The Impact of Capital Inflows on Asset Prices in Emerging Asian Economies: Is Too Much Money Chasing To Little Good?

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Motivation

- Before global financial crisis, there were huge capital inflows and asset price increases in East Asia.
- After global financial crisis, capital outflows and asset price decreases in East Asia.
- Past studies discussed "boom-bust cycles" that result in economic crisis of emerging economies: it begins with a boom stage of credit expansion, capital inflows, asset price increases but ends up with a burst stage when all reverse.
- This paper examines whether capital inflows increase asset prices (stock price, land price, exchange rates) in East Asia before global financial crisis.

How Capital Inflows Affect Asset Prices?

- Direct Channel: Capital inflows affects the demand for assets, and then increases asset prices. In addition, there can be a spill-over effect to other financial markets such as real estate market.
- Liquidity Channel: Capital inflows may result in an increase in money supply and liquidity (unless fully sterilized), which in turn can boost the asset prices.
- Macro Channel: Capital inflows tend to generate economic booms of the country, and then lead to an increase in asset prices.

Other Reasons for Asset Price Boom

- However, asset price surge in emerging Asia before global financial crisis can be due to other factors than capital inflows.
- The recovery from the Asian Financial crisis and a better economic perspective of the Asian countries may have led to asset price increases.
- Monetary expansion and low interest rates of Asian countries, originating from the recession in the late 1990s and early 2000s, may be another factor explaining the asset price booms.
- Exchange rate appreciation against the U.S. dollar may be explained by the massive U.S. national debt.

Recent Studies on the Issue

- Caballero and Krishnamurthy (2006): in emerging markets with shortage of stores of value and financial repression, dynamic inefficiency prevails and they are easy to create asset bubbles. They reproduced bubbles dynamics in emerging economies with capital inflows, but there can be asset bubbles, even when foreign investors are not allowed to directly access domestic asset markets.
- Ventura (2002): bubbles act as a substitute for international capital flows, improving the international allocation of investment and reducing rate of return differentials across countries. Asset price appreciation can be observed in the economy without any capital inflows.

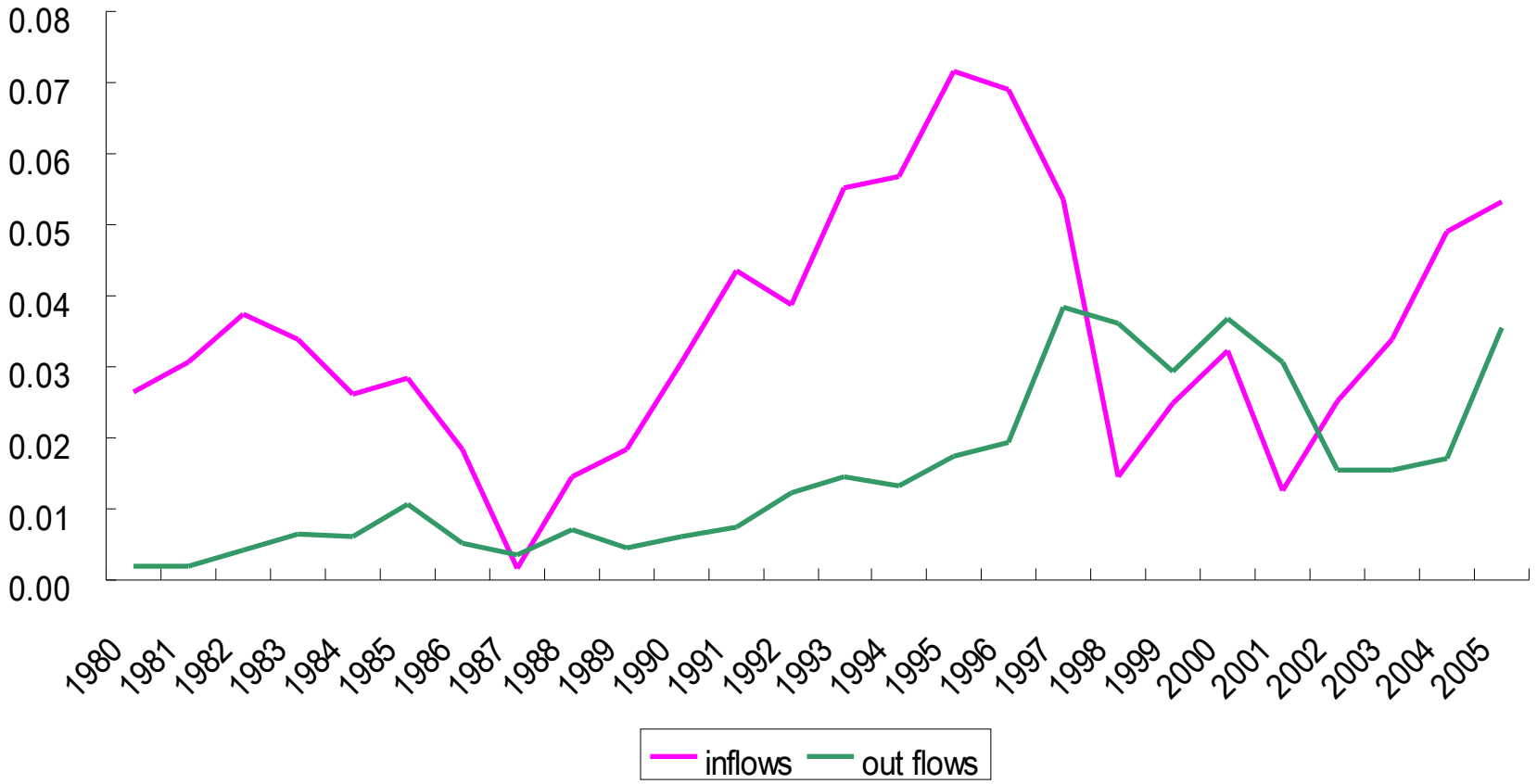
Objective

- Do capital inflows contribute to the increase in asset prices (stock price, land price, exchange rates) in East Asia before global financial crisis?
- We are particularly interested in separating the effects of capital inflows shocks from the effects of other factors that may contribute to asset price increase in East Asia.

Past Empirical Studies

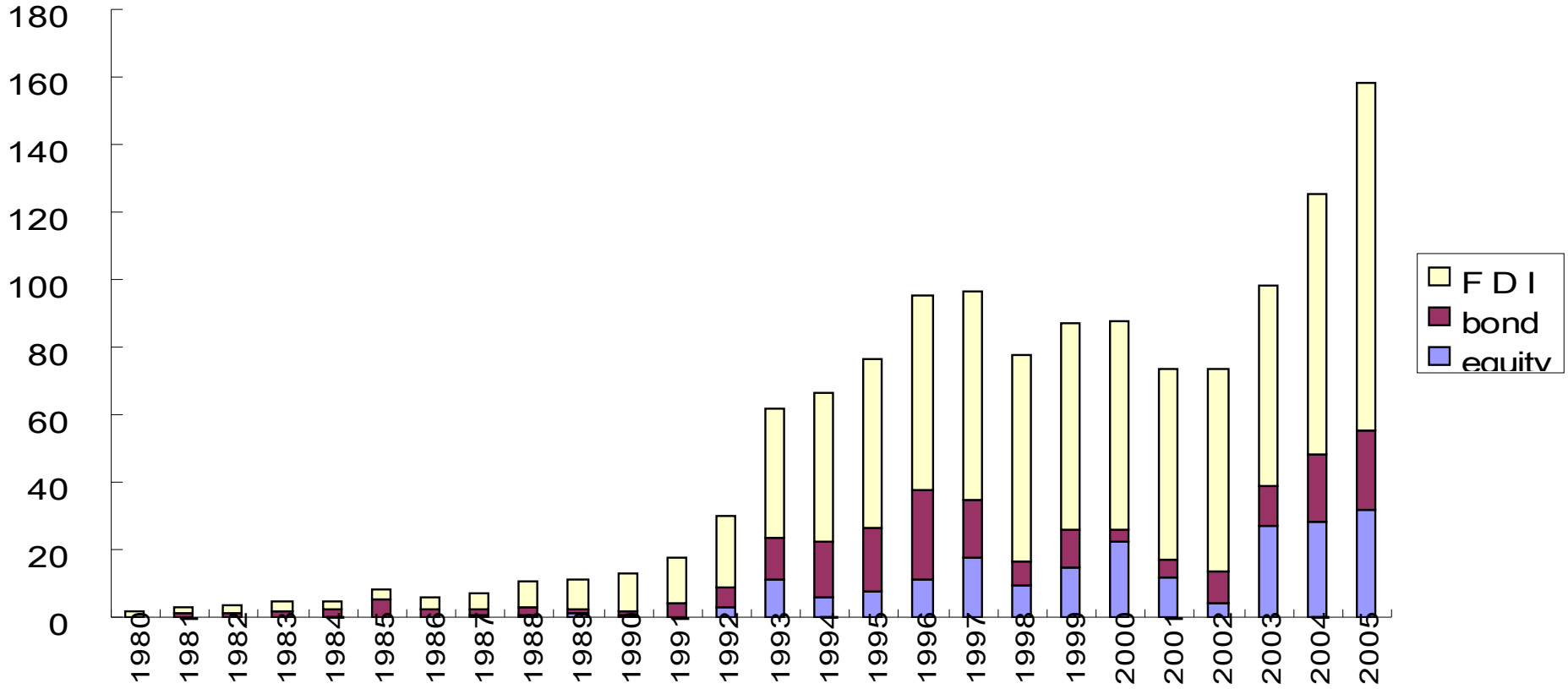
- Montiel (1996), Agenor and Hoffmaister (1998), Corbo and Hernandez (1994), Jansen (2003), Kim, Kim, and Wang (2004): these studies mostly discuss general macroeconomic effects of capital flows, without focusing on the effects on asset prices.

