

EE 460: Monetary Policy
for long term growth and price stability

Bhanupong
Lecture 24

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

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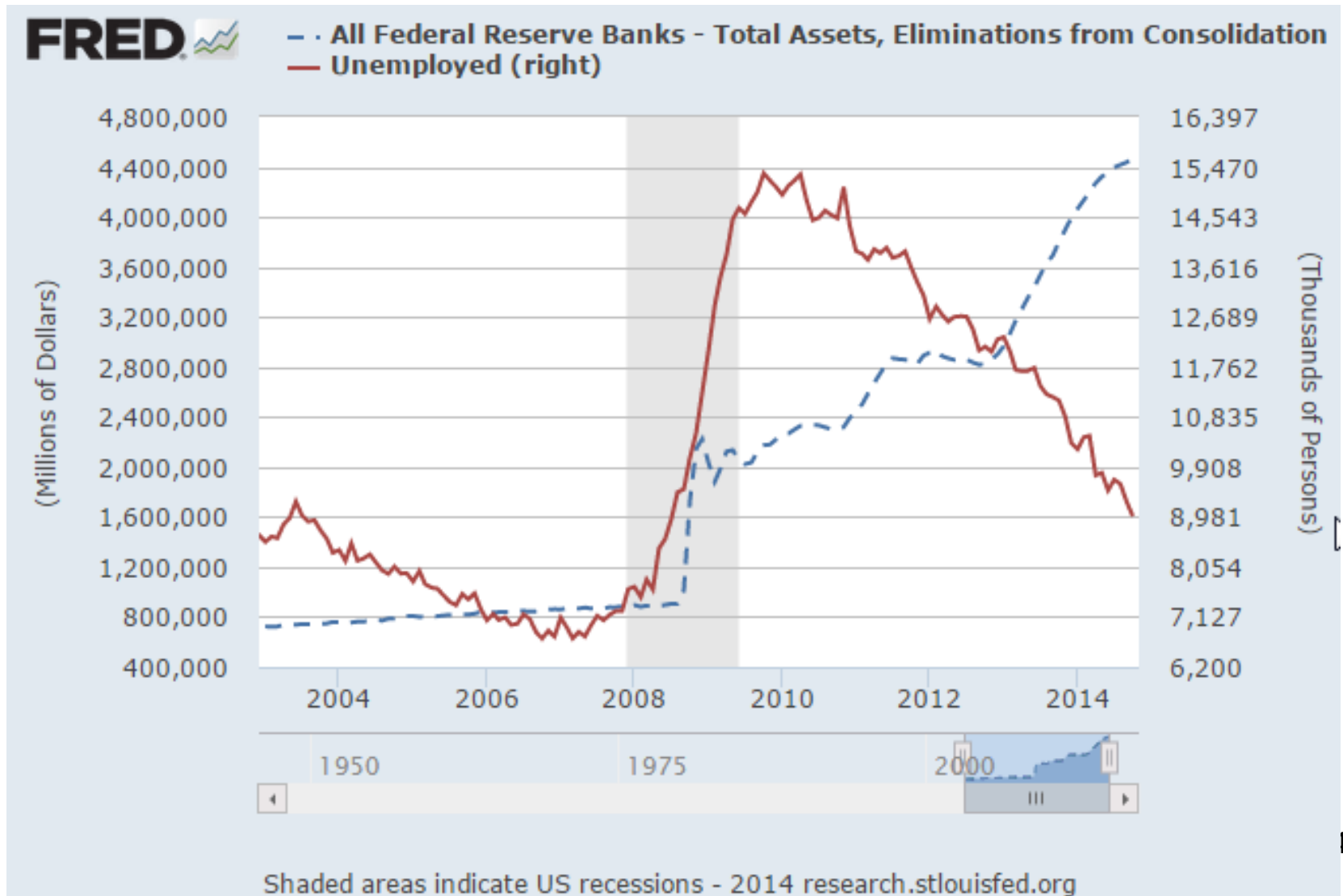
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This paper compares and contrasts the impact of quantitative easing (QE) monetary policy conducted by the Federal Reserve Bank and the Bank of Japan on the Thai economy. The impact of the first round of QE policy is related to Thailand's export market 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

Impact of the FED's quantitative easing



Outline

- Long run relationship: output and monetary aggregate
- Credit to GDP and a risk of financial crisis
- The Phillips curve and inflation target
- Asset price bubbles
- Quantitative Easing and impacts on Thailand

