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

Bhanupong

Lecture 24

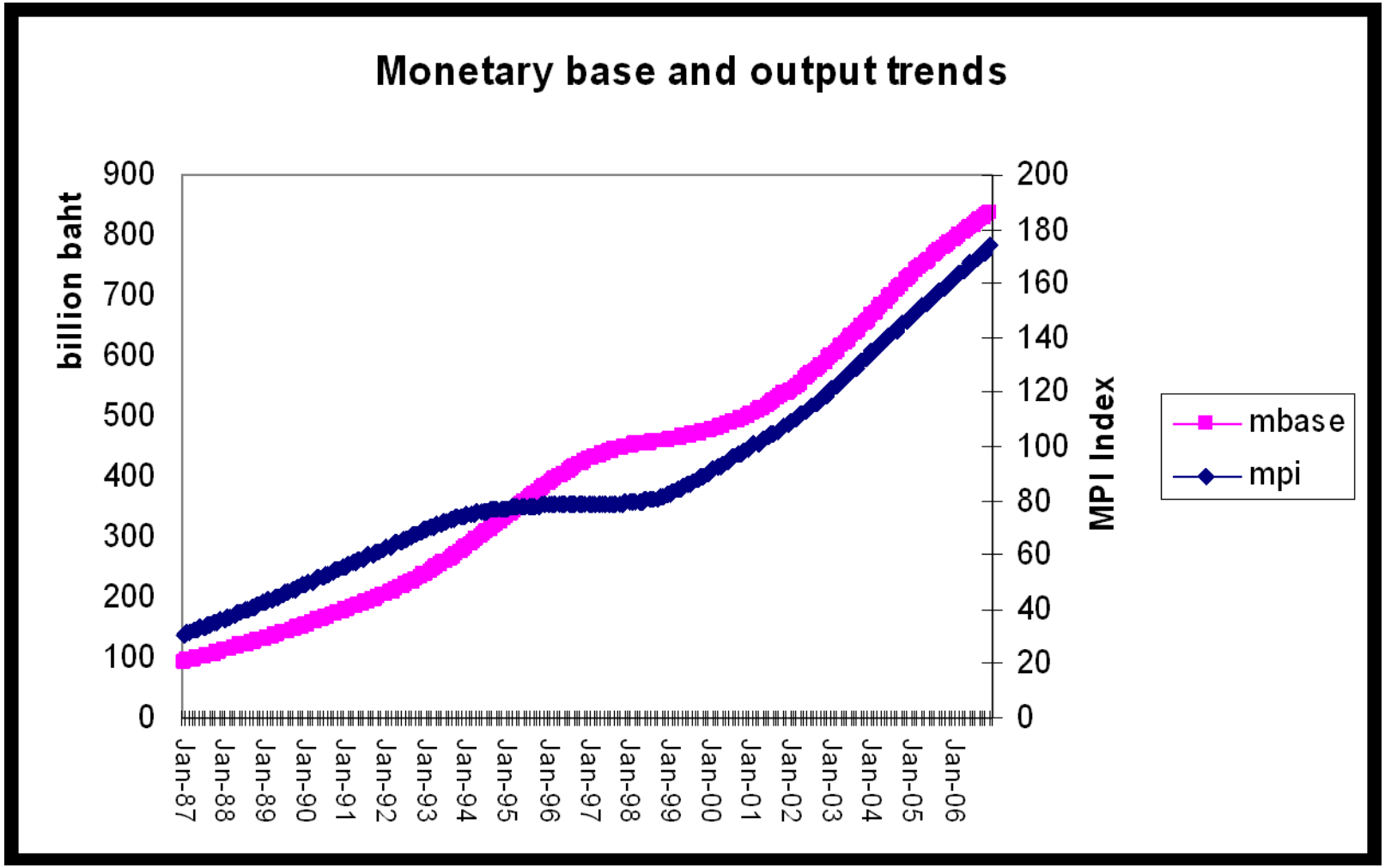
Outline

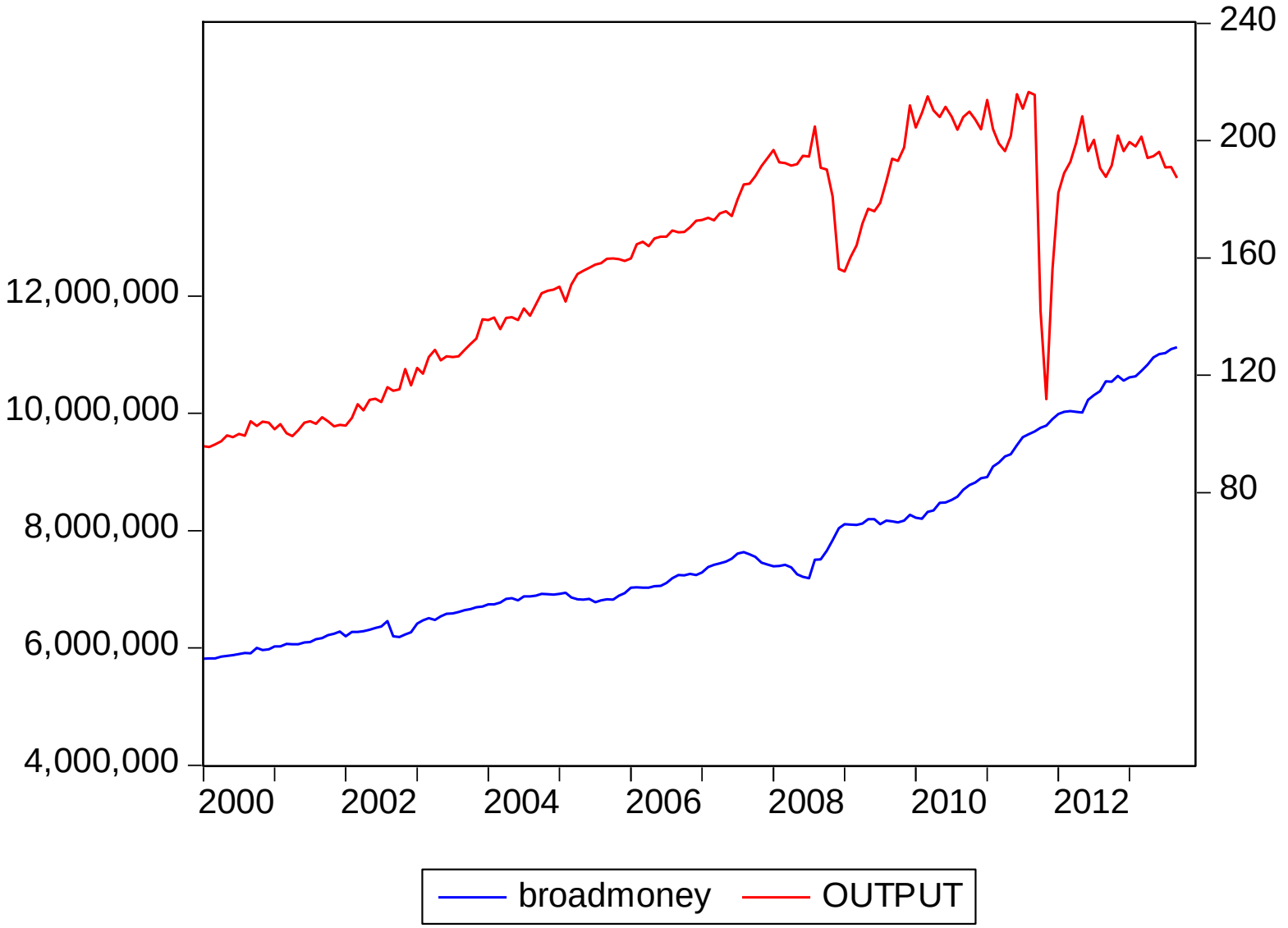
- Long run relationship: output and monetary aggregate
- The Phillips curve
- Inflation target
- Asset price bubbles
- Autonomy of monetary policy
- Monetary policy and the labor market