<Figure 1> Emerging Asian Economies' Gross Capital Inflows and outflows (in percent of GDP)



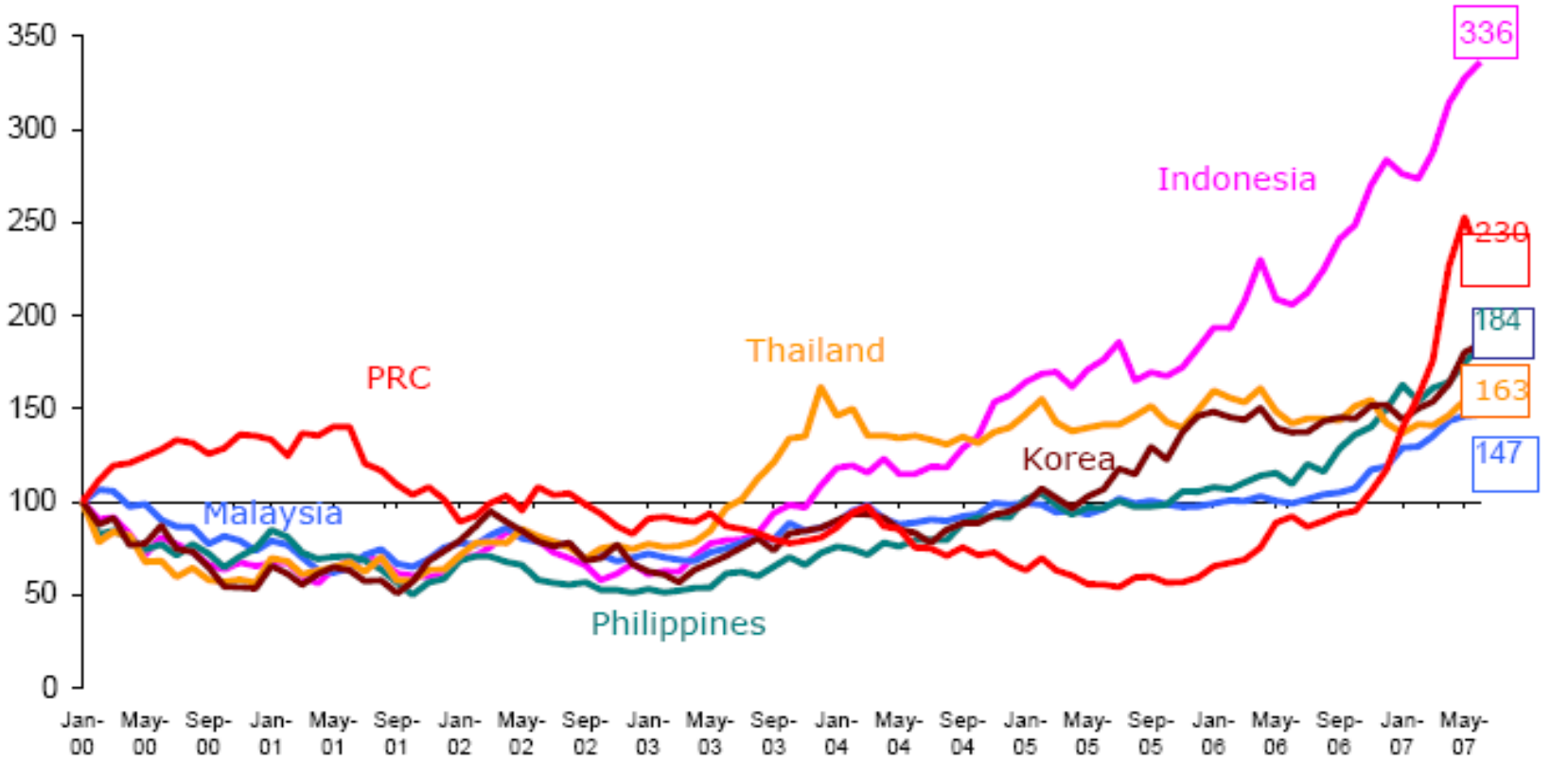
Source: International Financial Statistics, IMF

<Figure 3> Patterns of Gross Capital inflows in Emerging Asian Economies



Source: International Financial Statistics, IMF

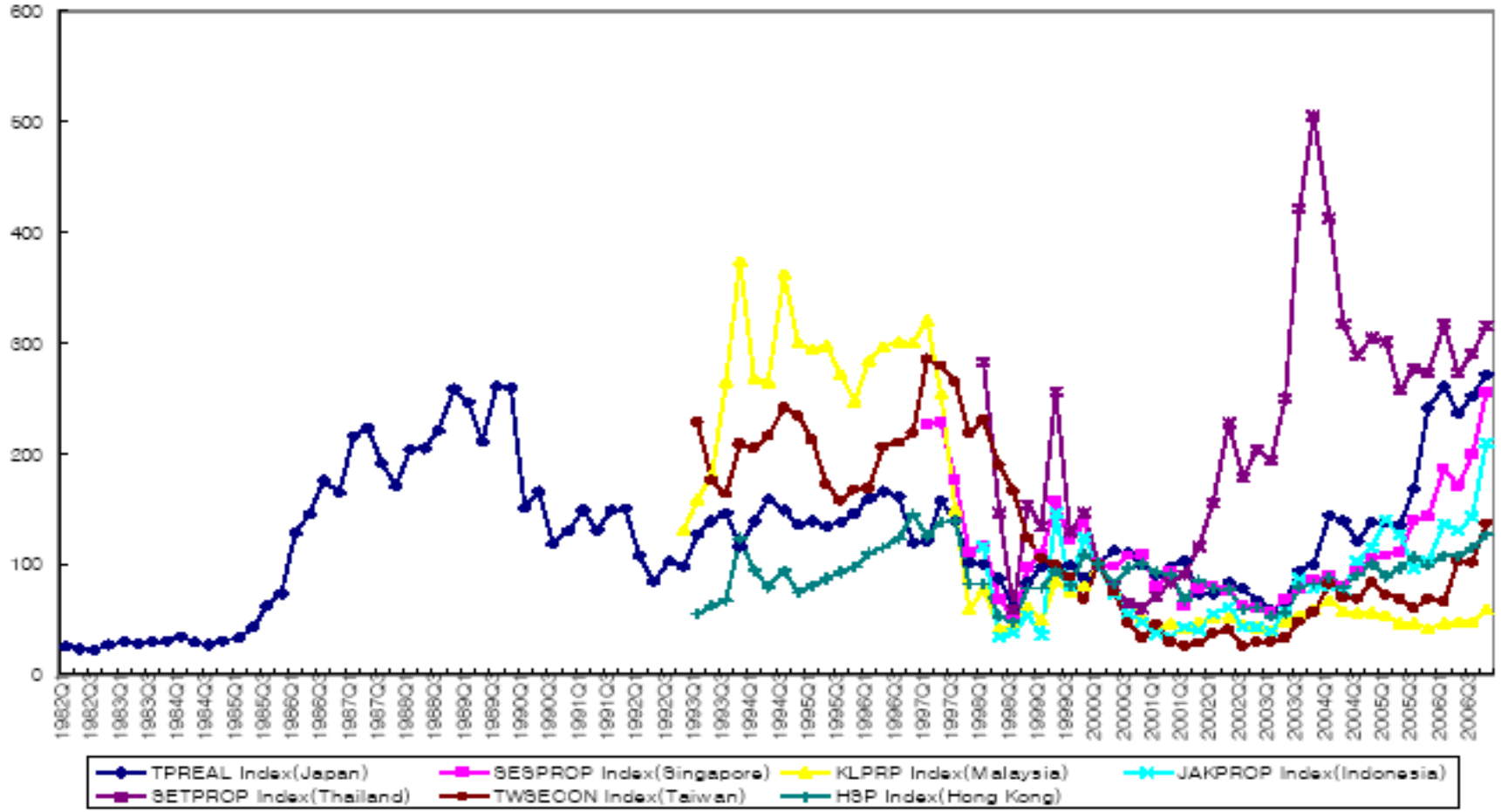
<Figure 6> Composite Stock Price Indexes: ASEAN-4, PRC, and Korea[1]