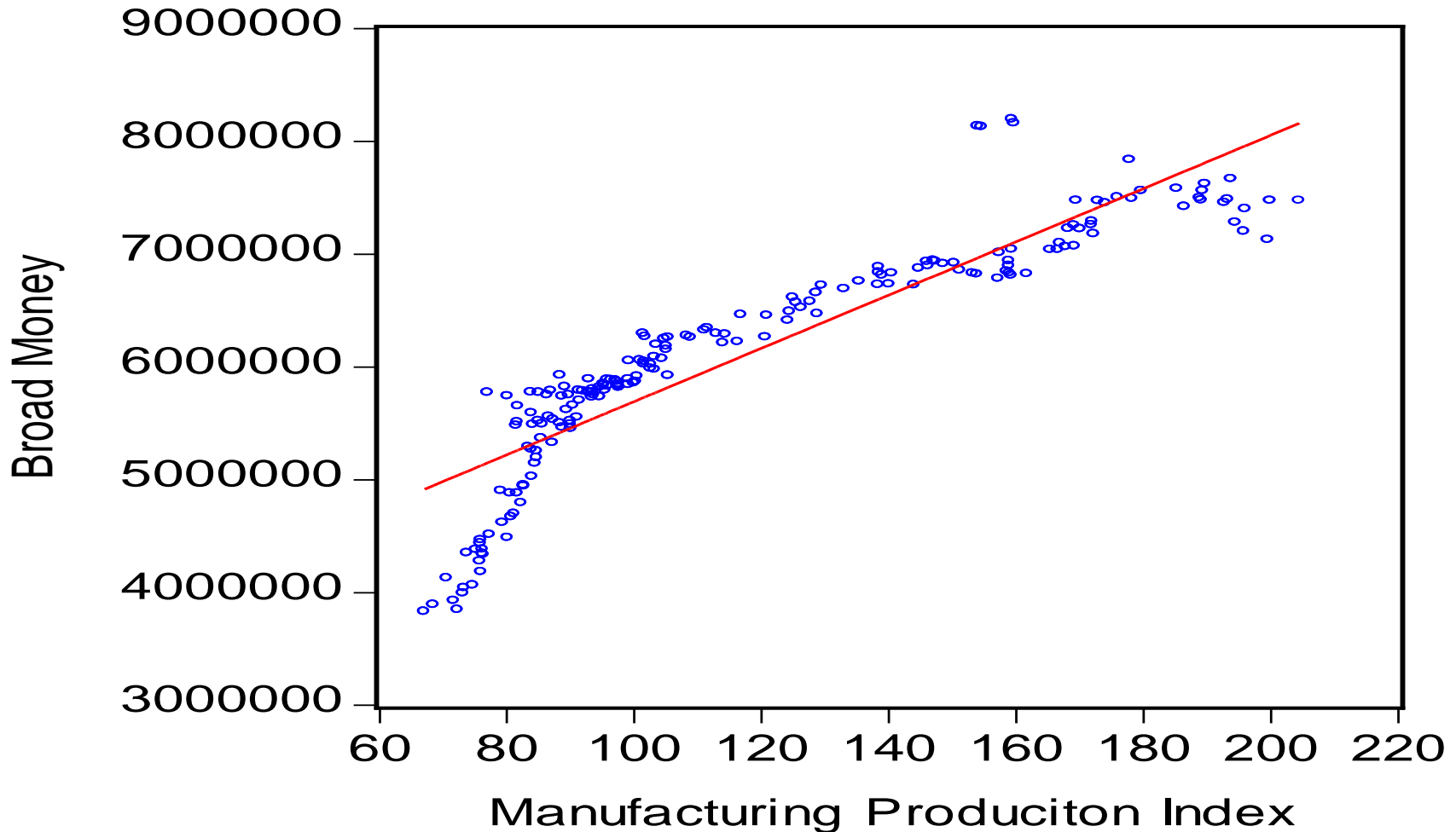
The importance of monetary aggregates

- What are monetary aggregates?
- There is a long-run relationship between output and monetary aggregates.
- Expansion of monetary base is caused by capital inflows, intervention in the foreign exchange market (NFA), and domestic credit expansion by the central bank to the government (CoG) and financial institutions (CoF).
- To maintain a stable growth path, **monetary base** must be kept in line with output growth

Historical Monetary Interpretation of the 1997 financial crisis

- The rate of growth of the monetary base gained momentum after 1991 when Thailand accepted the IMF Article VIII; thereby liberalizing capital account.
- The establishment of Banking International Banking Facilities (BIBFs) to create Bangkok as a regional financial center resulted in huge and rapid capital inflows.
- The influx of foreign borrowing was so large that it was impossible to sterilize the inflows, resulting in to rapid expansion of the monetary base.

The long-run relationship



Causal relationship between output and monetary aggregate

Two way causations

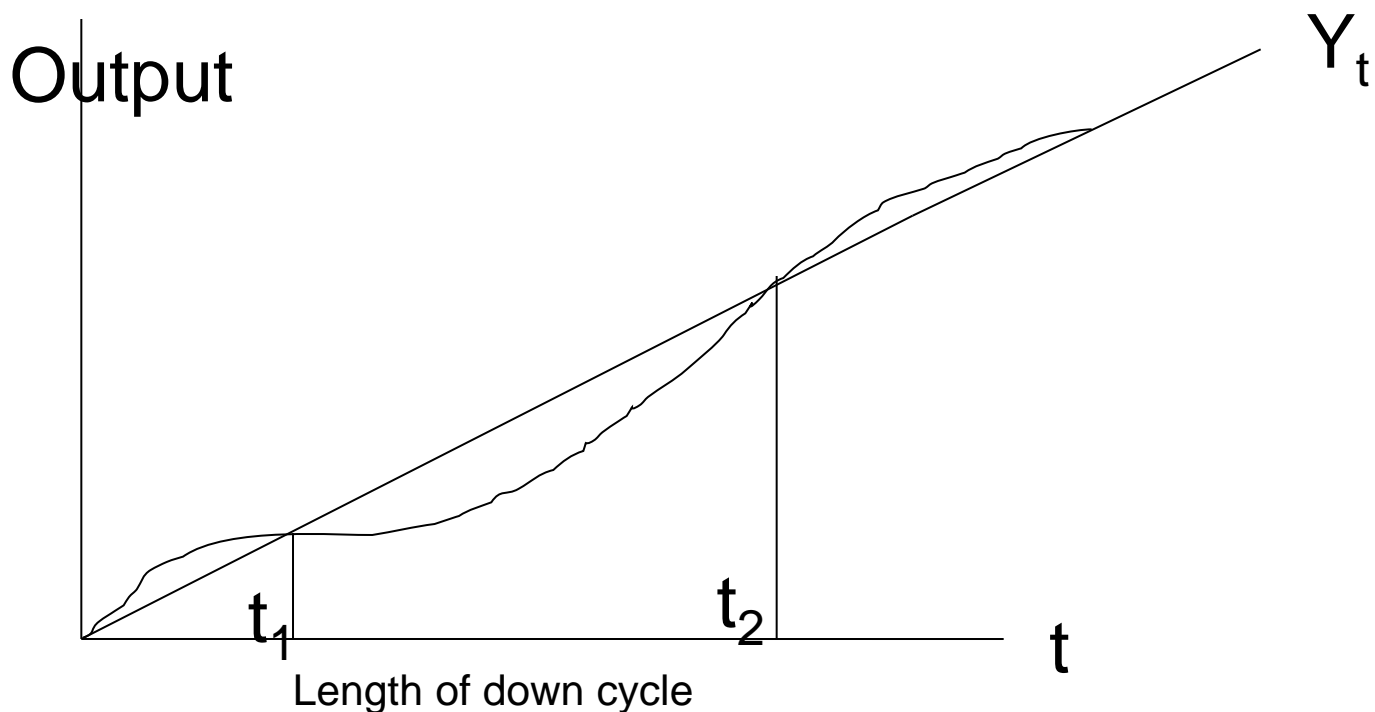
- The demand for money contains output level as an argument in the demand for money function.
- The production function can also include money supply as an argument (aside from factor inputs).
- To expand production, working capital is needed for transaction purpose.
- Changes in the quantity of money supply affects output, which in turn result in changing level of the demand for money.

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

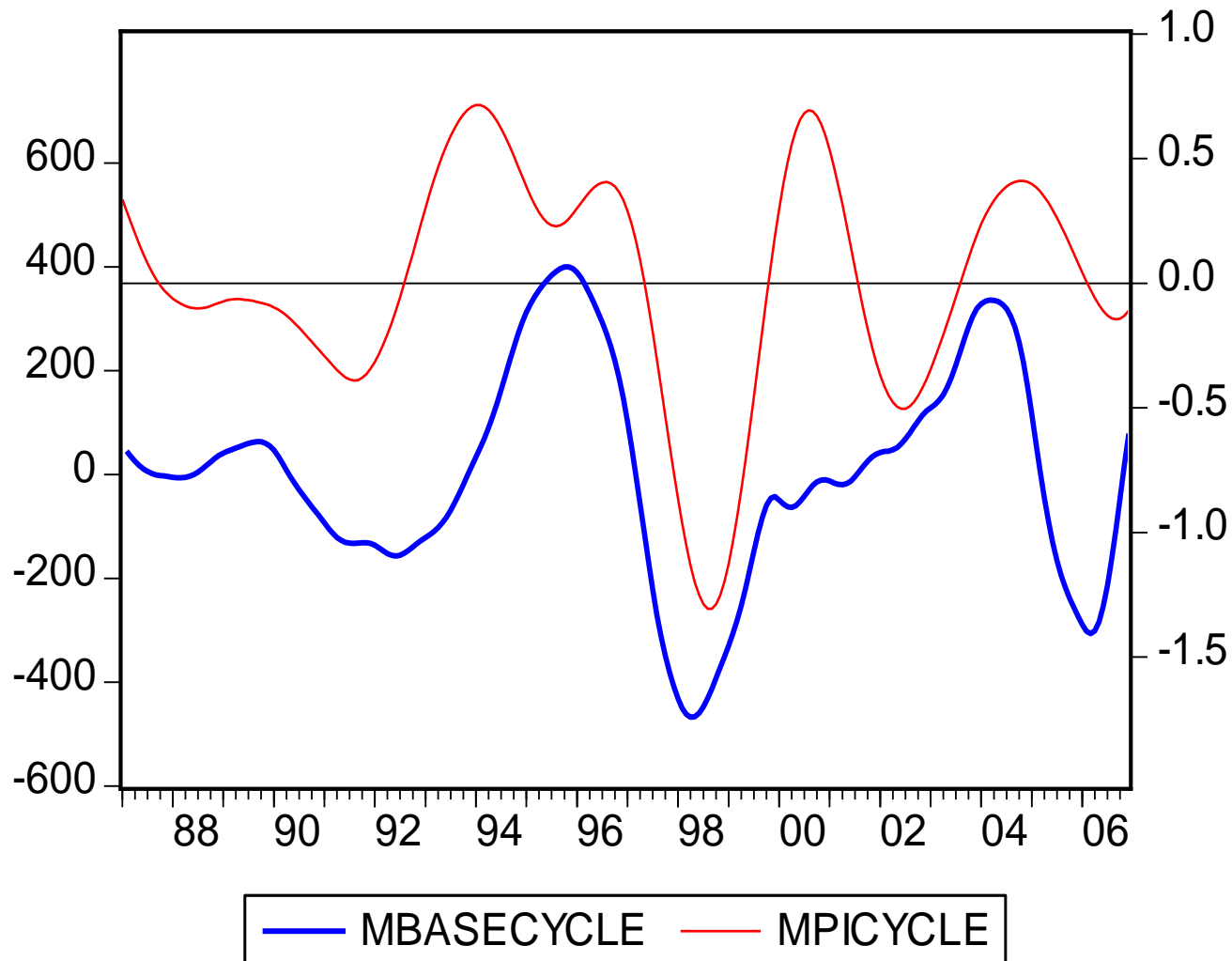
- In a **mild** cycle, output growth oscillates around its rising trend: there is no system-wide financial crisis.
- Economic booms and busts can be attributed to **excessive** expansion and contraction of monetary aggregates (money supply, credit, monetary base).

