

Do Capital Flows Fuel Asset Bubbles in China?

Liqing Zhang, Zhigang Huang
Central University of Financial and
Economics, China

Presenter: Zhigang Huang

1. The Surge of Capital Inflows in China

- Background:
 - The difference of economy situation in China and the development countries.
 - Large current account surpluses.
 - Continuing of RMB appreciation.
- As a result, private capital swarmed into China.
- Under capital control in China, the majority of capital inflows was through illegal channel.

1. The Surge of Capital Inflows in China

- Main channels of capital inflows:
 - Channel 1: Mis-invoice in trade transaction.
 - Channel 2: Abnormal short-term borrowing.
 - Channel 3: Capital inclusion and Abjuration of FDI's profit repatriation.
 - Channel 4: Individual remittance.
 - Channel 5: Illegal banks transfer.
- All these channels are difficult to measure, and many approaches designed to calculate the short-term capital inflows.

1. The Surge of Capital Inflows in China

- Approaches to measure capital inflows:
 - residual measure
 - hot money measure
 - trade mis-invoicing measure
 - ...

- The World Bank (1985) residual measure:

$$\textit{Capital flight} = \Delta \textit{ExD} + \textit{NFDI} - \textit{CAD} - \Delta \textit{IR}$$

- The hot money measure:

$$\textit{Capital flight} = \textit{stNB} + \textit{E \& O}$$

- The trade mis-invoicing measure:

- defined short-term capital flows as an illegal transaction via the falsification of trade documents.

1. The Surge of Capital Inflows in China

- China's State Administration of Foreign Exchange (SAFE) (2011a) measure:

$$\textit{Hot money} = \Delta FR - NFDI - TS - IPA - FF$$

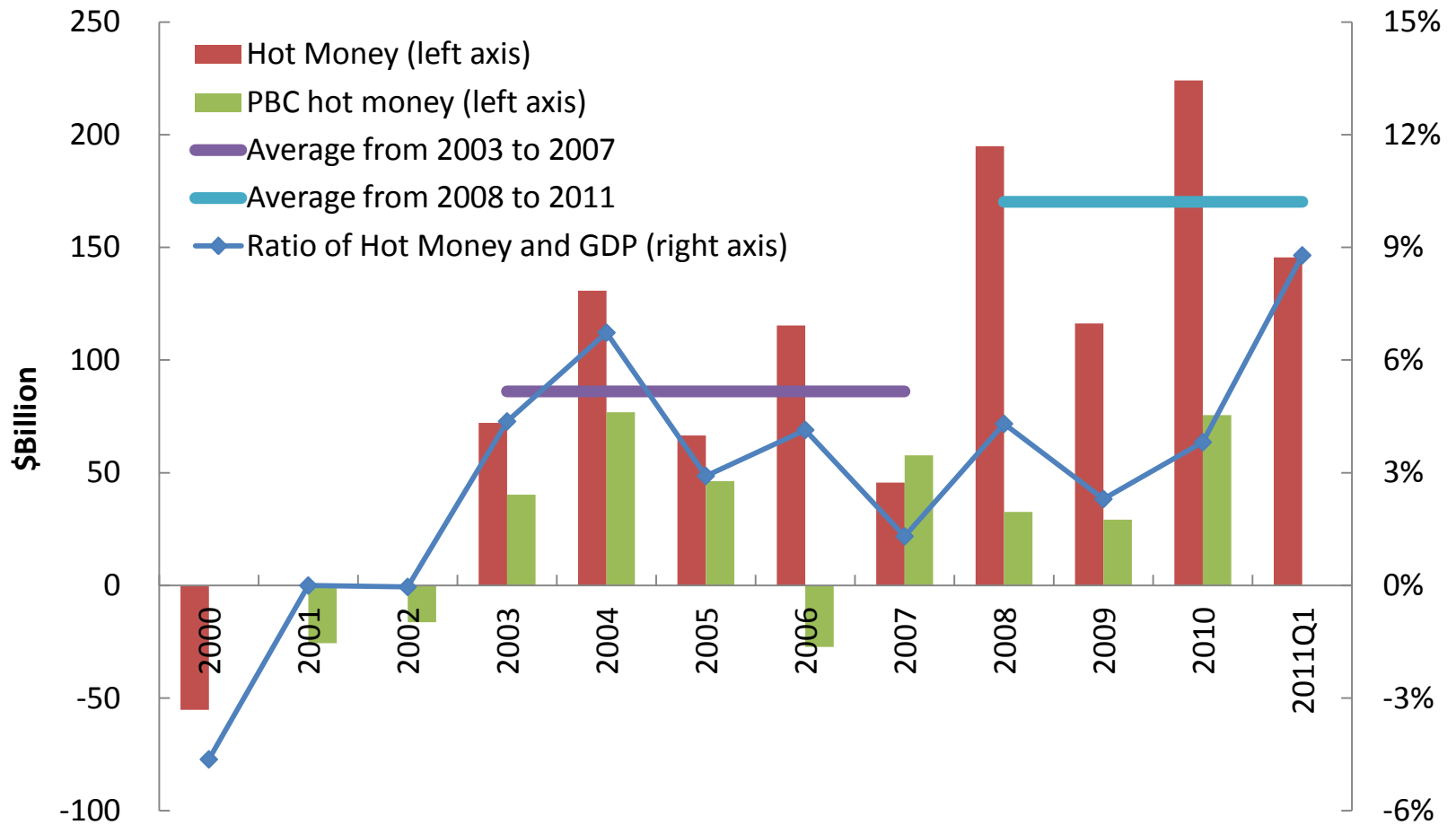
- Our measure:

$$\textit{Hot money} = \Delta FEP - NFDI - TS - NI - FF$$

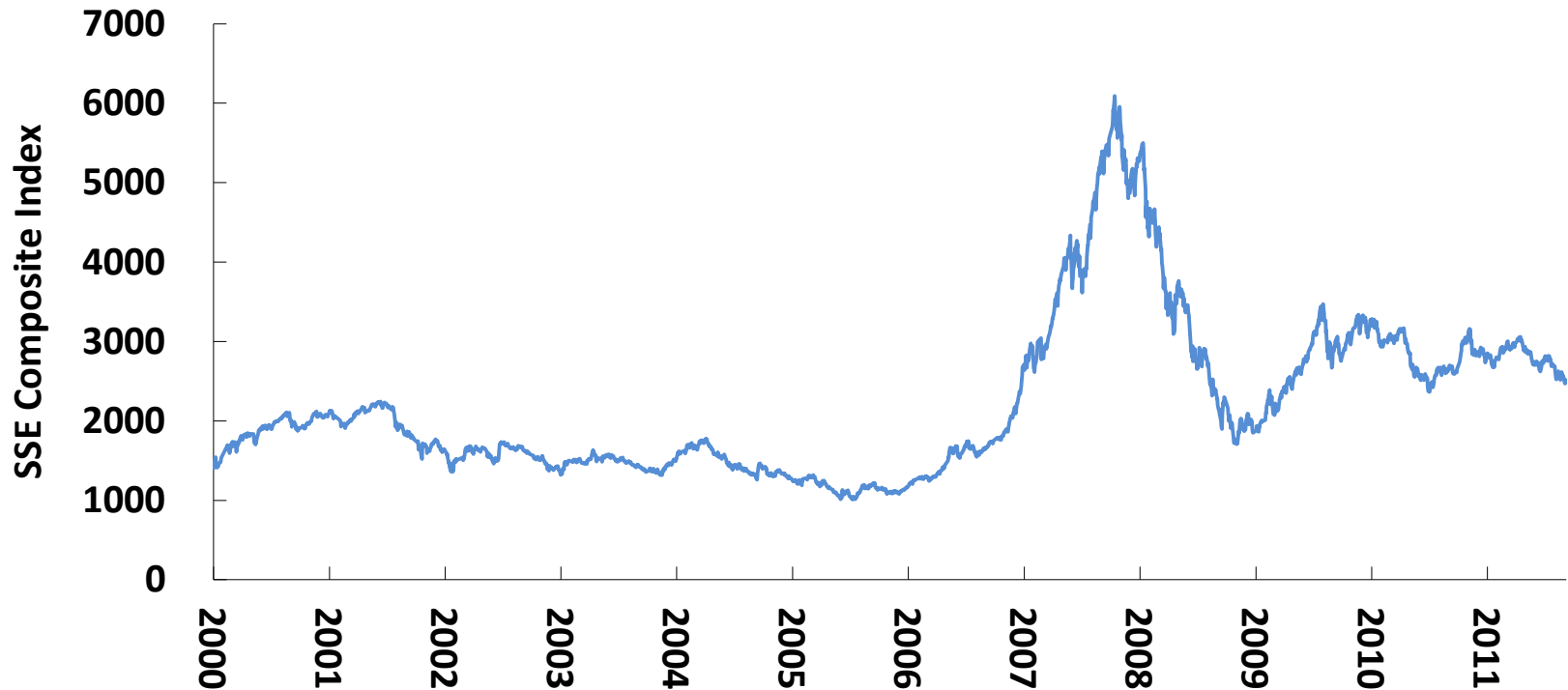
- Reasons:

- Private foreign exchange holdings,
- Revenue from foreign reserve,
- Capital and labour income

1. The Surge of Capital Inflows in China

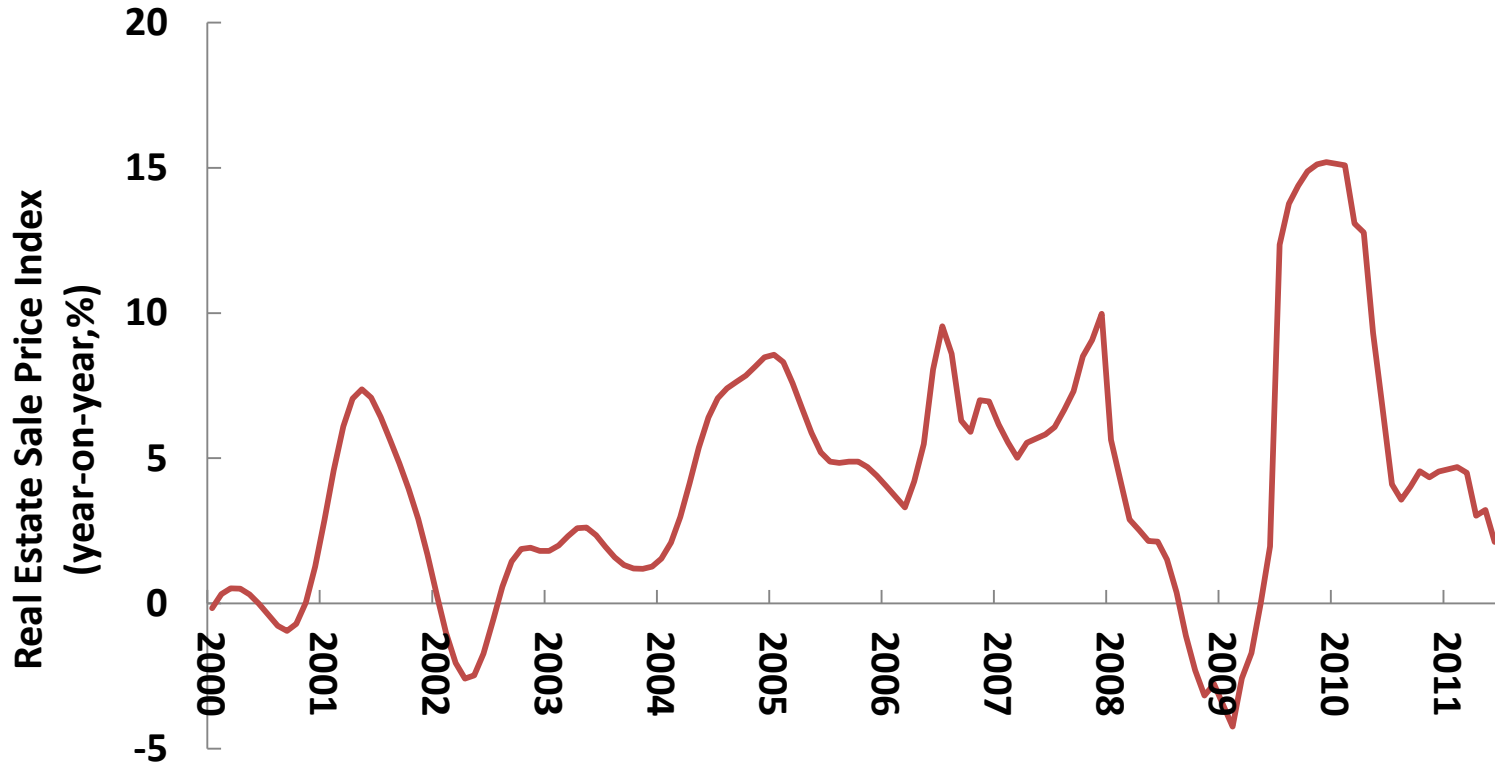


2. The asset bubble in China



- China's stock prices fluctuated more than ever in last 5 years.

2. The asset bubble in China



- Housing's variation rose significantly after the Crisis.

3. Does capital inflows fuel asset bubbles?

- Determined factors of asset prices:
 - Monetary factors: M1, r
 - Fundamental factors: GDP
 - Hot money
- Data: quarter data, 2000Q1—2011Q2.

Variable	Mean	Std.	Unit root test
Hot money inflows (DHM, \$ billion)	20.53	41.07	-4.99***
Housing price changes (DHP, %)	0.98	1.99	-5.00***
Stock price changes (DSP, %)	2.95	17.51	-5.08***
M1 growth rate (DM1, %)	4.01	1.67	-3.69***
GDP growth rate (DY, %)	2.41	0.65	-5.65***
Interest rate changes (DIR, %)	0.00	0.34	-5.36***

Granger causality test

Null Hypothesis	F-Statistic	Probability
The Granger causality of stock price, M1 growth and hot money		
DHM does not Granger Cause DSP	0.62	0.65
