

The *Asia Economic Monitor* (AEM) is a semiannual review of emerging East Asia's growth, financial vulnerability, and emerging policy issues. It covers the 10 members of the Association of Southeast Asian Nations; People's Republic of China; Hong Kong, China; Republic of Korea; and Taipei, China.

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Highlights

Economic Performance in the First Half of 2007

- Economic growth in emerging East Asia was stronger than expected in the first half of 2007, buoyed by strong consumption and external demand.
- Inflation continued to fall in most ASEAN economies, but started to rise in PRC, Korea, and Singapore.
- Throughout the region, current account surpluses were sustained in the first half of 2007, while capital inflows remained strong.
- Financial markets gained across the region in the first half of the year despite some volatility, with several policy makers increasingly anxious about the risk of a possible equity market bubble.
- Monetary policy responses varied across emerging East Asia—with PRC; Korea; and Taipei, China tightening policy, Malaysia keeping policy rates unchanged, while policy rates in Indonesia, Philippines, and Thailand were lowered.
- Against a background of favorable economic conditions, financial sectors in the region have generally remained resilient, although signs of stress related to sharply higher asset prices and higher volatility in several markets are emerging.

Outlook, Risks, and Policy Issues

- The overall external environment for emerging East Asia remains generally supportive for 2007, with easing yet solid global growth and more volatile yet favorable financial conditions.
- Continued strong growth momentum in the PRC coupled with slightly moderating expansions in the NIEs and most ASEAN economies should lead to a slightly slower yet robust growth in emerging East Asia this year and in 2008.
- Notwithstanding the solid growth outlook, several risks remain: (i) greater than expected inflation; (ii) increased financial market volatility; (iii) a sharper US economic slowdown; (iv) a disorderly adjustment of global payments imbalances; and (v) noneconomic events, such as geopolitical disruptions or further outbreaks of avian flu.
- Monetary policies attuned to individual economic circumstances, measures to improve investment climates and deepen financial markets, and initiatives to encourage energy conservation are some of the key policy options authorities would need to consider.

Continued overleaf

Acronyms, Abbreviations, and Notes

ADB	Asian Development Bank
AEM	Asia Economic Monitor
AMC	asset management company
ARIC	Asia Regional Integration Center
ASEAN	Association of Southeast Asian Nations
ASEAN-4	Indonesia, Malaysia, Philippines, Thailand
bbl	barrel
BI	Bank Indonesia
BIS	Bank for International Settlements
BOP	balance of payments
BOT	Bank of Thailand
BSP	Bangko Sentral ng Pilipinas
CAR	capital adequacy ratio
CLI	composite leading indicator
FDI	foreign direct investment
FSI	financial soundness indicator
GDP	gross domestic product
HKMA	Hong Kong Monetary Authority
IDI	income diversification index
IIF	Institute of International Finance, Inc.
IMF	International Monetary Fund
IT	information technology
JCI	Jakarta Composite Index
KLCI	Kuala Lumpur Composite Index
KOSPI	Korean Stock Price Index
Lao PDR	Lao People's Democratic Republic
M2	broad money
MSCI	Morgan Stanley Capital International Inc.
NAIRU	non-accelerating inflation rates of unemployment
NIE	newly industrialized economy
NPL	nonperforming loan
OECD	Organisation for Economic Co-operation and Development
OPEC	Organization of the Petroleum Exporting Countries
OREI	Office of Regional Economic Integration
PCOMP	Philippine Composite Index
PRC	People's Republic of China
Q1	first quarter
Q2	second quarter
repo	repurchase
ROA	return on assets
ROE	return on equity
ROPOA	real and other properties owned and acquired
S&P	Standard & Poor's
SET	Stock Exchange of Thailand
STI	Straits Times Index
TWSE	Taiwan Stock Exchange Index
US	United States
VAR	vector auto-regression
YTD	year to date
WTO	World Trade Organization

Note: "\$" denotes US dollars unless otherwise specified.

The *Asia Economic Monitor* July 2007 was prepared by the Office of Regional Economic Integration of the Asian Development Bank and does not necessarily reflect the views of ADB's Board of Governors or the countries they represent. Consultants Charles Adams, Soyoung Kim, and Doo Yong Yang also contributed to the two theme chapters.

Policy Options for Managing Capital Inflows in Emerging East Asia

- Driven by both domestic and external factors, gross capital inflows reached a record \$269 billion in 2006 in the large emerging East Asian economies, adding pressure for exchange rate appreciation and asset price increases over recent years.
- There are several policy options authorities may consider:
 - enhance exchange rate flexibility—to allow authorities greater freedom to manage fluctuations in monetary aggregates resulting from changes in capital flows;
 - strike a balance between domestic and external objectives when devising a monetary response;
 - be cautious using fiscal policy in managing volatile and unpredictable capital flows;
 - liberalize capital outflows—to encourage both direct investment and portfolio investments overseas; and
 - strengthen financial market regulation and supervision—to improve institutional strength and financial sector stability.
- 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.

Emerging East Asian Banking Systems—Ten Years after the Crisis

- The 1997/98 Asian financial crisis stressed the urgency for strengthening the emerging East Asian financial sector, particularly the region's banking systems.
- Across much of the region, significant progress has been made cleaning up banks' impaired assets, strengthening risk management systems, and returning banks to robust health—yet progress has been uneven and several challenges remain:
 - continue the rehabilitation and restructuring process;
 - manage the risks associated with new business activities and household lending; and
 - upgrade governance and disclosure standards, particularly as the region begins to adopt the revised Basel II Framework.

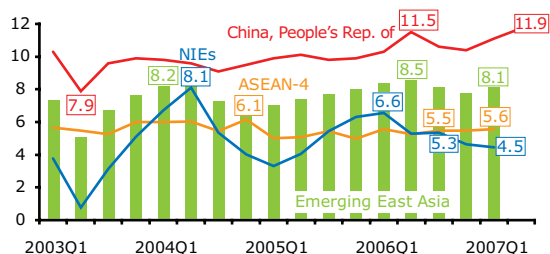
Emerging East Asia—A Regional Economic Update

Economic Performance in the First Half of 2007

GDP Growth

Economic growth in emerging East Asia was likely stronger than expected in the first half of 2007, buoyed by strong consumption growth and external demand, and the rapid 11.5% growth in gross domestic product in the PRC.