The importance of monetary aggregates

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

Cointegration relationship



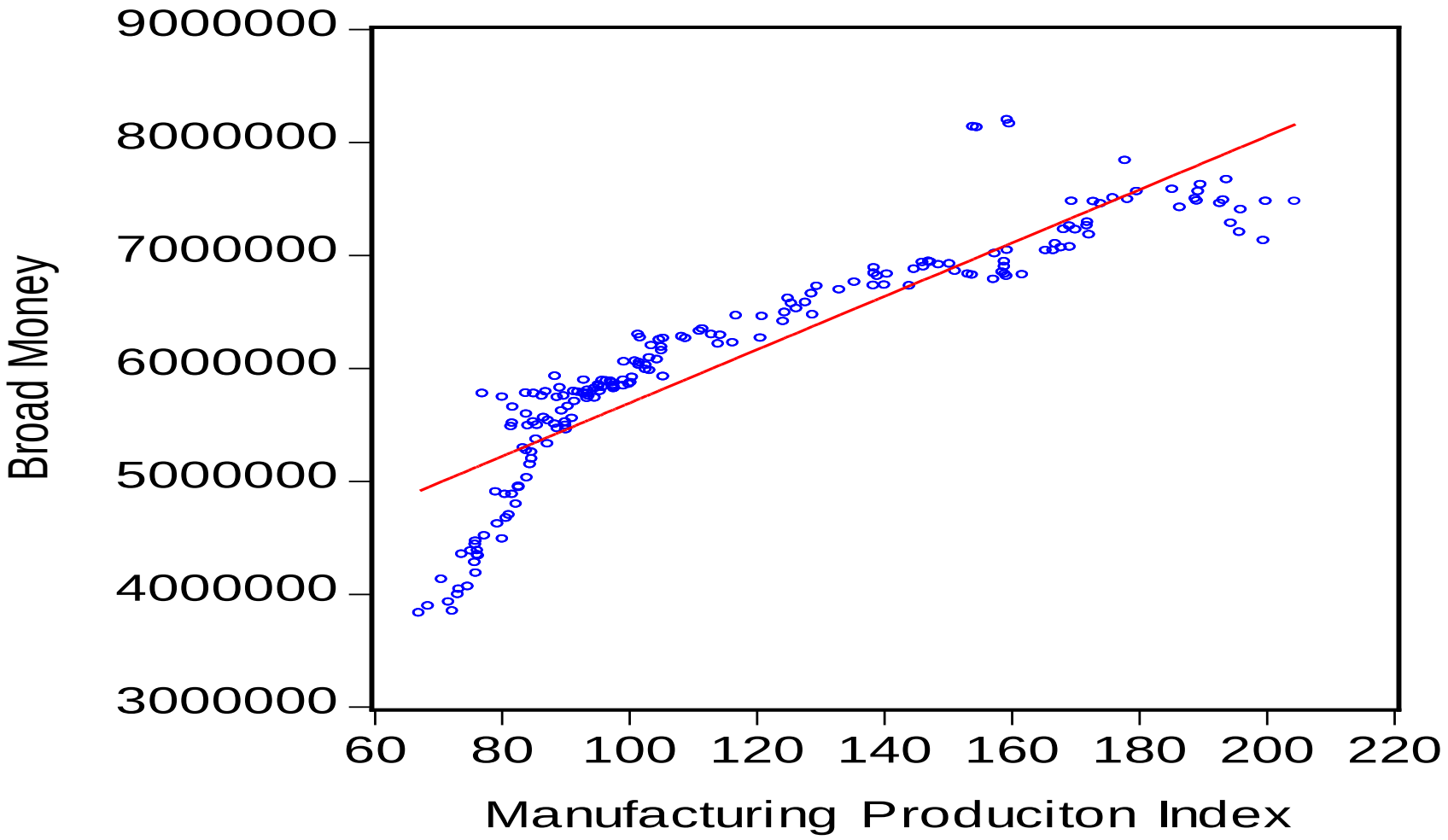

240
200
160
120
80
12,000,000
10,000,000
8,000,000
6,000,000
4,000,000
2000
2002
2004
2006
2008
2010
2012
broadmoney
OUTPUT

- 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 flows, resulting in to rapid expansion of the monetary base.

Monetary base and NFA

- The rate of growth of the monetary base (MB)outpaced the growth in output during the boom years prior to the financial crisis in 1997.
- Manufacturing output grew at a slower rate since 1994 as exports did not increase because of the overvalued exchange rate.
- As the growth of the monetary base decelerated after 1998, both output and the monetary base converged at the same rate of growth again in 2002 as the economy recovered from the recession.

