Policy Options for Managing Capital Inflows in Emerging East Asia

1. Introduction

Recent surges in foreign capital inflows and asset price hikes have become major concerns for the large emerging East Asian economies. Capital inflows, especially to financial markets, have increased pressure on currencies to appreciate, enhanced already abundant liquidity in the region, and contributed to the rise in asset prices. However, the current state of capital inflows is quite different from the situation before the 1997/98 Asian financial crisis. Capital inflows have not led to a rise in domestic demand as they did before 1997. Most East Asian economies are running large current account surpluses and capital inflows are mostly sterilized by central banks. The resulting huge accumulation of foreign exchange reserves leaves these economies far better able to deal with potential financial shocks than in 1997.

Surging capital inflows, however, impose a significant challenge to the region, as inflationary pressures build and world interest rates continue to rise. Given that financial market stability is critical to macroeconomic management, capital flows have become a significant factor affecting policy decisions in these emerging East Asian economies. Policy options are limited because of the increasing conflicts between domestic and external objectives.

This chapter examines the effects of surges in capital inflows (portfolio inflows in particular) on exchange rate appreciation and asset price inflation to shed some light on the elements that can comprise an appropriate policy mix to mitigate risks associated with these inflows.

Section 2 briefly summarizes and explains trends in capital flows to the region. Section 3 discusses the effects of these on exchange rates and asset prices, and summarizes empirical findings. And in Section 4, options that could comprise a macroeconomic policy mix are discussed.

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5 The large emerging East Asian economies are People’s Republic of China (PRC), Republic of Korea (Korea), and the four ASEAN economies of Indonesia, Malaysia, Philippines, and Thailand (ASEAN-4).
2. Recent Trends in Capital Flows

*In general, the past few years have been characterized by strong balance of payments surpluses and substantial reserve accumulation in emerging East Asia.*

For the six large emerging East Asian economies, aggregate reserves nearly tripled from $528 billion in 2002 to $1.5 trillion in 2006, rising from 21.2% of aggregate gross domestic product (GDP) to 34.8%—perhaps more than adequate for macro-prudential needs. Excluding the People's Republic of China (PRC), reserves climbed at about the same pace as nominal GDP and remained at 22.7% of GDP. While large current account surpluses remain an important source of inflows, capital account balances have become more significant, reaching 3.8% of GDP in the six economies in 2004, before easing to 0.6% last year—as capital outflows have increased as well. If the PRC is excluded from the total, the capital account balance was 1.0% of GDP in 2006 (Table 11).

<table>
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<tr>
<th>Table 11: Balance of Payments (% of GDP)</th>
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<td><strong>ASEAN-4</strong></td>
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<td>Reserves excluding gold ((___) increase)</td>
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Sources: *International Financial Statistics (IMF), World Economic Outlook Database (IMF), Regional Economic Outlook (IMF), and CEIC.*
The balance of payments surplus of the PRC has grown significantly in recent years. Before 2004, the capital account surplus was usually larger than the current account surplus; in 2005 and 2006, however, the current account surplus began to dominate net external inflows. In the Republic of Korea (Korea), while the capital account surplus remained strong, the current account surplus narrowed markedly after 2004.

The ASEAN-4 economies were more heterogeneous, with the capital account surplus remaining strong, the current account surplus narrowed markedly after 2004. In Indonesia, estimated total external inflows in 2006 strengthened to 4.1% of GDP, substantially higher than the previous 2 years—when they were marginal or negative. In Malaysia, total external inflows slowed sharply after 2004, as the capital account went into deficit. Total external inflows to the Philippines in 2006 were the strongest since 1999, primarily due to a rising current account surplus—largely due to strong growth in worker remittances (10.9% of GDP in 2006). In Thailand, total external inflows rose significantly to 3.1% of GDP in 2005 with strong growth in both current and capital account surpluses.

Driven by both domestic and external factors, gross capital inflows—with portfolio inflows increasing in share—reached a record $269 billion in 2006 in the large emerging East Asian economies, nearly twice the size of the previous 1996 peak.

As a ratio to GDP, however, gross capital inflows to the six emerging economies were about 6.2% of GDP in 2006, nearly back to the 6.6% average level in the mid-1990s (Figure 34). The PRC has been the dominant destination for gross capital inflows since 1993, with its share among the large emerging East Asian economies rising from 16.9% in 1992 to 63.2% in 2006 (Figure 35).

