The Business Cycle in China since the Lehman Crisis

How major macroeconomic variables move around their medium-term trends

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Nomura Institute of Capital Markets Research

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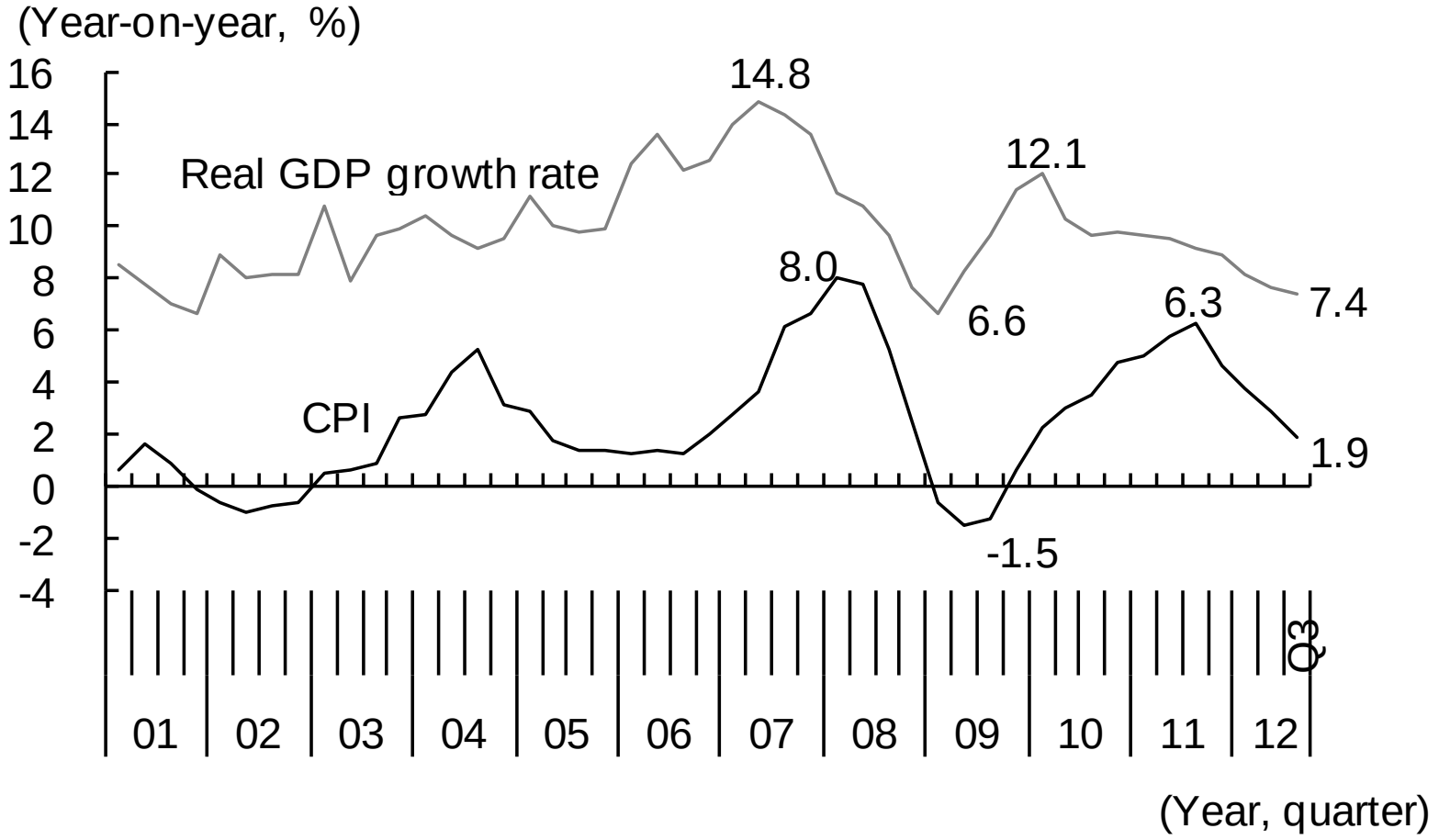
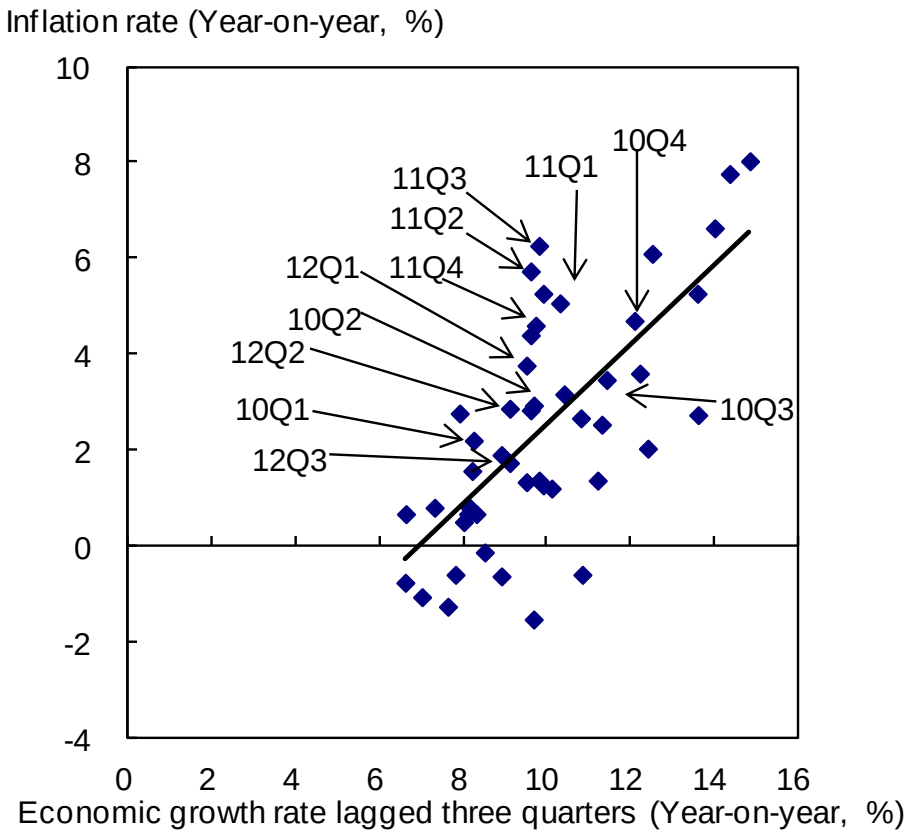
Economic Growth versus Inflation in China