Figure 1: **Regional GDP Growth**¹

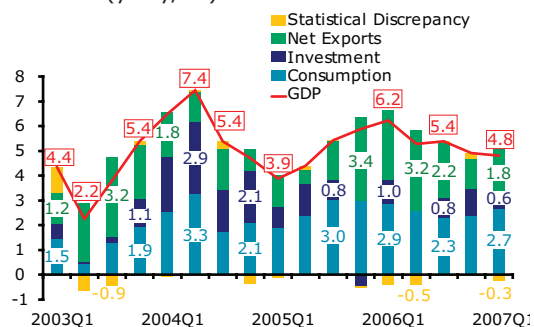


¹ Weighted by gross national income (atlas method, current \$). Aggregates do not include Brunei Darussalam, Cambodia, Lao PDR, Myanmar, or Viet Nam.
Source: OREI staff calculations based on national sources.

Combined gross domestic product (GDP) in the nine largest economies¹ grew by over 8.1% in the first quarter of 2007 (Q1), marginally lower than 8.2% in 2006, supported by strong consumption growth and external demand (Figure 1).² In the first half of 2007, the People's Republic of China's (PRC) economy grew by 11.5%. In the year to March 2007, GDP growth was 5.6% in the four middle-income countries of the Association of Southeast Asian Nations (ASEAN-4), above 2006 levels. However, the four newly industrialized economies (NIEs)—Hong Kong, China; Republic of Korea (Korea); Singapore; and Taipei, China—moderated in Q1, with GDP growth slowing to 4.5%, from 5.4% in 2006.

Excluding the PRC, domestic demand in the region weakened slightly but remained solid in Q1 due to somewhat slower investment, while private consumption was stronger than in 2006, growing by 4.0% (Figure 2). The external sector continued to contribute strongly to the expansion as resilient consumption in the United States (US) and a strong recovery in Europe underpinned export demand.

Figure 2: **Contributions to Regional¹ GDP Growth (y-o-y, %)**



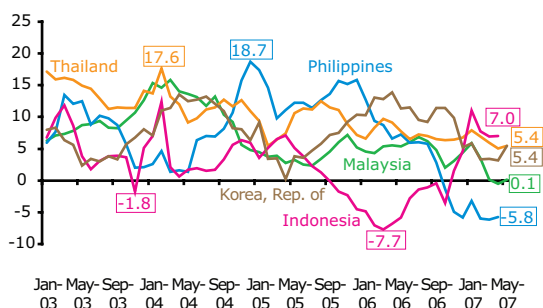
¹ Regional = ASEAN-4 + NIEs.
Source: OREI staff calculations based on CEIC data.

Early data suggest the region continued robust growth in the second quarter of 2007 (Q2), with industrial production in several economies looking strong (Figure 3). PRC industrial production grew faster in Q2 than the Q1 average, while industry in Korea and Indonesia maintained last year's strong momentum. Industrial growth in Thailand and Malaysia slowed, and the decline in the Philippines slowed in April. Second-quarter retail sales in the region also stayed healthy (Figure 4).

¹ The nine largest emerging economies are People's Republic of China; Hong Kong, China; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Taipei, China; and Thailand.

² Unless otherwise noted, all growth figures are year-on-year (y-o-y).

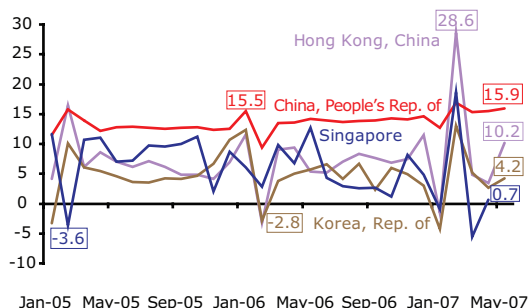
Figure 3: **Industrial Production Growth¹**
(y-o-y, %)



¹ 3-month moving average.

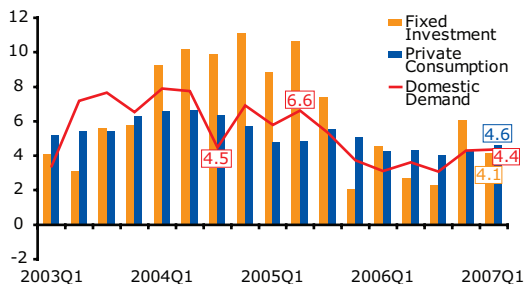
Source: OREI staff calculations based on CEIC data.

Figure 4: **Retail Sales Growth** (y-o-y, %)



Source: CEIC.

Figure 5: **ASEAN-4 Domestic Demand Growth** (y-o-y, %)

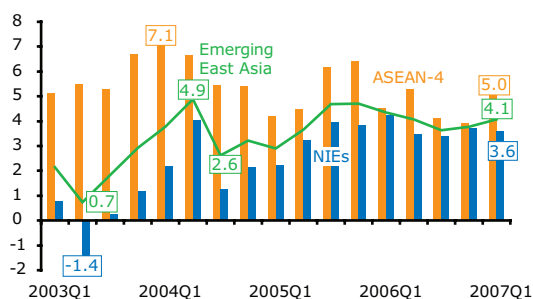


Source: OREI staff calculations based on CEIC data.

In the PRC, strong investment and solid consumption continued to support high growth as the investment boom regained force in 2007, having slowed in the second half of 2006. The Q2 growth rate of 11.9% was the highest in 12 years. Fixed-asset investment grew 26% (year-on-year) in the first 5 months of 2007, compared with 24% in 2006. Steady consumer spending growth saw retail sales trending upward through June, while externally, merchandise exports remained a key driver—the trade surplus in the first half of 2007 was \$113 billion, almost double the amount in the first half of 2006.

