Monetary Policy Strategy for long term growth and price stability

Bhanupong

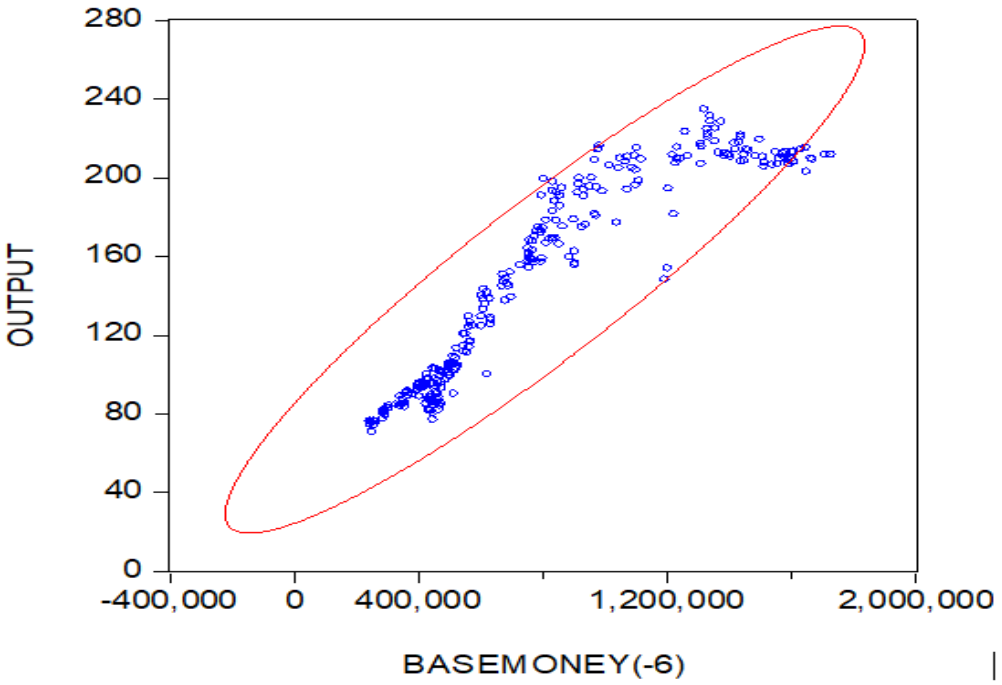
Lecture 24

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.



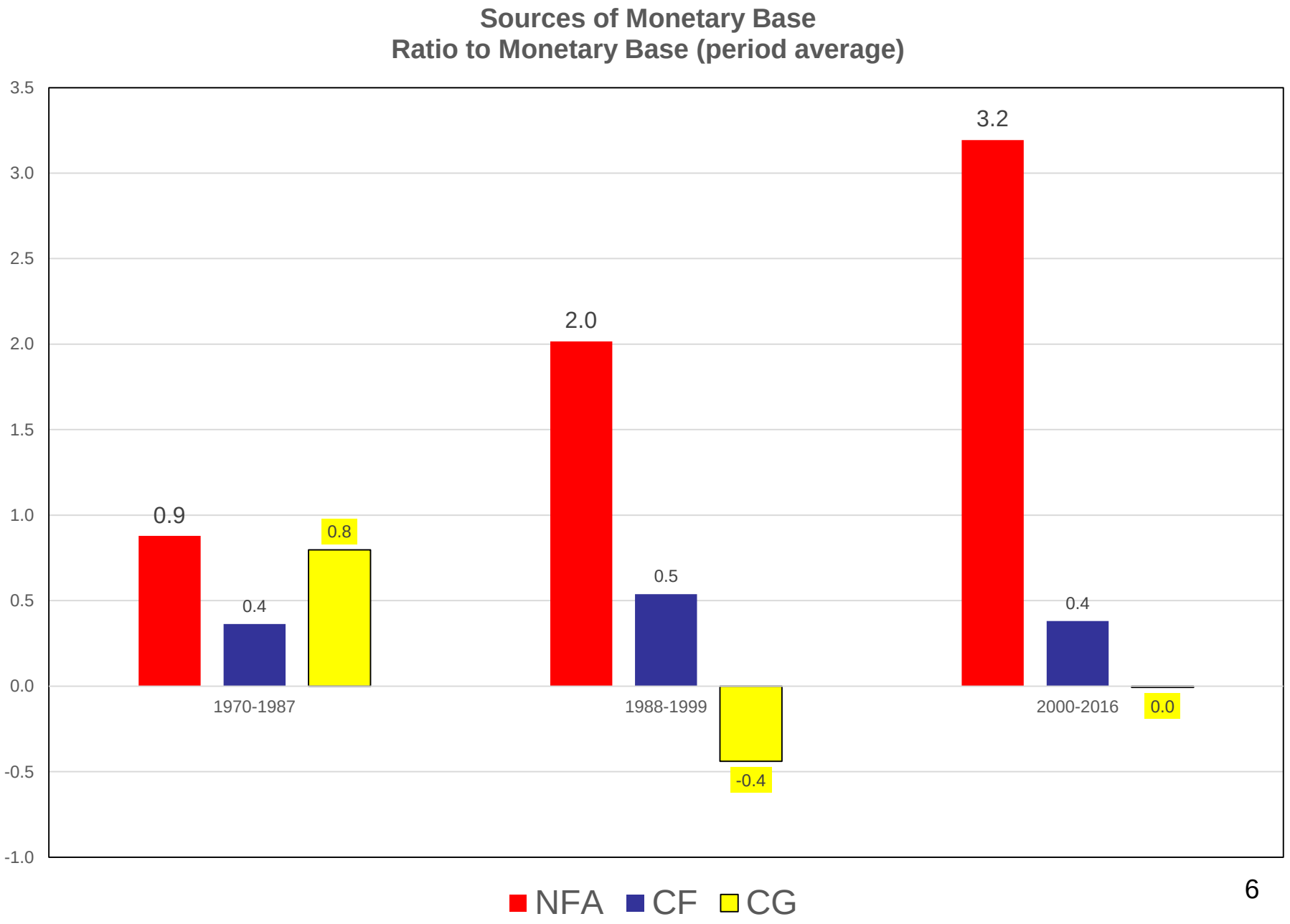
Money and economic activity

- 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 actually slower than that of the US.
- Growth in money supply is definitely 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 very bad 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)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
0.9
0.4
0.8
2.0
0.5
-0.4
3.2
0.4
0.0
1970-1987
1988-1999
2000-2016
NFA
CF
CG

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?

$$Credit = \kappa MB$$

$$\kappa > 1$$

$$MB = NFA + CoG + CoF$$

$$MB = Currency + Bank\ reserves$$

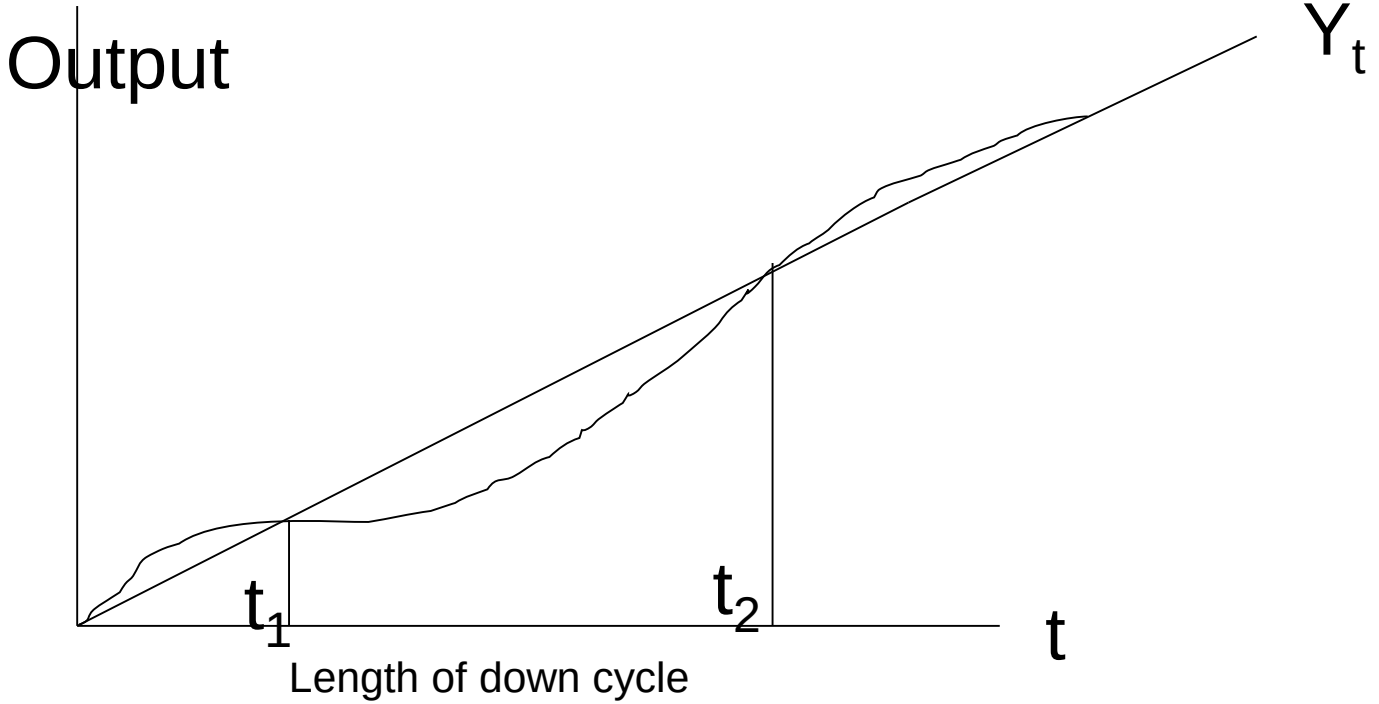
$$\kappa = \kappa(\bar{R}, r_L, \bar{r}_p, \psi)$$

A bar superscript indicates policy instrument

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 The amplitudes of the deviations