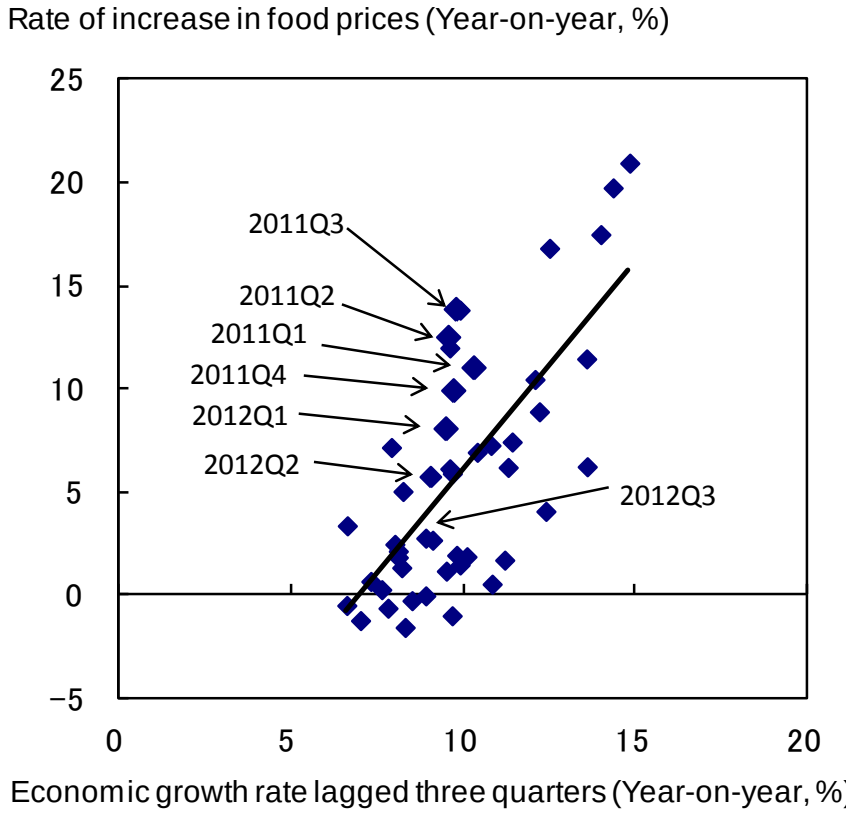
Source: Compiled by Nomura Institute of Capital Markets Research based on CEIC database.

Correlation between the Economic Growth Rate and the Inflation Rate (2001Q1～2012Q3)



Note: Estimation results:
Inflation rate = −5.70 ＋ 0.82 × economic growth rate lagged three quarters
（6.54）
The number in parentheses denotes t-value. $\overline{R}^2$ = 0.48
Estimation period: Q1 2001 through Q3 2012.
Source: Compiled by Nomura Institute of Capital Markets Research based on CEIC database.

Correlation between the Economic Growth Rate and Increase in Food Prices (2001Q1-2012Q3)



Note: Estimation results:

Rate of increase in food prices = −14.00 + 2.00 × economic growth rate lagged three quarters

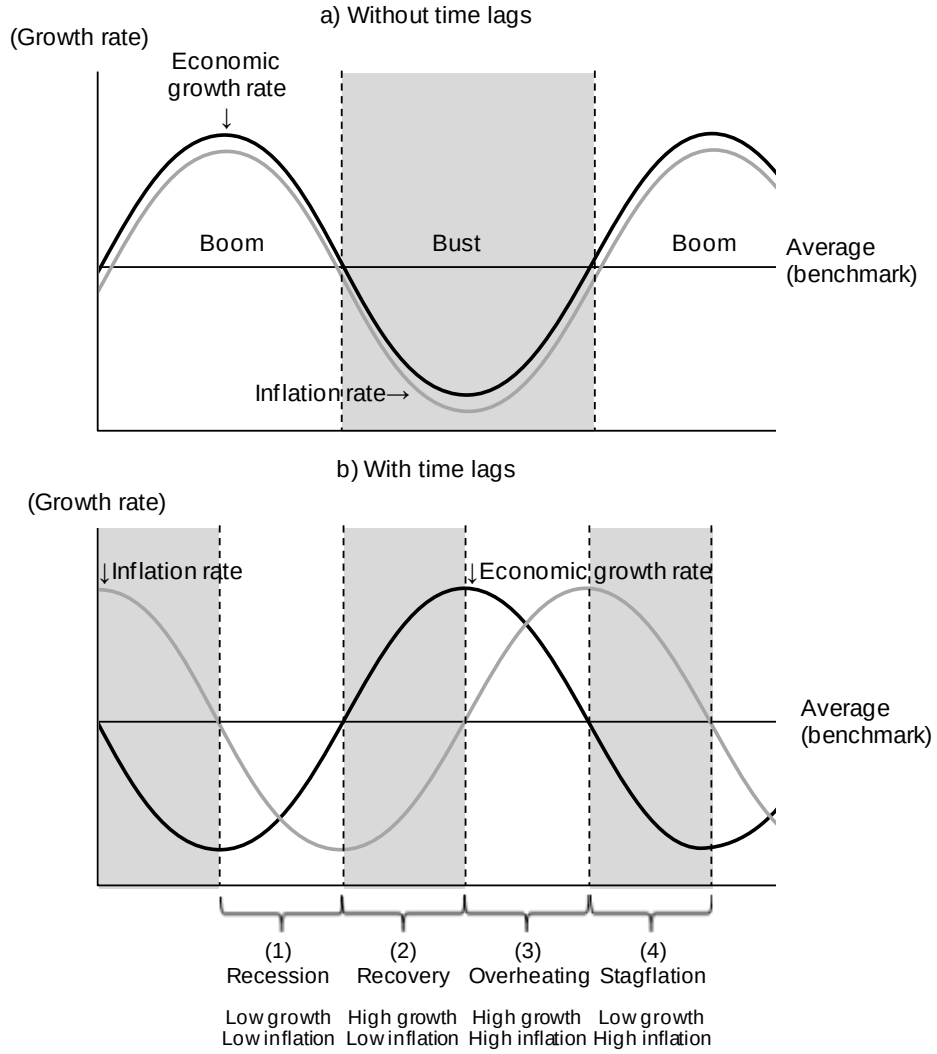
(6.62)

The number in parentheses denotes t-value, $\overline{R}^2 = 0.48$

Estimation period: Q1 2001 through Q3 2012.

