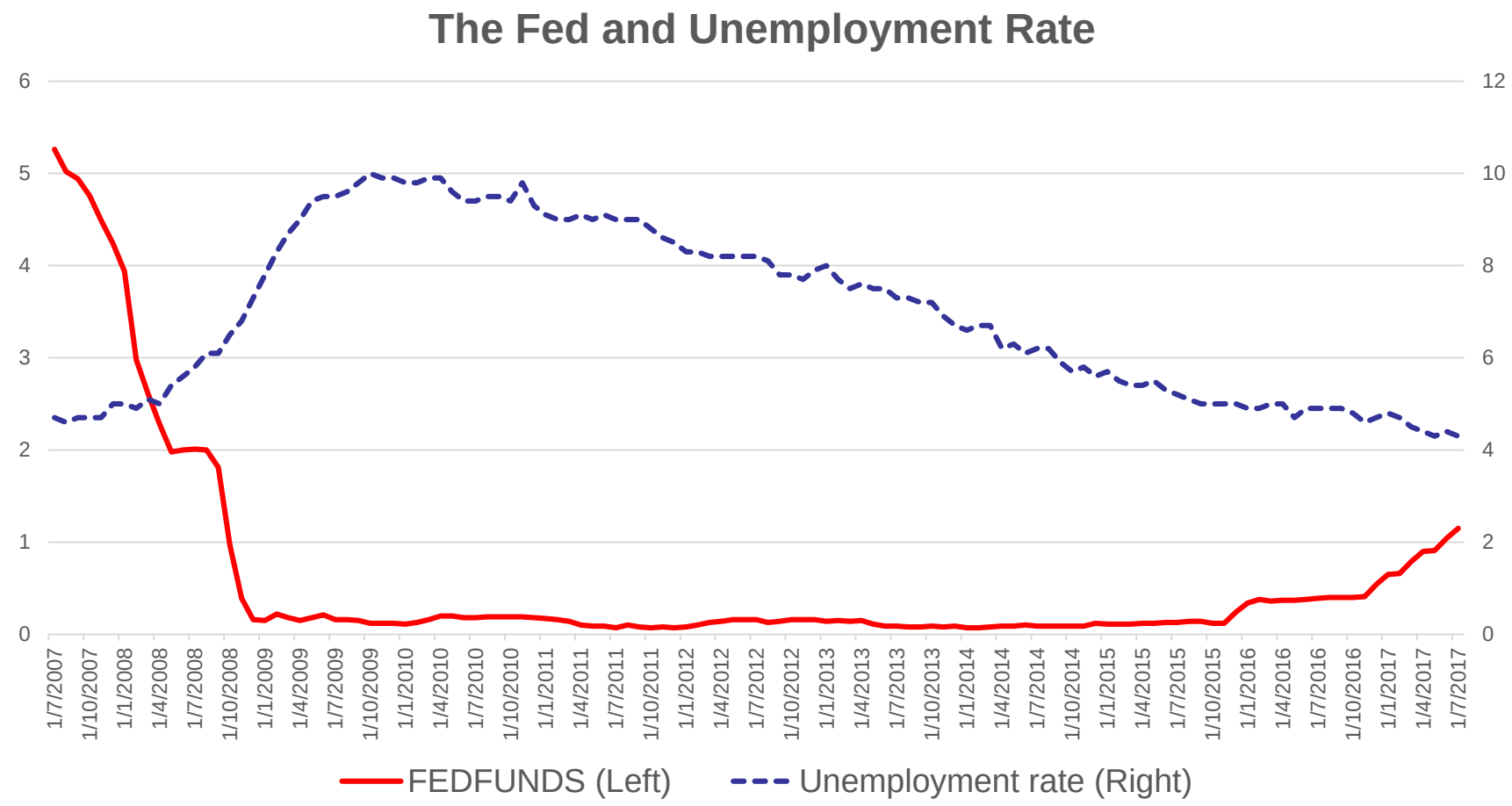
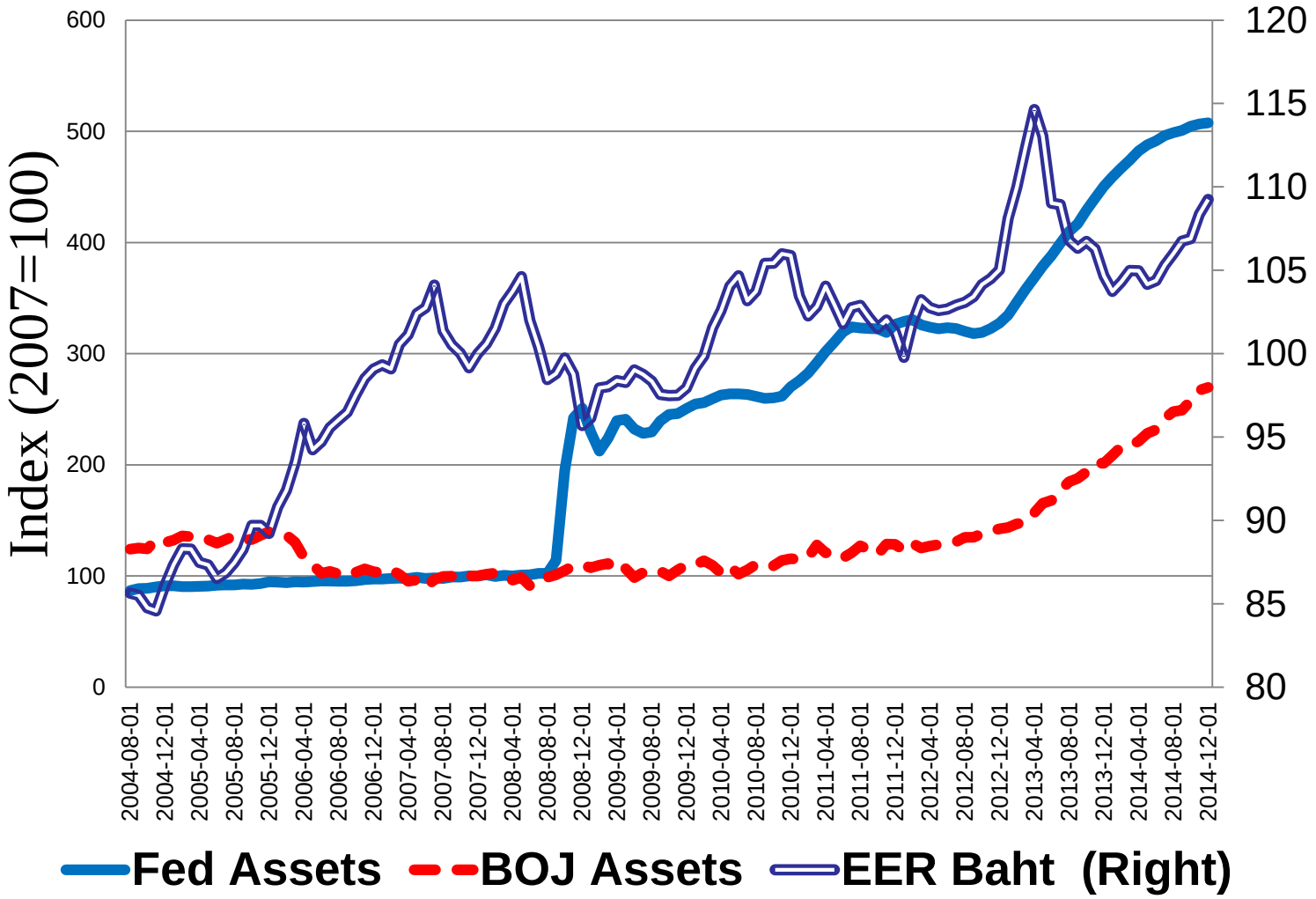
Taylor's rule is an activist rule



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