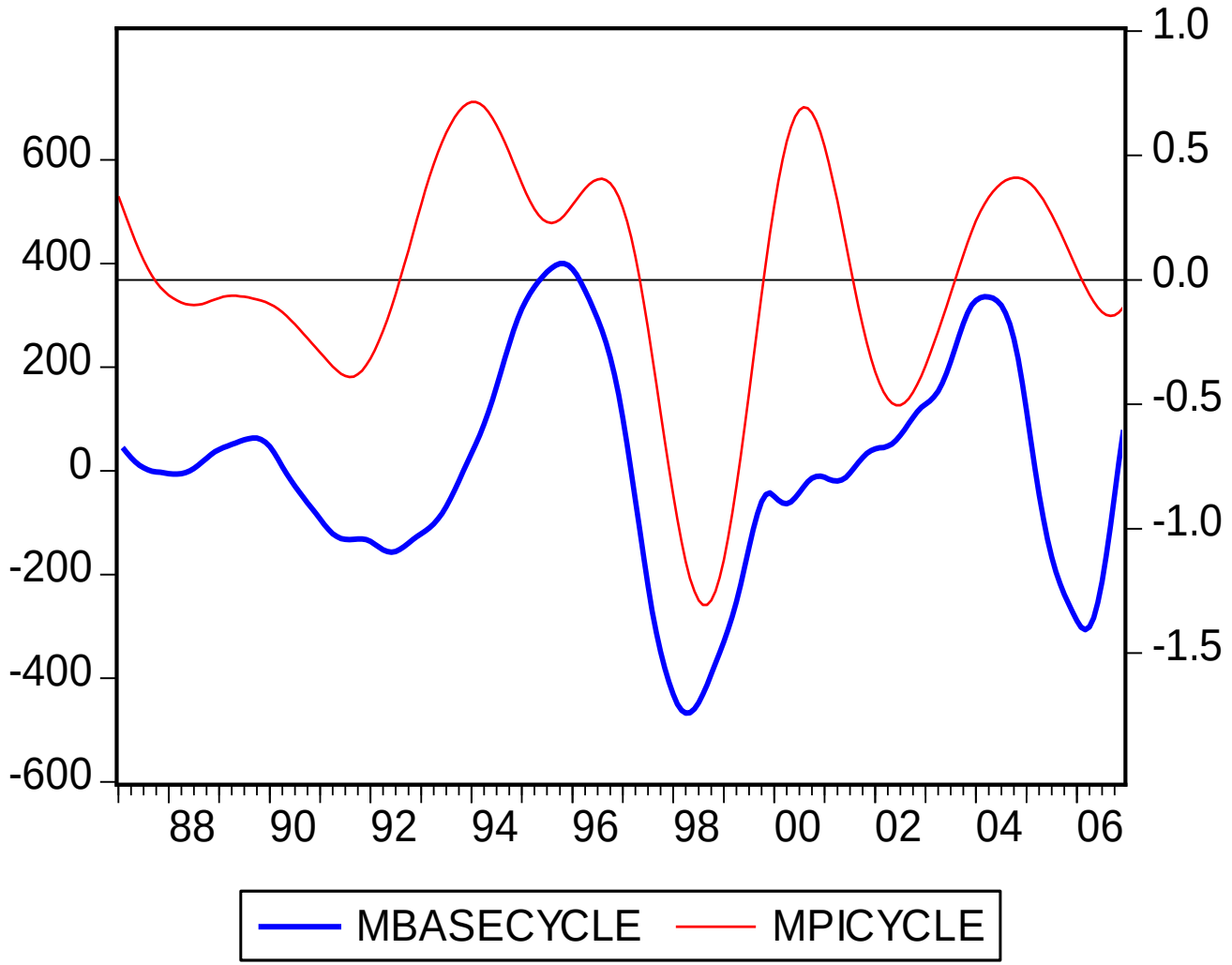
Cyclical Excess: Booms and Busts

- 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).

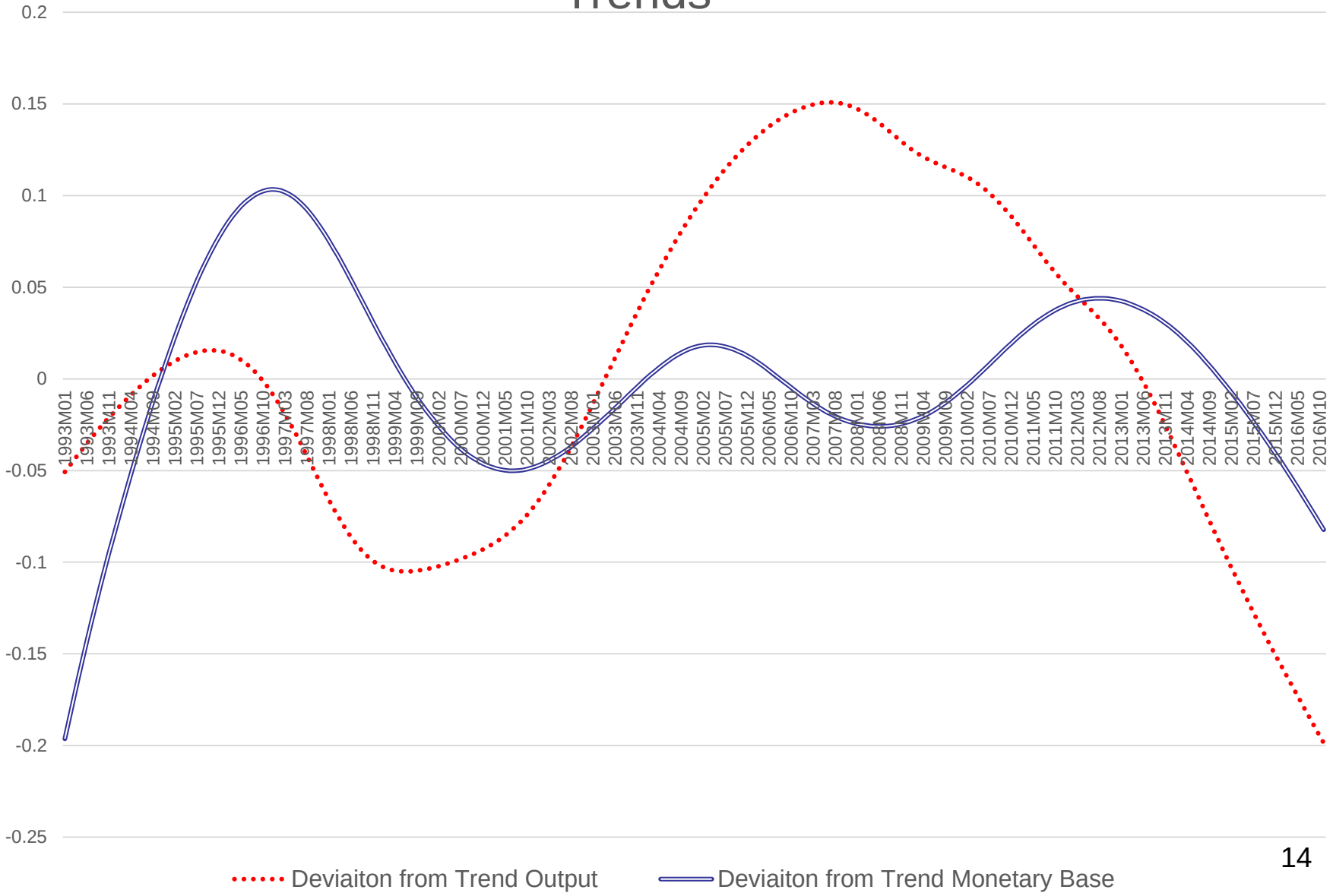
Severe cycles

- 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 business cycle.

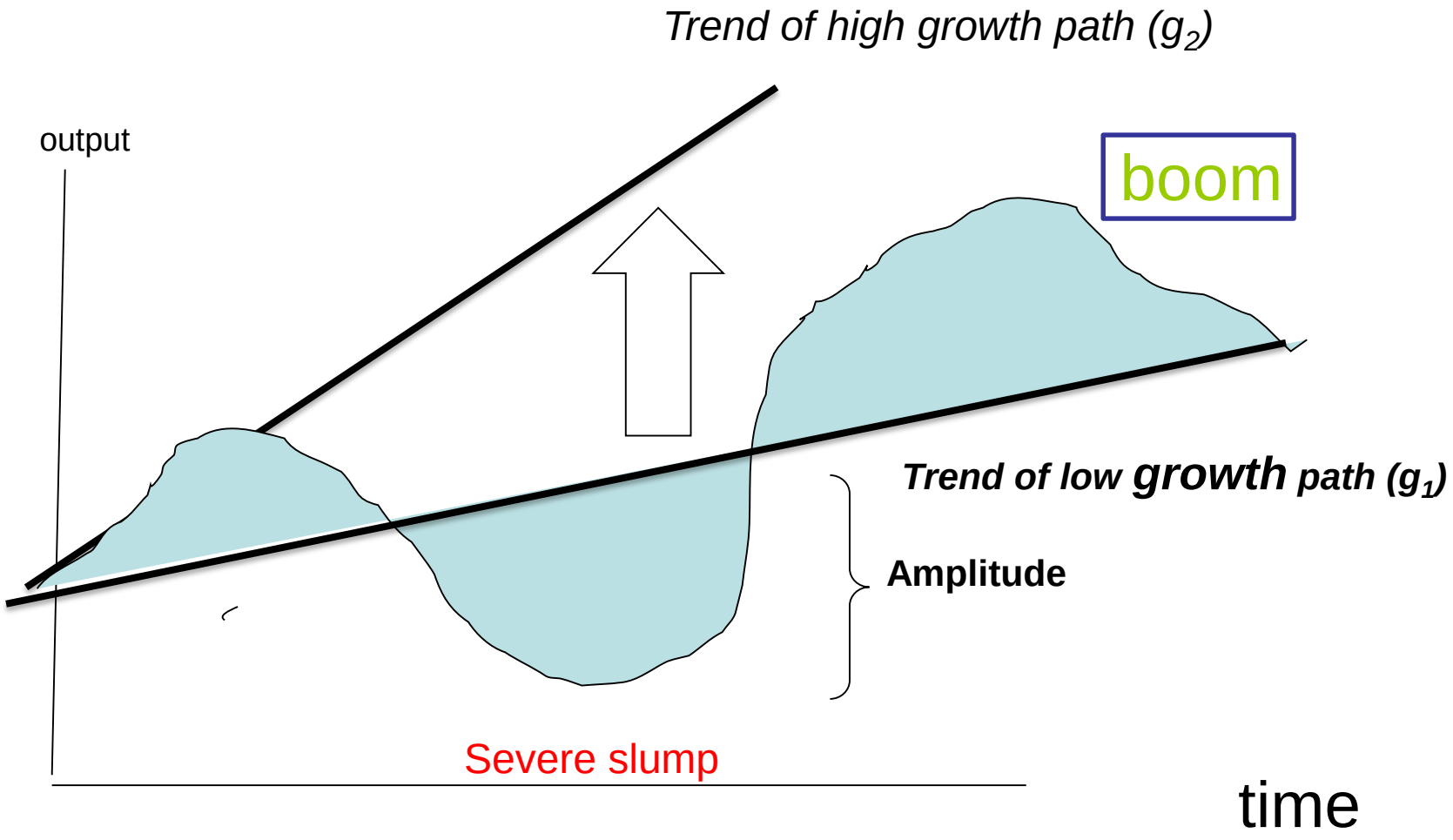
Monetary and output cycles
Deviations from trend growth paths



Output and Monetary Base: Deviations from Trends



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 normal 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 were 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 strong impact of 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 monetary 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.