The change in the composition of gross capital inflows since 1997 is also significant. While foreign direct investment (FDI) remains a major component, portfolio inflows have increased substantially since 2002—particularly in ASEAN-4 and Korea, where the share of portfolio inflows moved above half (to 57.0%) in 2005 (Figure 36). This is an important change from before 1997,

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when the largest component was “other investments” (mainly short-term debt)—one of the root causes of the financial crisis. Gross inflows in other investments, however, rose significantly in 2006 in the PRC and Korea. It is also important to note that portfolio flows have become large relative to the size of domestic capital markets in several of these economies, as this carries a potential direct impact on asset prices—both on the way in and on the way out.

There are various external push factors driving capital inflows to the region. Until recently, a key cyclical factor has been that global financial market conditions were characterized by low interest rates, ample liquidity, and low volatility. This encouraged a search for yield—financed in part by carry trades especially yen carry trades (estimates in value vary from $80–500 billion)—that compressed risk premiums in most emerging markets. Although the underlying cyclical trends are beginning to unwind, there is a chance they may recur, especially as longer-term push factors behind these investments are leading toward greater global and regional financial integration. These longer-term drivers include a greater tendency for international investors to diversify holdings across a wider set of asset classes—as well as the greater ability to do so given continuing advances in information technology and innovation in financial market instruments. Intraregional portfolio flows may have also been growing rapidly in recent years. In addition, an increasing number of institutional investors—including insurance companies, pension funds, and hedge funds—are investing in emerging markets.

There are also important internal pull factors in East Asia’s emerging markets that have encouraged inflows. Economic fundamentals have improved significantly, as can be seen in the improvement in sovereign risk ratings—in particular, the region is seen as less vulnerable to currency crises than in the late 1990s. In fact, another pull factor is that there is a palpable perception among investors that at least some East Asian currencies are undervalued. Combined with active sterilized reserve accumulation—leaving interest rates possibly higher than otherwise—this becomes a further inducement to speculative investment. Also, many countries have liberalized regulatory requirements on foreign portfolio inflows. The small but growing

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7 Bilateral capital flows data are unavailable for the large emerging East Asian economies. According to the International Monetary Fund’s Coordinated Portfolio Investment Survey, bilateral portfolio investment flows between either Singapore or Hong Kong, China and the six economies have increased significantly in recent years, though the bilateral flows among the six remained small.
presence of domestic institutional investors is helping deepen markets, further encouraging cross-border flows. And finally, financial sector reforms across the region have enhanced financial market infrastructure and improved corporate and financial institution governance.

**Gross capital outflows from the large emerging East Asian economies have also increased extremely rapidly in recent years, reaching a record $243 billion in 2006 (5.6% of GDP), more than nine times the level in 1996.**

Among the large emerging East Asian economies, the PRC was responsible for about half of the gross capital outflows in the past 2 years, followed by Korea and Indonesia (Figure 37). While “other investments” accounted for about a half of gross outflows from 2003 to 2005—and were still about 25% in 2006—portfolio outflows rose substantially to $143 billion in 2006 as PRC and Korean banks bought large amounts of nonresident debt securities (Figure 38).

Greater opportunities for both institutional and private investors to invest overseas have expanded capital outflows. FDI outflows have increased as Asian firms move to establish global supply and sales networks. In Korea, FDI outflows have increased as the country’s leading automobile and electronics firms expanded production overseas. PRC outward FDI has also grown rapidly. In 2006, PRC announced measures to give individual investors greater access to foreign assets. The Qualified Domestic Institutional Investor scheme—expanded in May 2007—allows domestic institutional investors to invest in foreign capital markets. Korea also encourages more domestic private investment abroad through mutual funds.

Nevertheless, many governments still control or heavily regulate outflows because of concerns about potential capital flight and financial stability in general. In emerging East Asia, capital is often transferred out through banks, while overseas investment by private investors is restricted. Yet, outflows can be an important countervailing mechanism to large inflows. Without a freer outflow channel, large capital inflows would simply become official exchange reserves, further expanding domestic liquidity.

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8 Gross capital outflows refer to total resident investment abroad including FDI, portfolio, and other investments.
On balance, gross capital outflows have more than offset inflows, leading to a marginal decline in net capital flows over the past 2 years.