Domestic demand in the ASEAN-4 economies also remained solid, due to strong private consumption, as public sector salary hikes and higher overseas remittances propped up household income (Figures 5–6). In Thailand, however, consumption growth was recently at its weakest in 6 years as political uncertainty continued to weigh down private spending. Government spending—election-related expenditures in the Philippines and infrastructure program disbursements in Indonesia, Malaysia, and Thailand—also boosted total consumption and investment. While investment picked up slightly in Malaysia during the first quarter, it was generally weak among the ASEAN-4 economies (Box 1), contributing only about 1% of total growth of 5.6% (Figure 7). In Thailand, investment contracted for two consecutive quarters as the political environment remained somewhat uncertain. Steady exports continued to contribute to solid growth in ASEAN-4 (Figure 8), although performance varied: external demand was steady for most ASEAN-4 economies, but exports slowed markedly in Malaysia. In the Philippines, continuing currency appreciation—mainly due to recent strong overseas worker remittances—has bolstered private consumption but hurt manufacturing. However, this effect on industry appears to be less severe than a similarly adverse exchange-rate effect associated with natural-resource earnings—popularly known as “Dutch disease”—because recipients of remittance inflows are more widely distributed.

Solid consumption has also fueled growth in some NIEs. In Hong Kong, China, rising income, strong employment, and buoyant equity markets underpinned an expansion in private consumption. In Korea, private consumption continued to recover steadily from the household debt-related contraction in 2003. In Singapore, however, private spending remained weak due to a slowdown in spending on motor vehicles, housing, and utilities. There was

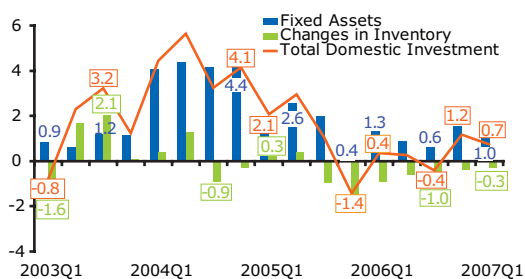
Figure 6: **Consumption Growth** (y-o-y, %)

Source: OREI staff calculations based on CEIC data.

weak private consumption in Taipei,China as well, due to high credit card debt. Investment performance was also mixed among the NIEs (Figure 9). Fixed investment, specifically in plants and facilities, has picked up in Korea, indicating a stronger corporate sector. Private investment remained strong in Singapore, supported by rapid growth in the services and construction sectors. However, investment slowed in Hong Kong, China and in Taipei,China. The NIEs external sector slowed somewhat in the first quarter, meanwhile, with net exports contributing 1.6% to aggregate growth of 4.5%.

Inflation

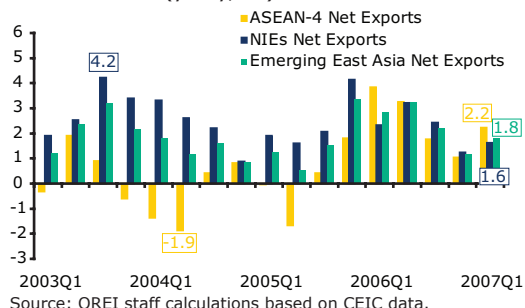
Inflation continued to fall in most ASEAN economies, but started to rise in PRC, Korea, and Singapore.

Figure 7: **Investment Contributions to GDP Growth: ASEAN-4** (y-o-y, %)

Source: OREI staff calculations based on CEIC data.

Headline inflation continued to fall in most ASEAN economies and remained low in Hong Kong, China and Taipei,China. However, it has started to rise in the PRC, Korea, and Singapore (Figure 10).

In the PRC, consumer price inflation hit a 2-year high of 4.4% in June from a low of 1% in July 2006, breaching the official target of 3% for 2007 and adding pressure on the central bank to further tighten monetary policy. Surging food prices—up more than 7.6% year-on-year in June—have driven the rise in recent months, although the main underlying factor remains the ample liquidity feeding the booming economy. The inflation rate is above the return on bank deposits, thus encouraging more flows to the already overheated stock markets, complicating government efforts to cool them down.

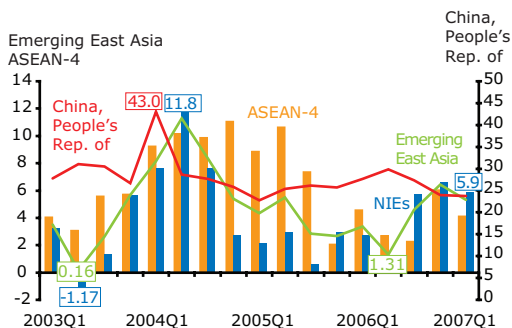
Figure 8: **Contributions of Net Exports to GDP Growth** (y-o-y, %)

Source: OREI staff calculations based on CEIC data.

In ASEAN-4, inflation has stabilized. Headline inflation in Malaysia, the Philippines, and Thailand has been steady over the past 3 months, although as 2007 began it eased in the Philippines (helped by the strong currency) and in Thailand (on weaker domestic demand). In Indonesia, which dominates the ASEAN-4 trend, the one-off inflationary effects of the 2005 energy subsidy reductions have faded, with inflation dropping from more than 15% in June 2006 to 5.8% in June 2007 (Figure 11).

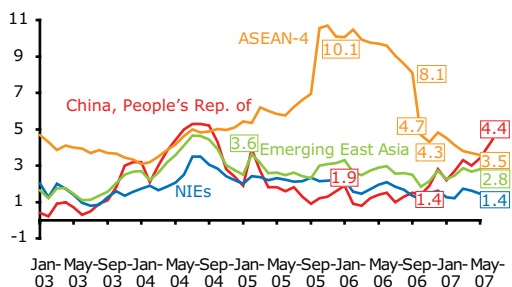
Inflation edged up in Korea and Singapore, but otherwise remained relatively contained in the NIEs, thanks partly to exchange rate appreciations. The most recent figures show that inflation remained low in Hong Kong, China and Taipei,China.

Figure 9: **Fixed Assets Growth** (y-o-y, %)



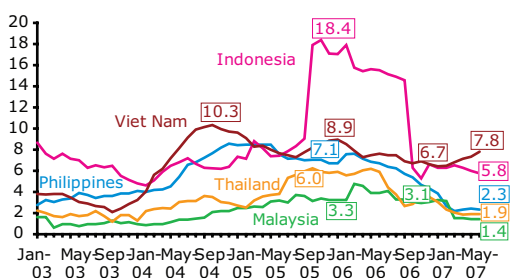
Note: PRC figures are based on nominal fixed-asset investment growth (year-to-date).
Source: QREI staff calculations based on CEIC data.