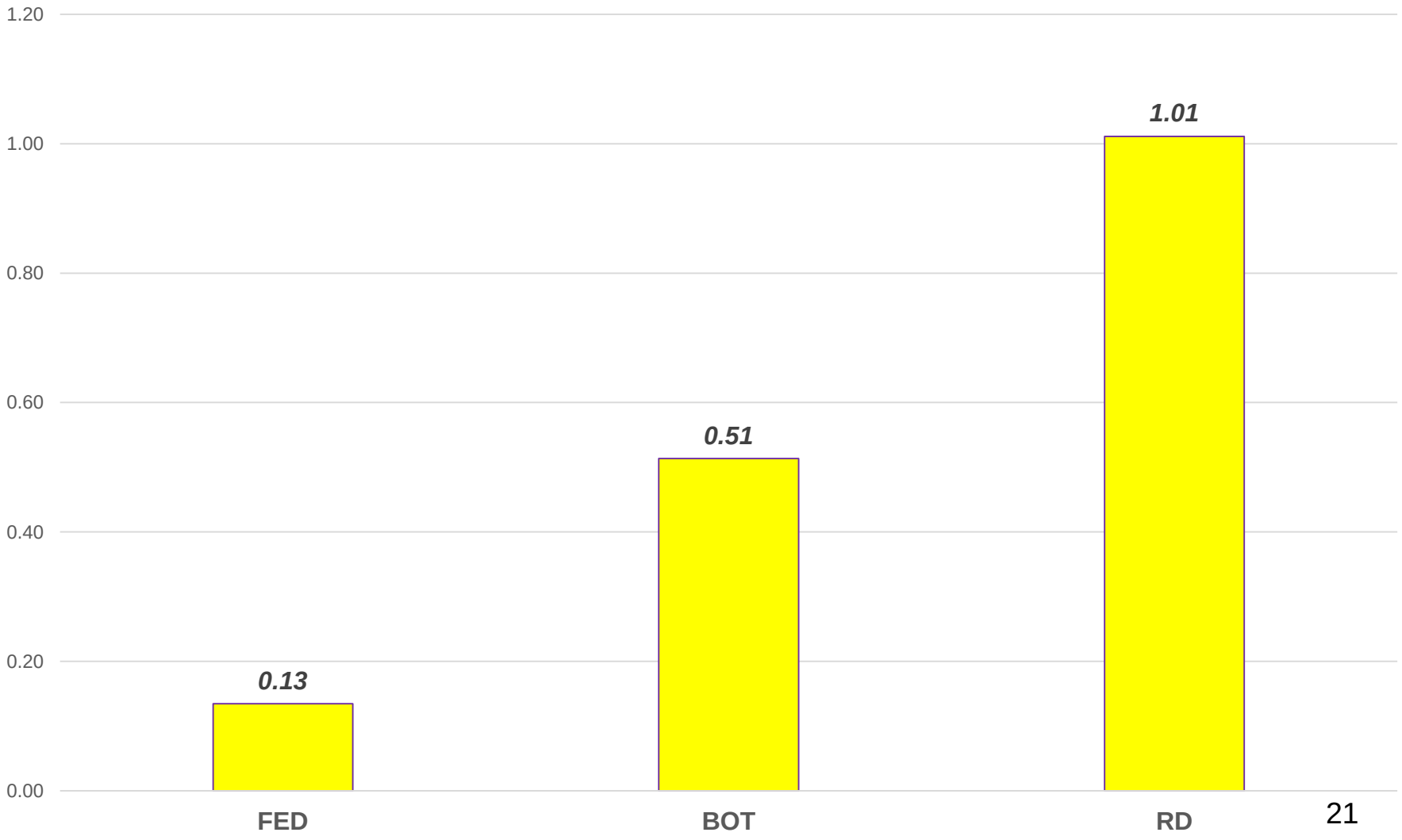
Monetary policy strategy for stable growth

- To maintain a ***stable*** growth path**,** **monetary base** must be kept in line with output growth .
- Note that there are 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

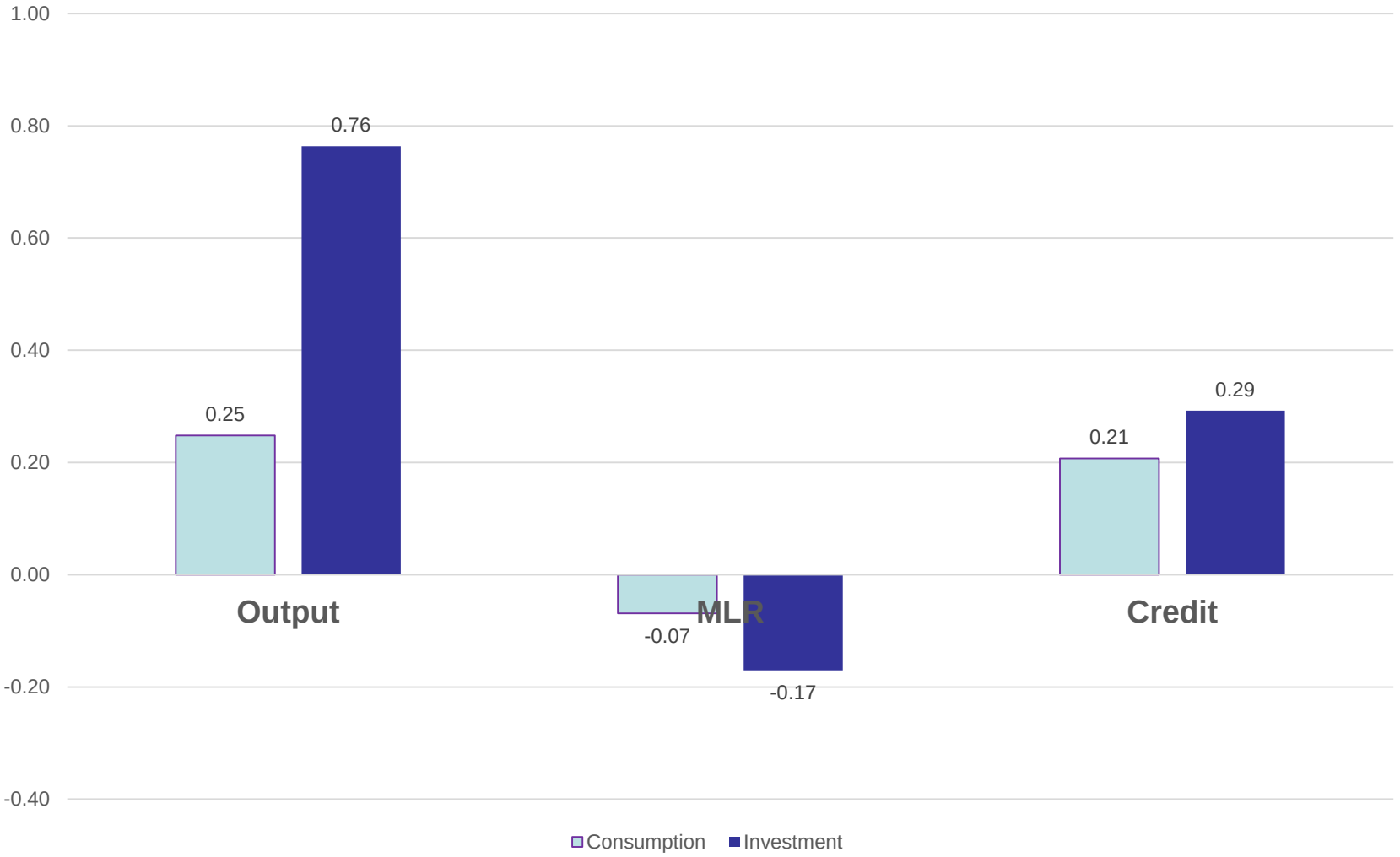
Factors affecting MLR
Source: FMOLS Estimated coefficients
(Jan 1993-June 2017)



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.

High credit-to-GDP Ratio, greater 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.

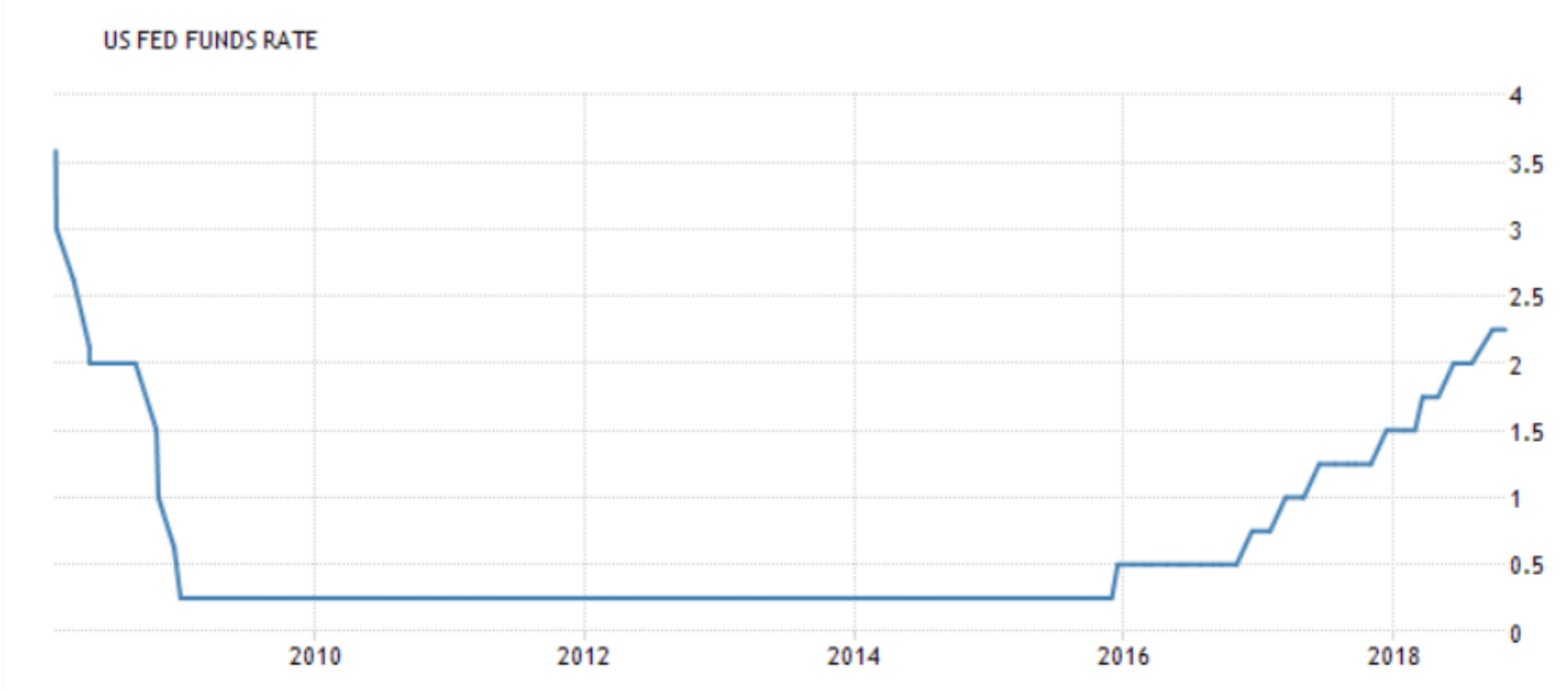
Emerging Markets
Asia Credit Exposure

- 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.