After reaching a record level of $121.9 billion in 2004, net capital inflows have fallen and remain below the pre-crisis average as a ratio to GDP. While net capital inflows to the PRC continued to surge—accounting for 90.0% of aggregate net inflows to the six economies over the past 5 years—net inflows to Korea have only recently approached the pre-crisis level. ASEAN-4 economies only had a positive net inflow in 2004.

There have been net repayments of official debt among the ASEAN-4 since 2001—causing net outflows in other investments (mainly bank-related) to increase significantly. As a result, the overall composition of net private capital inflows shifted toward larger net portfolio and FDI inflows and larger net credit outflows. Similarly, in Korea, net capital inflows were mainly due to net portfolio inflows, and net inflows in other investments were usually negative or small before 2005 due to debt repayments. This is in sharp contrast to the mid-1990s when equity flows were tiny and debt financing was the most important type of capital inflow to the region. In 2006, however, net inflows in other investments to Korea surged to $40 billion, resulting in a net capital inflow of $18 billion despite net portfolio outflows of $18 billion. Net capital inflows to the PRC remain dominated by net FDI inflows, though the recent estimates show that net outflows in portfolio investments have increased dramatically in 2006, leaving net capital inflows in 2006 much smaller than in the past few years.

The shift in composition of net capital inflows to the region may lead to higher variability, as experience shows that FDI has been the least variable type of capital flow, while bank loans vary most with portfolio flows closely following. In addition, as stock and bond market depth and liquidity increase, there is evidence that the volatility of FDI and debt securities flows may also increase.  

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9 Net capital inflows are gross capital inflows minus gross outflows.
There are both similarities and differences among these trends compared with emerging Europe and emerging Latin America. All three regions have had growing total external inflows over the past few years. They are all making net official debt repayments but are seeing larger private capital inflows. Net private capital flows to emerging Europe are roughly the same magnitude as those to emerging Asia, but they are dominated by rapidly growing FDI and net private creditor inflows. Net portfolio equity inflows to emerging Europe have been much lower than those inflows to emerging Asia. For Latin America, net private inflows were smaller with the trend less clear. Emerging Europe is seeing large and growing net private creditor inflows, while the portfolio equity share of 2006 net private inflows is far smaller in emerging Europe and Latin America than in emerging Asia. The critical point is that—with smaller market capitalization and weaker fundamentals—equity prices in both emerging Europe and emerging Latin America have shown much stronger gains and higher volatility than in emerging Asia.

3. Capital Inflows, Exchange Rates, and Asset Markets in Emerging East Asia

Given the different composition of capital inflows and outflows, analyzing “gross” rather than “net” inflows is more relevant, as they directly affect the domestic economy and asset markets—posing major challenges for macroeconomic management.

The links between capital inflows, credit expansion—lending booms with capital liberalization—and adverse macroeconomic consequences are not new in emerging East Asia. One of the root causes of the 1997/98 Asian financial crisis was excessive capital inflows followed by sudden outflows. The recent surge in gross capital inflows to the large emerging East Asian economies—and portfolio inflows in particular—has coincided with rapid appreciation of asset and currency prices. At the same time, the risk of increased global financial market volatility has

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11 This paragraph relies on the January 2007 issue of Capital Flows to Emerging Market Economies, Institute of International Finance. Emerging Europe includes the Russian Federation, Turkey, Ukraine, and six eastern European countries. Emerging Latin America includes Mexico and the large South American countries. Emerging Asia includes India in this instance. All 2006 figures are estimates. Source: iif.com

the potential of leading to sharp asset price corrections in these economies. The recent bond market sell-off may be a signal that ample global liquidity is starting to evaporate, which in turn could lead to a sudden reversal in capital flows.

**Large capital inflows have pressured currencies to appreciate.**

Regional exchange rates have tended to appreciate against the US dollar despite official intervention (Figure 39)—the degree varying by economy because of differences in (i) the magnitude of total external inflows, (ii) the degree of exchange rate flexibility, and (iii) the extent of official intervention. There were occasional sharp movements where nominal exchange rates are more flexible. The Thai baht, for example, appreciated sharply beginning in late 2005 following a pronounced turnaround of the 2005 current account deficit, a surge in “other investment” inflows, and a resumption of equity inflows from renewed confidence following the brief disruption caused by the September 2006 coup d’etat. The Philippine peso has also strengthened on the back of strong remittance growth and larger private capital inflows, triggered by improved fundamentals and the ensuing favorable sentiment.