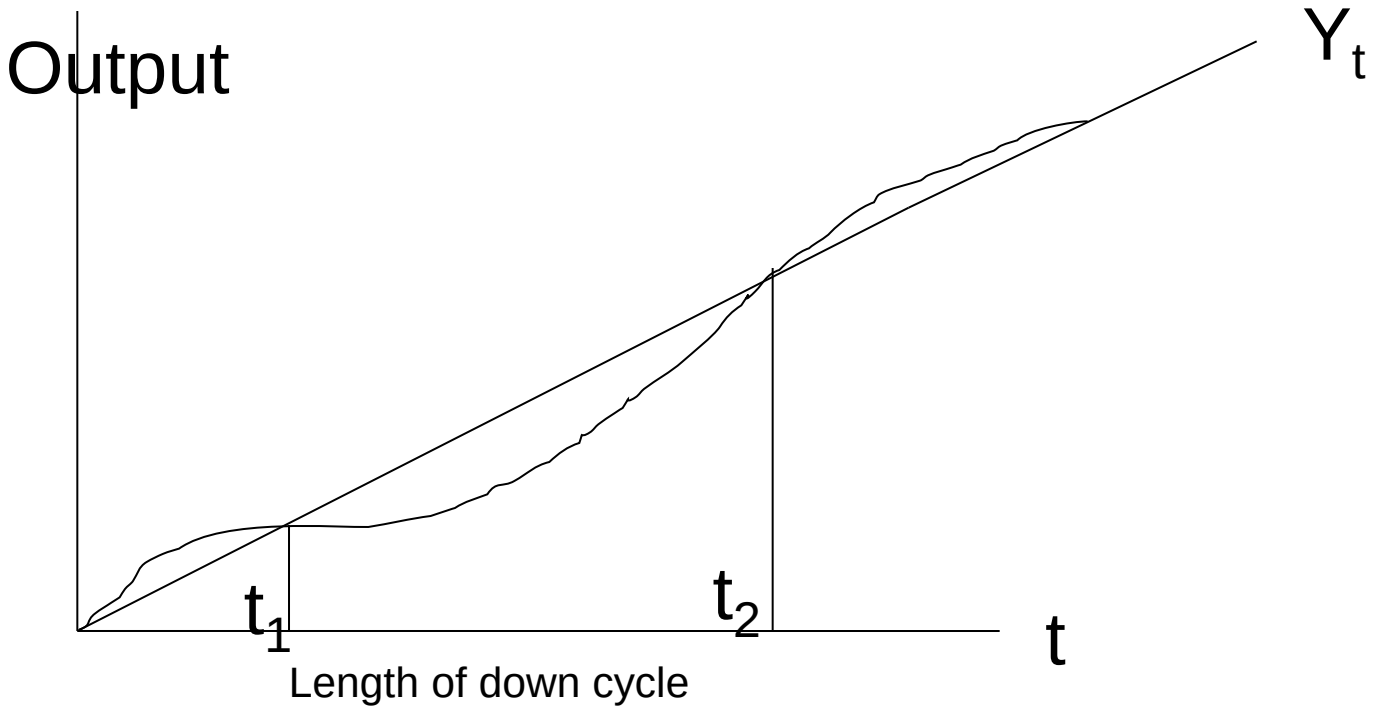
The long-run relationship



Deviation from the long-term growth path

- Long-run output path is dictated by productive capacity of the economy.
- Monetary aggregates must increase at the rate corresponding to the trend growth rate of real output.
- The lending booms and contraction lead to deviations of output from its long-term growth path.

In a mild cycle, output fluctuates around its long-term growth path ($Y_t = Y_0 e^{gt}$)



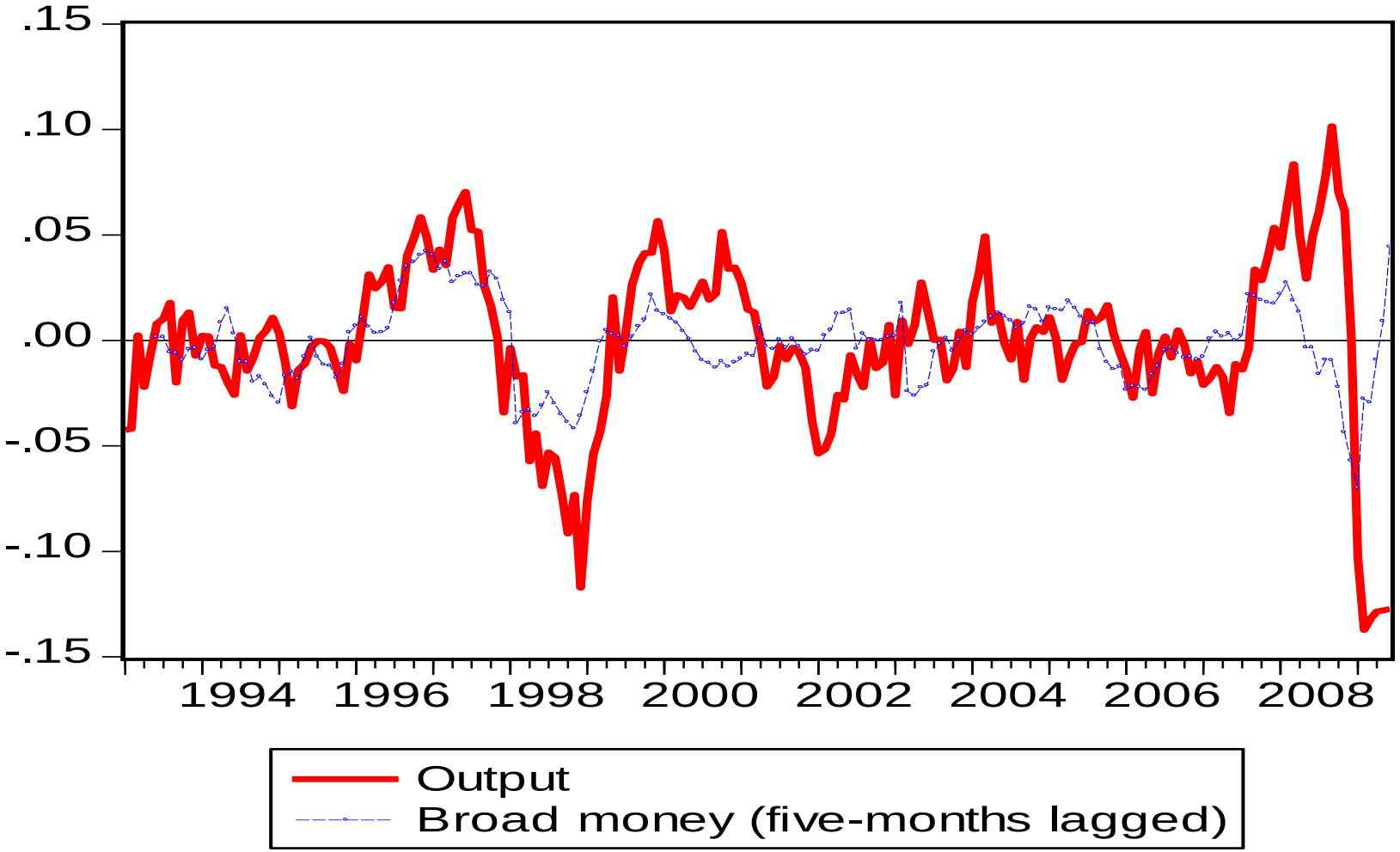
Cyclical excess

- 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.