1 Weekly average of PRC (Shenzen), JCI (Indonesia), KLCI (Malaysia), PCOMP (Philippines), SET (Thailand)

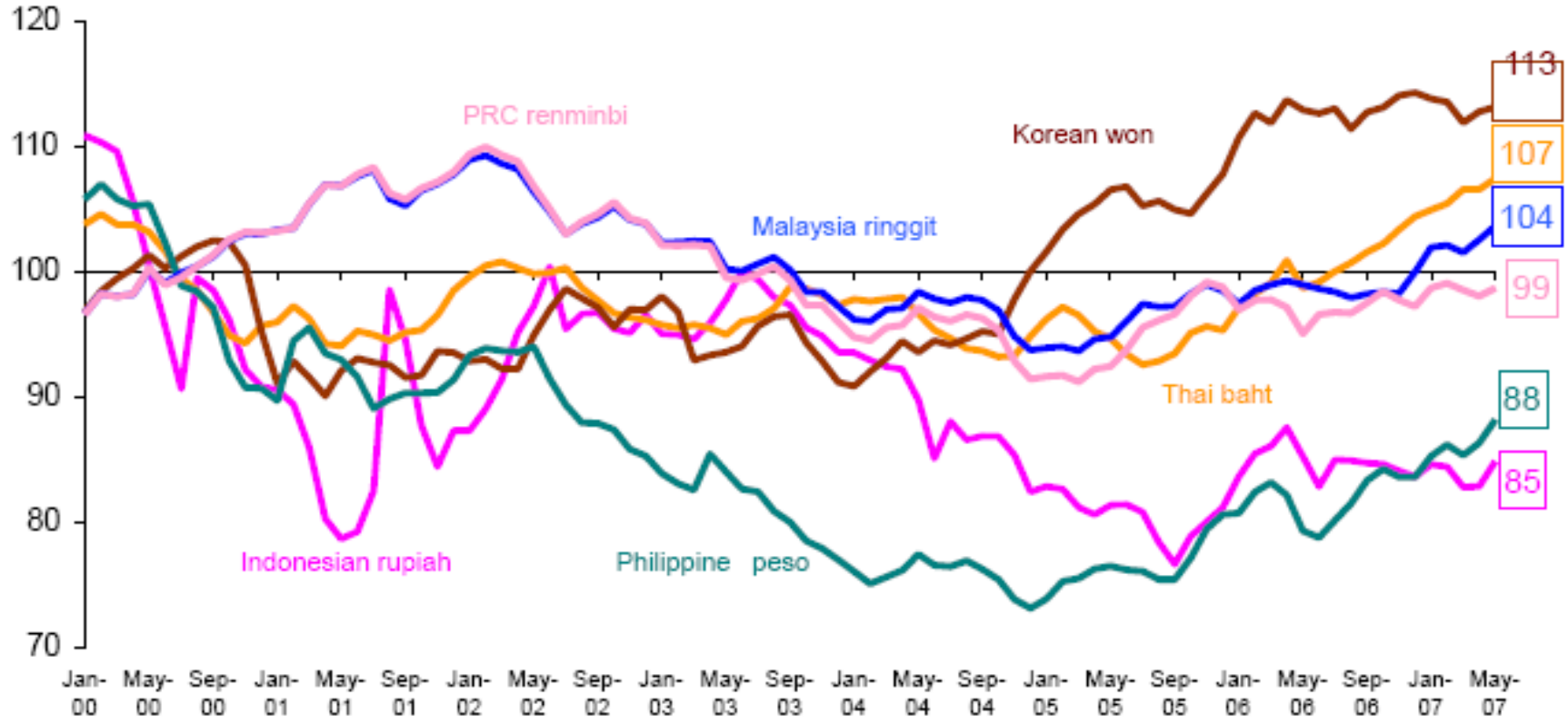
Source: Bloomberg

<Figure 8> Property Indexes for Selected Asian economies



Source: Bloomberg

<Figure 9> Nominal Effective Exchange Rate[1, 2]

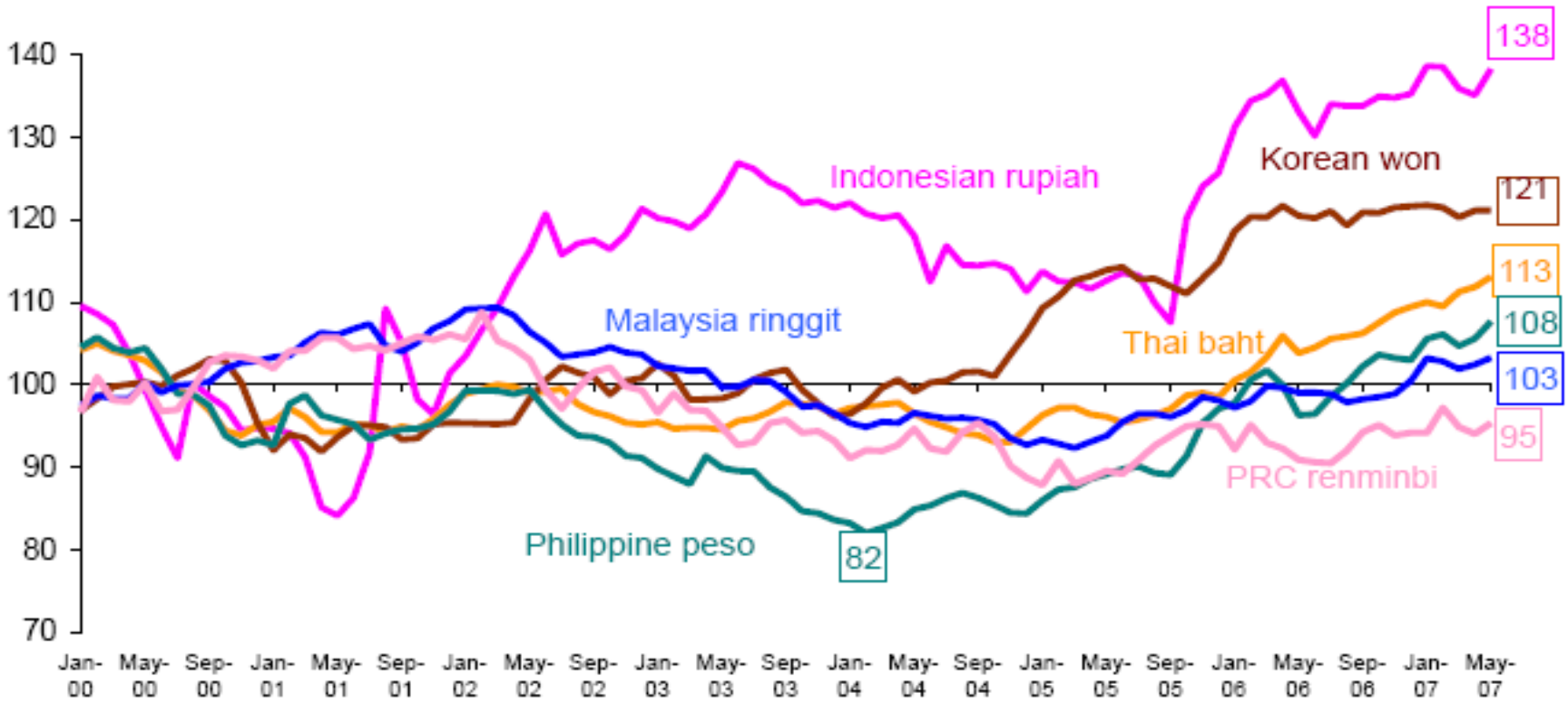


[1] Weighted average of a basket of 51 bilateral exchange rates adjusted by relative consumer prices. The weights are derived from manufacturing trade flows.

[2] An increase is an appreciation.

Source: Bank for International Settlements.