Even in economies where currencies are tightly managed, inflow-associated appreciation pressures can ultimately feed into higher inflation if sterilization is not perfect, and thus, exchange rates appreciate in real terms. In general, real effective exchange rates in the large emerging East Asia economies have appreciated since 2004 regardless of exchange rate regime (Figure 40). Real appreciation was typically higher than nominal appreciation, reflecting higher consumer price inflation than their trading partners.

**Official foreign exchange intervention, despite extensive sterilization, increased domestic money supply.**

With managed exchange rate regimes, monetary authorities often intervene in the foreign exchange market to offset appreciation pressure from surges in capital inflows, which results in reserve accumulation and increases in domestic money supply. Only under a flexible exchange rate without official intervention would a surge in capital inflows immediately lead to currency appreciation, largely without altering domestic monetary conditions.
Foreign exchange reserves in these economies have grown rapidly, especially in the PRC (Table 12). Despite extensive sterilization, money supply has also expanded sharply in some economies. Partly due to low world interest rates and capital inflows, long-term interest rates in these economies have also declined or remained low in recent years (Figure 41). This rapid growth in money supply and falling domestic interest rates has been behind the sharp rise in asset prices in these economies.

**Stock prices have soared in the region since 2003.**

While the rise in stock market indexes has been steady in Indonesia, Korea, Philippines, and Malaysia, stock prices in the PRC began to soar in late-2005 and continued their surge through June 2007 (Figure 42). These increases may have also contributed to falling bond yields in these economies (see Figure 41). Most foreign portfolio investment flows into stock markets, partly because emerging East Asia has relatively less developed local currency bond markets—and they are less open to foreign participation. However, as stock prices rise, expected returns on equities drop and bonds become more attractive to local investors, who bid up bond prices, lowering bond yields.

![Figure 41: 10-Year Government Bond Yields (% per annum)](image)

Source: Bloomberg.

**Table 12: Change in Foreign Reserves and Money Supply (M2) (**y-o-y, %**)

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<thead>
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<th>1999</th>
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<tr>
<td>Change in Foreign Reserves</td>
<td>16.4</td>
<td>7.8</td>
<td>-4.4</td>
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<td>0.0</td>
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<td>Change in M2</td>
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<td>4.7</td>
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<td>8.1</td>
<td>16.4</td>
<td>14.9</td>
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<td><strong>Malaysia</strong></td>
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<tr>
<td>Change in Foreign Reserves</td>
<td>19.7</td>
<td>-7.4</td>
<td>4.2</td>
<td>13.0</td>
<td>31.4</td>
<td>50.3</td>
<td>6.0</td>
<td>17.6</td>
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<td>Change in M2</td>
<td>13.7</td>
<td>5.2</td>
<td>2.2</td>
<td>5.8</td>
<td>11.1</td>
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<td>15.4</td>
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<tr>
<td>Change in Foreign Reserves</td>
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<td>-3.9</td>
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<tr>
<td>Change in M2</td>
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<td>Change in Foreign Reserves</td>
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<td>28.8</td>
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<td>Change in Foreign Reserves</td>
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<td>Change in M2</td>
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<td>Change in Foreign Reserves</td>
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Source: *International Financial Statistics (IMF).*
Real estate prices in the region have also increased markedly since 2000 in most large emerging East Asian economies.

Land and housing prices have also surged in most large emerging East Asian economies. In Indonesia and Thailand, land prices have risen by about 180% since 2000 despite significant volatility. In the PRC, Korea and the Philippines, housing prices have gradually increased since 2000 by a similar magnitude of 40%. The only country that did not show a big increase was Malaysia, where land prices in 2006 were only about 10% higher than in 2000.

Evidence from econometric analysis also confirms that capital inflows—portfolio inflows in particular—added to appreciation pressures and increased asset prices over recent years in the large emerging East Asian economies.

The effects of gross capital or portfolio inflows on asset prices and exchange rates are examined in panel vector auto-regression (VAR) models (Box 3). The empirical findings confirm the significant effects of capital flows on real exchange rate appreciation and asset price inflation. Other factors, such as the recovery from the 1997/98 Asian financial crisis, improved financial governance, better economic fundamentals, higher domestic liquidity, and stronger earnings in exports have boosted investor confidence, also may have contributed to the real exchange rate appreciations and asset price surges.