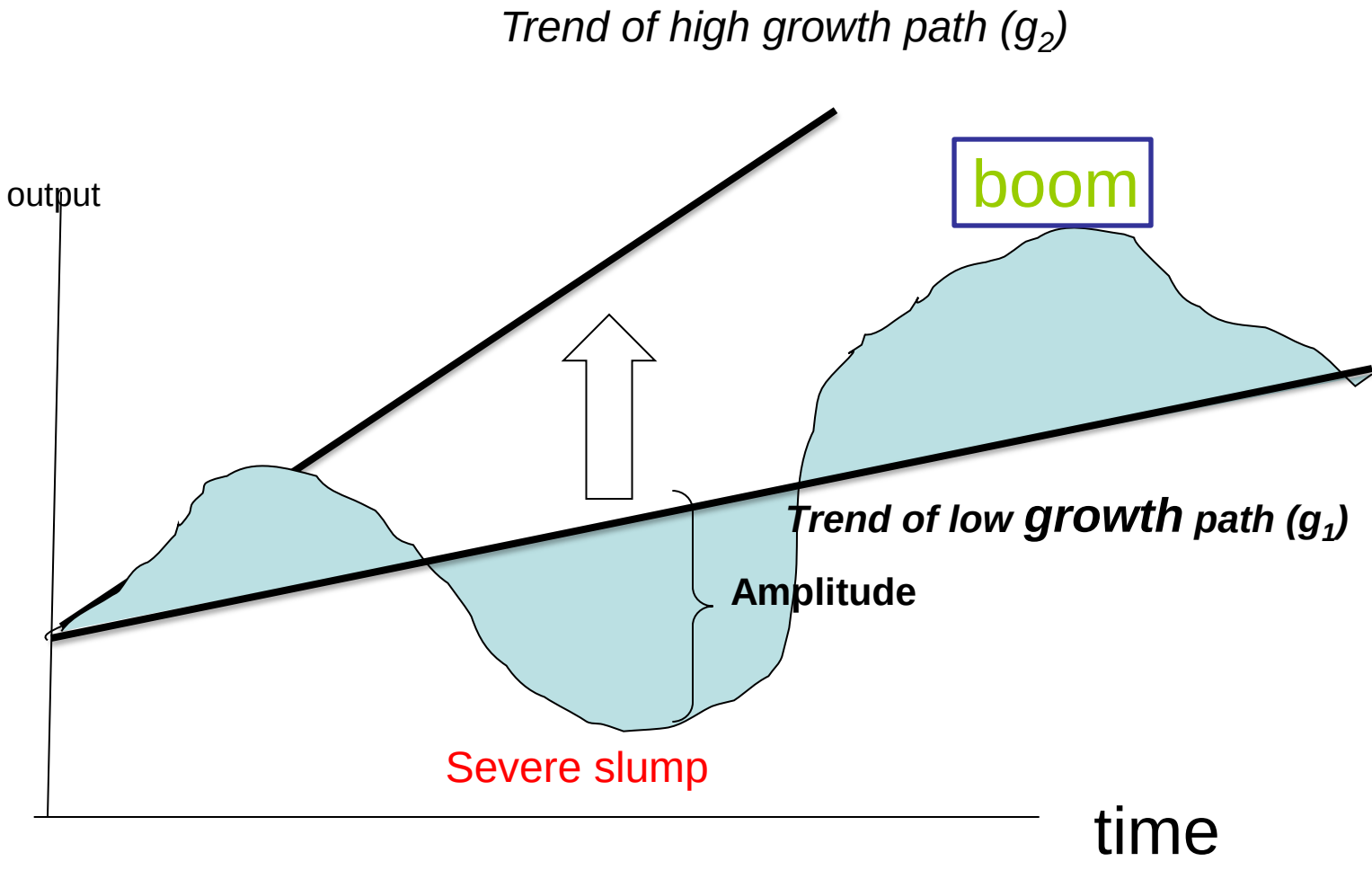
Severe cycles

- In deep and severe cycles, the soundness of the whole financial system is threatened.
- 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.
- This explains monetary easing in 2009 which continued into 2010.

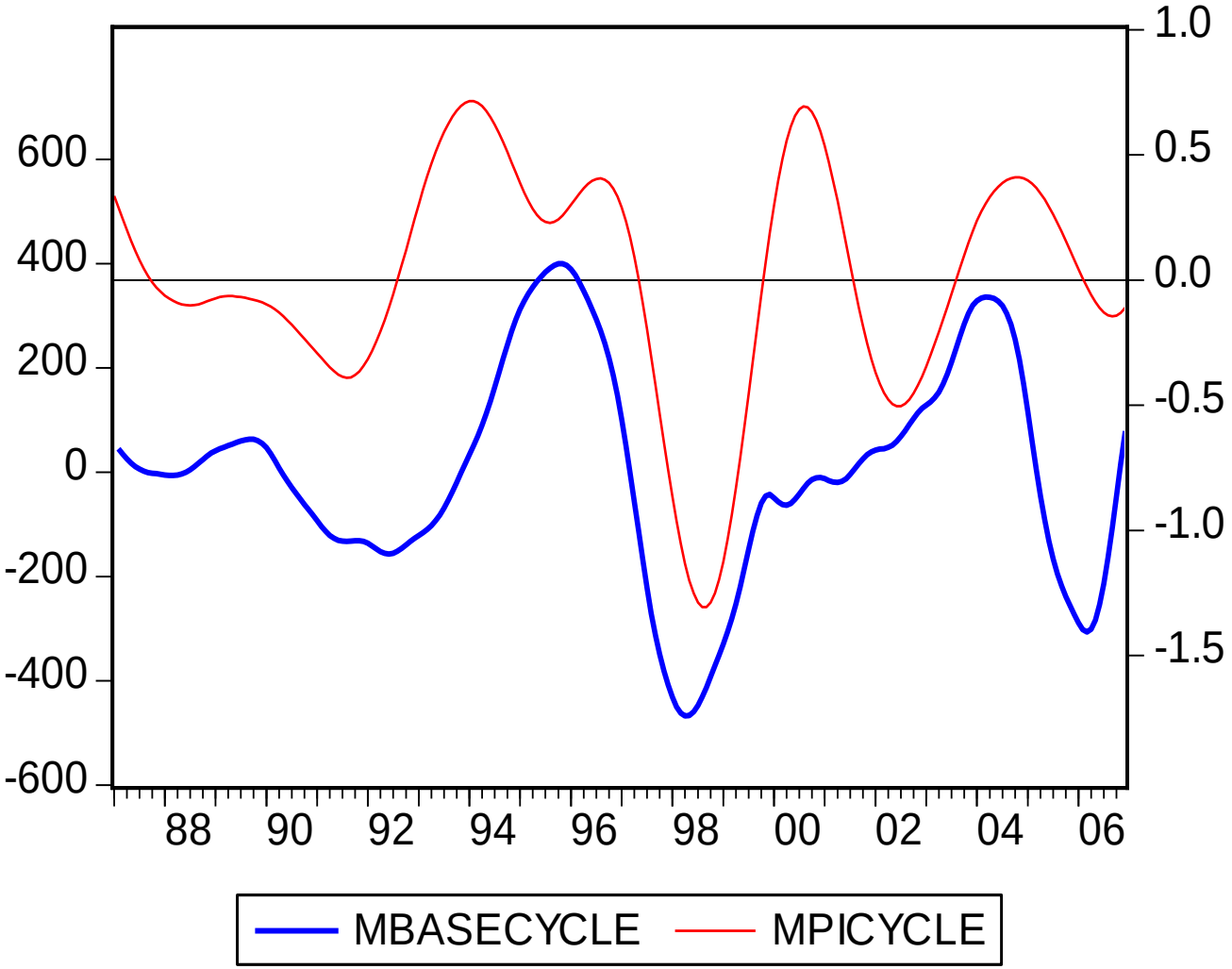
Cyclicality of money and output variables



Severe Business Cycles



Monetary and output cycles



Output responses

- When the monetary base grew excessively over its long-term trend, output growth would also 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.