<Figure 10> Real Effective Exchange Rate[1, 2]



[1] Weighted average of a basket of 51 bilateral exchange rates adjusted by relative consumer prices. The weights are derived from manufacturing trade flows.

[2] An increase is an appreciation.

Source: Bank for International Settlements.

Empirical Method and Data

- Panel VAR model
  - Data-based method
  - Dynamics
  - short sample period
- Individual fixed effect
- Recursive VAR
- Quarterly Data: 1999:1-2006:1
- Five Countries: South Korea, Malaysia, Indonesia, the Philippines, Thailand

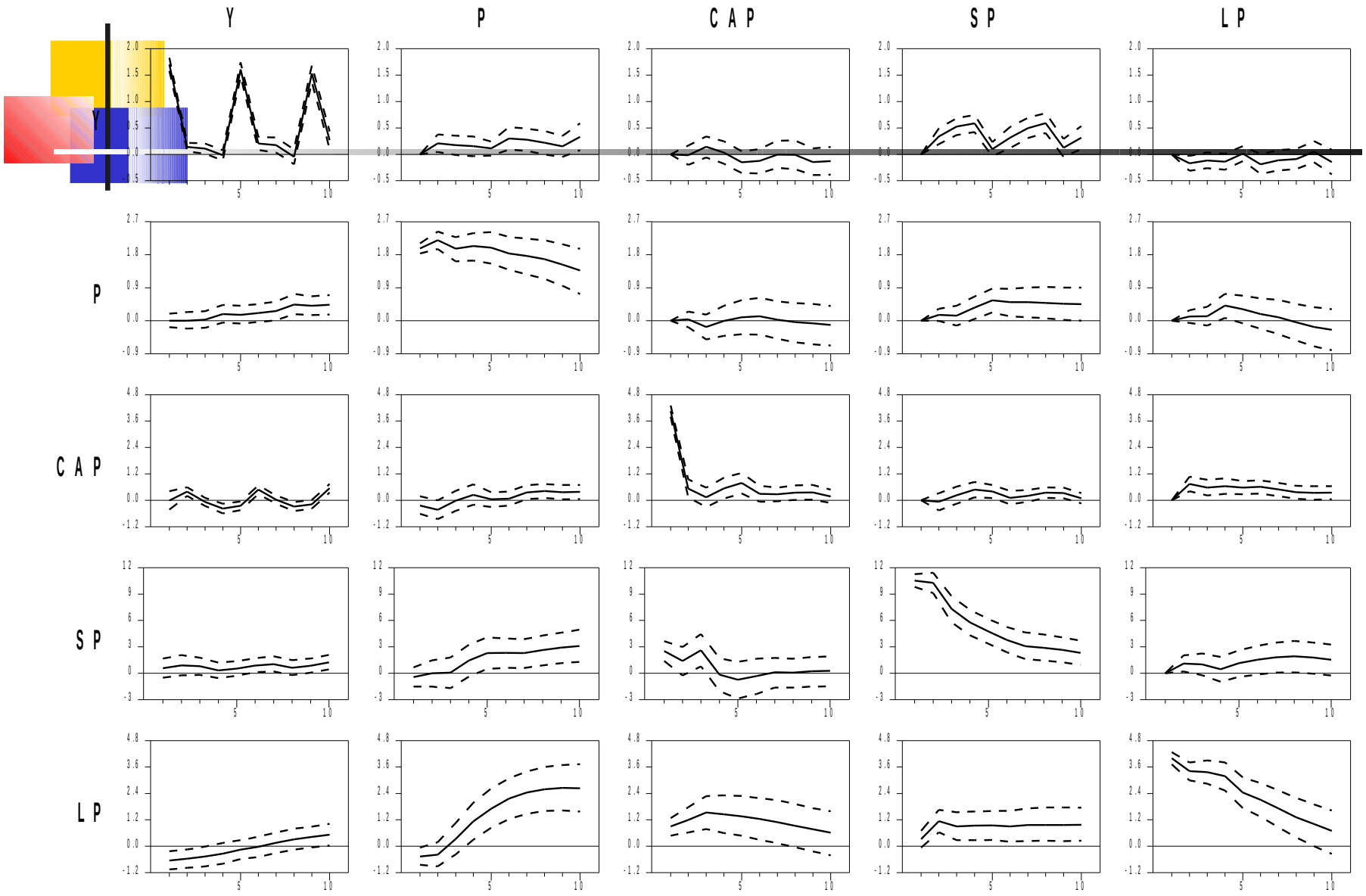
Empirical Model

- There are three types of factors that affect asset prices
  - (1) affect asset prices mostly through changes in foreign capital inflows (ex) foreign interest rate shocks
  - (2) affect asset prices mostly through channels other than foreign capital inflows (ex) P (monetary condition…)
  - (3) affect domestic asset prices not only through changes in foreign capital flows but also through other channels (ex) changes in domestic economic condition, Y
  - We would like to control for (2) and (3) to identify capital inflows shocks. Otherwise, identified capital inflows shocks may reflect the effects of other factors than capital inflows.

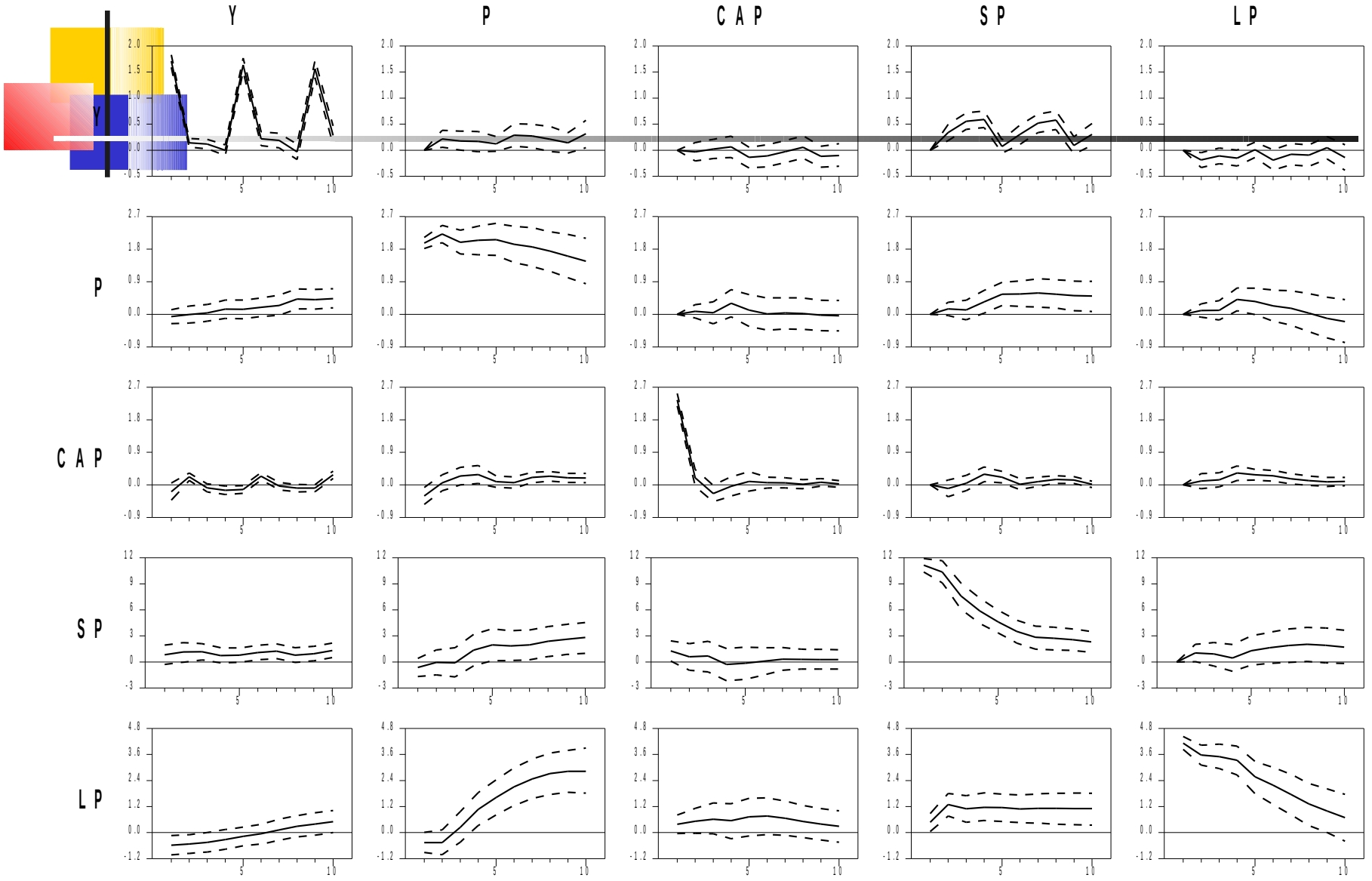
Empirical Model

- Basic Model: {Y, P, CAP, SP, LP}
- Y (real GDP) P (GDP deflator): to control for factors affecting asset prices, shows aggregate activities
- CAP (capital inflows or portfolio inflows), SP (stock price), LP (land price): variables of our interests
- To identify CAP shocks
  - Y and P are assumed to be contemporaneously exogenous to CAP
  - CAP is assumed to be contemporaneously exogenous to SP and LP
  - aggregate activities tend to be sluggish but financial variables reflect all information immediately (Sims and Zha, 2005)
  - CAP might respond to SP contemporaneously so use end-of-period data for SP. For LP, direct capital inflows into the real