4. Macroeconomic Challenges and Policy Options

How to maximize the benefits of using capital inflows to enhance economic growth—while minimizing risks—is a key challenge facing the large emerging East Asian economies.

Capital inflows can help finance domestic investment and contribute to long run economic growth. Foreign portfolio inflows provide a better opportunity for local capital market development by providing increased liquidity and price recovery mechanisms.

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Figure 42: Composite Stock Price Indexes—ASEAN-4, People’s Republic of China, and Republic of Korea (end-of-month, January 2000 = 100, local index)

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1 Weekly averages of Shenzhen (People’s Republic of China), JCI (Indonesia), KLCI (Malaysia), PCOMP (Philippines), SET (Thailand). Source: OREI staff calculations based on Bloomberg data.
Moreover, more capital inflows encourage domestic markets to adopt more internationally-accepted practices and standards in the financial systems.

The risks large capital inflows pose, however, are also apparent: capital flows could reverse suddenly, for example, with huge implications to asset prices and general macroeconomic conditions. Another concern is the possibility of a rapid unwinding of yen-carry trades. The recent bond market sell-off may signal a drop in global liquidity. Should any panic occur, investors tend to rush for the exits. There is also evidence that gross capital flows have become more volatile.\(^{14}\) Assets managed by institutional investors are growing with greater reliance on hedge funds—which can leave a market abruptly.

Surges in portfolio inflows and asset prices have also raised concerns on asset bubbles. As yet there are no clear general indications that equity prices are excessive relative to earnings, except possibly in the PRC (Figure 43). As world monetary conditions continue to tighten and global liquidity continues to dry up, re-pricing risk could raise volatility and at least temporarily halt current bull markets.

The large emerging East Asian economies are using a variety of policy measures to address surging capital inflows—in addition to managing the already large current account surpluses—including foreign exchange market intervention and sterilization, prepaying foreign debt, encouraging capital outflows, tightening credit growth by hiking lending rates and reserve requirements, and improving financial market regulation and supervision. As the region’s economies continue to expand and inflationary pressures may mount, the conflict between domestic and external policy objectives is becoming more acute, limiting policy options. Therefore it is best to adopt an appropriate package of policies that addresses basic macroeconomic problems complicated by large capital inflows and asset market issues derived in part from large capital inflows.

\(^{14}\) See *Regional Economic Outlook: Asia and Pacific*, International Monetary Fund, April 2007.
• **Enhance Exchange Rate Flexibility**

*Flexible exchange rate regimes enhance monetary autonomy—allowing authorities greater freedom to manage fluctuations in monetary aggregates resulting from changes in capital flows.*

The effects of capital inflows can be different under floating or fixed exchange rate regimes. Real exchange rate appreciation pressures may rise in both cases, but the adjustment can be more direct and less costly under a floating regime. With a fixed exchange rate, the adjustment occurs primarily through higher inflation, as capital inflows stimulate domestic activity. Under a more flexible currency regime, nominal currency appreciation also contributes to the adjustment. In addition, the nominal exchange rate appreciation may discourage capital inflows by reducing asset returns in foreign currency terms. Although the real exchange rate tends to be more volatile under a flexible exchange rate—because the nominal exchange rate tends to vacillate more than the price level—the effects may be less important where there are larger and deeper financial markets. An increase in the degree of exchange rate flexibility enables authorities to better deal with surging capital inflows and to mitigate any adverse effects.

Before the Asian financial crisis, most East Asian currencies were largely pegged to the US dollar. Since then, emerging East Asian economies have adopted flexible exchange rate regimes to varying degrees—from the limited flexibility in the PRC and Malaysia to the floating regimes in Indonesia, Korea, Philippines, and Thailand.

The external imbalances in some large emerging East Asian economies—indicated by large external flows and the accumulation of foreign exchange reserves—are clearly unsustainable in the longer term. It is important for economies with highly managed exchange rate regimes to prepare to move toward more flexible systems—historically, more than half the shifts to floating regimes have been disorderly and have led to crisis. A deep and liquid foreign exchange market, a coherent intervention policy, an appropriate alternative nominal anchor, and strong fiscal policies, institutions and banking systems are important prerequisites. Arguably, it may be preferable to introduce greater exchange

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rate flexibility during a period of net capital inflows—the resulting appreciation would be contractionary, reducing excess demand and dampening speculative bubbles. The exchange risk associated with greater flexibility can also moderate capital inflows. Moreover, a higher level of exchange rate variability will encourage the private sector to hedge foreign exchange exposures, reducing financial vulnerability.