The Federal Reserve raised the target range for the federal funds rate by 25bps to 2 percent to 2.25 percent during its September 2018 meeting, in line with market expectations. Policymakers see one more rate hike this year, 3 increases in 2019 and 1 in 2020, in line with previous projections.



Rising debt service

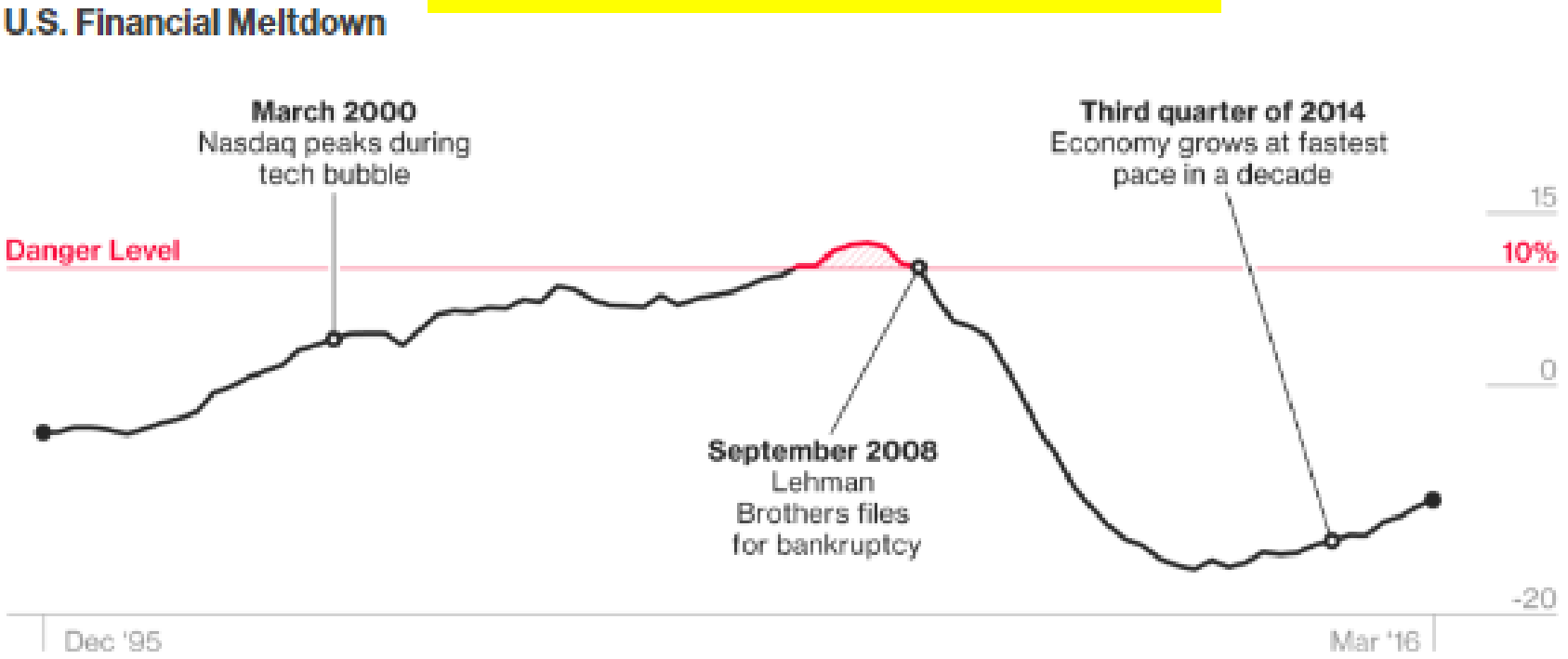
- Domestic interest rates are likely to rise, especially in the more stressed countries where monetary authorities are compelled to tighten policy.
- To the extent that EM debt is short-term or floating, these rate increases will boost debt service.
- The likely increase in defaults and bankruptcies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

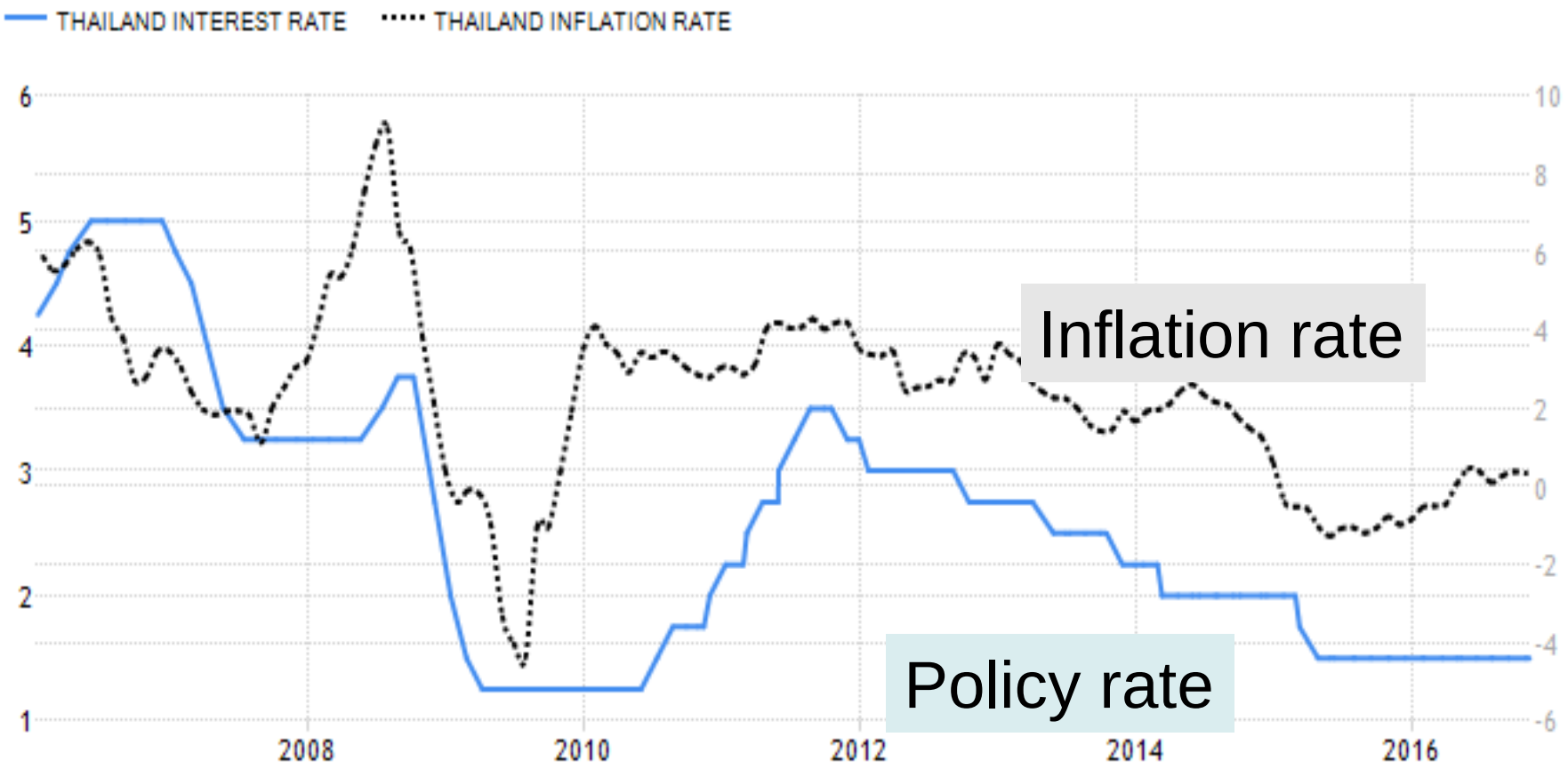
Caveat on inflation targeting

- 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-tern interest rates (under developed bond market), a policy rule like the Taylor's rule may not produce a desirable outcome.
- In particular, if monetary policy has a long and variable lag effects.

Flexible inflation targeting

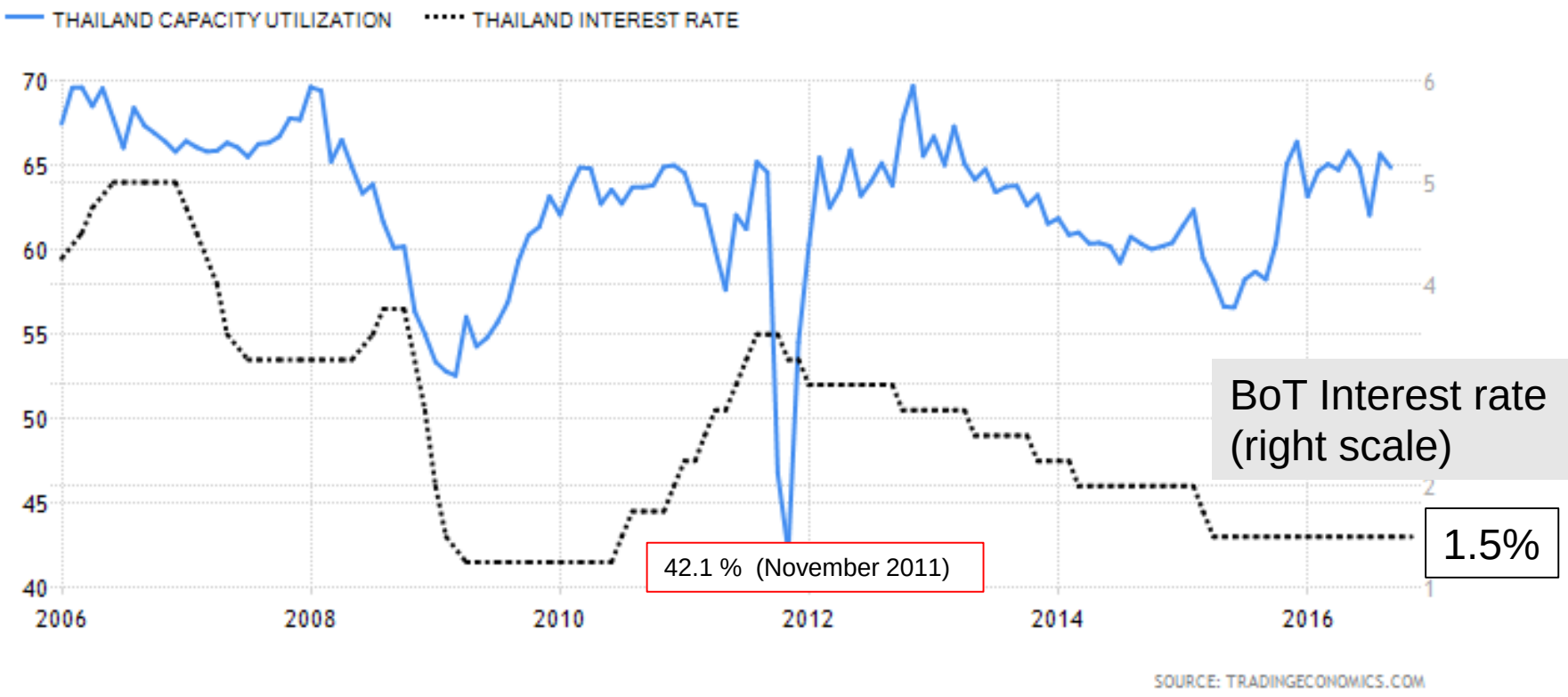
- We are now entering an episode of a slowdown in growth.
- Growth depends less on consumption and investment.
- Fiscal policy has become less effective in stimulating growth.