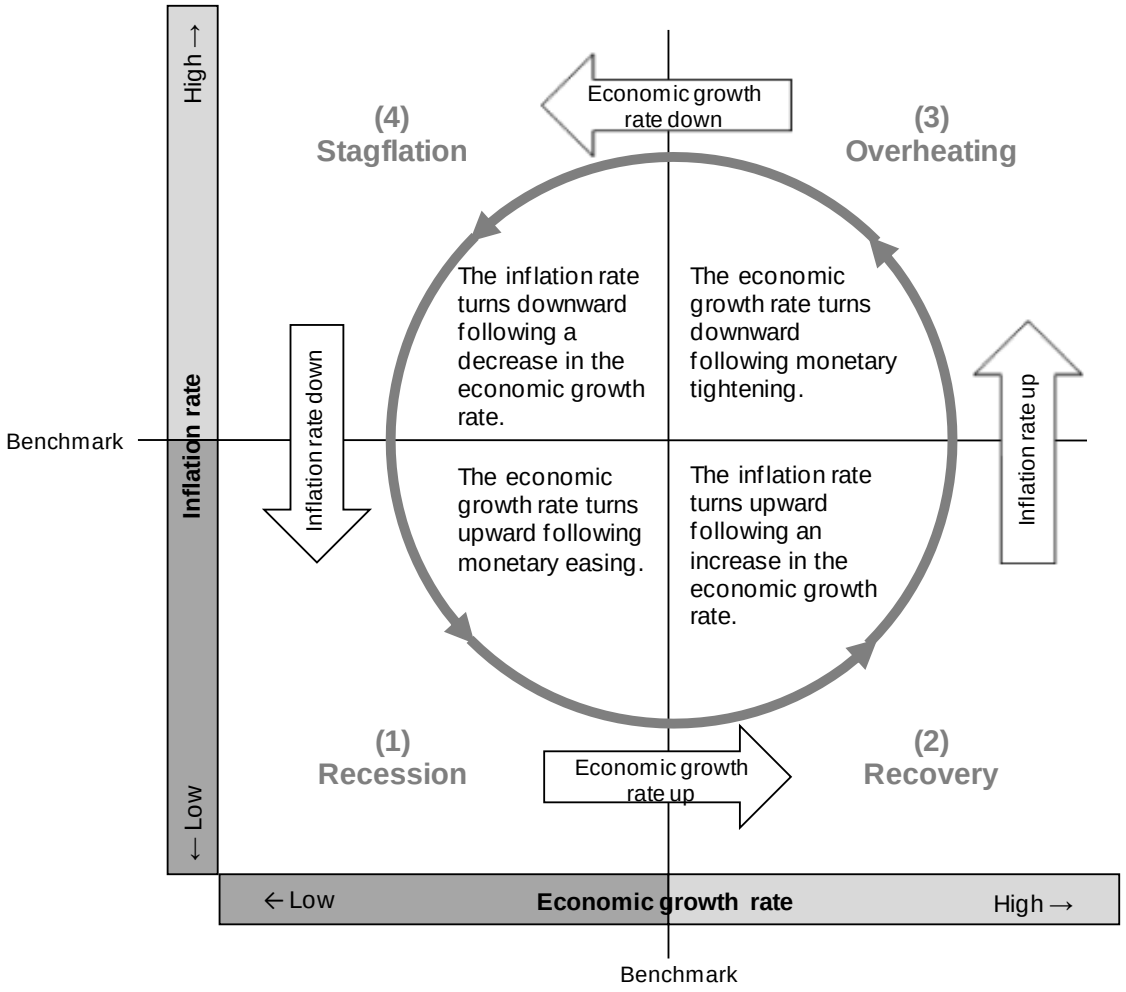
Source: Compiled by Nomura Institute of Capital Markets Research based on CEIC database.

Phases of the Business Cycle Defined by the Relationship between the Economic Growth Rate and the Inflation Rate



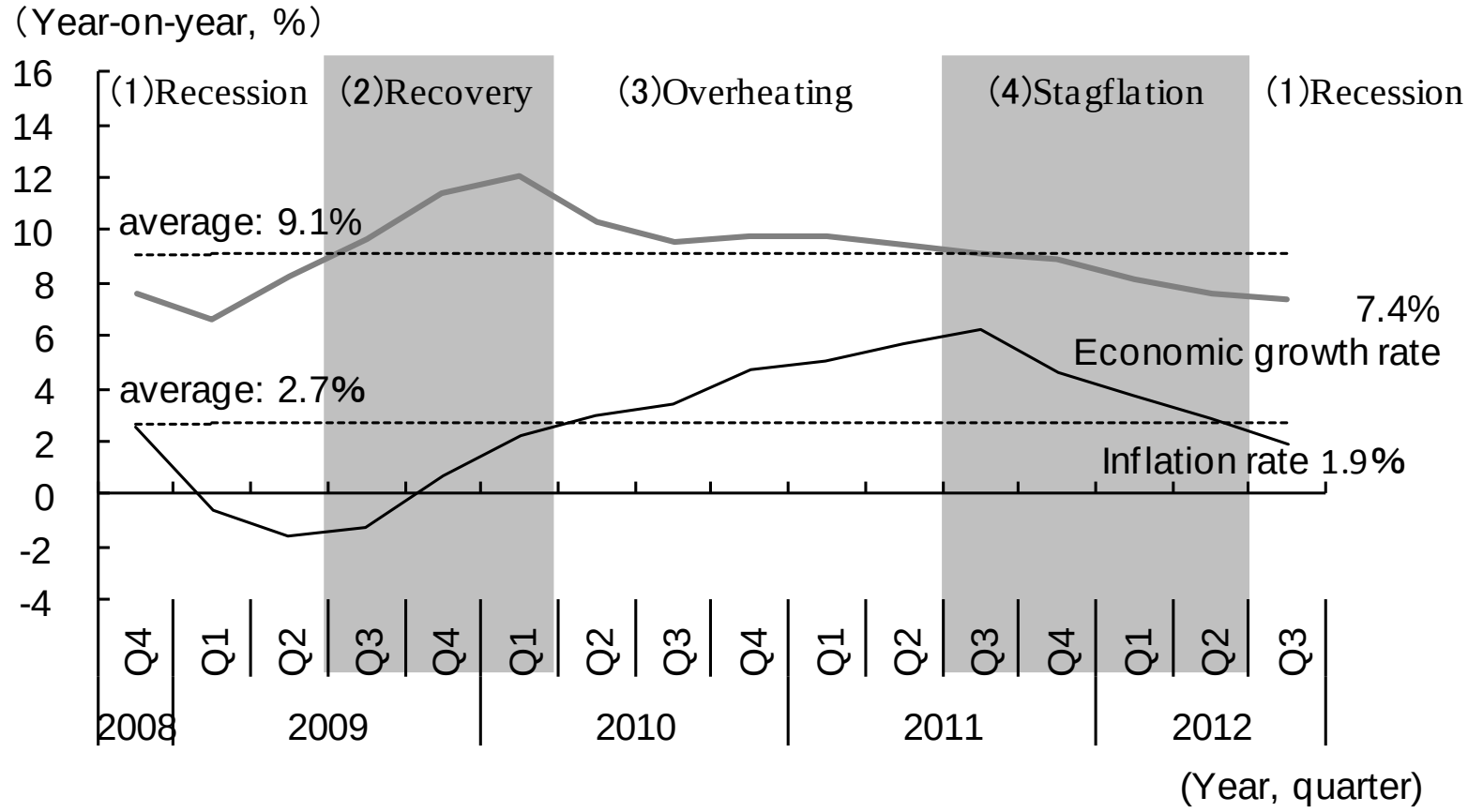
Source: Compiled by Nomura Institute of Capital Markets Research.