Figure 10: **Regional Inflation—Headline Rates** (y-o-y, %)



Sources: OREI staff calculations based on CEIC data, Hong Kong Monetary Authority, and Central Bank of China. (Taipei,China).

Figure 11: Inflation in Selected ASEAN Economies—Headline Rates (y-o-y, %)



Sources: OREI staff calculations based on data from CEIC and *International Financial Statistics* (IMF).

Headline inflation in Korea has been more or less unchanged in recent months, but core inflation rose to about 2.3% in the second quarter of 2007, from 2% in late 2006, as housing and utility costs increased (Figure 12). In Singapore, rising food and petrol prices drove inflation higher in the first five months of 2007.

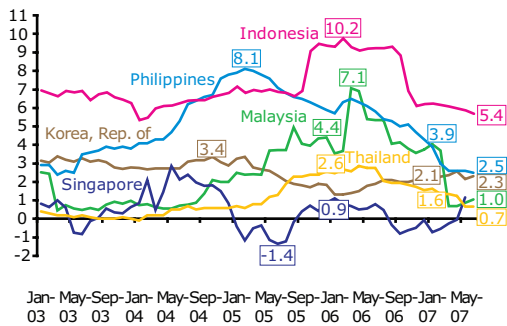
Balance of Payments

Throughout the region, current account surpluses were sustained in the first half of 2007, while capital inflows remained strong, contributing to healthy balance of payments positions.

While regional export growth by value softened in the first half of 2007, import growth slowed even more, increasing the trade surplus. Slower export growth was due largely to the cyclical information technology (IT) industry, while sluggish domestic investment growth constrained import growth. Capital inflows continued their strong trend and, coupled with foreign exchange market interventions, international reserves continued to build across the region (see *Policy Options for Managing Capital Flows*, page 35).

In the PRC, the balance of payments (BOP) for the first half of 2007 likely continued the strong trend seen in 2006 (Table 1a). The huge trade surplus came from a strong export performance, due in part to a rush of orders before 1 July, when certain tax rebates on exports were either reduced or abolished. Accelerated or delayed export receipts and import (or foreign debt servicing) payments—possibly as the private sector became more adept at circumventing capital controls—may also have contributed to the bigger trade surplus.

Despite a slowdown in ASEAN-4 exports in the first half of 2007, the aggregate trade surplus remained high (Table 1b). The current account balance improved dramatically by 58% year-on-year in Q1, maintaining a healthy overall BOP position despite a small deficit on the financial account. Thailand led the region with its strong export growth fueled by electronics and vehicles. Export growth has eased somewhat in Malaysia, but remained robust in Indonesia in recent months. The Philippines has run trade deficits, but posted current account surpluses due to stronger remittance inflows—reaching the equivalent of about 11% of GDP in recent quarters. Similar to 2006, the ASEAN-4 aggregate financial

Figure 12: **Core Inflation Rates** (y-o-y, %)


Note: Official figures, except Malaysia (ex. food, fuel, utilities) and Singapore (ex. food, private transport).
Sources: OREI staff calculations based on Bloomberg data, CEIC, Bank of Thailand, and Bangko Sentral ng Pilipinas.

Table 1a: **Balance of Payments—PRC** (% of GDP)

	2004H2	2005H1	2005H2	2006H1	2006H2
Current Account	6.5	6.8	7.4	8.0	10.7
Trade balance	5.6	5.5	6.3	7.0	9.3
Net Services	-0.4	-0.4	-0.4	-0.5	-0.2
Net Income	-0.1	0.5	0.5	0.3	0.5
Net Transfers	1.4	1.2	1.1	1.2	1.1
Capital Account	0.0	0.2	0.2	0.2	0.1
Financial Account	4.7	3.7	1.8	3.2	-2.1
Net Direct Investment	2.4	2.3	3.6	2.7	2.0
Net Portfolio Investment	-0.9	-0.1	-0.3	-2.5	-2.6
Net Other Investment	3.1	1.5	-1.5	3.1	-1.5
Net Errors & Omissions	3.7	-0.5	-0.9	-0.7	-0.3
Overall Balance	14.8	10.2	8.4	10.6	8.4

Sources: *International Financial Statistics Online* (IMF) and CEIC.

Table 1b: **Balance of Payments—ASEAN-4** (% of GDP)

	2005H1	2005H2	2006H1	2006H2	2007Q1
Current Account	1.3	3.0	3.9	6.3	6.7
Trade balance	6.1	8.5	7.8	9.7	7.9
Net Services	-2.7	-3.4	-2.5	-2.4	-0.7
Net Income	-3.5	-3.8	-3.3	-3.0	-2.4
Net Transfers	1.5	1.7	2.0	2.0	2.0
Capital Account	0.0	0.1	0.1	0.1	0.0
Financial Account	3.0	-2.0	1.6	-2.1	-0.4
Net Direct Investment	2.5	1.1	1.9	1.4	1.4
Net Portfolio Investment	1.9	0.8	1.9	1.6	4.0
Net Other Investment	-2.4	-4.4	-2.3	-5.1	-5.9
Net Errors & Omissions	-0.9	-1.5	0.0	-0.8	-0.5
Overall Balance	2.5	-0.9	5.6	3.5	5.9

Sources: *International Financial Statistics Online* (IMF) and CEIC.

Table 1c: **Balance of Payments—NIEs** (% of GDP)

	2005H1	2005H2	2006H1	2006H2	2007Q1
Current Account	5.4	6.2	4.5	6.5	6.3
Trade balance	4.9	6.3	4.6	5.9	5.3
Net Services	0.3	0.6	0.4	0.8	0.0
Net Income	1.0	0.0	0.3	0.4	1.7
Net Transfers	-0.7	-0.7	-0.8	-0.7	-0.7
Capital Account	-0.3	-0.2	-0.2	-0.2	-0.3
Financial Account	0.5	-4.7	-1.9	-2.9	-3.3
Net Direct Investment	1.9	0.8	1.1	0.4	1.3
Net Portfolio Investment	-5.4	-1.7	-5.5	-5.8	-5.1
Net Other Investment	4.1	-3.8	2.5	2.5	0.6
Net Errors & Omissions	0.1	0.5	0.8	0.0	-1.1
Overall Balance	5.7	1.8	3.2	3.3	1.7

Sources: *International Financial Statistics Online* (IMF) and CEIC.