- **Monetary policy response needs to strike a balance between domestic and external objectives**

When capital inflows contribute to already booming domestic demand and surging asset prices, the central bank may consider tightening monetary policy. There is wide debate over whether monetary policy should target asset prices, and the consensus in many developed countries is that it should not, as long as the inflation outlook is not affected. It also depends on the relative costs of monetary tightening. If it is perceived that asset price booms could increase the probability of adverse macroeconomic development occurring, preemptive monetary policy tightening may be required. For example, considering the potential inflationary pressure from asset price appreciations, Korea tightened its monetary policy in 2006 by raising the official interest rate and the average reserve requirement ratio. Since 2003, the PRC also responded to asset price surges in both real estate and the stock markets using a series of measures, including increasing interest rates and the reserve requirement ratio.

While monetary tightening can help reduce money supply and prevent asset prices from rising excessively, it is a limited policy option—as higher interest rates could induce more capital inflows, adding pressure on liquidity expansion and exchange rate appreciation; also, higher bank reserve requirements can have an adverse impact on the banking sector.

On the other hand, in an environment of a benign inflation outlook and sluggish domestic demand, the central bank may lower interest rates in the hope of reducing capital inflows and exchange rate appreciation by making interest arbitrage less attractive. This is likely to be one of the motives behind the 150 basis point cut by the Philippine central bank (Bangko Sentral ng Pilipinas) on 12 July and the 25 basis point cut by the Bank of Thailand on 18 July. Cutting interest rates, however, may further boost liquidity and therefore asset prices. Inflationary pressures may also increase due to higher domestic demand.
• **Be cautious with fiscal policy response**

*Subject to long decision lags, fiscal policy has a limited role in managing volatile and unpredictable capital flows; sound fiscal policy, however, is important when capital inflows surge and more so as a cushion when capital flows reverse.*

The government may tighten fiscal policy to ease some of the expansionary effects of capital inflows, which would also limit inflation and relieve the appreciation pressure on the real exchange rate. Fiscal tightening tends to place downward pressure on interest rates, further reducing incentives for capital inflows. However, the long decision lags of fiscal policy adjustments constrain its viability as a policy tool against very volatile and unpredictable capital flows. By the time a fiscal contraction is implemented, the surge in capital flows might have subsided—or reversed—in which case any fiscal contraction could make things worse.

Sound fiscal policy, however, is important when capital inflows surge—to offset their expansionary impact—and more so as a cushion when capital flows reverse. In general, most large emerging East Asian economies have had balanced fiscal positions for decades. The average budget deficit in these economies since 1998 is a mere 1.6% of GDP. In the Philippines, which had the highest budget deficit among the group, the government effectively consolidated the fiscal deficit to 1.1% of GDP in 2006. Malaysia is currently highest with a 2006 budget deficit of 2.6% of GDP in 2006. The other large emerging East Asian economies have maintained either lower budget deficits or, in Thailand, a slight surplus.

Fiscal policy responses can also be useful in addressing speculative problems in asset markets bolstered by large capital inflows. Certain tax policies have been used to target specific asset markets effectively. Over the past few years, the PRC has introduced a series of measures to stabilize the real estate market, including a new land use tax applying to construction on unused land or newly converted from agriculture, a higher capital gains tax on residential properties sold within 2 years of purchase, and a land value-added tax from property development enterprises. Most recently, PRC authorities raised the stamp duty on share trading from 0.1% to 0.3%, in an attempt to reduce
“speculative behavior.” The result was dramatic, with the Shanghai Composite Stock Index falling by 15.3% in the 4 days following the announcement. This policy could also be highly contractionary, as tax revenue from share trading could reach 1% of GDP should recent trading volumes continue. Although the measure may be viewed as against the trend toward financial market liberalization, the move may eventually discourage excessive speculation—an important source of short-term volatility in PRC stock markets. Recently, the PRC has also cut the tax on interest income from 20% to 5% to help stem funds flowing from bank deposits into the stock markets.