Business Cycle Described by the Interaction between Economic Growth and Inflation



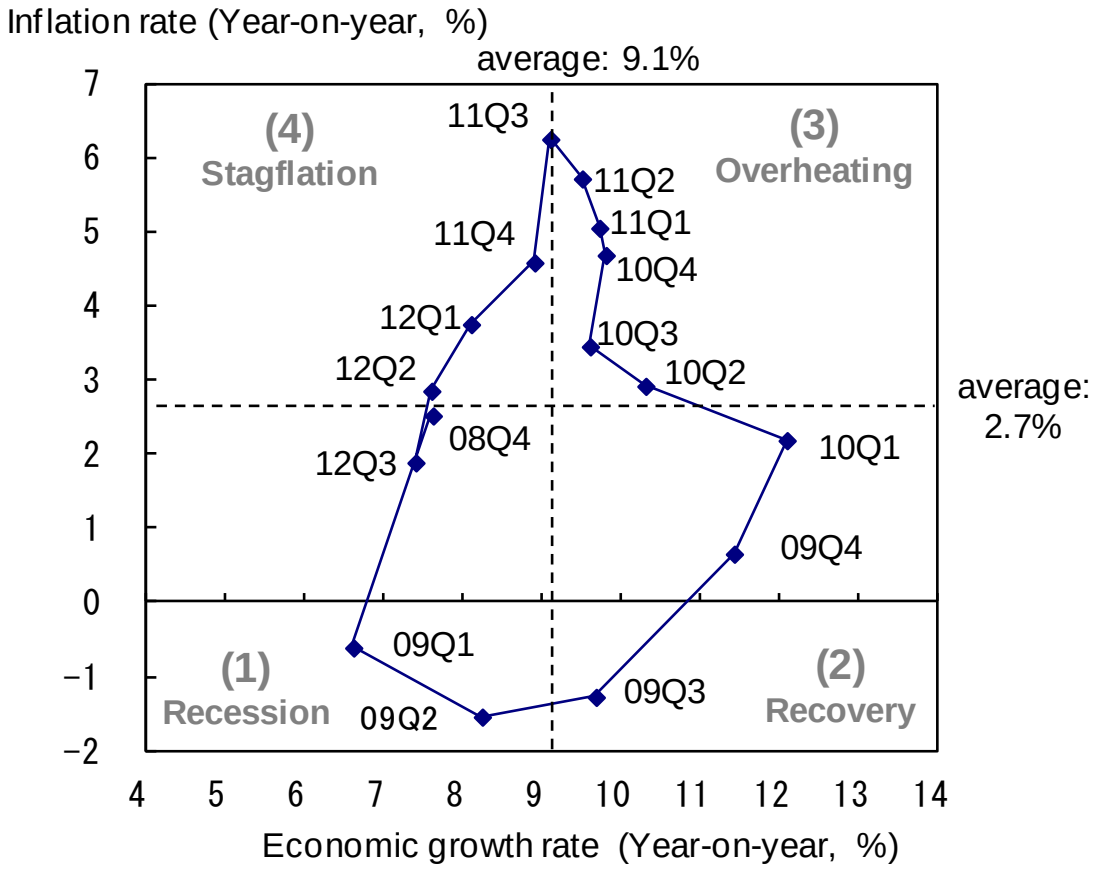
Source: Compiled by Nomura Institute of Capital Markets Research.

Phases of the Business Cycle in Post-Lehman China



Note: Phase (1): low growth and low inflation; phase (2): high growth and low inflation;
Phase (3): high growth and high inflation and phase (4): low growth and high inflation.
Source: Compiled by Nomura Institute of Capital Markets Research based on CEIC database.

Cyclical Changes in the Economic Growth and Inflation Rates in Post-Lehman China



Note: Phase (1): low growth and low inflation; phase (2): high growth and low inflation; phase (3): high growth and high inflation and phase (4): low growth and high inflation.
The economy circulates counterclockwise in the order of (1) → (2) → (3) → (4) → (1).
Source: Compiled by Nomura Institute of Capital Markets Research based on CEIC database.

The Taylor Rule

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- **The Taylor rule proposes that the policy interest rate should be determined in response to the divergence of actual inflation from the long-term inflation target and the divergence of current economic activity from its equilibrium level (measured by the GDP gap).**
- **General form**

  The optimal level of the policy interest rate ＝ actual inflation rate ＋ equilibrium real interest rate

  ＋ 0.5 × (actual inflation rate − target inflation rate)

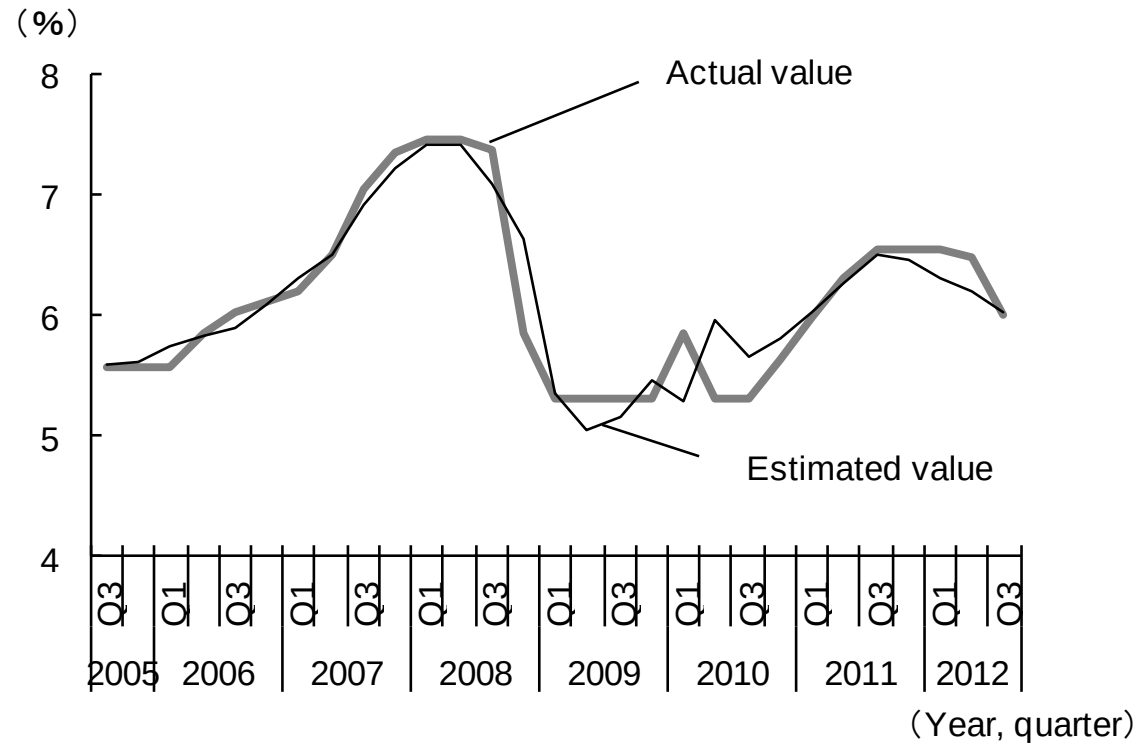
  ＋ 0.5 × (GDP gap).
- **The case of the United States**