BoT key policy rate (left scale)
CPI inflation (right scale)



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.

Capacity Utilization in Thailand increased to 63.65 Index Points in September from 62.98 Index Points in August of 2017. Capacity Utilization in Thailand averaged 62.87 Index Points from 2000 until 2017, reaching an all time high of 70.09 Index Points in December of 2004 and a record low of 42.11 Index Points in November of 2011.



Source: Tradingeconomics.com

Flexible Inflation Target (FIT)

- Many central banks have adopted FIT
- FRB in 2012 (2% target)
- BOJ announced 2% target in Jan 2013
- But FIT has problems
- Financial stability and prevention of asset bubbles may override FIT
- Under zero interest rate policy, QE may not be effective to achieve FIT

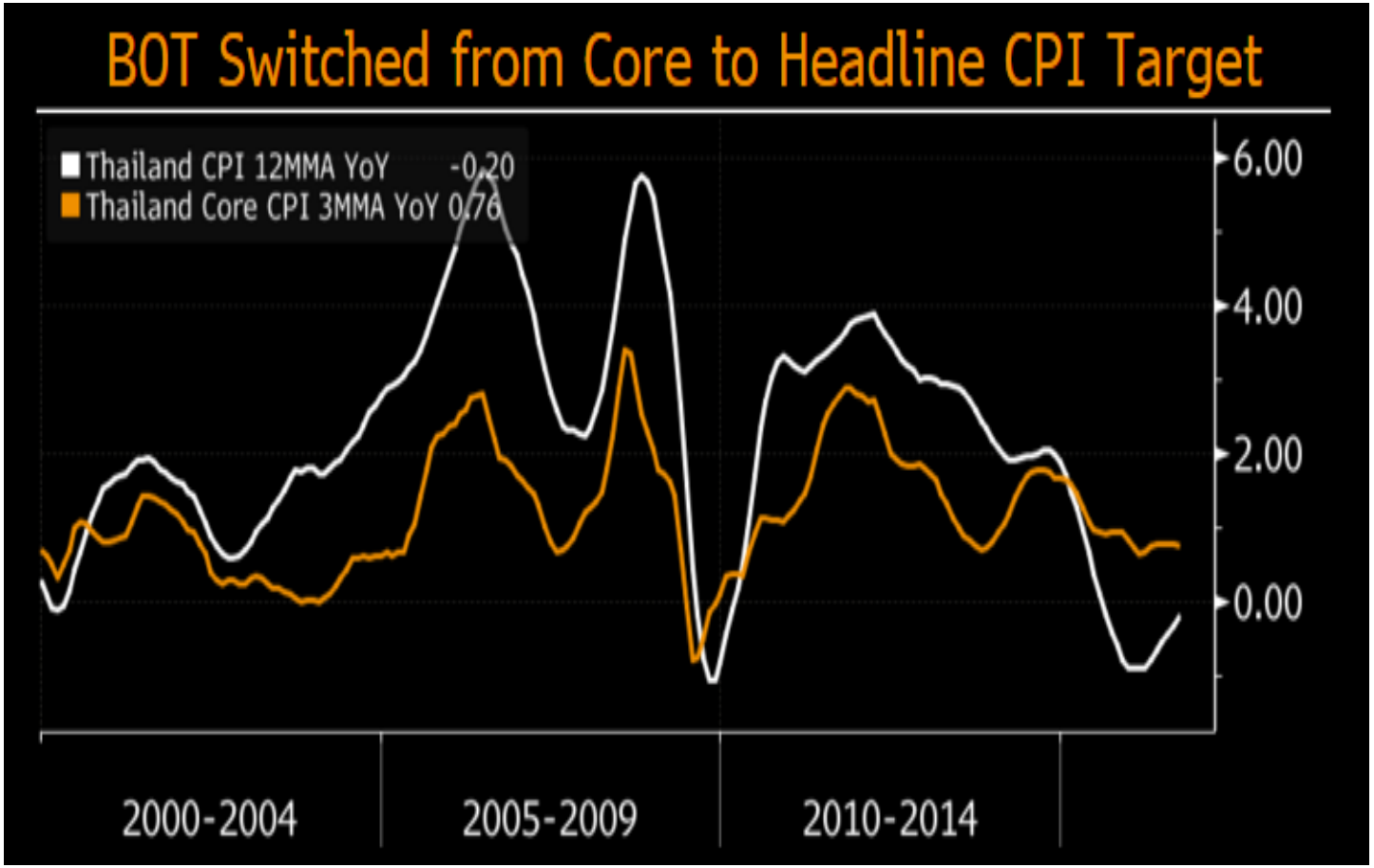
Flexible inflation targeting strategy

- 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'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%