• **Liberalize capital outflow**

*To help offset surges in capital inflows, most large emerging East Asian economies could further liberalize restrictions on capital outflows to encourage both direct investment abroad and promote fund-type portfolio investments overseas.*

Capital controls can, in principle, decrease excessive amounts of unproductive forms of capital inflows. In addition, under a tightly-managed exchange rate, they can allow monetary policy greater independence. While capital controls may sometimes reduce real appreciation, they do not generally reduce the volume of net inflows.\(^\text{16}\) Also, they can increase domestic financing costs, distort business decision making, and reduce market discipline. Capital controls are also difficult and costly to enforce, and may ultimately prove ineffective when the private sector discerns ways of circumventing the controls, by, for example, over-invoicing imports and under-invoicing exports.\(^\text{17}\)

While Korea has removed nearly all restrictions, PRC, Indonesia, Malaysia, Philippines, and Thailand control capital flows in various ways. Compared with other emerging markets in Latin America, for example, the restrictions in large emerging East Asian economies are more stringent and restrict capital outflows more than inflows—a response to the capital flight experienced during the Asian currency crisis. In December 2006, to prevent the Thai baht from excessive appreciation, authorities imposed a foreign capital reserve requirement requiring a deposit for capital inflows,


deducting from the deposit for short-term withdrawals. However, capital has continued to flow into the economy, suggesting that restrictions on capital flows do not necessarily curb capital inflows. As a stopgap measure, however, they may mitigate a sudden reversal in direction of capital flows.

To help offset surges in capital inflows, most large emerging East Asian economies could further liberalize restrictions on capital outflows. In addition to seeking more opportunities for direct investment abroad, several large emerging East Asian economies (for example, the PRC and Malaysia) promote authorized fund-type portfolio investments overseas for domestic retail investors, given the relatively high risks involved in investing in overseas markets. Korea has introduced a temporary tax exemption on capital gains and is easing regulations—such as relaxing the acquisition limit on the purchase of overseas real estate for both financial institutions and individuals. Still, an increase in capital outflows would not reduce the direct effects of gross capital inflows on domestic asset markets. Authorities should be prudent in removing restrictions on capital outflows since they may aggravate the effects of any reversal in capital flows.

**Strengthen financial market regulation and supervision**

*Strengthening financial market regulation and supervision allows authorities to improve the efficiency and effectiveness of institutions and enhance financial sector stability—and therefore could play a role in dampening bubbles.*

If the primary policy concern is excessive asset price inflation, relevant markets can be monitored closely by supervisory agencies for signs of instability, imbalance, or especially deterioration of a financial institution’s asset quality. Any concerns can then be addressed using regulatory measures directed at specific asset markets. This is more effective if a large source of funds flowing into asset markets derives from domestic agents. In general, a more targeted approach can reduce the chance of unintended macroeconomic effects of broad-based monetary, fiscal, or exchange rate policies—or even capital controls. The banking sector should be closely monitored for exposure to speculative investments in equity and real estate markets, and these can be reduced through selective imposition of higher reserve
requirements, higher down payment requirements for real estate purchases, or higher reserve margins for equity investments. However, effective financial market regulation and supervision requires substantial human capacity and strong institutions. One of the factors that helped Singapore and Hong Kong, China survive the real estate fallout prior to the Asian crisis—and thus minimizing damage to their economies—was relatively strong bank regulatory frameworks and supervision. The authorities were also able to act decisively to contain the adverse effects when the bubbles burst.

5. Conclusion

The best course in managing large capital flows may be to make judicious use of the available policy options, but at the same time resist the temptation to overreact to temporary trends—thus minimizing unintended distortions in domestic markets.

There appears to be no magic solution to effectively manage surges in capital flows or any associated excessive increase in asset prices. Each policy option has its merits and shortcomings.

An appropriate package of policies may be to allow greater currency flexibility (in economies with tightly managed exchange rates, capital inflows may also provide an opportunity to introduce more flexible regimes with least costs), to communicate clear and stable monetary and fiscal policies where inflationary pressures are contained and economic expansion remains on track, and to step up efforts to address potential asset bubbles through regulatory and supervisory agencies.