<Figure 11> Impulse Responses: Basic Model with Capital Inflows



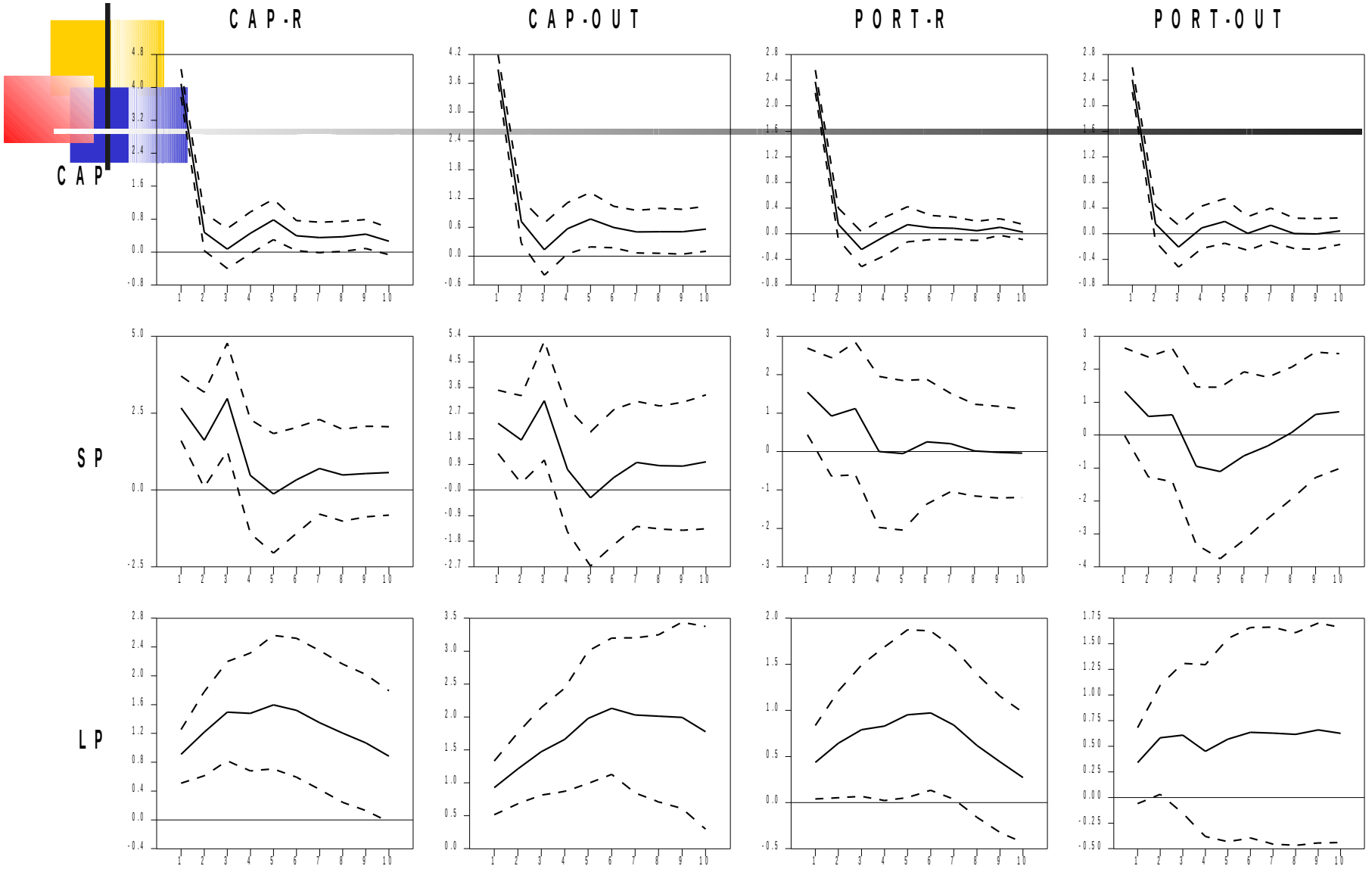
<Figure 12> Impulse Responses: Basic Model with Portfolio Inflows



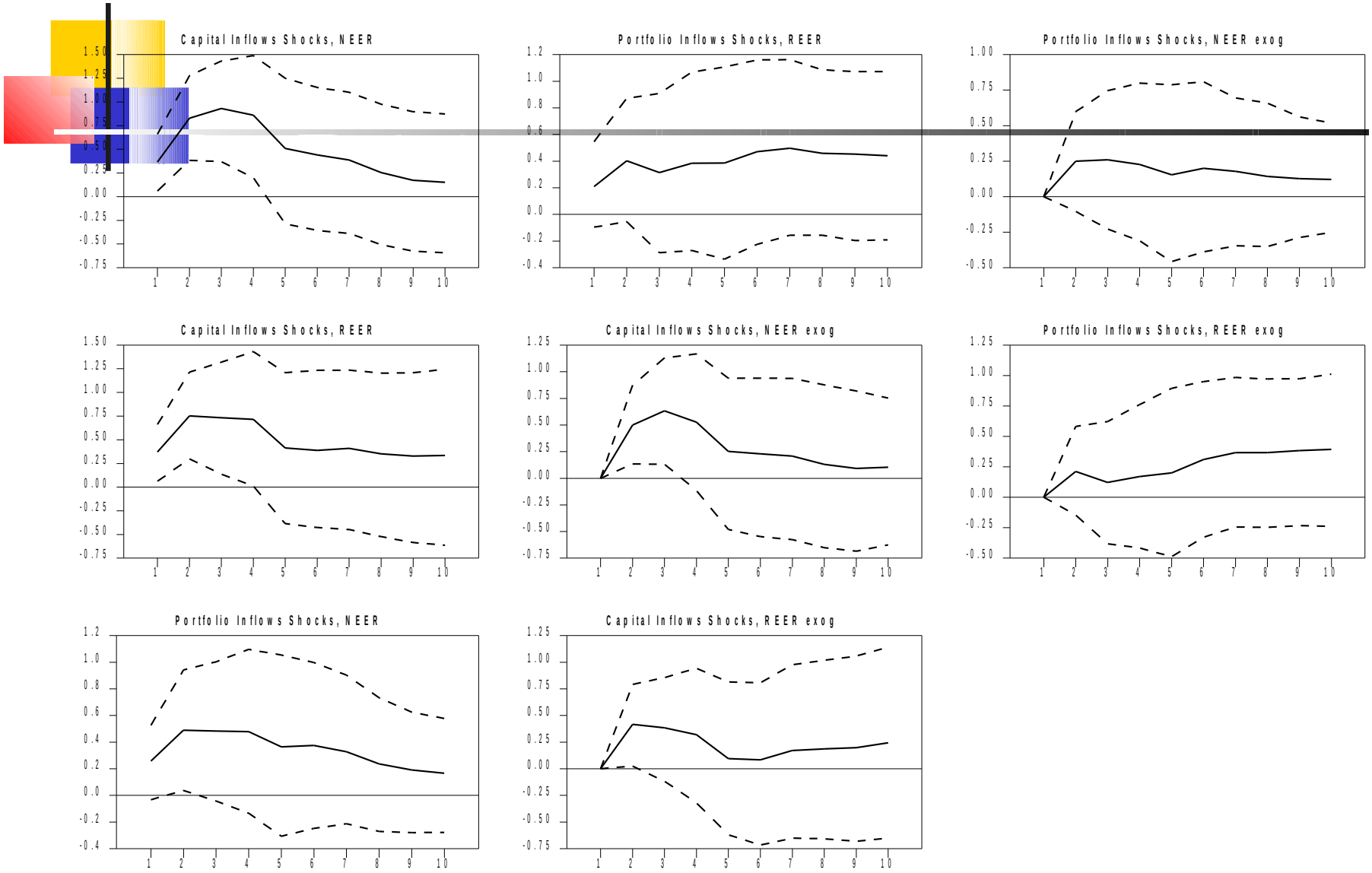
Extended Experiments 1

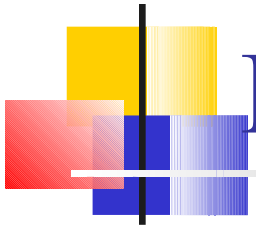
- Control for other factors such as capital outflows (portfolio outflows), interest rate
  - {Y, P, X, CAP, SP, LP}
  - X: capital outflows (OUT), interest rate (R)
- Examine the effects on nominal and real effective exchange rates
  - Model 1: {Y, P, X, CAP, SP, LP} (exog)
  - Model 2: {Y, P, CAP, X, SP, LP}
  - X: nominal effective exchange rate (NEER), real effective exchange rates (REER)