Figure 13: **Composite Stock Price Indexes¹—NIEs and PRC**
(last price daily, 2 January 2006 = 100, local index)

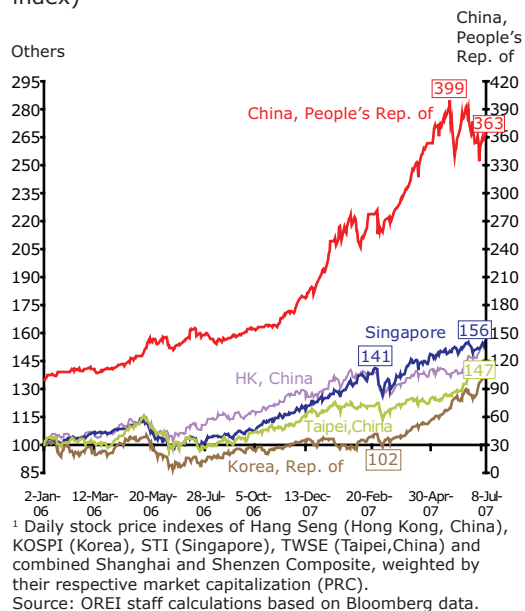


Figure 14: **Composite Stock Price Indexes¹—ASEAN-4** (last price daily, 2 January 2006 = 100, local index)

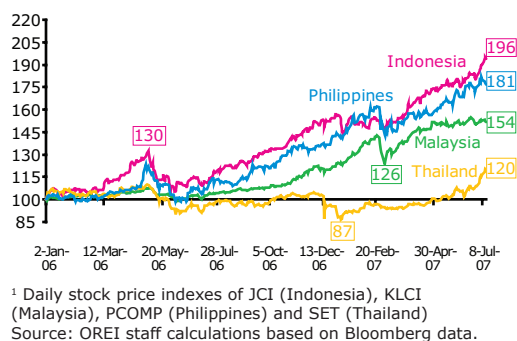
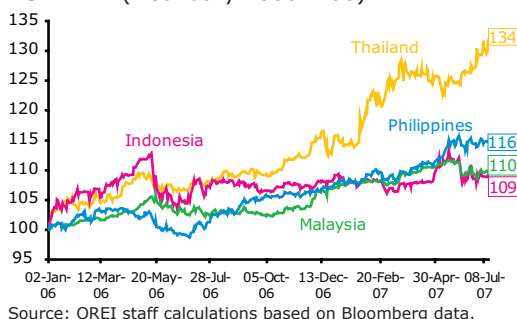


Figure 15: **Exchange Rate Indexes — ASEAN-4** (2 January 2006=100)



account was roughly balanced in Q1. While the direct investment and portfolio investment accounts enjoyed a comfortable surplus at the end of the first quarter, the “other investment” account has been persistently in deficit, partly due to debt repayments.

The NIEs had strong current account surpluses in Q1—except for Korea, which was running a small deficit (Table 1c). The reversal in Korea was due largely to a huge deficit in services trade caused by persistent growth in outbound tourism. Hong Kong, China’s strong services trade and income surpluses led to a healthy current account surplus, despite a deficit in the trade of goods. The NIEs financial account performance has been quite diverse—capital flowed into Korea, out of Taipei, China and Singapore, and was in balance in Hong Kong, China. First-quarter capital outflows were mainly bank-related in Singapore and portfolio-related in Taipei, China. In Korea, net inflows in “other investments” were 70% above net outflows in portfolio investments—a trend over the past year or so indicating that borrowing from foreign banks might be increasing. The NIEs aggregate trade surplus decreased in recent months as export growth fell, despite easing import growth.

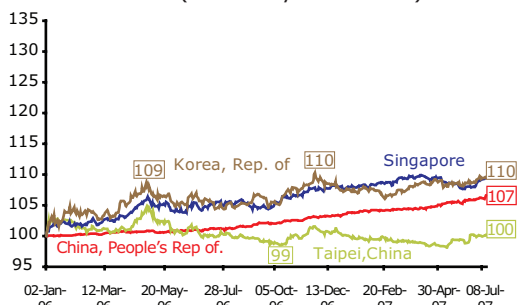
Financial Markets and Exchange Rates

Financial markets gained across the region in the first half of the year despite some volatility, with policy makers in several economies increasingly anxious about the risk of a possible equity market bubble developing.

After a bout of nervousness in late February and early March—following a temporary plunge in PRC markets—stock markets showed volatility again in May and June, unsettled by rising long-term interest rates. Gains in equity prices through early July ranged from 10% in Taipei, China to 26% in the Philippines (Figures 13–14). In the PRC, the combined stock price index for Shanghai and Shenzhen markets gained 43% in the first 6 months of 2007, on top of a 148% rise in 2006.

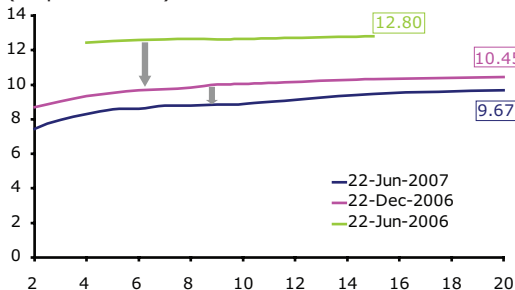
In late May, the PRC stock markets tumbled as the government tripled the stamp duty on stock trading and tightened monetary policy in a bid to dampen the strong rise in asset prices; although the markets recovered somewhat since. The possibility of a sudden unwinding of yen-carry trades exacerbates any volatility

Figure 16: **Exchange Rate Indexes — NIEs and PRC** (2 January 2006=100)



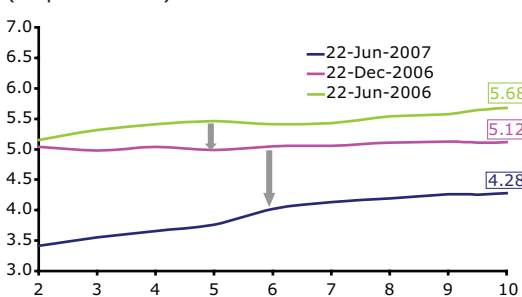
Source: OREI staff calculations based on Bloomberg data.