Severe cycles

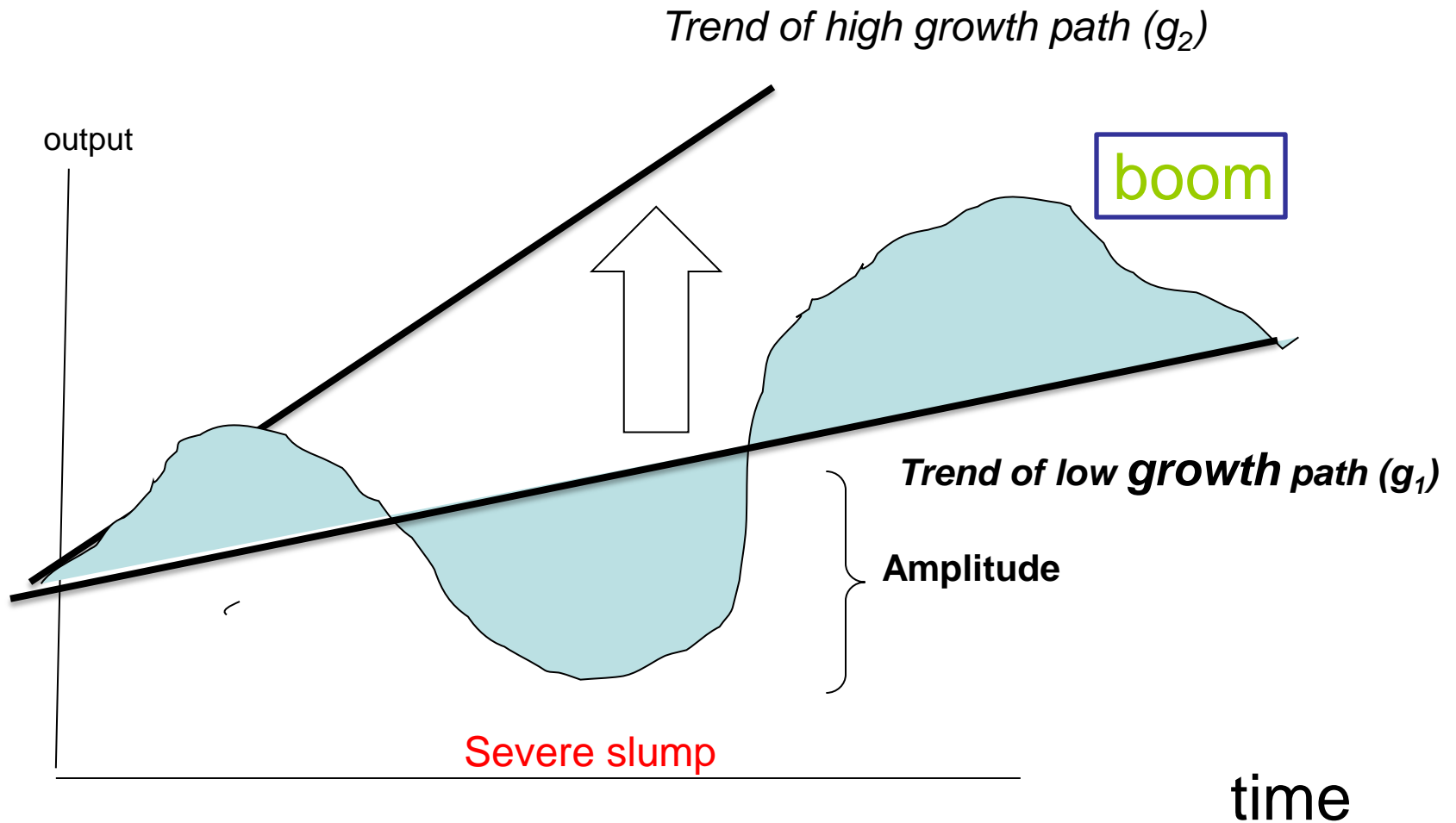
- In **deep and severe** cycles, the soundness of the whole financial system is threatened.
- In this situation, we are dealing simultaneously with financial crisis and depression.
- Excessive growth of money supply and its sharp reduction lead to wild fluctuations in business cycle.