  The optimal level of the FF rate ＝ actual inflation rate ＋ 2%

  ＋ 0.5 × (actual inflation rate − 2%) ＋ 0.5 × (GDP gap)

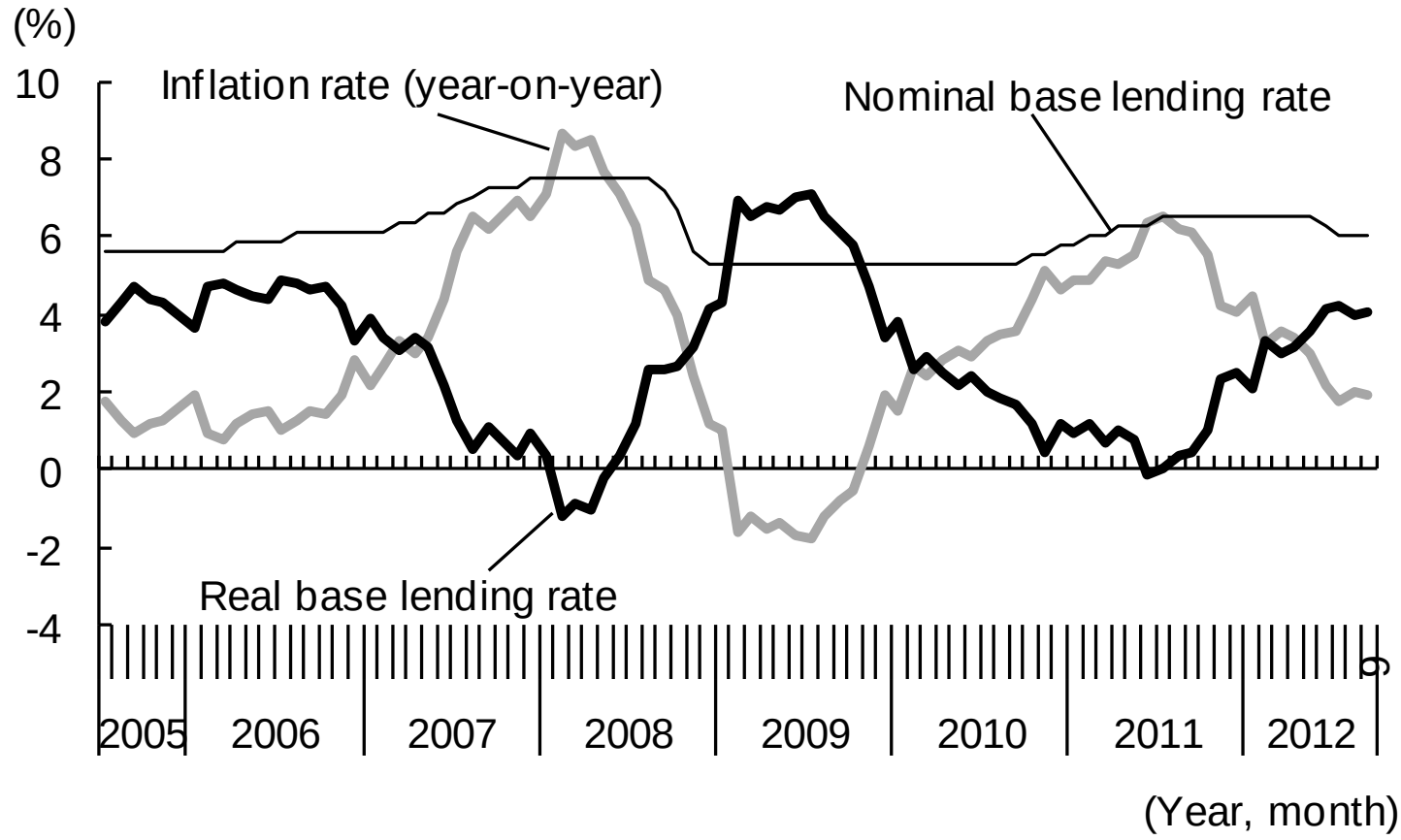
  ＝ 1.5 × (actual inflation rate) ＋ 0.5 × (GDP gap) ＋ 1%
- **Taylor principle**
  - The policy interest rate must be raised by more than the rise in the inflation rate in order to stabilize the macro economy.
- **The Taylor rule can be treated as a reaction function showing how the policy interest rate actually responds to changes in the inflation rate and the GDP gap.**

Changes in the One-Year Base Lending Rate
— Actual versus Predicted Values —



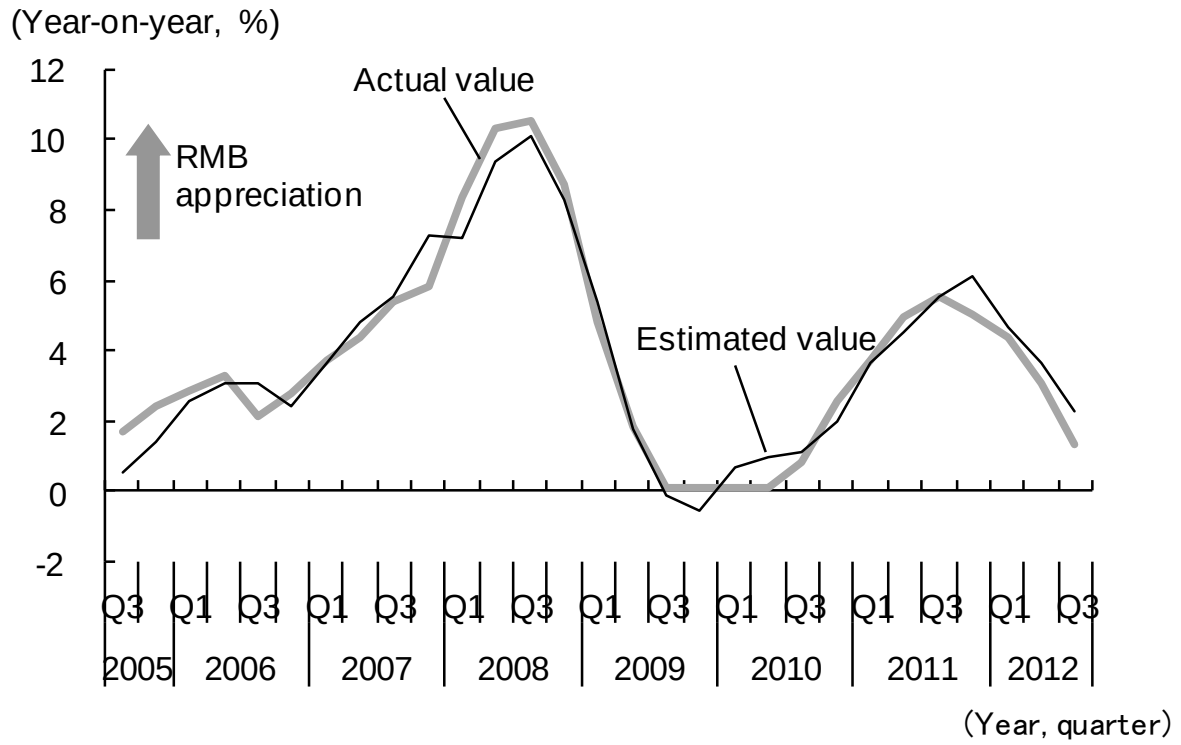
Note: The predicted value is based on the following regression equation.
Base lending rate＝
1.68 ＋ 0.11 × inflation rate ＋ 0.06 × economic growth rate ＋ 0.57 × base lending rate lagged one quarter
（3.70） （2.43） （5.66）
Figures in parentheses are t-values. $\overline{R}^2 = 0.84$
The base lending rate has a one-year maturity.
Estimation period: Q3 2005 to Q3 2012
Source: Compiled by Nomura Institute of Capital Markets Research based on CEIC database.