<Figure 13> Impulse Responses to Capital Inflows Shocks and Portfolio Inflows Shocks: Models with Short-Term Interest Rates or Outflows



<Figure 14> Impulse Responses of Nominal and Real Effective Exchange Rates to Capital Inflows Shocks and Portfolio Inflows Shocks

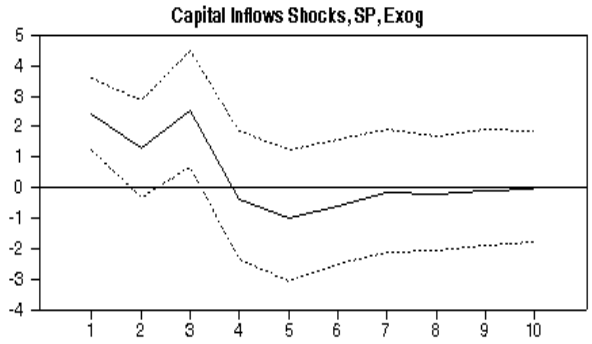


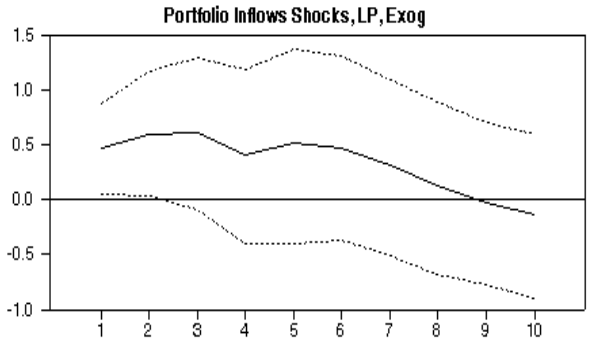


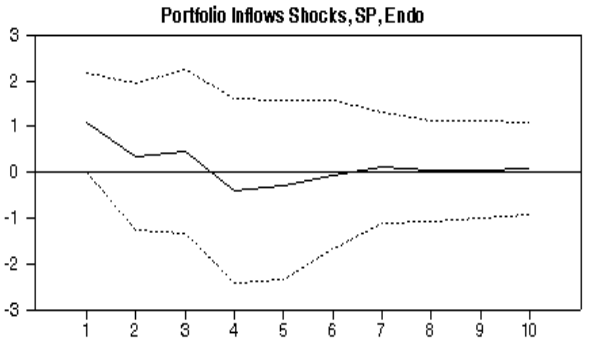
Extended Experiments 2

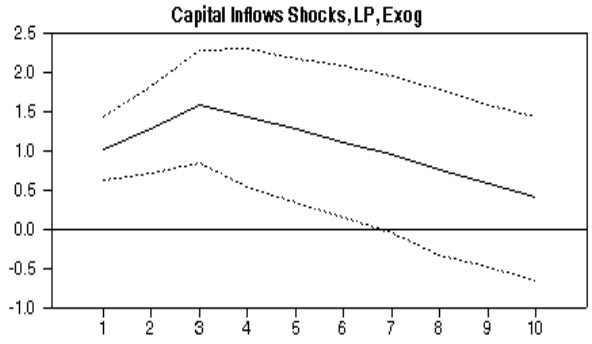
- Alternative Identifying Assumptions
  - {CAP, Y, P, SP, LP} (exog)
  - {Y, P, LP, CAP, SP} (endo)
- Forecast Error Variance Decomposition

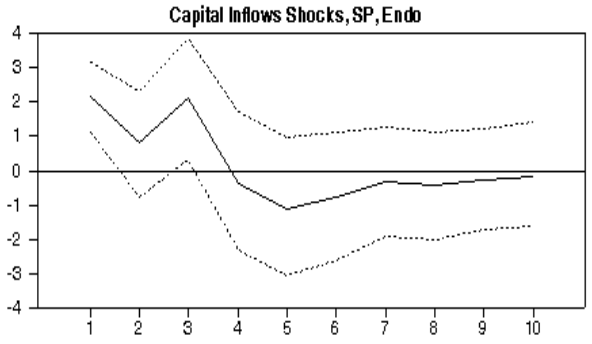
<Figure 14> Impulse Responses of Stock Price and Land Price to Capital Inflows Shocks and Portfolio Inflows Shocks: Alternative Identifying Assumptions

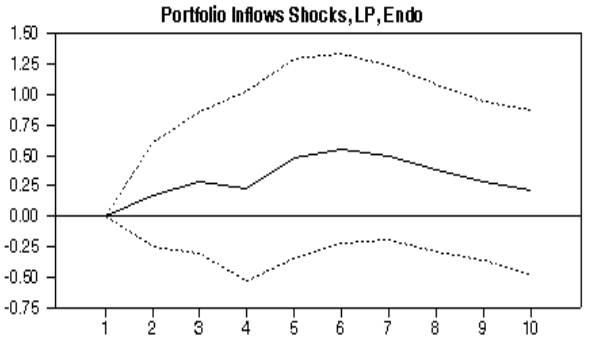


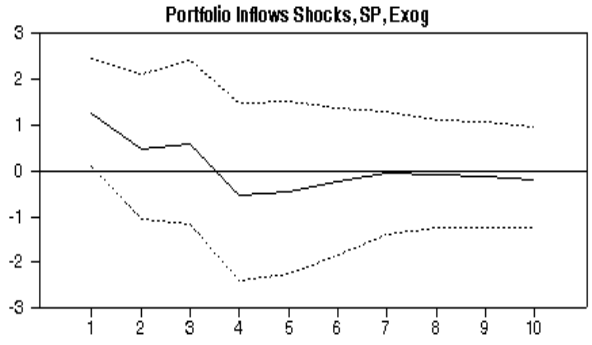












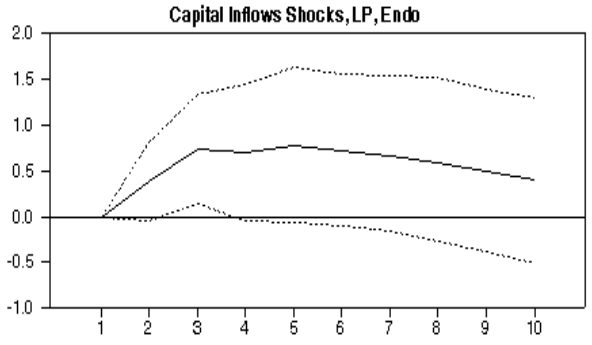


Table 3: Forecast Error Variance Decomposition of Asset Prices

	Contribution of Capital Inflows Shocks		Contribution of Portfolio Inflows Shocks	
	Stock Price	Land Price	Stock Price	Land Price
1 quarter	5.5 (3.8)	3.5 (2.9)	1.8 (2.0)	0.9 (1.1)
2 quarter	4.5 (3.5)	4.1 (3.7)	1.9 (2.0)	1.5 (1.8)
4 quarter	6.5 (4.8)	8.8 (7.0)	3.0 (2.9)	2.7 (3.0)
8 quarter	7.8 (6.0)	19.8 (12.5)	4.1 (3.9)	5.5 (5.3)

The role of capital inflows shocks may be underestimated in our model because we control for the second types of factors (that affects asset price directly and also affects asset prices through changes in capital inflows).