Figure 17a: **Indonesia Benchmark Yields** (% per annum)



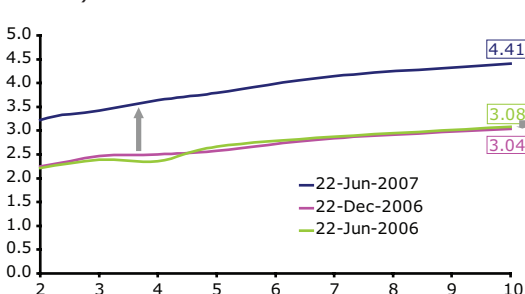
Source: Bloomberg.

Figure 17b: **Thailand Benchmark Yields** (% per annum)



Source: Bloomberg.

Figure 17c: **PRC Benchmark Yields** (% per annum)



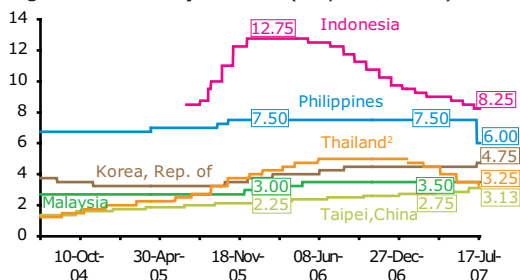
Source: Bloomberg.

in emerging East Asia's financial markets. This could happen if Japan raises interest rates and investors who had previously borrowed yen to invest in high-yielding emerging market assets and currencies decide to close their positions.

Despite market interventions, regional currencies appreciated 3% on average against the US dollar due to strong balance of payments positions.

Regional authorities continued to intervene in foreign exchange markets to curb appreciation, evident in rising foreign exchange reserves. In the year to date, the Philippine peso (up 7.4%) and "offshore" Thai baht (up 19.5%) continued to outperform other currencies (Figures 15–16). In both economies, growing current account surpluses have supported the rise, and the Bank of Thailand's scaling back of controls on capital flows may also have encouraged capital inflows in the first half. The PRC renminbi appreciated by about 3% in the first half. Other regional currencies were fairly stable.

As inflation eased, yield curves in the ASEAN-4 economies, particularly Indonesia and Thailand, continued to shift down in the first 6 months of the year (Figures 17a–17b). By contrast, yield curves in some NIEs shifted upward from December through June 2007 as the central banks took on a tightening bias in Q2 and world interest rates rose overall. PRC interest rates are also climbing as authorities struggle to cool the overheating economy (Figure 17c). Yield curves also steepened in some economies in the first half, mirroring the world trend. In Thailand, long yields fell as demand for bonds with longer maturities increased while lower policy interest rates pushed yields on shorter maturities down even further.

Figure 18: Policy Rates¹ (% per annum)

Note:

¹ Bank Indonesia rate, (Indonesia); overnight call rate (Korea); overnight policy rate (Malaysia); reverse repurchase rate (Philippines); official discount rate (Taipei, China).

² Bank of Thailand switched its benchmark from the 14-days to the 1-day reverse repurchase rate on 17 January 2007.

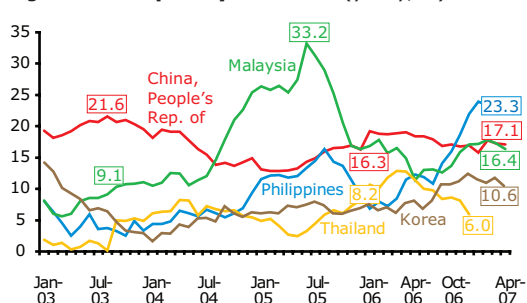
Source: Bloomberg.

Monetary and Fiscal Policy

Monetary policy responses varied across the region—with PRC; Korea; and Taipei, China tightening policy, Malaysia keeping policy rates unchanged, while policy rates in Indonesia, Philippines, and Thailand were lowered.

Several emerging East Asian economies tightened conditions in an attempt to rein in inflation or excessive growth, while others remained neutral or eased conditions in response to falling inflation (Figure 18).

In the PRC, the central bank has raised its benchmark rate three times thus far in 2007 (0.81 percentage point total) and the reserve requirement ratio five times (2.5 percentage points in total) as it tries to rein in powerful growth and surging stock markets. The government also cut the interest income tax from 20% to 5% on 20 July. Interest rates remain very low, however, and there is growing concern that this is feeding resurgent investment and asset price inflation. The authorities have also placed restrictions on loans for stock purchases and raised the stamp duty on share trading, while the central bank in May widened the renminbi trading band against the US dollar from 0.3% to 0.5%. M2 money supply in recent months was growing more than 17%, slightly higher than the 16% central bank target (Figure 19). Monetary tightening is widely expected to continue.

Figure 19: Liquidity Growth¹ (y-o-y, %)¹ Liquidity = M2.

Sources: Bloomberg and CEIC.

In July, Bank Indonesia (BI), the central bank, cut its policy rate by 25 basis points to 8.25%, the first time it dipped below the level set when the target was introduced in July 2005—just before the central bank was forced to raise rates steeply as the rupiah weakened. Malaysia has kept policy rates steady for over a year. The Bank of Thailand cut its policy rate on 18 July to 3.25%, for a total of 150 basis points since early January. The Philippine central bank, Bangko Sentral ng Pilipinas (BSP), cut its policy rate from 7.5% to 6% on 12 July—at least partially offset by removing its tiered interest-rate system for bank placements with the BSP—and increasing the overbought foreign exchange limit of commercial banks. The rate cut aims to alleviate the continuing appreciation of the Philippine peso and to stimulate sluggish investment.