DSP does not Granger Cause DHM	1.17	0.34
DM1 does not Granger Cause DSP	0.89	0.48
DSP does not Granger Cause DM1	0.94	0.45
DIR does not Granger Cause DSP	1.00	0.42
DSP does not Granger Cause DIR	3.29	0.02
DY does not Granger Cause DSP	1.18	0.34
DSP does not Granger Cause DY	3.45	0.02
The Granger causality of housing price, M1 growth and hot money		
DHM does not Granger Cause DHP	3.49	0.02
DHP does not Granger Cause DHM	1.65	0.19
DM1 does not Granger Cause DHP	3.65	0.01
DHP does not Granger Cause DM1	0.95	0.45
DIR does not Granger Cause DHP	3.05	0.03
DHP does not Granger Cause DIR	4.06	0.01
DY does not Granger Cause DHP	1.55	0.21
DHP does not Granger Cause DY	1.85	0.14

Regression results of stock price

Dependent Variable: Stock price	Model I (OLS)	Model II (OLS)	Model III (GMM)
Lag of stock price	-0.06 (0.10)		
M1 growth rate	5.34*** (1.38)	4.77*** (1.43)	4.59*** (1.02)
Interest rate changes	15.12*** (5.40)	13.83*** (4.35)	9.95*** (3.19)
GDP growth rate	3.66 (2.93)		
Hot money	-0.06 (0.06)		
Constant	-26.83*** (9.55)	-16.28** (6.28)	-17.02*** (5.07)
R ²	0.41	0.32	0.37