Monetary and output cycles

Deviations from trend growth paths



Severe Business Cycles



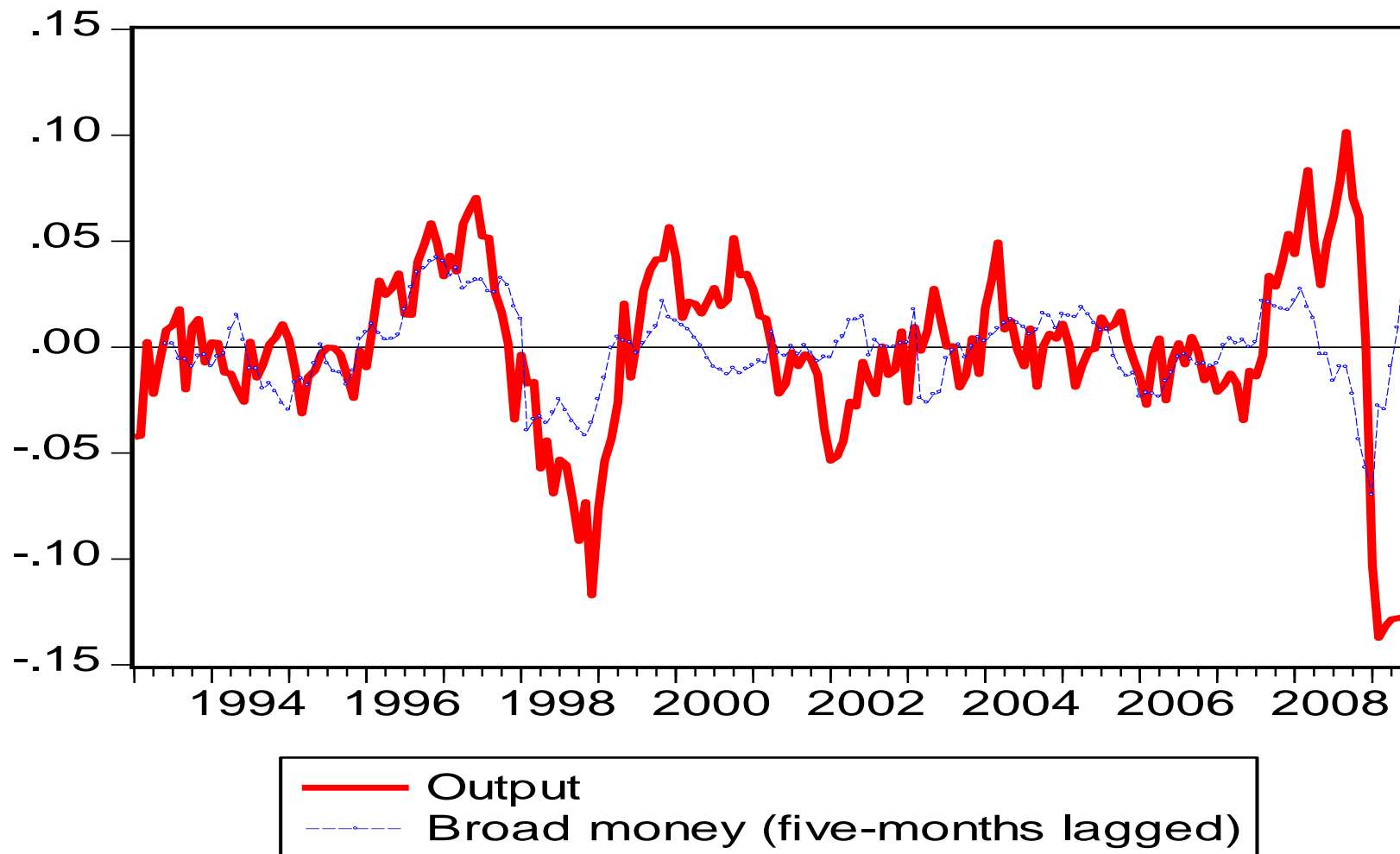
Output responses to credit cycles

- 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.***

Cyclical relationship of money and output variables: lag effects of monetary policy

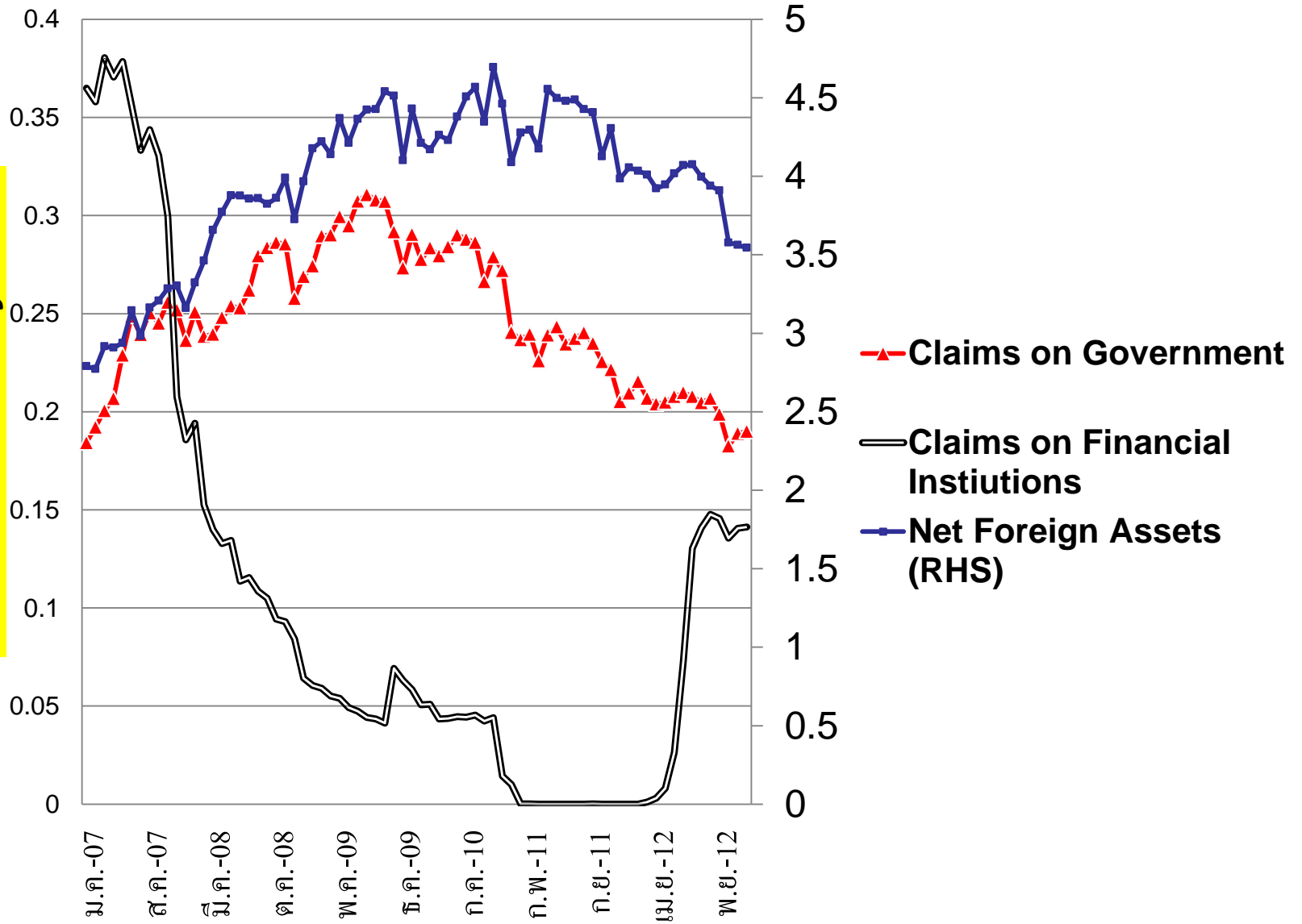


Policy Implications

- 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 Base: 2004-2013

Ratio to Monetary Base



Monetary policy transmission channels

- Interest rate
- Credit availability
- Exchange rate
- Asset prices
- Expectations

Some ineffective monetary channels

- Liquidity trap
- Interest-insensitive investment
- Exchange rate intervention
- Rudimentary money and capital markets

Price (cost) and quantity of bank credit

- 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.
- It is possible that the quantity of credit or credit availability is also vital to investment and durable consumption.

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 EM 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.
- **Non-bank lending** also has been strong in some countries.