Real Base Lending Rate Inversely Correlated with the Inflation Rate



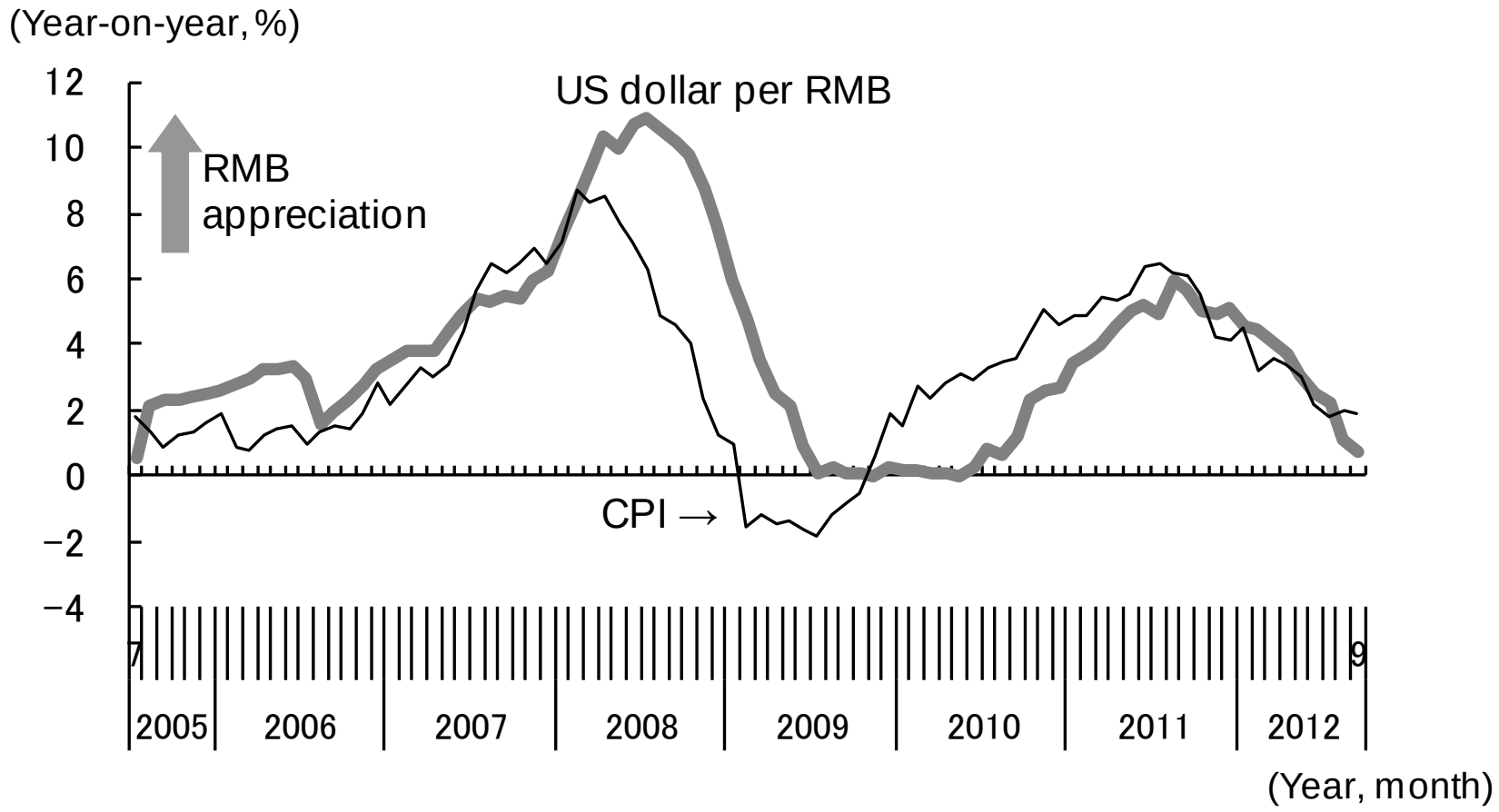
Note: The base lending rate has a one-year maturity. Real base lending rate = Nominal base lending rate － inflation rate (year-on-year)
Source: Compiled by Nomura Institute of Capital Markets Research Based on CEIC database.

Changes in RMB Exchange Rate against the U.S. Dollar (USD/ RMB)
— Actual versus Predicted Values —