Regression results of housing price

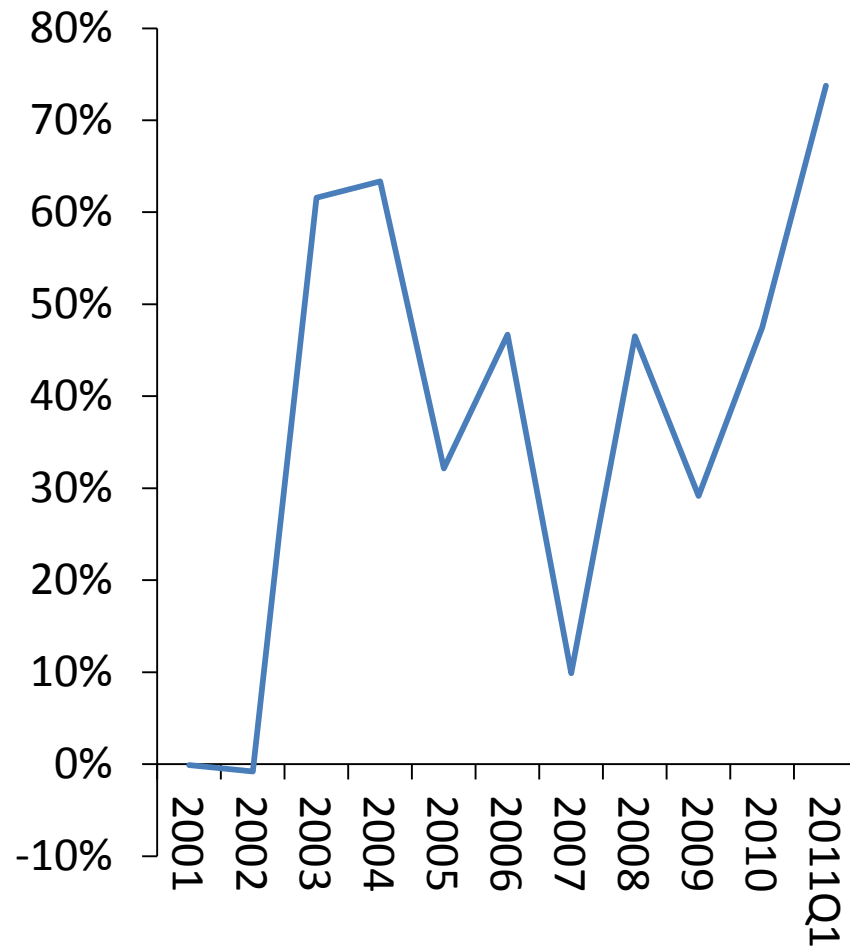
Dependent Variable: Housing price	Model I (OLS)	Model II (OLS)	Model III (GMM)
Lag of house price	-0.24 (0.16)		
M1 growth rate	0.32* (0.17)	0.39** (0.16)	0.28*** (0.09)
Changes of interest rate	-0.21 (0.96)		
GDP growth rate	1.19** (0.44)	1.08** (0.41)	1.02*** (0.19)
Hot money	-0.01 (0.007)		
Constant	-3.16** (1.33)	-3.21** (1.19)	-2.91*** (0.71)
R ²	0.29	0.24	0.18

4. Discussion

- Our empirical finding:
 - hot money inflows have not significant effect on both stock price and housing price.
- Reasons:
 - Effective sterilization,
 - Stock vs. flow.
- Threat of hot money inflows:
 - Sudden stop
 - Monetary policy effectiveness

4. Discussion

- The surge of hot money inflows weakens the controllability of monetary aggregate.
 - The hot money accounts for 42% of foreign reserve increase on average from 2003 to 2010.
 - It is 73% in the first quarter of 2011.



5. Policy Instruments and Their Effectiveness

- Macroeconomic policies
 - Monetary policy
- Exchange rate policy
 - Revaluation of Renminbi and the reform of exchange regime
- Prudent financial supervision and management
- Direct capital control

Thank You!