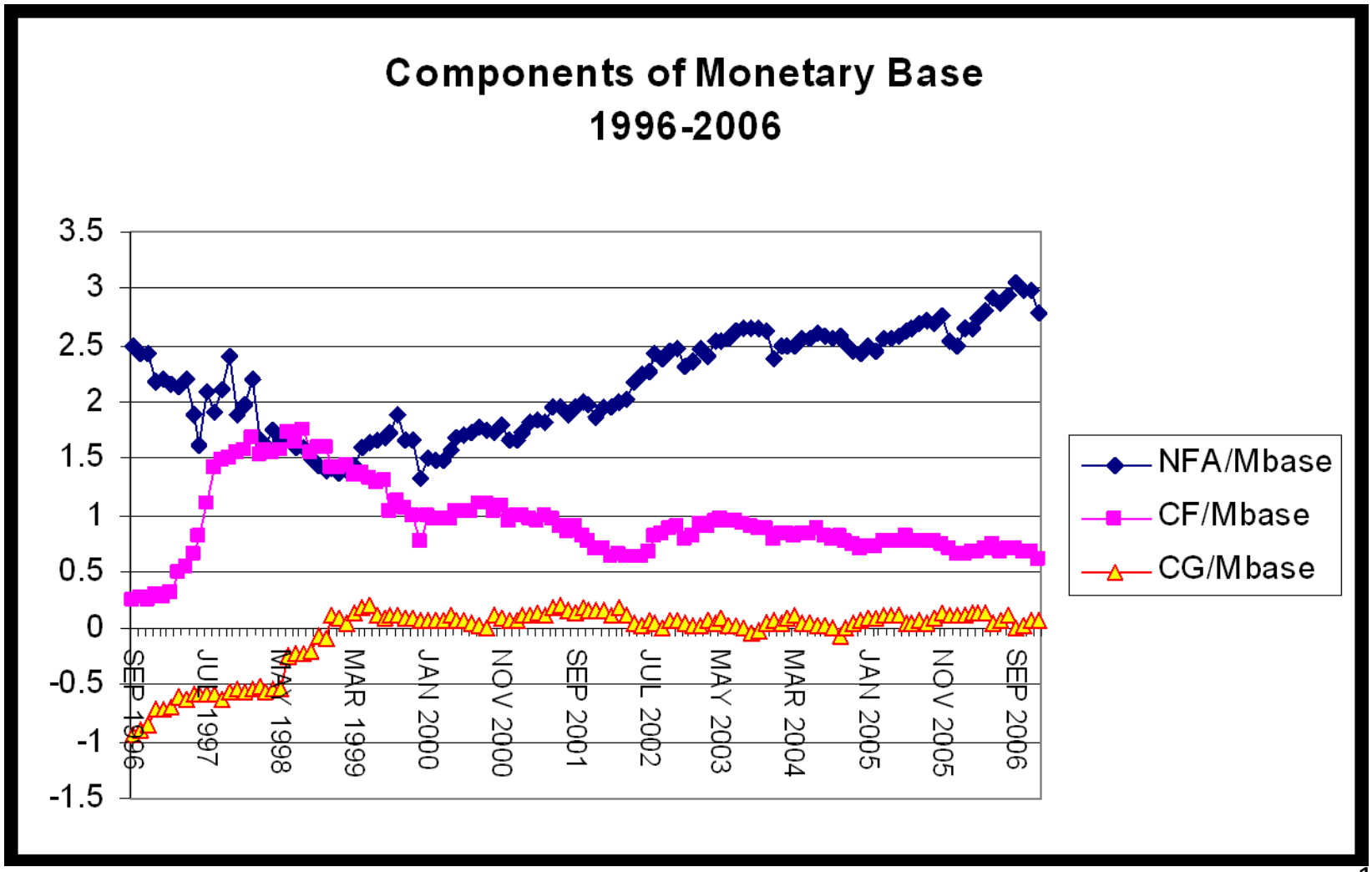
From peaks to troughs of economic cycles

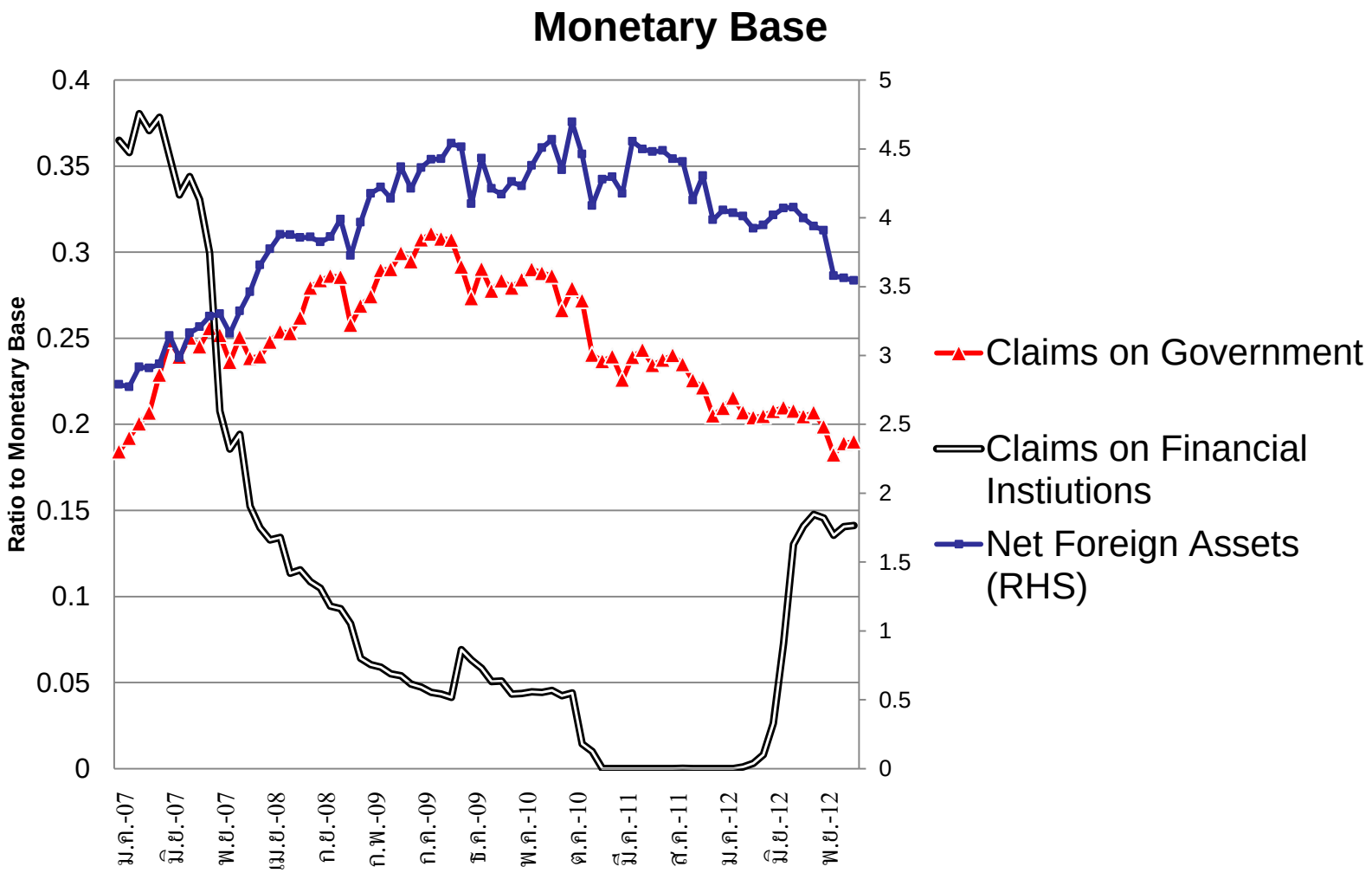
- The peaks of monetary growth were associated with the peaks in manufacturing output.
- Similarly, the deepest contraction in output synchronized with the trough in the monetary cycle.
- Monetary base changes have a strong impact of output fluctuation.
- Cyclical movement in the monetary base can be used to predict the cyclical movement in industrial output.

Policy lessons

- 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.

Fear of appreciation




Monetary Base
Ratio to Monetary Base
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
ม.ค.-07
มิ.ย.-07
พ.ย.-07
เม.ย.-08
ก.ย.-08
ก.พ.-09
ก.ค.-09
ธ.ค.-09
พ.ค.-10
ต.ค.-10
มี.ค.-11
ส.ค.-11
ม.ค.-12
มิ.ย.-12
พ.ย.-12
Claims on Government
Claims on Financial Instiutions
Net Foreign Assets (RHS)

Premature liberalization

- Net foreign assets increased substantially after capital liberalization and the establishment of the BIBF.
- Premature liberalization led to huge and rapid capital inflows in such a way that financial infrastructure building was not able to cope with monitoring and supervising activities in the financial sector.
- Macroeconomic stability in terms of high growth, low inflation, and large amount of international reserves is not sufficient conditions for successful capital account liberalization.