Although the specific mix of appropriate polices will vary with individual economic conditions, greater efforts to ensure transparency with financial markets is essential to avoid overly speculative or rumor-driven activity.
Box 3: Capital Inflows and Asset Prices: Econometric/Empirical Analysis

Panel vector auto-regression (VAR) models can be used to assess empirical effects of capital inflows on asset prices. VAR is an econometric model used to capture the evolution and the interdependencies between multiple time series. All the variables in a VAR are treated symmetrically by including for each variable an equation explaining its evolution based on its own lags and the lags of all the other variables in the model. VAR models are useful to document empirical facts and the effects in a model are dynamic in nature. Furthermore, a panel framework, which pools data for different economies into one model, could overcome the shortcomings of a short sample period. The empirical results presented in this box shows that a surge in gross capital (or portfolio) inflows would significantly affect asset prices and lead to real exchange rates to appreciate. Stock and land prices would rise, but increases in land prices are more delayed.

The basic model has five quarterly variables: real GDP, price levels, stock prices, land prices, and gross capital inflows (as a ratio to trend GDP); the first four are in logarithms. Real GDP and price levels are included to control for the factors that can affect the asset prices through channels other than foreign capital inflows; individual fixed effects are included to control for the factors that affect the asset prices in individual countries. The data for five selected emerging East Asian economies: Indonesia, Republic of Korea, Malaysia, Philippines, and Thailand from 1999 to the first quarter of 2006 are used to estimate the following reduced form panel VAR:

\[ y_i' = c + B(L)y_i' + u_i' \]

where \( c \) is a 5x1 constant matrix, \( B(L) \) is a matrix polynomial in the lag operator \( L \), \( u_i' \) is a matrix of shocks with a variance/covariance matrix of \( \Sigma \), \( y_i \) is the variables listed above and \( i = 1 \) to 5.

A recursive assumption on the contemporaneous relation among variables was used. Real GDP and prices are assumed to be contemporaneously exogenous to other financial variables since real economic activities and the aggregate price level respond to changes in economic conditions sluggishly but the financial sector reflects all the information immediately. Capital inflows are assumed to be contemporaneously exogenous to asset prices.

Simulating the estimated model can show the responses of gross capital inflows, stock prices, and land prices to a typical shock in capital inflows in a 10 quarter horizon (Figure B3.1). A typical capital inflow shock is characterized as an increase of about 4% of trend GDP. The increase in capital flows disappears quickly in the second quarter but lasts for more than two years with about 0.5% of trend GDP. In response to this surge in capital inflows, stock prices rise by 2% for three quarters. Land prices also increase by about 1% on impact, and rise further with the effect peaking at 1.5% three quarters after the shock. It is interesting to note that after a surge in capital inflows, stock prices tend to rise immediately as capital inflows (particularly portfolio inflows) directly hit the stock market. Increases in land prices are more delayed, which may be explained by a spill over effect.

An extended model with the inclusion of real effective exchange rates is estimated to show the effect of surging capital flows on real exchange rates (Figure B3.1). After a surge in capital inflows, the real effective exchange rate appreciates by 0.8% in two quarters.

Understanding the properties of the forecast errors (the differences between the model forecasts and actual values of a variable) is also helpful in uncovering relationships among the variables in the VAR model. The fluctuations in forecast errors can be decomposed—so-called forecast error variance decomposition—to see how much of total variation in asset prices is explained by shocks to capital inflows. On a two-year horizon, 7.3% of stock price fluctuations and 13.4% of land price fluctuations are explained by changes in capital inflows. These are relatively moderate numbers. The estimation period, however, does not include most recent dates when asset price appreciation accelerated and serious concerns on capital inflows emerged. The contribution of capital inflows to asset price fluctuations is likely to increase if the recent dates are included.

The effects of portfolio inflows have also been examined. The results are qualitatively similar, although the effects tend to be weaker in general mostly because the size of the typical shocks to portfolio inflows is smaller than that of the typical shocks to capital inflows.

18 For the details of the empirical analysis, see Kim, Soyoung and Doo Yong Yang, 2007 "The Impact of Capital Inflows on Emerging Asian Economies: Is Too Much Money Chasing Too Little Good?", mimeo, Asian Development Bank.

19 Stock prices are obtained from Bloomberg, land price data for Malaysia, Thailand, and Indonesia are provided by Maria Bautista of Bank for International Settlements; housing prices for Korea are obtained from the Bank of Korea website and housing rental prices for the Philippines are from CEIC; all the other data are from International Financial Statistics, published by the International Monetary Fund.


21 In order to make this assumption more reliable, the data on stock prices are constructed as the end of period value.
Figure B3.1: **Responses to a Typical Shock in Gross Capital Inflows** (solid lines are the responses, and the dash lines are one standard error bands)

Source: OREI staff calculations.