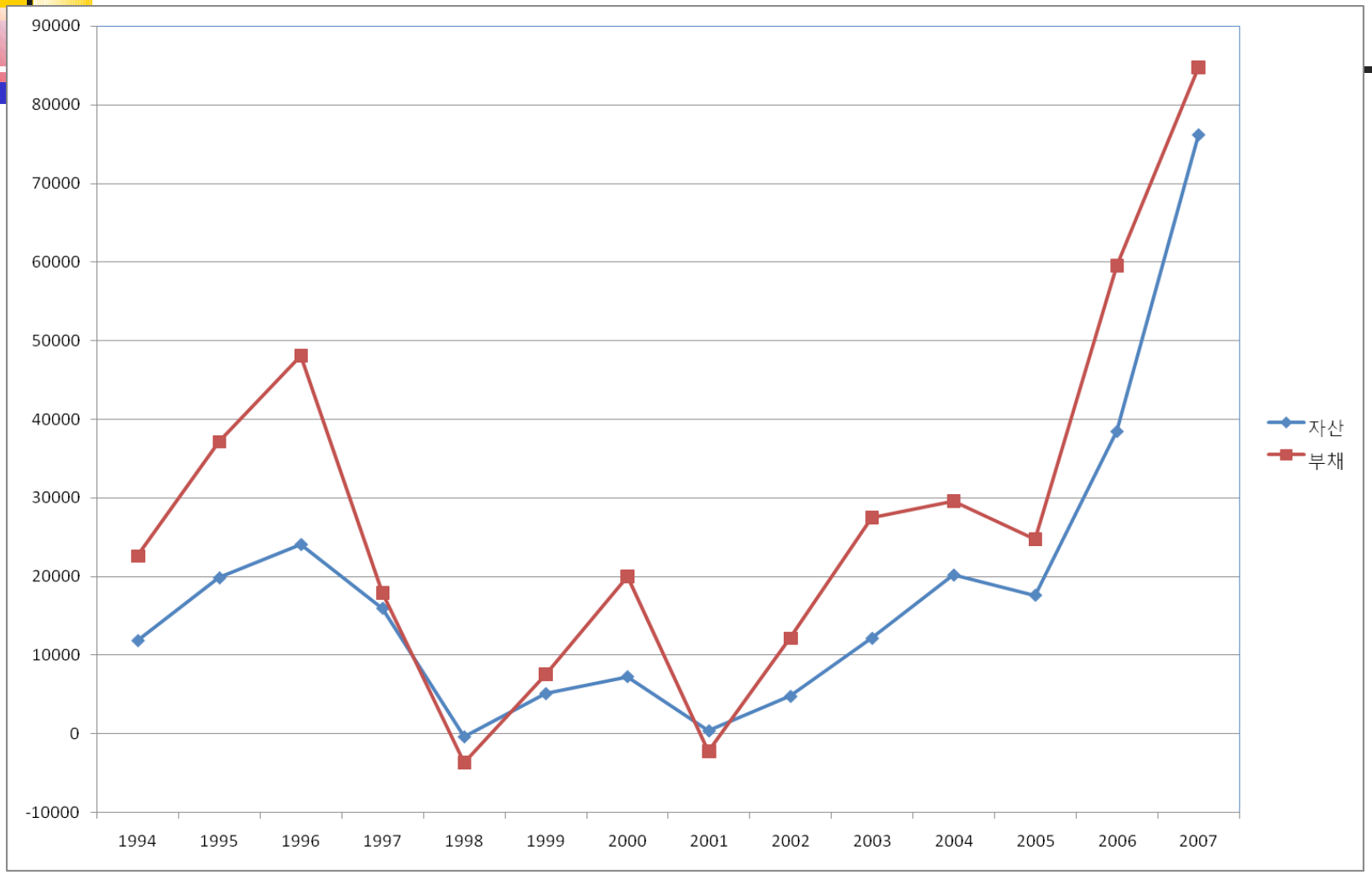
Conclusion

- In recent years, emerging Asian economies experienced positive comovements of capital inflows and asset prices.
- We empirically investigated the effects of capital inflows on asset prices by using a panel VAR model.
- The empirical results suggest that capital inflows indeed contributed to the asset price appreciation in emerging Asian economies before global financial crisis.
- Positive capital inflows shocks increase stock prices immediately and land price with some delays. They also appreciate the nominal and real exchange rates.

The Case of Korea

- Do Capital Inflows Matter to Asset Prices? The Case of Korea (co-authored with Doo Yong Yang), forthcoming, Asian Economic Journal.
- Some graphs are taken from “ 자본 시장의 글로벌화와 한국 통화 정책의 독립성” (신관호 공저), 한국 금융 연구 센터 창립 심표지엄 발표

해외자본의 유입과 유출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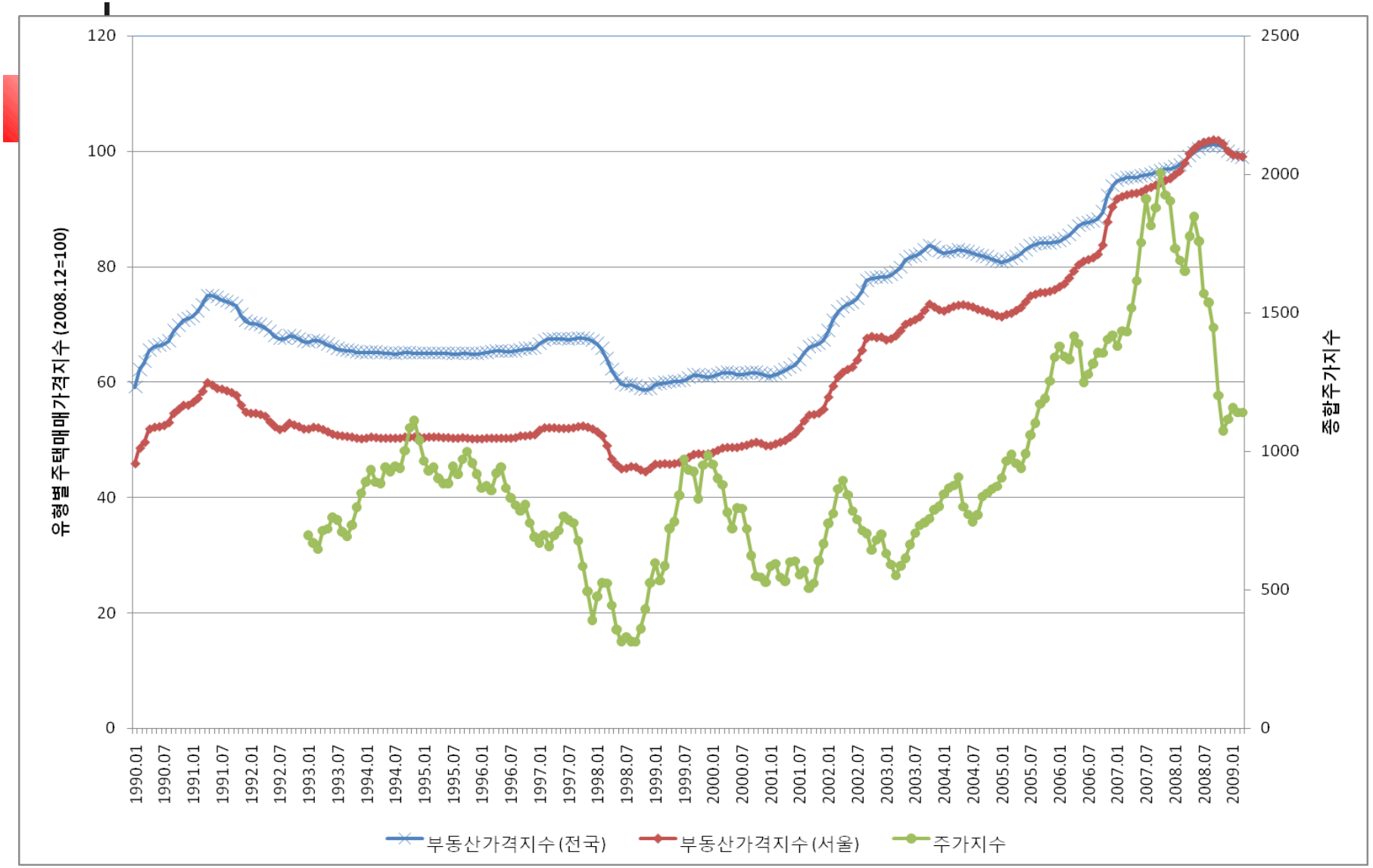
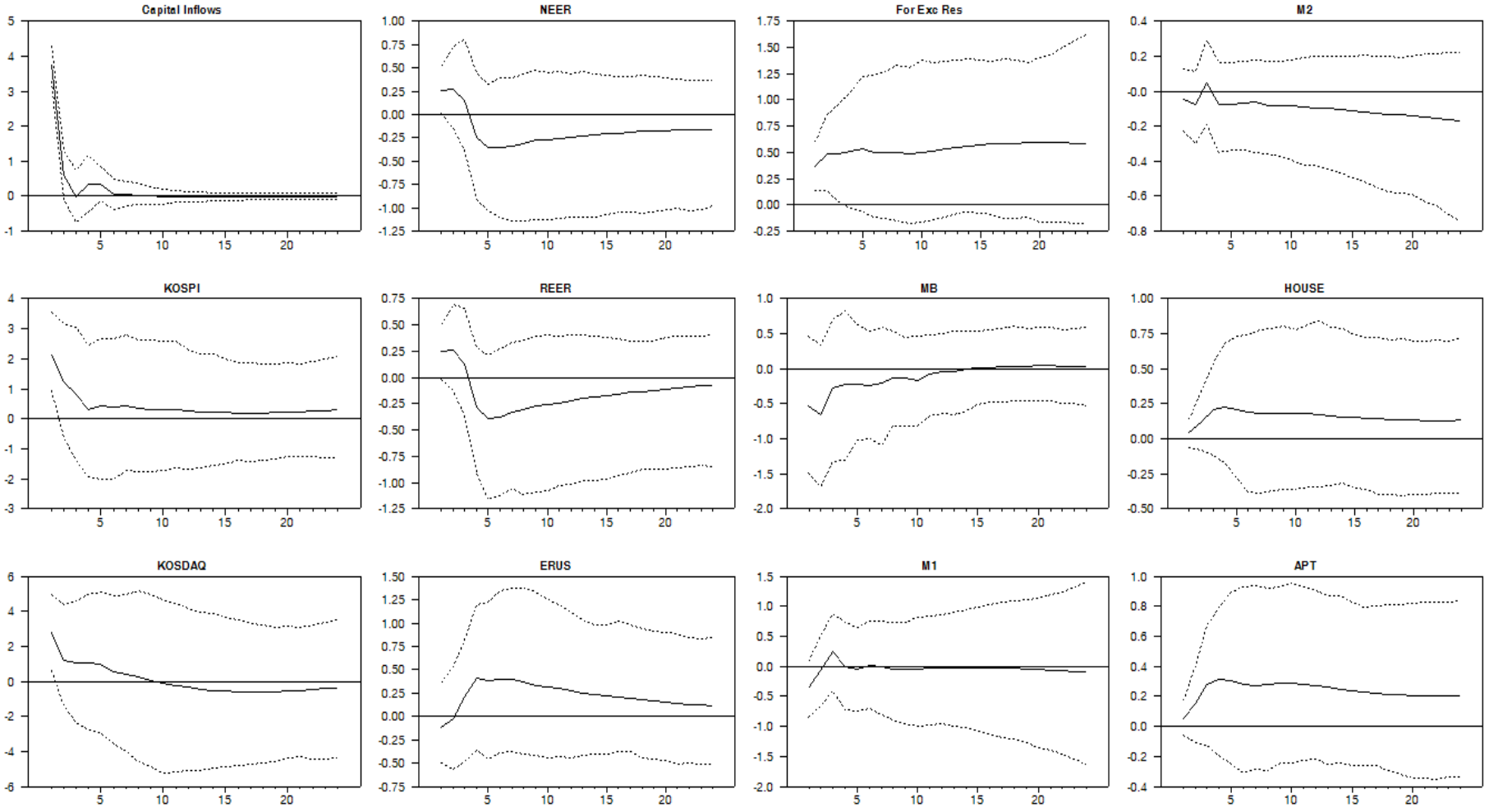
< 그림 7> 주가지수 , 부동산 가격지수