Inflation, output gap and inflation expectations

$$\pi_t = E_{t-1}\pi_t + \phi(Y_t - \bar{Y}_t) + \nu_t$$

Inflation depends on expected inflation because firms set prices in advance. The expectation of high inflation induces firms to announce price hikes which causes high inflation in the overall economy.

Adaptive expectation

People expect prices to continue rising at the same rate they have been rising.

$$E_t \pi_{t+1} = \pi_t$$

$$E_{t-1} \pi_t = \pi_{t-1}$$

From the Phillips curve

$$\pi_t = E_{t-1}\pi_t + \varphi(Y_t - \bar{Y}_t) + \nu_t$$

With Adaptive expectation,

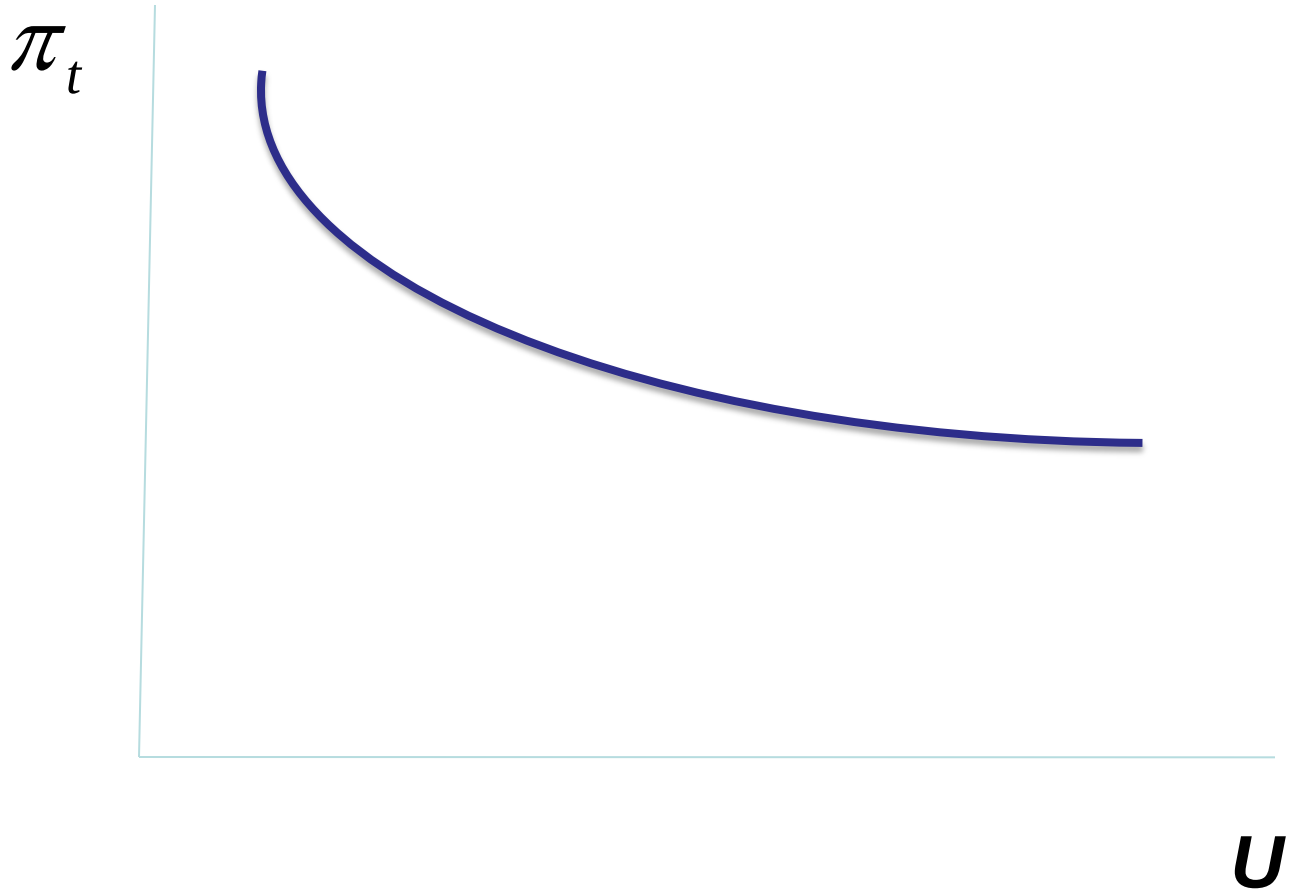
$$E_{t-1}\pi_t = \pi_{t-1}$$

$$\pi_t = \pi_{t-1} + \varphi(Y_t - \bar{Y}_t) + \nu_t \qquad (DAS)$$

$$U_t = -\lambda(Y_t - \bar{Y}_t), \quad \lambda > 0$$

$$\pi_t = \pi_{t-1} - \eta U_t + \nu_t ; \eta \equiv \varphi / \lambda$$

The Phillips Curve



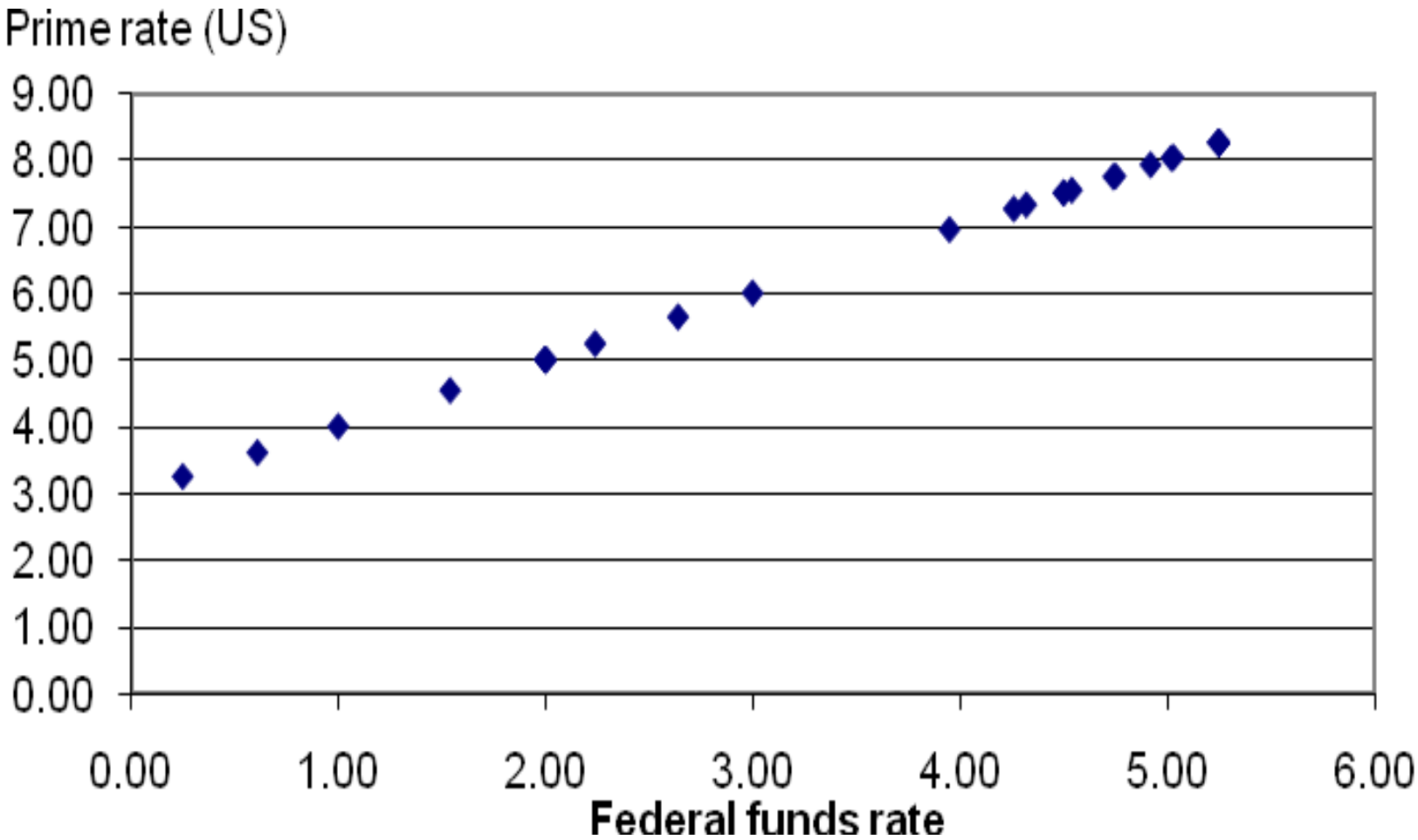
The cost of price stability

- When there is a trade-off between price stability and unemployment, monetary expansion can reduce unemployment at the expense of higher price level.
- How high is the price we have to pay in terms of reducing unemployment?
- Inflation expectations play a crucial role in determining the cost of disinflation.