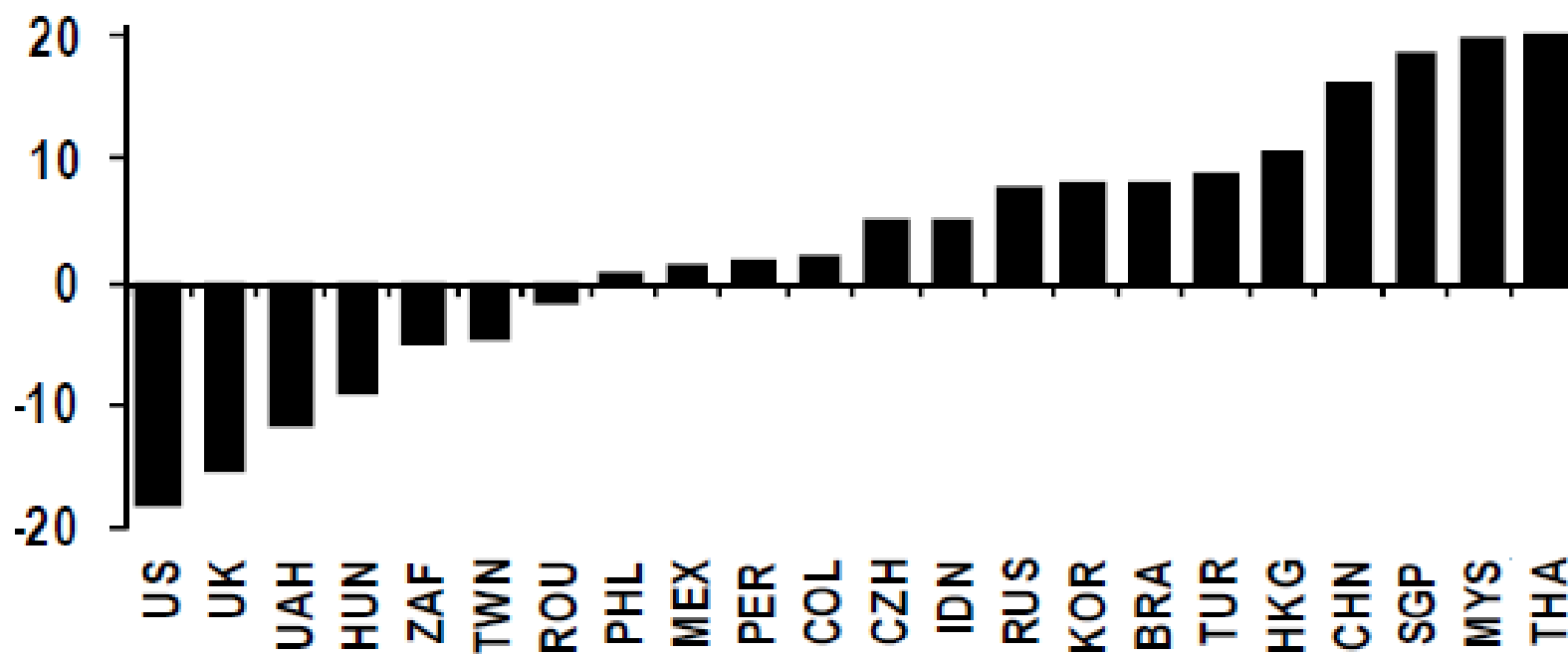
Emerging Markets (EM)

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.)
- In Latin America, the main concern is Brazil.

Household debt as a share of GDP

%pt chg since 2008



Source: J.P. Morgan, BIS, national central banks

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.

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.

A vicious circle

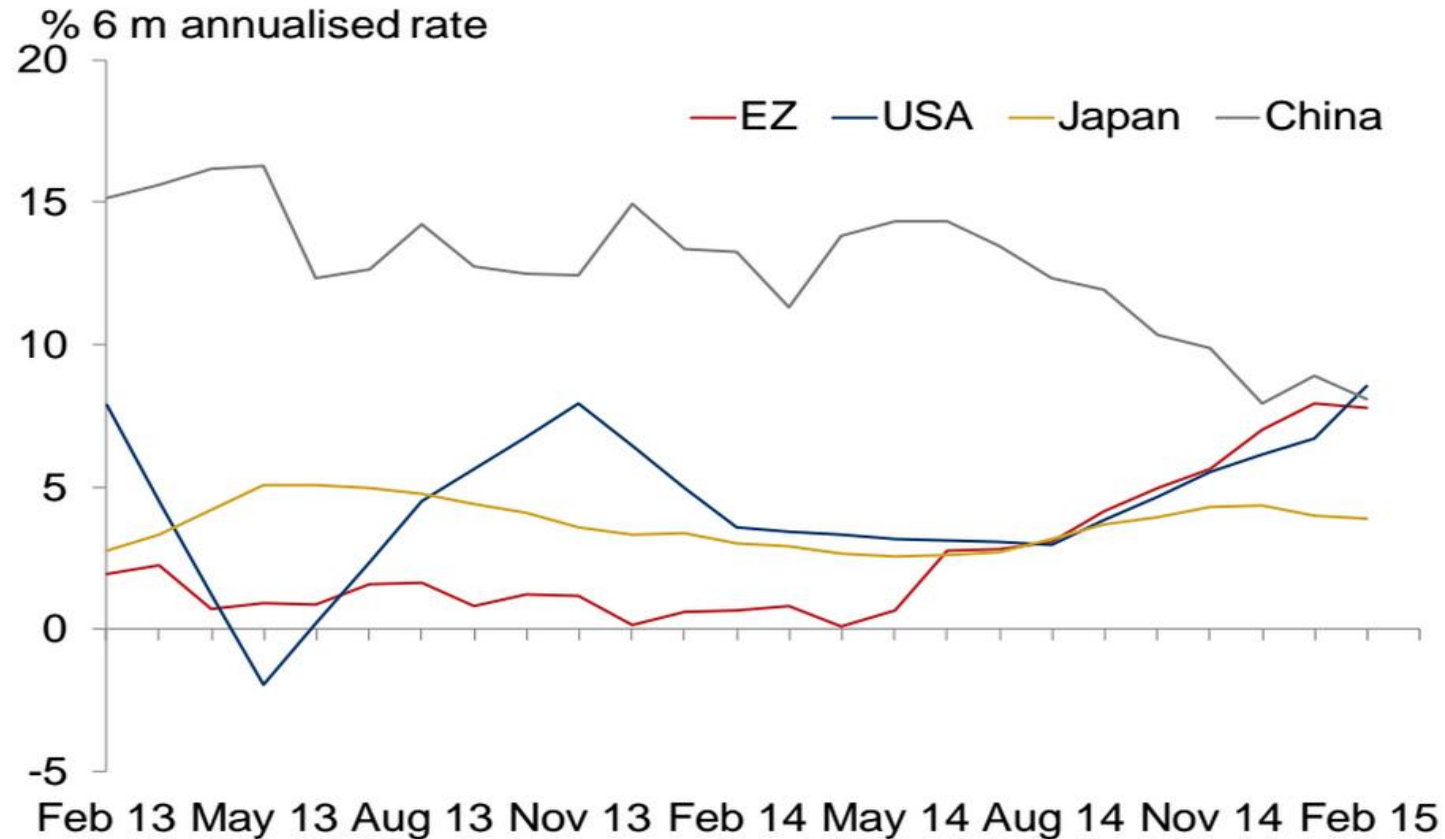
- The likely increase in defaults and bankruptcies will signal banks to curtail lending more aggressively.
- This process could become a vicious circle, feeding back on economic activity.
- Recall the two-way causations between monetary aggregates and output
- Some of this debt has been pushed out in 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.