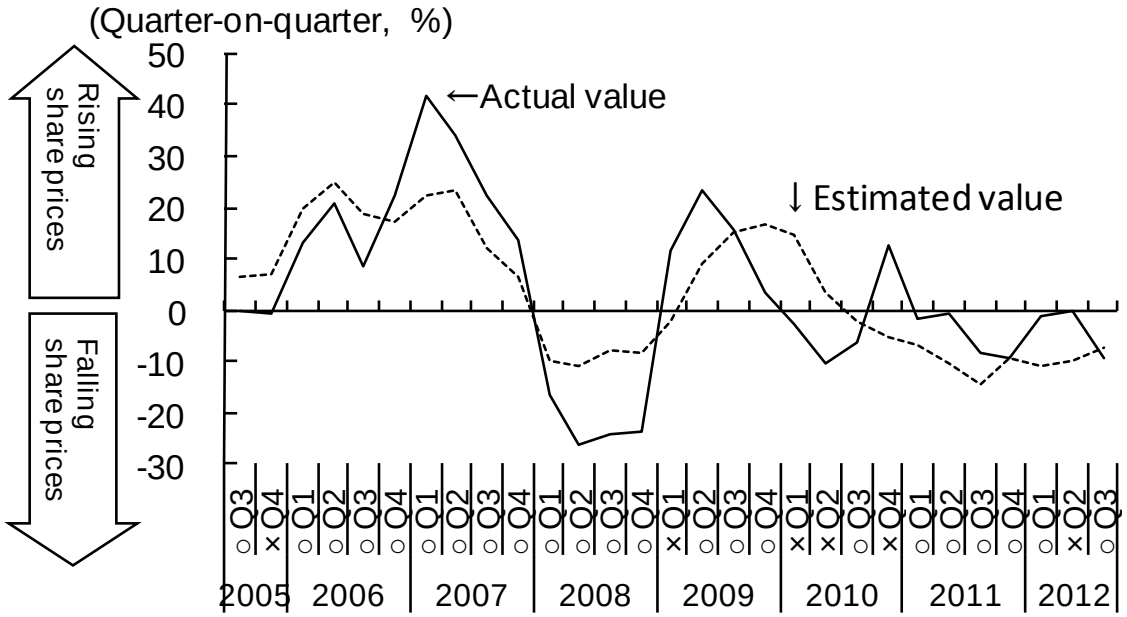
Note: The predicted value is based on the following regression.
USD per RMB ＝
－3.30 ＋ 0.53 × inflation rate lagged one quarter ＋ 0.29 × economic growth rate ＋ 0.62 × USD per RMB lagged one quarter
(7.23) (4.53) (9.47)
Figures in parentheses are t-values. $\overline{R}^2$ ＝0.93
Figures for the RMB rate are based on period averages.
Estimation period: Q3 2005 to Q3 2012
Source: Compiled by Nomura Institute of Capital Markets Research based on CEIC database.

Rate of RMB Appreciation Moving in Tandem with the Inflation Rate



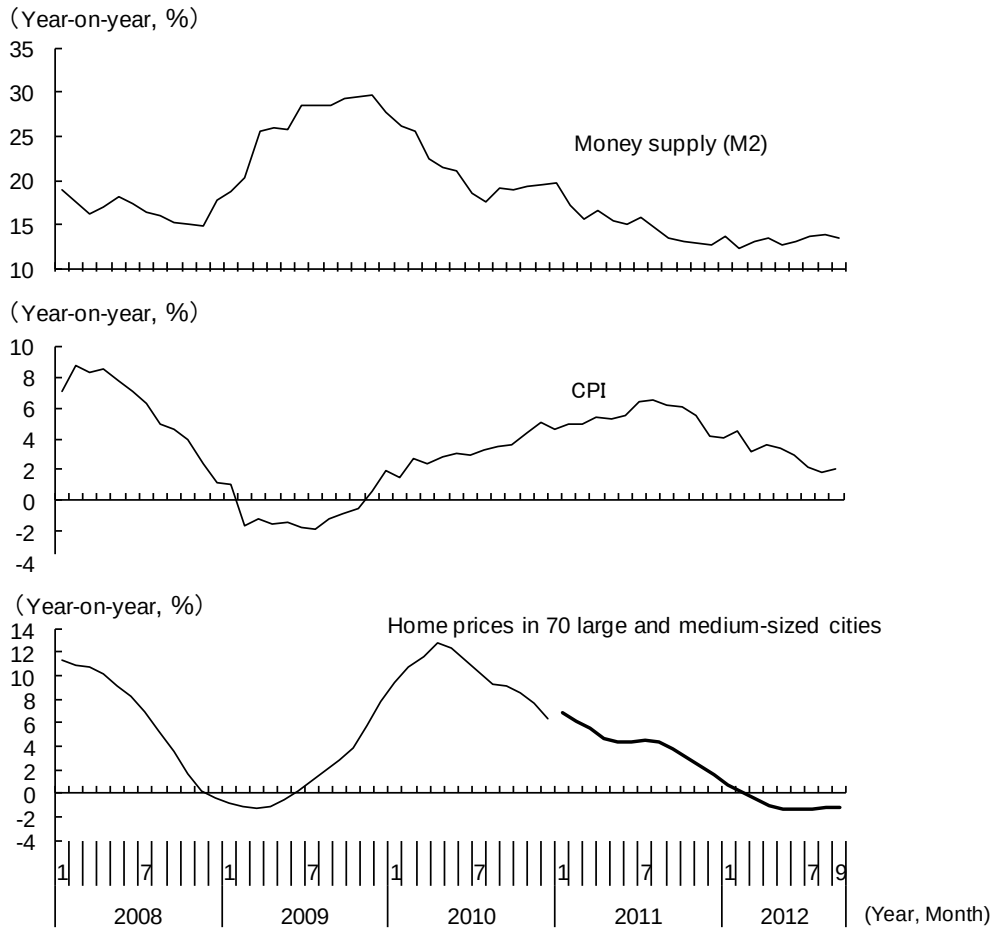
Note: Monthly average of the RMB exchange rate (U.S. dollars per renminbi).
Source: Compiled by Nomura Institute of Capital Markets Research based on data from the National Bureau of Statistics and the State Administration of Foreign Exchange (SAFE) of China.

Changes in the SSE Composite Index
— Actual versus Predicted Values —



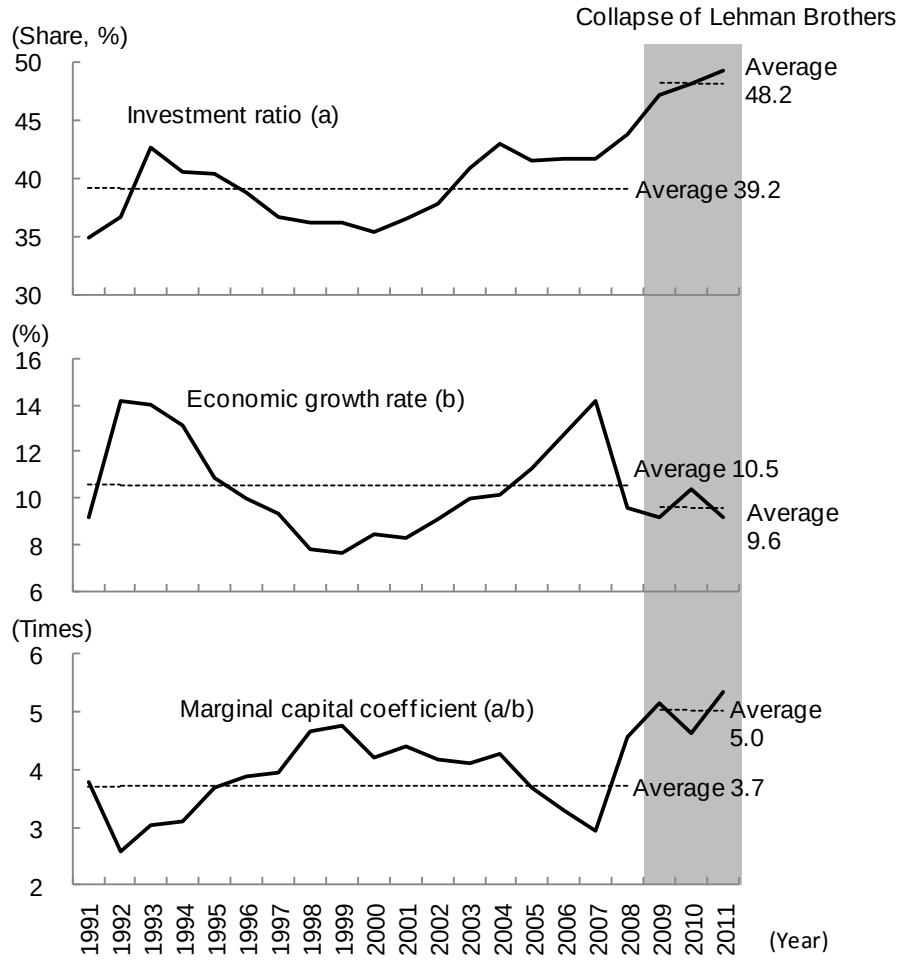
Notes: The predicted value is based on the following regression.
Shanghai Composite Index (QoQ) =
　　－36.90 ＋ 4.91 × economic growth rate (YoY) － 3.52 × inflation rate (YoY)
　　　　（4.98）　　（－4.01）
Figures in parentheses are t-values. $\overline{R}^2$ = 0.53
Figures for Shanghai Composite Index are based on period averages.
Estimation period: Q3 2005 to Q3 2012
○ indicates the predicted value rises or falls with the actual value.
× indicates The predicted value moves in the opposite direction from the actual value.
Source: Compiled by Nomura Institute of Capital Markets Research based on CEIC Database.