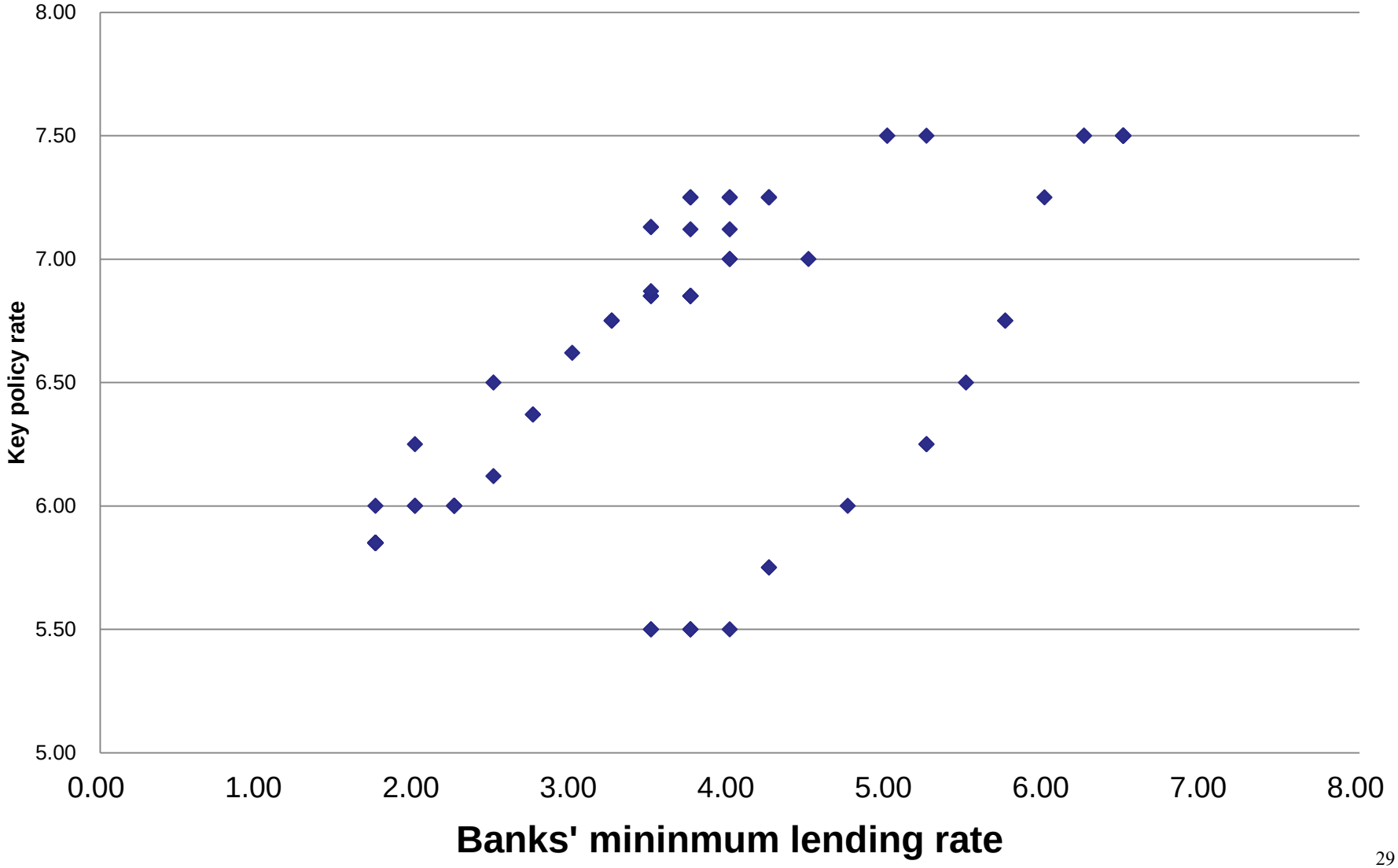
Phillips curve is still alive

- Except for the abnormal year of 1998, there exist a negative relationship between unemployment and inflation.
- The year 1998 experienced cost pushed inflation caused by currency depreciation; thereby revising inflationary expectations.
- For every one-percentage point reduction in unemployment, inflation was raised by roughly 1.8%.
- The cost of price stability is high in terms of unemployment.

Predictable outcome



Bank of Thailand and Commercial banks' lending interest rates
Jan 2005-Feb 2012



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.

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.

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-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.

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 2013?

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

Monetary autonomy

- The monetary authorities have important interest rate policy that can affect bank lending rate and price stability.
- During the period of excess liquidity, monetary autonomy was demonstrated when the federal funds rate had no impact on domestic interest rates for both key policy and commercial banks' interest rates.