Among the NIEs, monetary policies converged. Amid robust growth and increasing inflationary pressures, the Bank of Korea tightened its key policy rate to a 6-year high of 4.75% in July 2007, the first hike since August 2006. Taipei, China has adjusted its monetary policy cautiously since 2006, bringing it to a more neutral level—its comparatively lower interest rates have encouraged capital outflows and put downward pressure on its currency. As the Singapore dollar appreciated, monetary conditions in Singapore continued to tighten, though the 3-month interbank rate has fallen by about 100 basis points thus far in 2007.

Table 2: **Fiscal Balance of Central Government** (% of GDP)

	2003	2004	2005	2006	2007 ¹
Cambodia	-6.0	-4.7	-3.4	-1.5	...
China, People's Rep. of	-2.2	-1.3	-1.2	-0.5	-0.9
Hong Kong, China ²	-3.3	1.7	1.0	0.4	...
Indonesia	-1.7	-1.0	-1.0	-1.0	-1.1
Korea, Rep. of ³	0.1	-0.5	-1.0	-1.3	...
Malaysia	-5.3	-4.3	-3.8	-2.6	-3.4
Philippines	-4.6	-3.8	-1.1	-1.1	-0.9
Singapore ²	4.1	5.5	8.3	6.6	4.4
Taipei, China ²	-3.0	-2.1	-1.7	-0.7	-1.9
Thailand ²	0.5	0.3	0.2	0.1	-1.7
Viet Nam	-1.2	0.9	-1.2	-5.0	...

... = not available

¹ Budget

² Fiscal year.

³ Adjusted fiscal balance excluding social security funds.

Sources: National sources, *Asian Development Outlook 2007* (ADB), Economist Intelligence Unit, and World Bank.

The trend toward withdrawing fiscal stimulus and strengthening public finances—began in 2002—continued into 2007.

Fiscal prudence continues to be the dominant trend in emerging East Asia (Table 2). In the PRC, the fiscal position has improved steadily, as strong economic growth and improved revenue collection led to much higher revenues and a lower deficit than was planned in the 2006 budget. The budget for this year calls for a slight increase in the deficit, however.

In ASEAN-4 economies, following successful fiscal consolidation in recent years, the Indonesian government is poised to increase investments to improve growth prospects. The challenge is to keep the budget deficit around 1.0% of GDP in 2007 and to reduce government debt to 30% of GDP by 2009 while promoting a better investment climate and infrastructure development.

Despite stronger-than-expected oil-related revenues, Malaysia's fiscal position is expected to deteriorate slightly this year because of new investment projects and development programs planned under the Ninth Malaysian Plan. Thailand has seen its small surplus gradually decline, and this year expects to run a slight deficit even as it limits efforts to accelerate infrastructure spending in key utilities and services. In the Philippines, after slicing its deficit sharply over the past several years, the government missed its revenue target as well as the budget deficit ceiling set for the first quarter of 2007.

Among the NIEs, Singapore generally runs a healthy surplus. The Hong Kong, China budget moved into surplus in 2004–05. Taipei, China has seen its fiscal deficit gradually improve, though its deficit for this year is planned to increase slightly. And Korea's deficit has increased over the past several years, though in marginal increments.

Assessment of Financial Vulnerability

Against a background of favorable economic conditions, financial sectors in the region have generally remained strong, although there are several signs of stress related to sharply higher asset prices in several markets.

While financial systems in the region are now less exposed to changes in debt-related capital flows than a few years ago, new risks related to the movement of banks into activities such as household lending, securities, and property have emerged (see *Emerging East Asian Banking Systems: Ten Years after the Crisis*, page 54). National authorities will need to remain vigilant to curtail excesses in particular markets to ensure that lending standards are not compromised and that banks contain their exposure to market risk—among other risks that require monitoring.

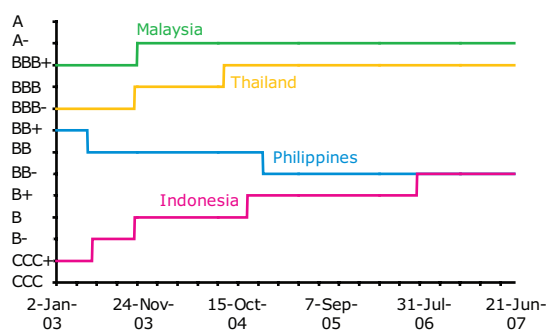
Table 3: **Public and External Debt** (% of GDP)

	2003	2004	2005	2006
Public Sector Debt				
China, People's Rep. of	19.2	18.5	17.9	17.3 ^p
Indonesia ¹	58.3	55.7	46.5	40.9 ^p
Korea, Rep. of ¹	21.9	25.2	29.5	32.2 ^p
Malaysia	68.8	66.7	62.5	56.5 ^p
Philippines ²	100.8	95.4	86.3 ^e	77.4 ^p
Thailand	50.7	49.5	47.4	42.3 ^p
Viet Nam	40.8	42.7	43.7	45.5 ^p
External Debt				
China, People's Rep. of	12.7	12.8	12.6	12.7 ^p
Indonesia	57.7	54.0	47.6	39.0 ^p
Korea, Rep. of	25.9	25.3	24.1	26.5 ^p
Malaysia	28.1	34.3	35.6	37.5 ^p
Philippines	78.8	70.5	62.6 ^e	51.5 ^p
Thailand	36.2	31.7	29.5	27.5 ^p
Viet Nam	33.8	33.9	32.5 ^p	32.6 ^p

p = projection, e = estimate

¹ Central government debt.² Nonfinancial public sector debt.

Sources: Article IV Consultations, various issues (IMF); and national sources.

Figure 20: **S&P Sovereign Ratings**
(Long-term foreign currency)

Source: Bloomberg.

Prudential Indicators

Prudential indicators for regional banking systems remain strong and sizable capital cushions have been created.

Generally favorable economic conditions in recent years—relatively rapid GDP growth and generally low inflation—have played a key role in helping banking sectors in the region return to strong profitability and build up sizable capital cushions, following the insolvencies arising from the 1997/98 Asian financial crisis. Declining public and external debt burdens (Table 3) and improved sovereign risk ratings (Figure 20) have also been important contributions to this trend.