Monetary policy transmission mechanism

- The exchange rate channel does not work properly when the Bank of Thailand intervenes in the foreign exchange market.
- The ***credit channel*** through credit availability effect is the most important channel.

China's broad money growth has slowed down

World: Broad money



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.

Those bad habits have become brutally expensive

- That's because with much slower growth, China is going to find its growing debt mountain much more difficult to handle.
- As renowned Chinese economy expert Michael Pettis says, much slower growth means that "those bad habits have become brutally expensive."
- Should we be proud to have a credit card, eg. Proud KTC card?

Inflation Targeting in theory

- 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.

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 (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.**

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

y^p = potential output

Φ = a positive reaction parameter

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.
- Did inflation targeting pass the real test in 2010? How about 2015?

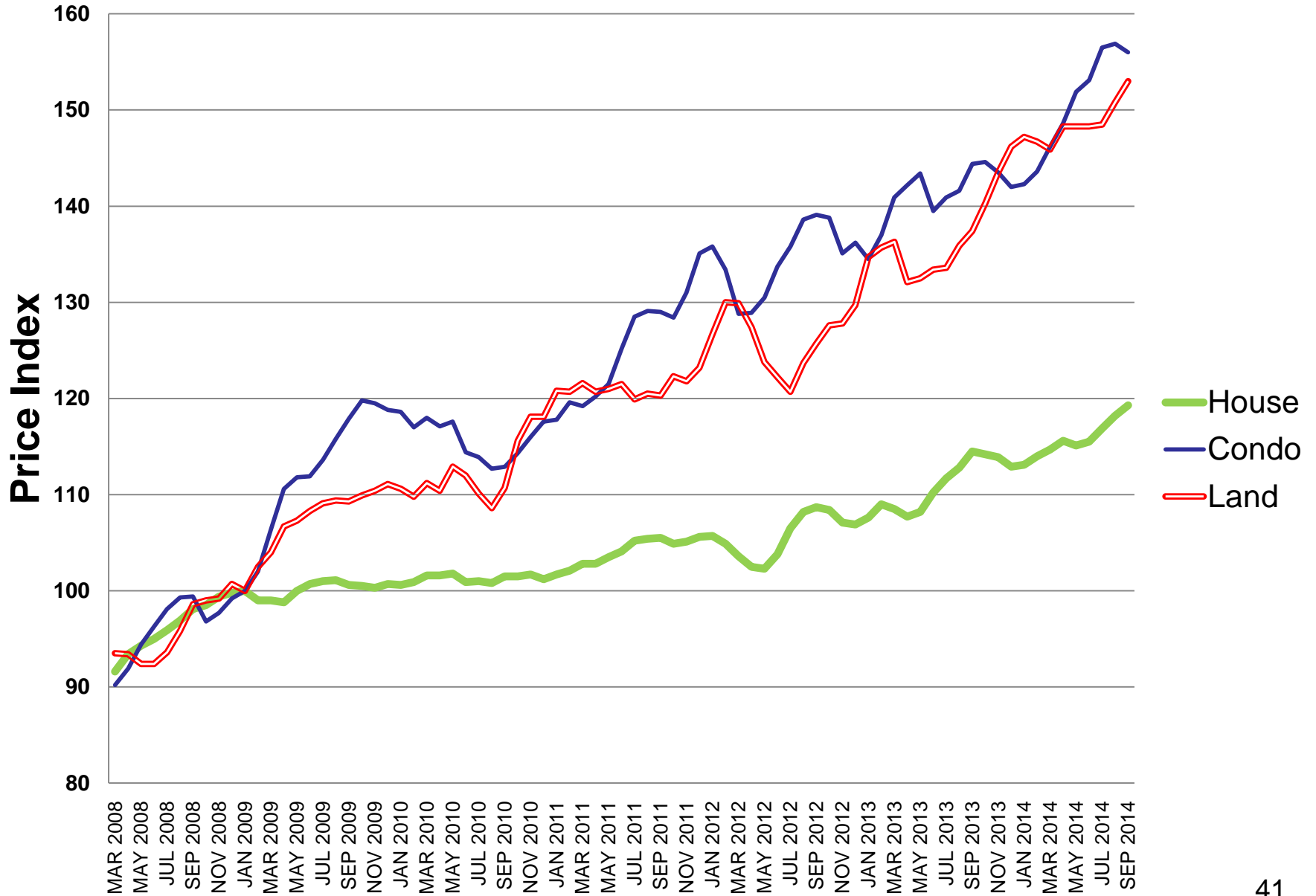
Flexible Inflation Target (FIT)

- 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 or House Prices?

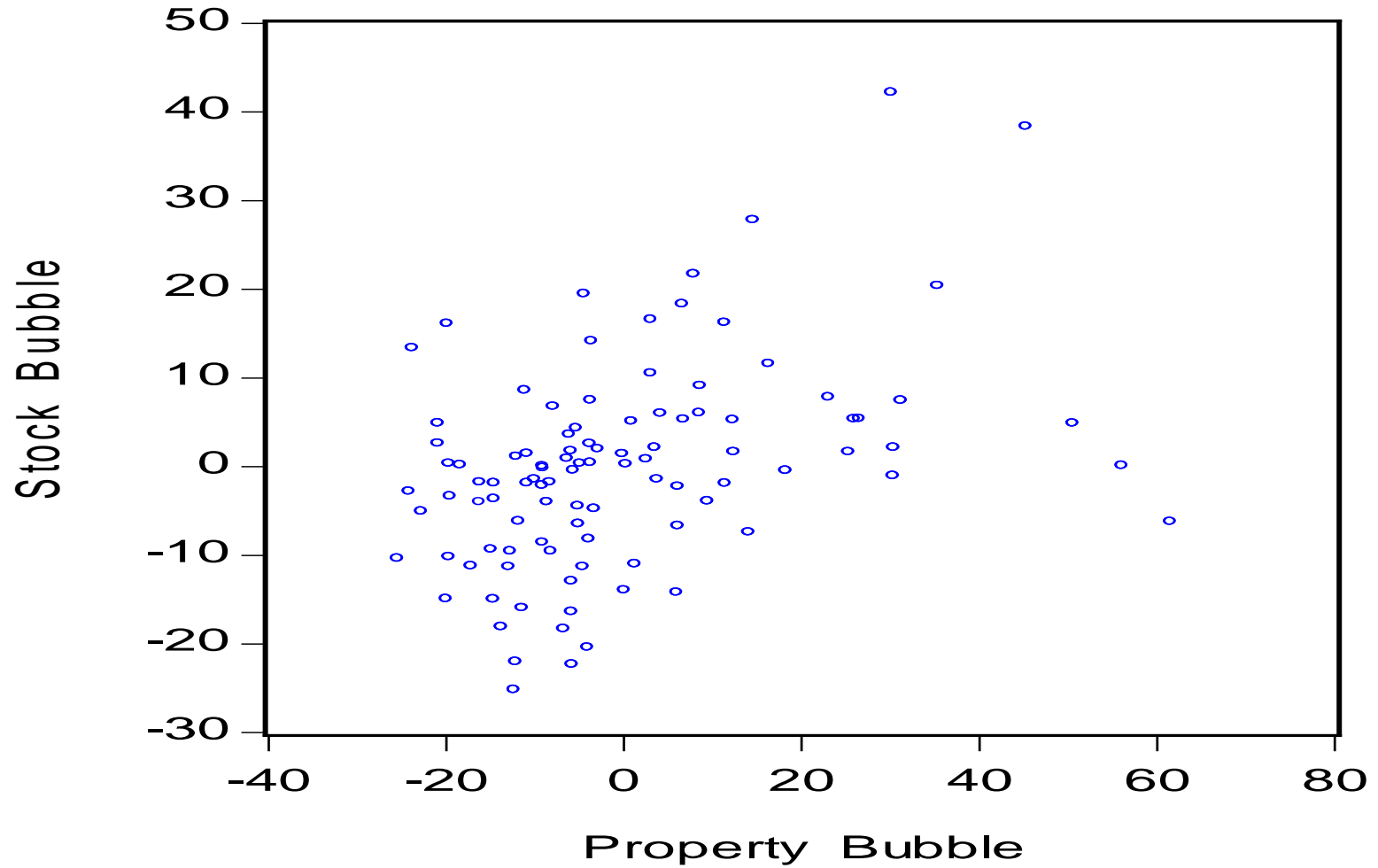
House and land prices



Bubbles, what bubbles?