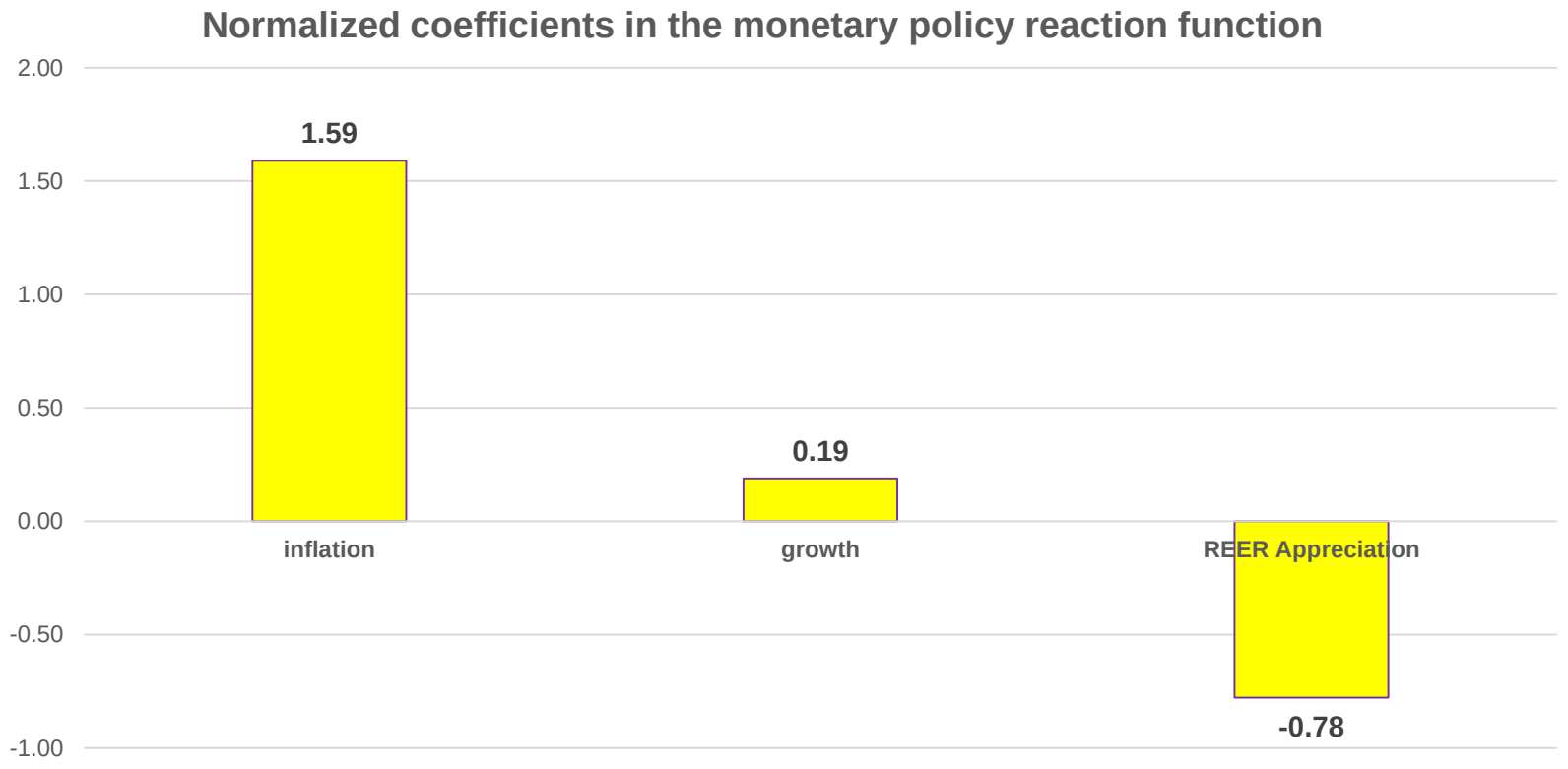


0.0% - 3.5%

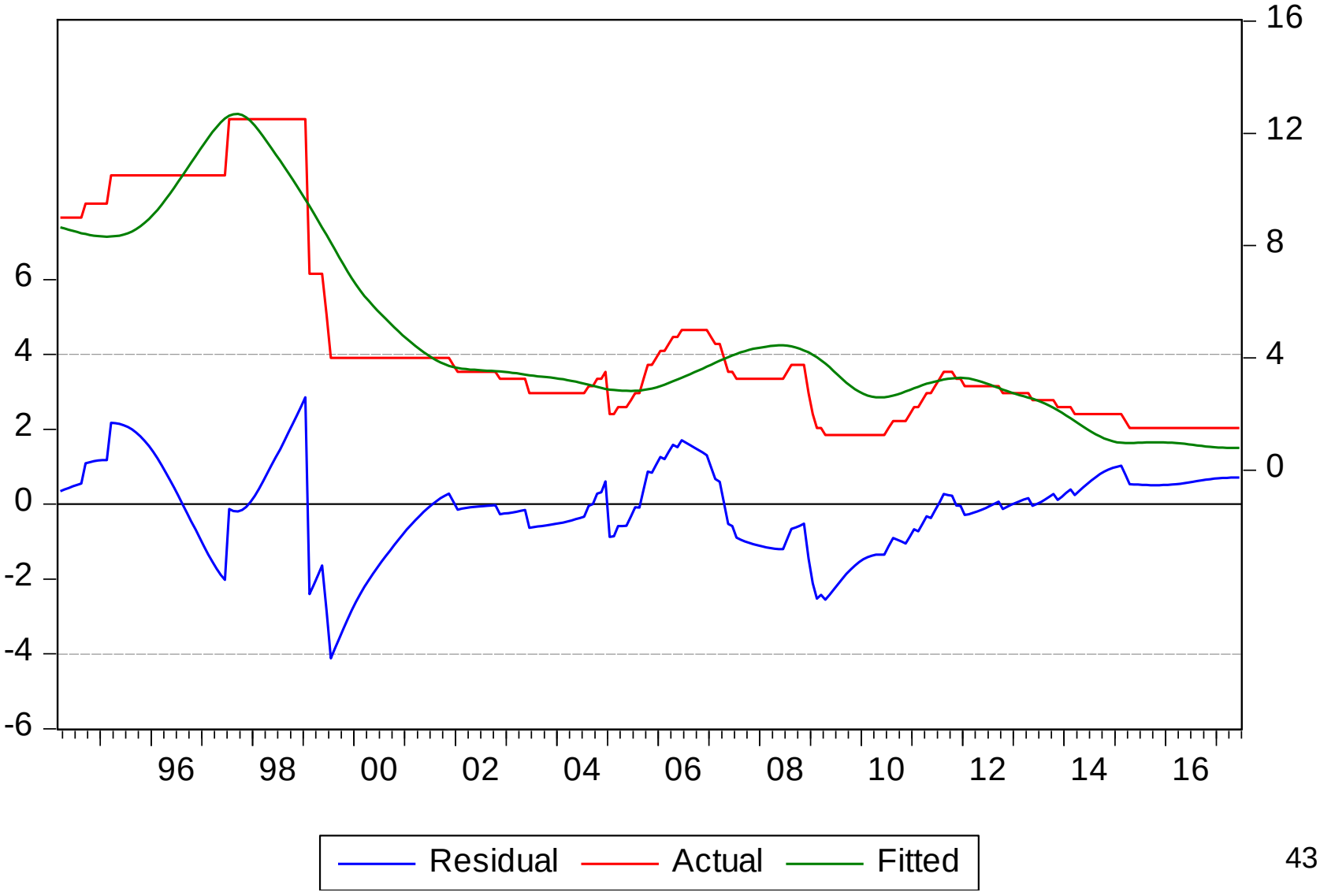
0.5 - 3%

-0.5-2.5%

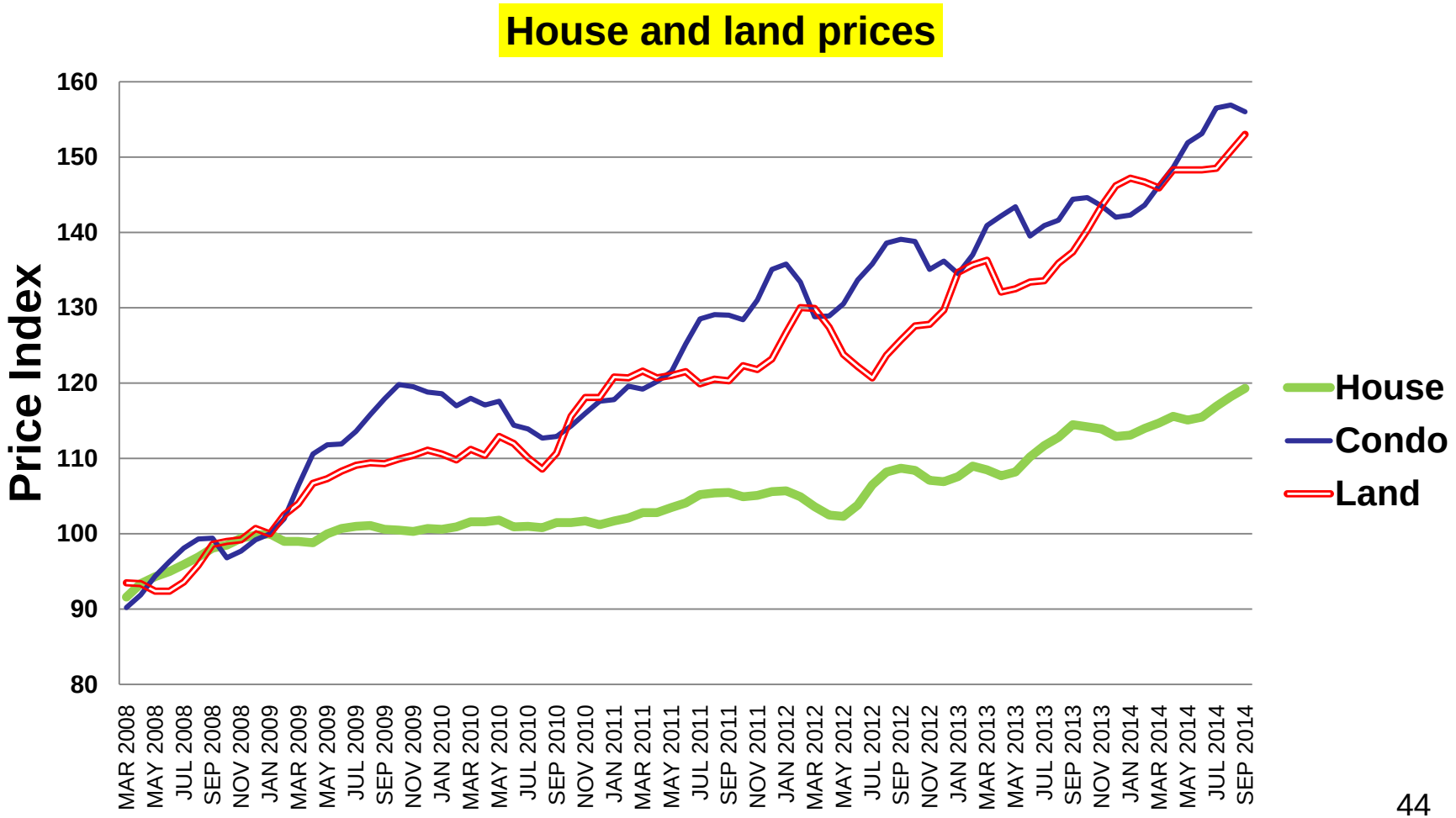
$$i_t = +\phi_1(\pi_{t-1} - \pi^*) + \phi_2(y_t - y^p) + \phi_3(e_t - e^*)$$