Empirical Model

- VAR
- [Y, P, R, CAP_OUT, CAP_IN, X]
- X: KOSPI, KOSDAQ, ERUS, NEER, REER, APT, HOUSE, FRES, MB, M1, M2
- end of period data except for NEER, REER, APT, HOUSE
- Monthly Data
- Estimation Period: 1999:1 – 2007:9
- Constant, 3 lags

Impulse Responses to Capital Inflows



Impulse Responses to Portfolio Inflows

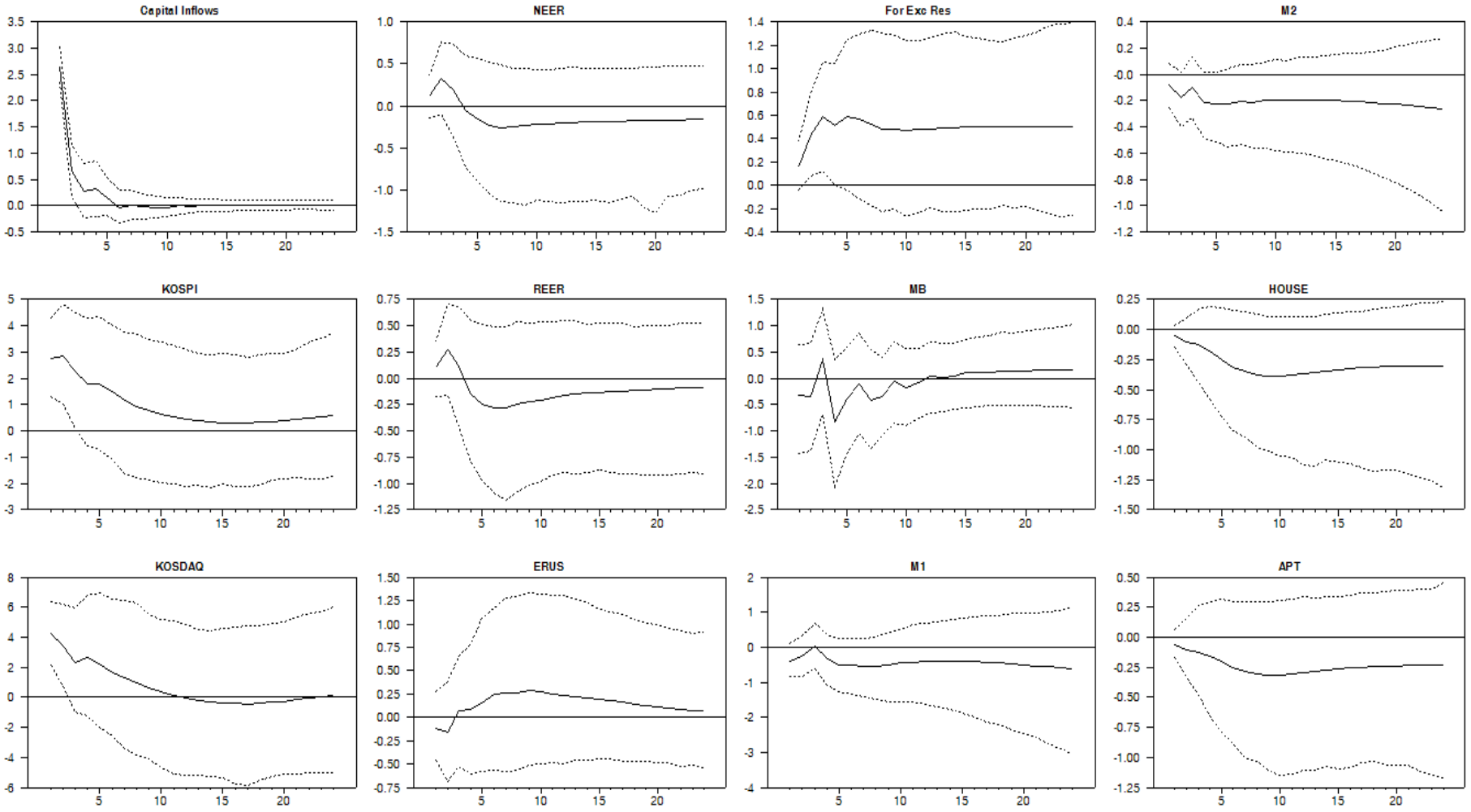


Table 1: Forecast Error Variance Decomposition of Capital Inflows

	6 months	12 months	24 months	48 monthss
Y*	5.0 (3.3)	5.5 (3.4)	6.0 (3.7)	6.8 (4.4)
P*	4.0 (2.6)	4.5 (2.8)	4.6 (2.9)	4.9 (3.1)
Y	9.6 (4.9)	10.2 (4.9)	10.8 (5.1)	11.2 (5.5)
P	6.7 (3.9)	7.0 (3.8)	7.2 (3.9)	7.6 (4.1)
R	5.7 (3.1)	6.4 (3.2)	6.9 (3.5)	7.2 (3.8)
CAP_IN	65.9 (7.2)	62.6 (7.7)	59.4 (8.9)	56.0 (11.2)
SP	3.1 (2.3)	3.9 (2.6)	5.1 (3.6)	6.5 (5.3)