- The relationship between asset prices bubbles in Thailand, using data from January 2000 to July 2008 is shown in the next slide.
- Similarly the size of the property bubble can be approximated from the deviation from the trend of construction activity, approximated by permitted construction in urban areas.
- The size of the stock price bubble can be captured by the percentage deviation from its trend line.

The two bubbles



Stocks or House Prices?

Cause and effect

- A positive relationship exists between speculations in both asset markets.
- There is a question regarding to how and where the bubble started.
- The lead-lag relationship between the two bubbles can shed light on preventive measures to prevent the busting of asset bubbles.

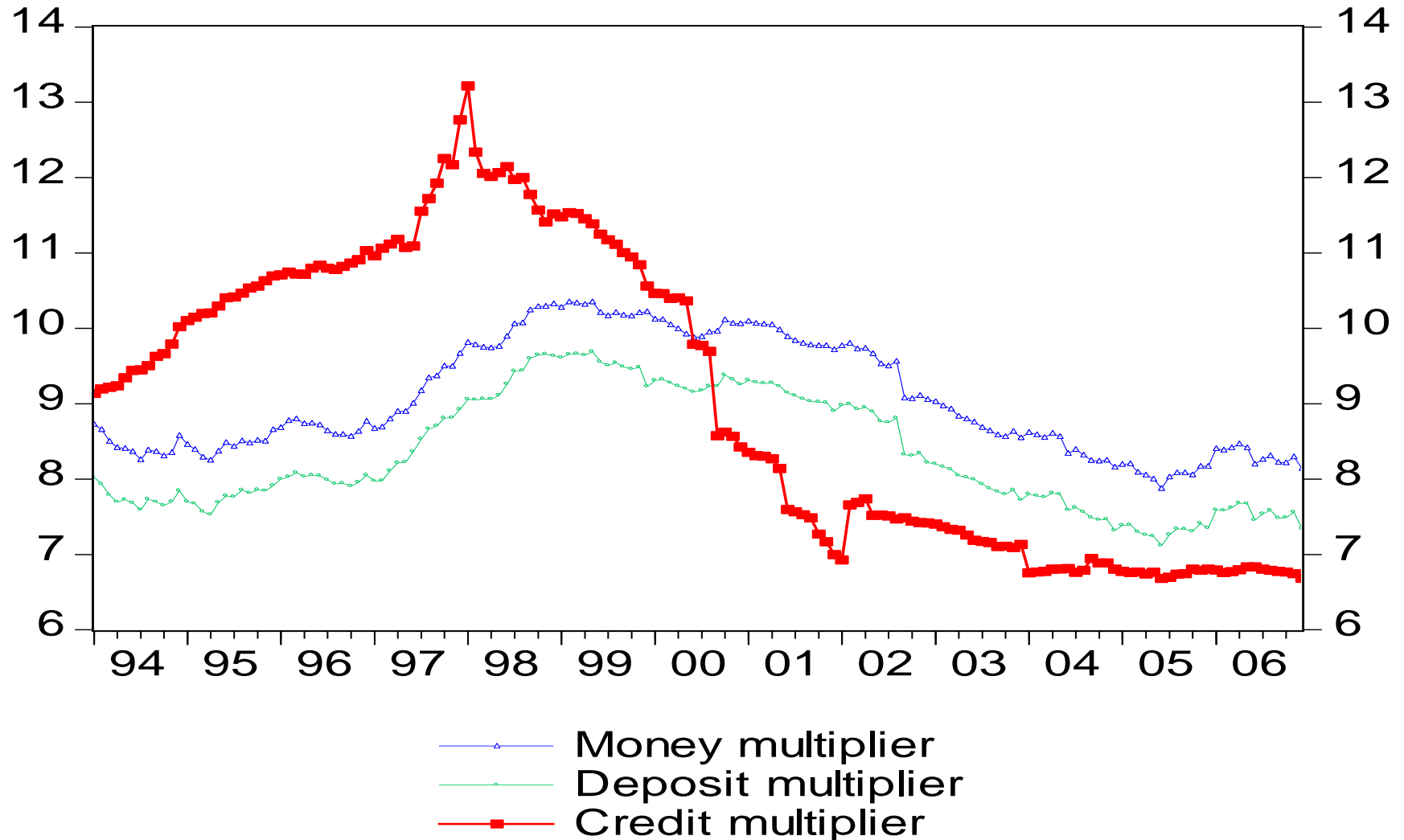
$$Credit = \kappa MB$$

$$MB = NFA + CoG + CoF$$

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

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

At the peak of lending boom



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

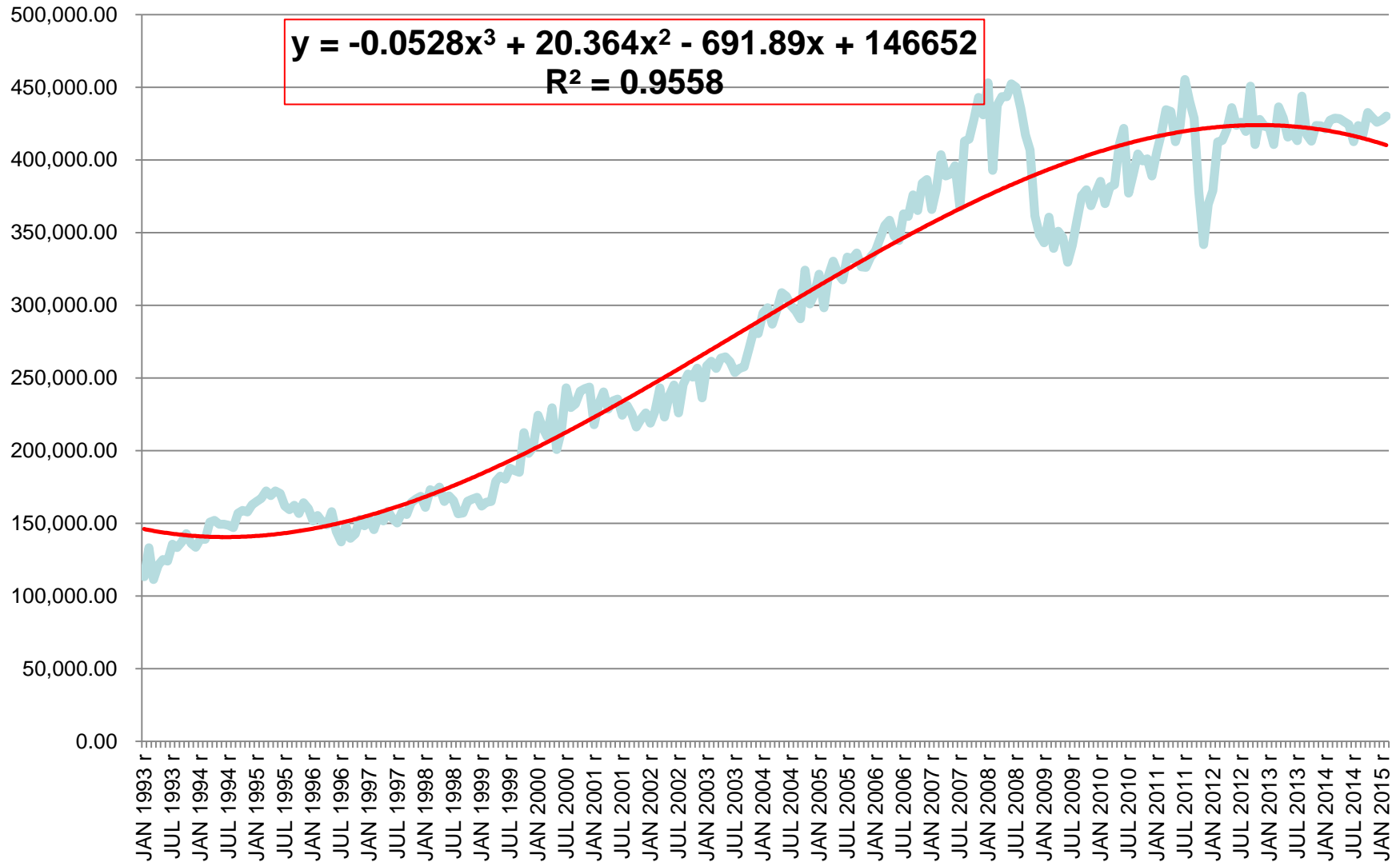
- There is a significant degree of inertia in bank lending.
- When interest rate is high, commercial banks are willing to take more risk to obtain higher returns from their assets.
- If the Bank of Thailand raises the interest rate on its lending facilities, banks would be discouraged in lending, thereby causing a decline in the credit multiplier.