The BoT key policy rate



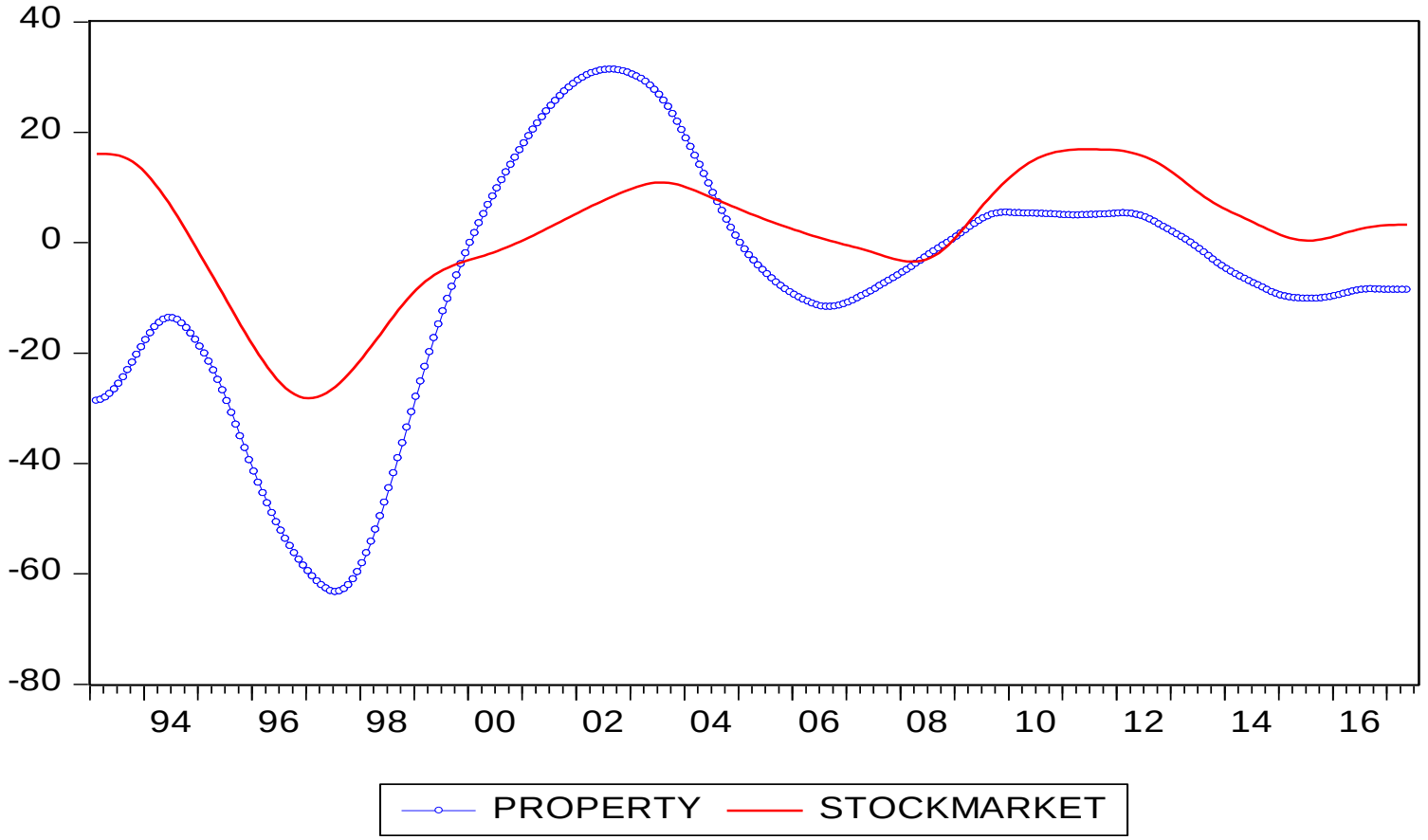
4. Asset Price Bubbles



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



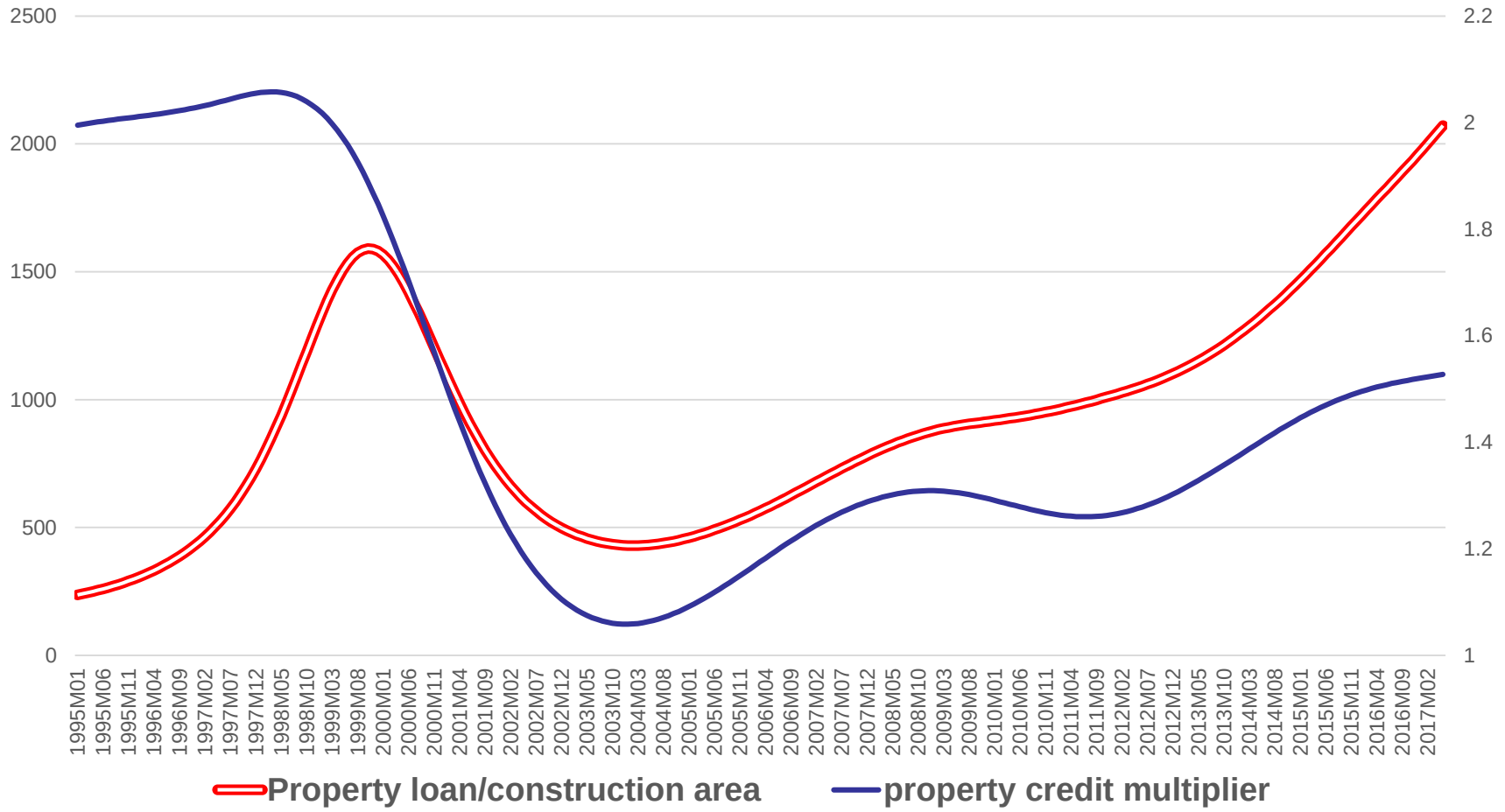
$$Credit = \kappa MB$$

$$MB = NFA + CoG + CoF$$

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

- 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 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
- Long gestation period of property development
- Downward price rigidity prevents market clearance.
- Expectations change rapidly, much more rapidly than supply of property development.

Liquidity Coverage Ratio(LCR)

- The Bank of Thailand has imposed the Liquidity Coverage Ratio (LCR) Framework which replaces the maintenance 6 percent reserve requirement.
- Regarding the LCR framework, all banks shall maintain high-quality liquid assets not less than *net expected cash outflow over the next 30 days*.

A new macro prudential policy tool

- The LCR has been implemented on January 1, 2016, but the minimum requirement would begin at 60%, rising in equal annual steps of 10 percentage points to reach 100% on January 1, 2020 and thereafter.

Monetary authorities can prick the bubble

- Impose maximum Loan-To-Value ratio (LTV) and Loan-to income-ratio (LTI) are examples of macro prudential policy.

On Oct 4, the central bank announced measures to tighten credit underwriting standards for mortgages. Under the new rules, the maximum loan-to-value (LTV) ratio will be restricted at 80% for new mortgages for homes worth more than 10 million baht.

The same LTV restrictions will apply for the purchase of a second home irrespective of the property value. Banks will also be prohibited from providing advances that exceed the value of a property.