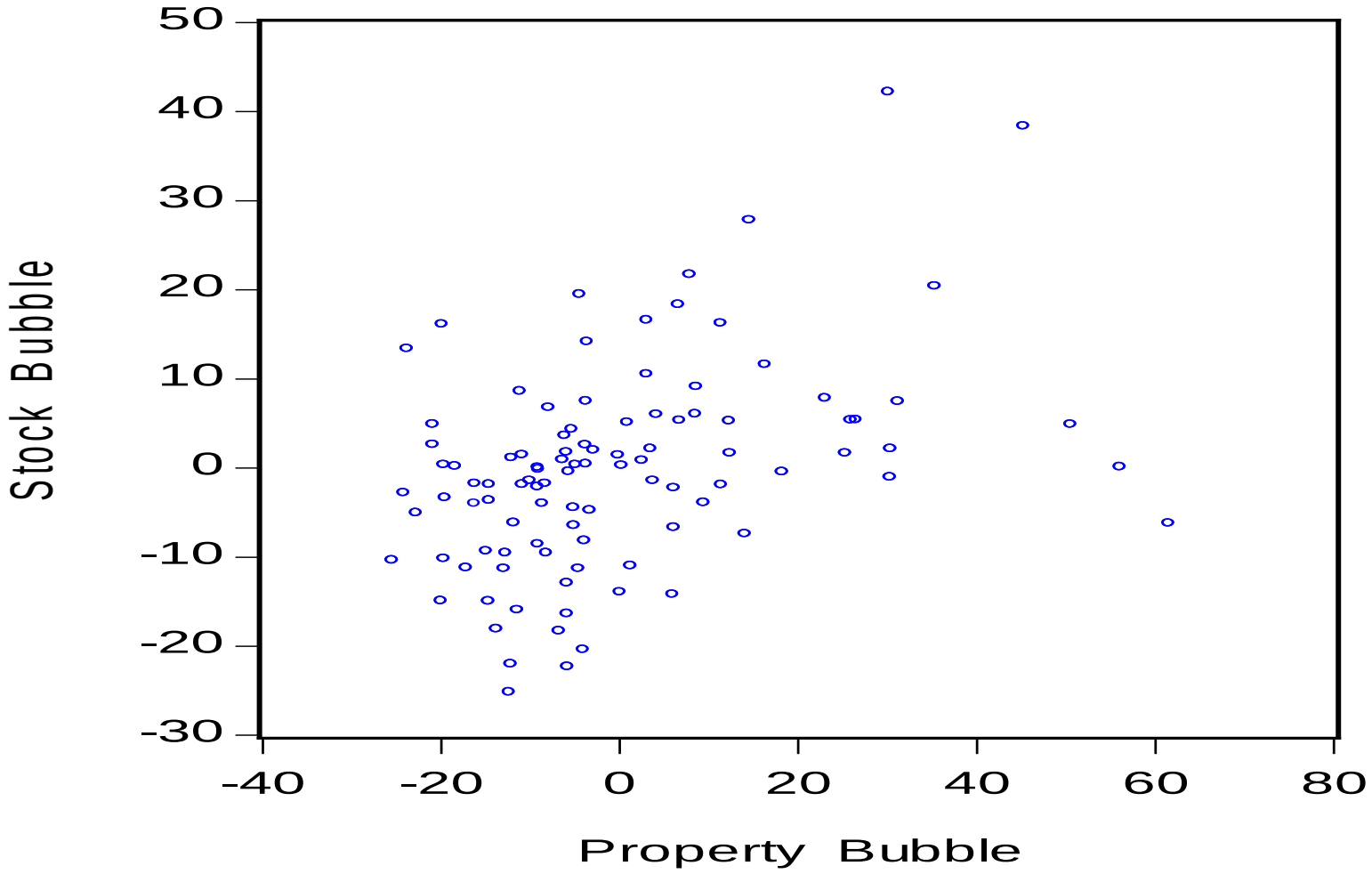
Flexible inflation targeting strategy

- The central bank key interest rates responded to inflation ***and*** real exchange rate changes.
- There had been an attempt to prevent the appreciation of the real effective exchange rates.

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



First thing, first

- 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.

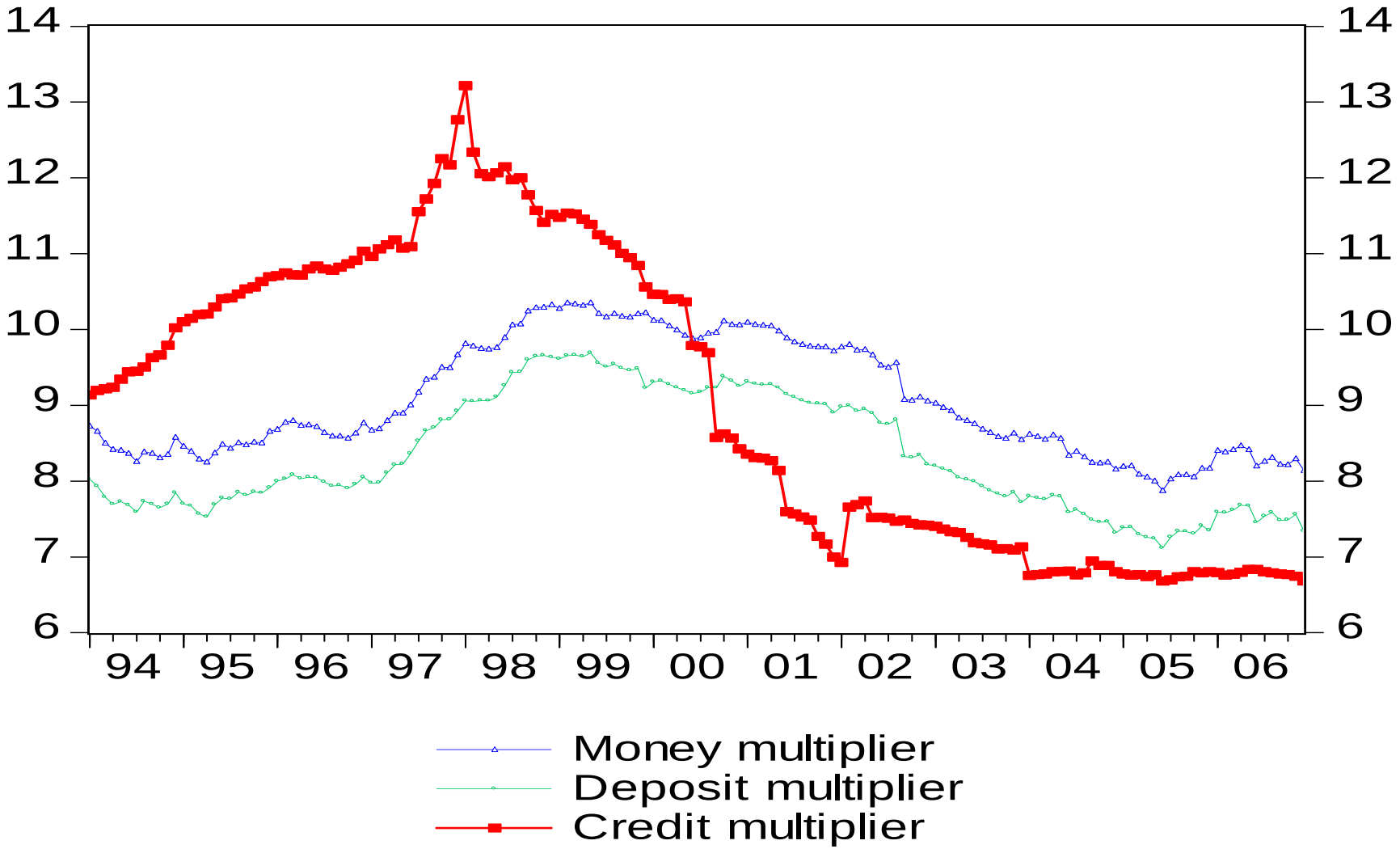
$$Credit = \kappa MB$$

$$MB = NFA + CoG + CoF$$

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

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

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.

- 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.

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.
- 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.

Conclusion

- Monetary policy is effective in stabilizing the economy, but it should be employed in line with fiscal policy stance.
- Some novel goals of inclusive and quality growth require other policy mix to bring about the benefits of growth to the vulnerable.

Concluding remarks

- Monetary policy should not be employed for micro objectives that might lead to distortion of resource allocation.
- If growth with stability can be achieved, the Bank of Thailand can obtain a broader goal of poverty reduction.