Slow supply adjustments

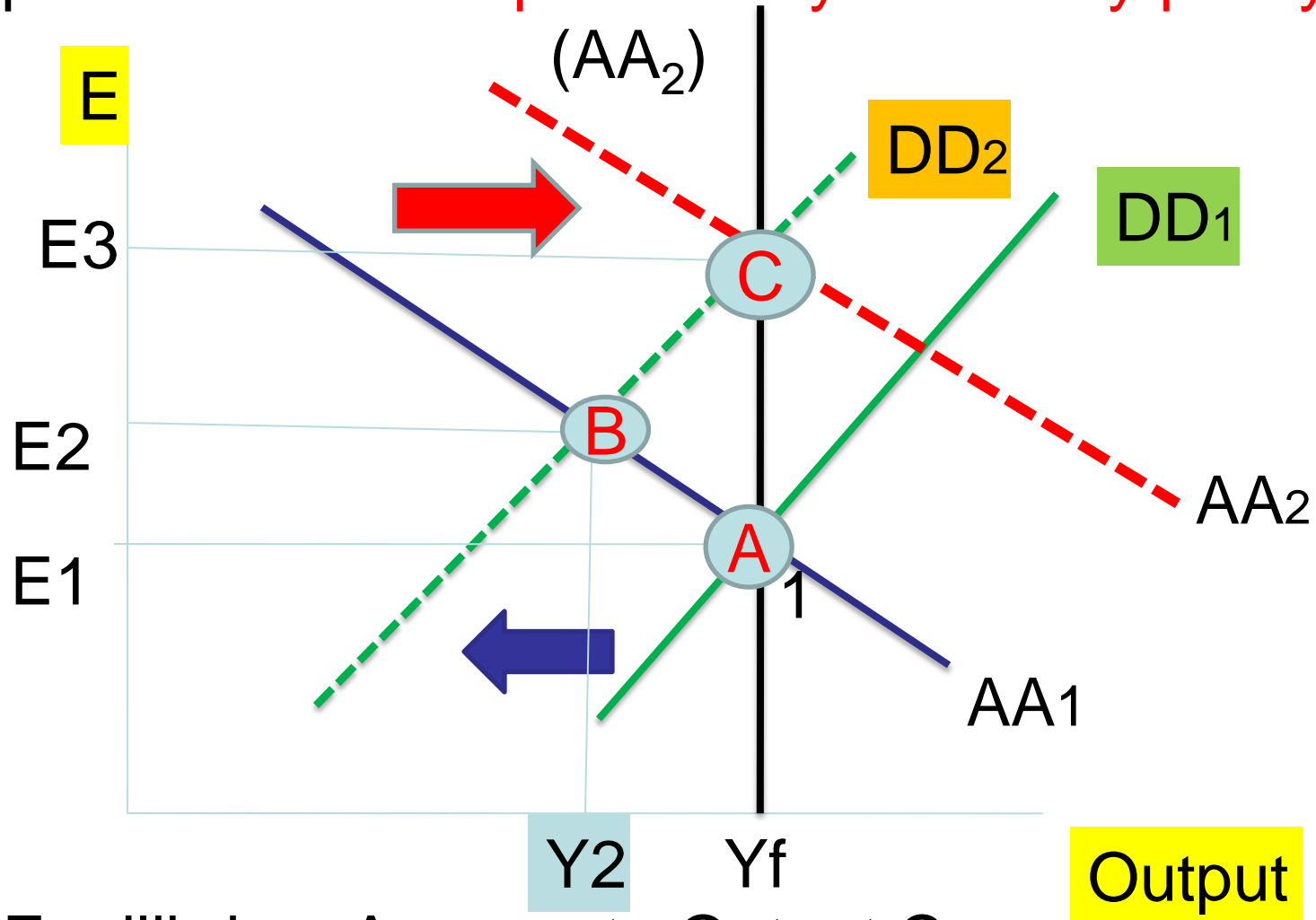
- Quantity demand adjusts faster than the quantity supply
- Long gestation period of property development
- Lack of price adjustments: Downward price rigidity prevents market clearance.
- Expectations change rapidly

Thailand's Exports: 1993-2015

(Million Baht)



To maintain full employment after a temporary fall in world demand for exports: we need currency depreciation and **expansionary monetary policy**



DD= Equilibrium Aggregate Output Curve

AA= Equilibrium Asset curve

Concluding remarks

- The bubble in the stock market preceded the bubble in the real estates markets.
- It is desirable and possible to prick the bubble by using tight credit policy to curb excessive credit growth.
- Impose maximum Loan-To-Value ratio (LTV) and Loan-to income-ratio (LTI) are examples of macro prudential policy.
- If monetary policy can produce sustainable growth with price stability, there would be favorable consequences on other development issues such as poverty reduction, employment, income distribution, and urban migration.

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.“

LCR

	JAN 2016	FEB 2016
All Banks		
Stock of high-quality liquid assets	3,387,921.44	3,507,584.71
Net expected cash outflow over the next 30 days	2,027,115.96	2,095,545.26
LCR (%)	167.13	167.38

Conclusion

- 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.