Soaring Inflation and Home Prices Following the Sharp Increase in the Money Supply — Situation after the Collapse of Lehman Brothers—



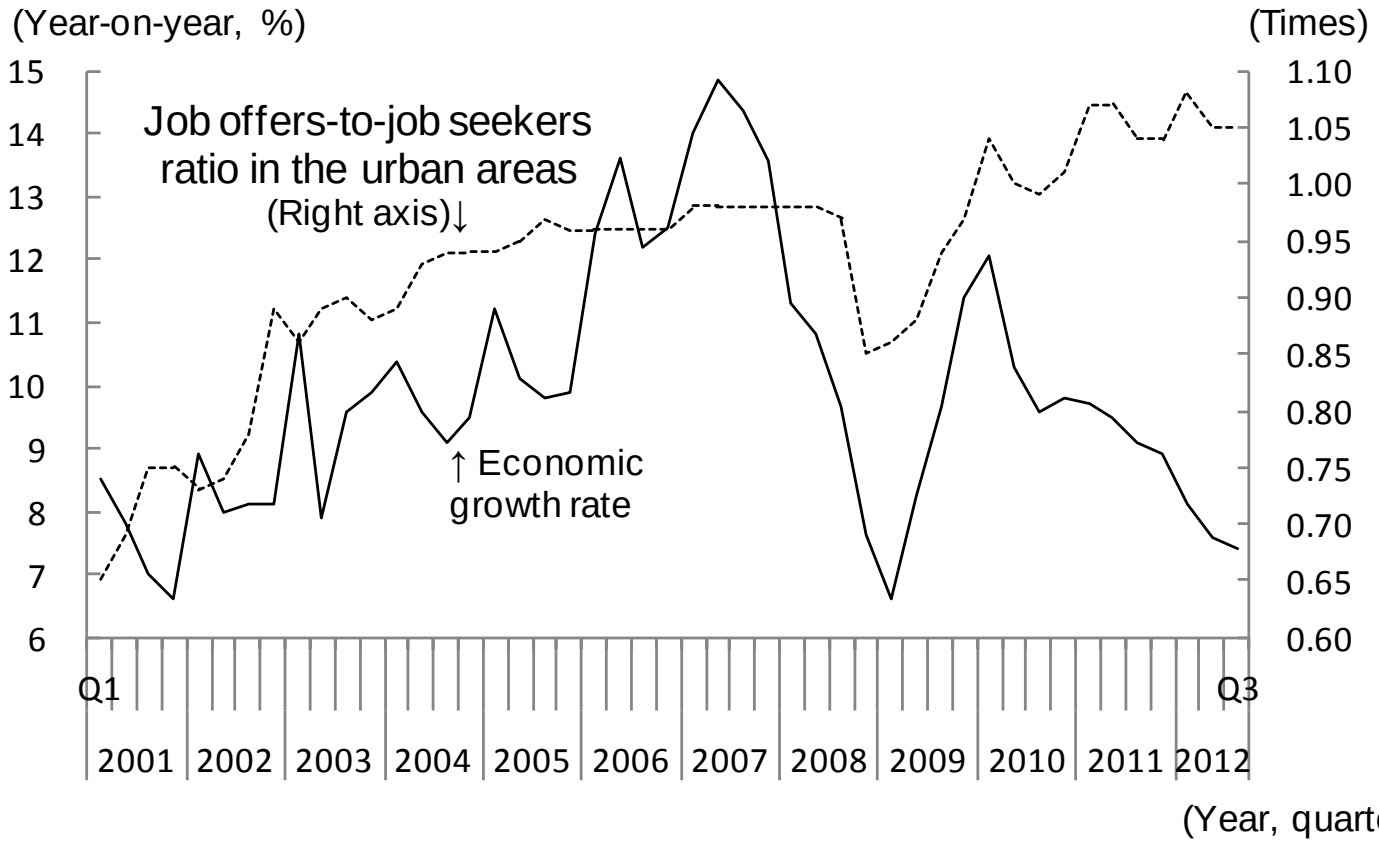
Note: Home prices in large and medium-sized cities are based on the sales price indices of residential buildings until December 2010 and on the average sales price indices of newly constructed homes from January 2011.
Source: Compiled by Nomura Institute of Capital Markets Research based on data from the National Bureau of Statistics of China.

Changes in the Investment Ratio, Economic Growth Rate, and Marginal Capital Coefficient



Note: The larger the marginal capital coefficient, the less efficient the investment.
Source: Compiled by Nomura Institute of Capital Markets Research based on data from the *China Statistics Abstract* 2012 of the National Bureau of Statistics of China.

Job Offers-to-Job Seekers Ratio Diverging from the Economic Growth Rate



Note: The job offers-to-job seekers ratio in the urban areas of China is calculated by dividing the number of job offers by the number of job applicants registered in public employment service organizations in approximately 100 cities. It is based on "The Analysis on Supply and Demand of Labor Market in Some Cities" published quarterly by the China Labor Market Information Network Monitoring Center, which operates under the Ministry of Human Resources and Social Security.
Sources: Compiled by Nomura Institute of Capital Markets Research based on data from the National Bureau of Statistics of China and the Ministry of Human Resources and Social Security.