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

Concluding remarks

- It is desirable and possible to prick the bubble by using tight credit policy to curb excessive credit growth.
- Monetary policy is effective in stabilizing the economy, but it should be employed in line with fiscal policy stance and take into account impact of exchange rate (when there is no FX intervention).
- Some novel goals of inclusive and quality growth require other 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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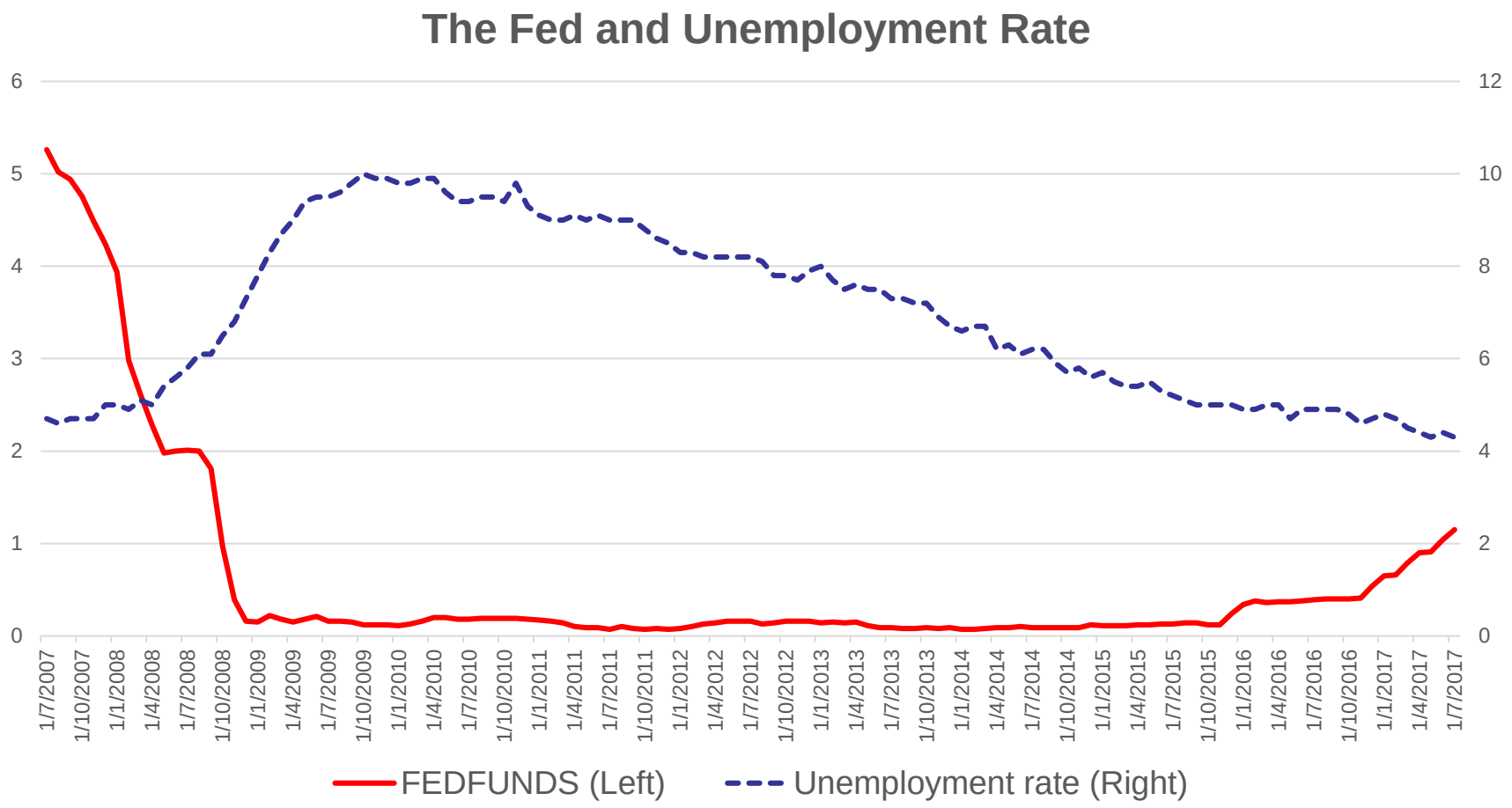
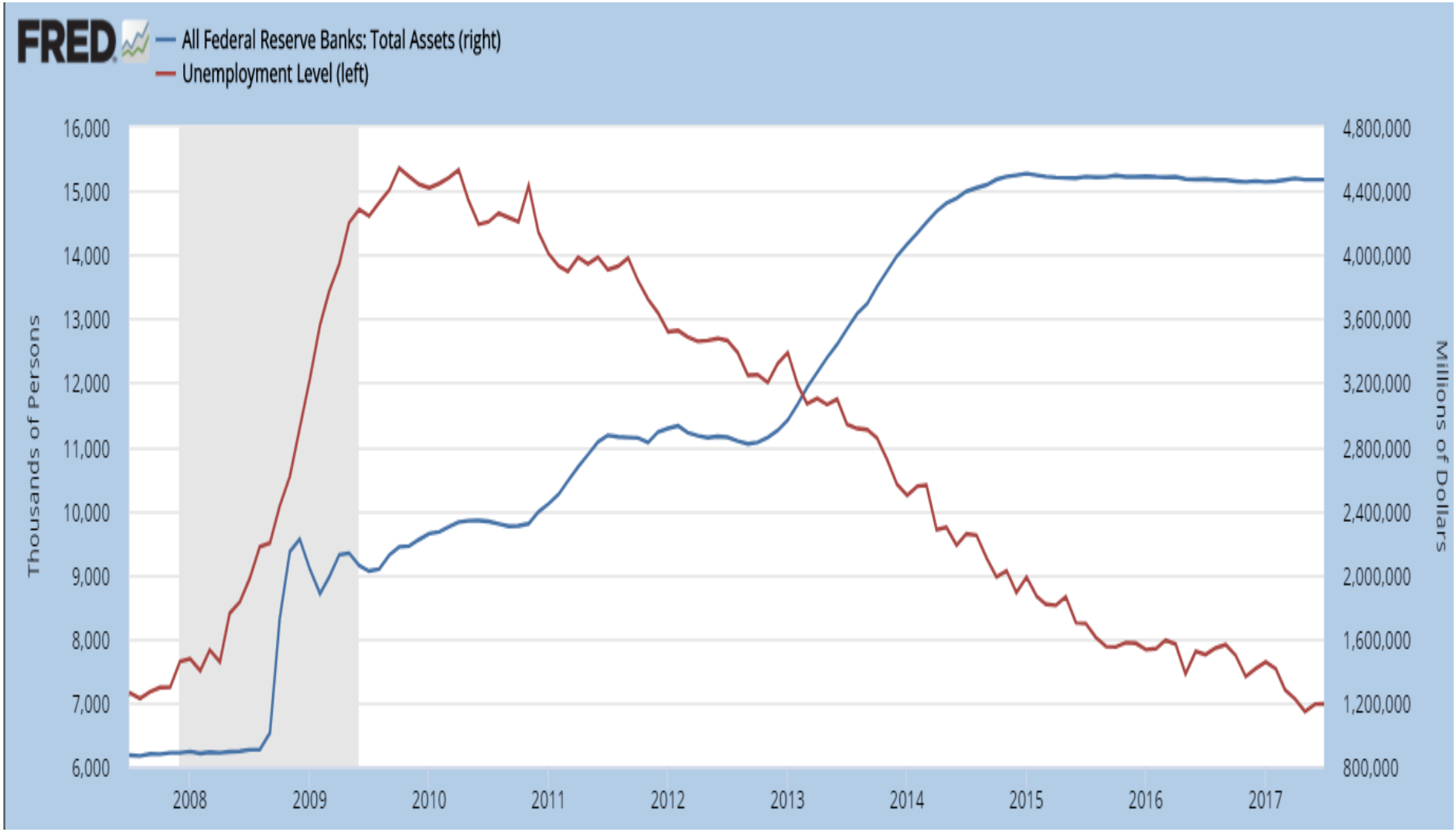
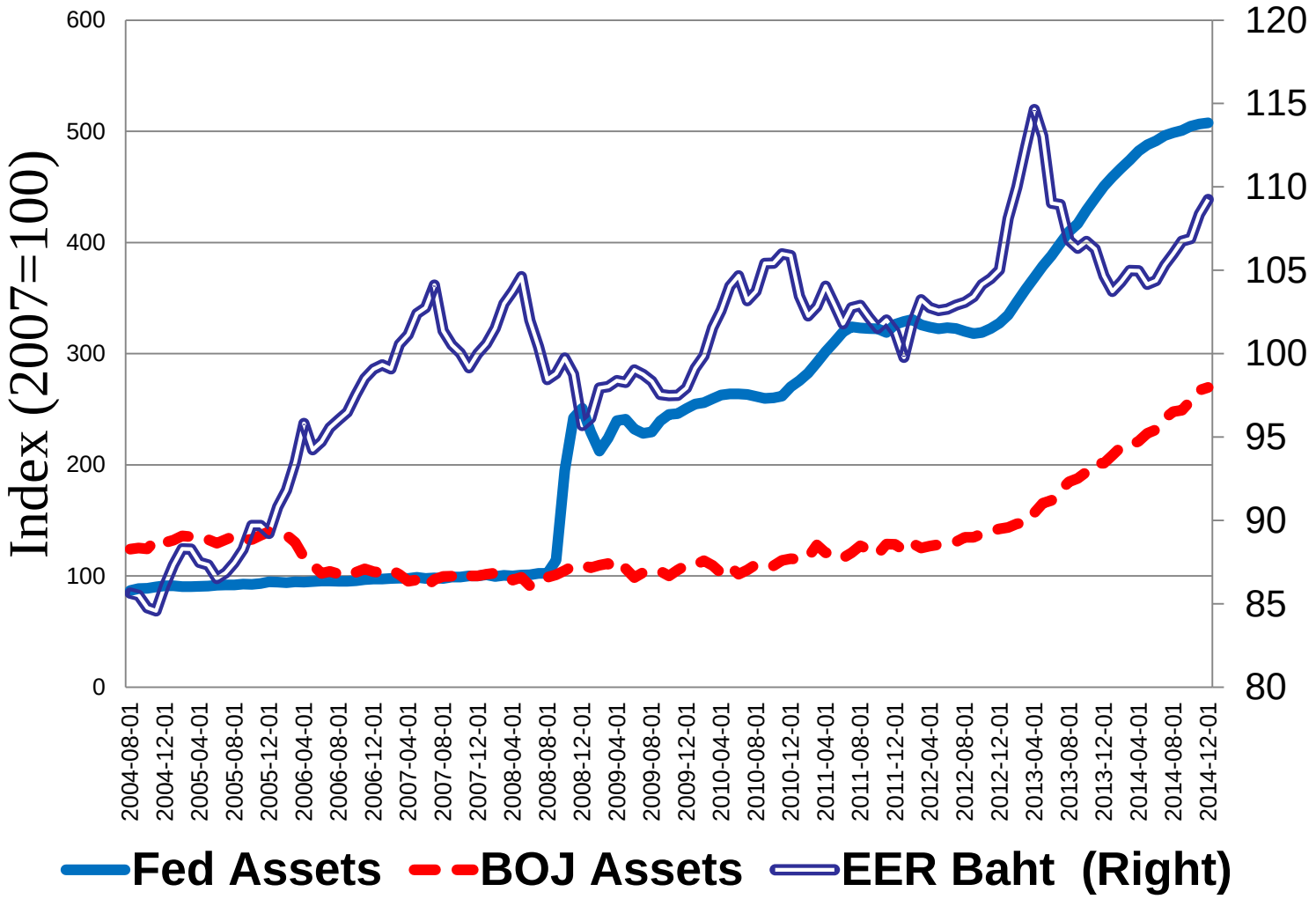
Taylor's rule is an activist rule



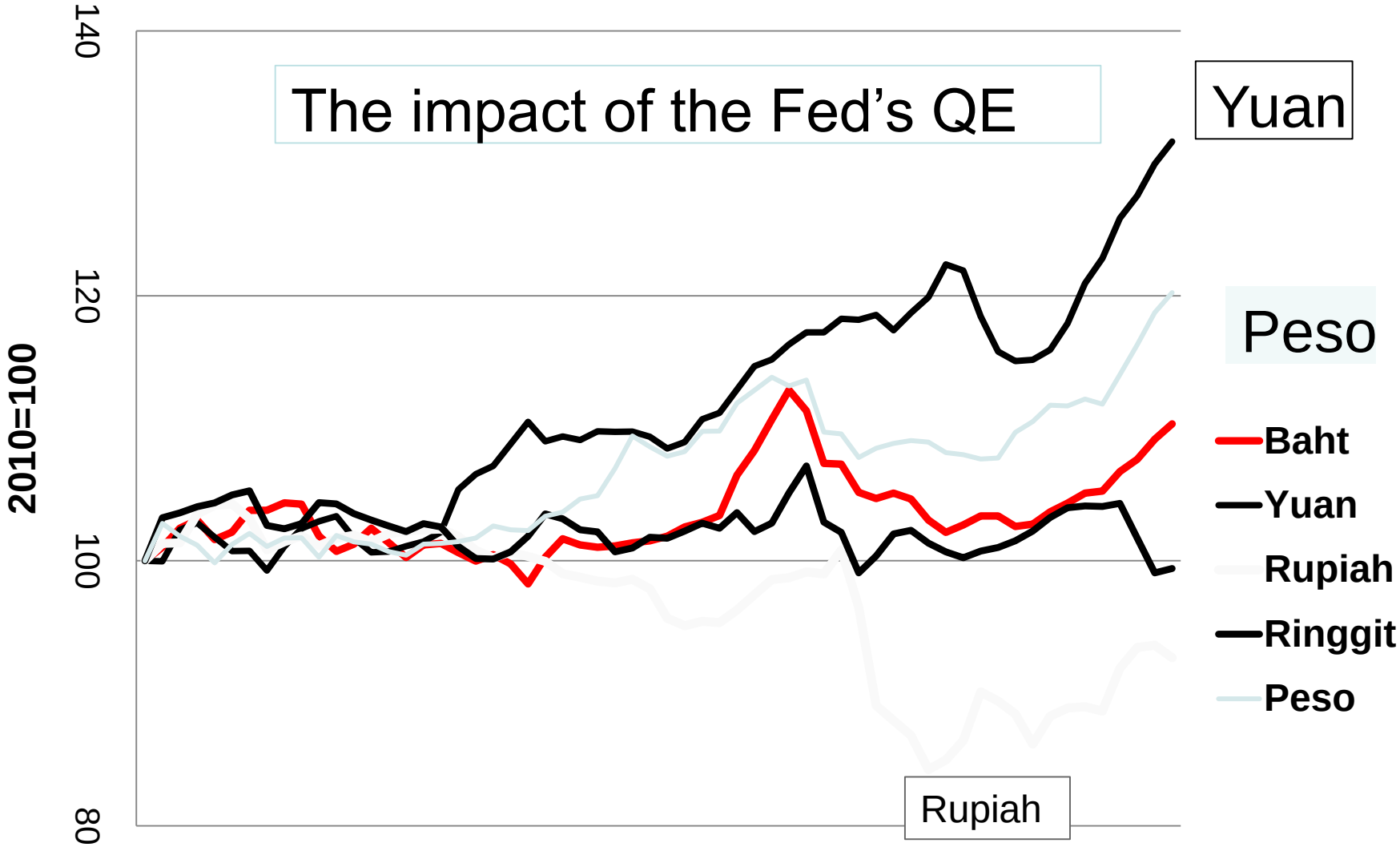
Impact of the FED's Quantitative Easing



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



Index of Real Board Effective Exchange Rates 2010-2015



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