Progress in improving asset quality and sustaining high regulatory capital ratios in regional banking systems continued in the first half of 2007 (Table 4a). Nonperforming loan (NPL) ratios have remained low or have fallen further in most banking systems in the region, even as significant differences persist across economies (Table 4b). At the same time, after increasing sharply in many economies, regulatory capital ratios have been sustained at generally high levels across the region.

Regional banking system improvements have been reflected in relatively high rates of return on bank assets (ROA) and equity (ROE) (Tables 4c–4d) although these data should be interpreted cautiously. Recent returns may be only temporarily boosted by the current benign conditions in financial markets—to the extent to which bank income is increasingly derived from

Table 4a: **Risk-Weighted Capital Adequacy Ratios**
(% of risk-weighted assets)

	2003	2004	2005	2006	2007Q1
Indonesia	19.4	19.4	19.5	20.5	20.7 ¹
Hong Kong, China	15.3	15.4	14.8	14.9	13.6 ²
Korea, Rep. of	11.2	12.1	13.0	12.7	...
Malaysia	14.0	14.3	13.6	13.1	12.7
Philippines	17.4	18.7	17.7	18.5	...
Singapore	16.0	16.2	15.8	15.4 ³	...
Taipei, China	10.1	10.7	10.3	10.1	...
Thailand	14.0	13.0	14.2	14.5	14.6

... = not available.

Note: Based on officially reported risk-adjusted capital adequacy ratios under Basel I and applied to commercial banks (except Korea, where data includes nationwide commercial banks, regional banks, and specialized banks). Data for the Philippines is on a consolidated, not solo, basis. Data for Japan is for major commercial banks only.

¹ Data for Indonesia as of January 2007.

² Based on Basel II calculation.

³ Data for Singapore as of September 2006.

Source: National sources.

Table 4b: **Nonperforming Loans** (% of commercial bank loans)

	2001	2002	2003	2004	2005	2006	2007Q1
China, People's Rep. of	...	21.6	17.8	13.2	8.6	7.1	6.6
Hong Kong, China ¹	6.5	5.0	3.9	2.3	1.4	1.1	1.0
Indonesia	12.1	8.1	8.2	5.7	8.3	7.0	6.6
Korea, Rep. of	2.9	1.9	2.2	1.7	1.1	0.8	...
Malaysia ¹	10.5	9.3	8.3	6.8	5.6	4.8	4.5
Philippines ¹	17.3	15.0	14.1	12.7	8.2	6.0	5.3
Singapore	...	...	5.4	4.0	3.0	2.4 ²	...
Taipei, China	7.5	6.1	4.3	2.8	2.2	2.1	...
Thailand	10.5	15.7	12.8	10.9	8.3	4.2	4.2
Memo items: compromised assets ratio (Indonesia) and nonperforming assets ratio (Philippines)							
Indonesia	31.9	24.0	19.4	14.2	15.6	16.0 ²	...
Philippines	27.7	26.5	26.1	24.7	19.7	18.6 ³	...

... = not available

¹Reported nonperforming loans are gross classified loan ratio of retail banks.

²As of September 2006.

³As of June 2006.

Notes:

1. The table excludes NPLs transferred from bank balance sheets to asset management companies.

2. The measurement of NPLs follows official definitions and differs across economies depending on loan classification (for example, whether a 3-month or 6-month rule is used), the treatment of accrued interest, and whether specific provisioning is deducted from the NPL measure.

3. For Malaysia and the Philippines, reported NPLs are net of specific provisioning.

4. Compromised assets ratio includes reported NPLs, restructured loans, and foreclosed assets for the 16 largest banks in Indonesia; distressed asset ratio refers to the ratio of NPL + real and other properties owned and acquired (ROPOA) + restructured loans, current to total loan portfolio (TLP), gross + ROPOA.

Sources: National sources; CEIC; and *Financial Stability Report* (IMF).

Table 4c: **Rate of Return on Commercial Bank Assets**
(% per annum)

	2003	2004	2005	2006	2007Q1
Indonesia	2.6	3.5	2.6	2.6	...
Hong Kong, China	1.4	1.5	1.6	1.5	1.7
Korea, Rep. of	0.2	0.9	1.3	1.1	...
Malaysia	1.3	1.4	1.3	1.3	...
Philippines	1.2	1.0	1.1	1.3	1.1
Singapore	1.1	1.3	1.2	1.3 ¹	...
Taipei, China	0.5	0.6	0.3	-0.4	0.3
Thailand	0.7	1.3	1.4	0.8	1.1

... = not available.

¹As of September 2006.

Sources: CEIC and national sources.

Table 4d: **Rate of Return on Commercial Bank Equity**
(% per annum)

	2003	2004	2005	2006	2007Q1
China, People's Rep. of	19.0	16.2	17.3	...	...
Indonesia	19.2	25.4	17.5	28.0 ¹	...
Hong Kong, China	16.9	18.7	18.4	18.9	...
Korea, Rep. of	3.4	15.2	18.4	14.6	...
Malaysia	15.3	16.0	16.5	16.1	...
Philippines	9.3	7.6	9.5	11.5	8.9
Singapore	10.3	11.8	11.1	12.4 ²	...
Taipei, China	6.5	8.8	4.4	-7.3	5.4
Thailand	15.7	15.7	14.2	8.5	11.5

... = not available.

Note: Last quarter or month of period.

¹As of November 2006.²As of September 2006.Sources: CEIC, national sources, and IMF *Global Financial Stability Report* (Indonesia).

securities investments and fees, and not from the core business of lending. Also, generally high reported returns are premised on an appropriate accounting for asset quality and provisioning. Any shortcoming in these areas can lead to an overstatement of the ROA and ROE.

Activity Indicators

Against generally subdued lending to the business sector, banking systems in the region have been moving into investment banking and other new activities.

In much of the region, securities investments now represent a significant share of bank assets, while lending has been relatively strong in sub-markets such as consumer finance and real estate. Although this shift has helped to strengthen income, it has also changed the risk profile of banking systems and exposed them to

Table 5: **Securities Investment to Total Assets of Commercial Banks (%)**

	2003	2004	2005	2006	2007Q1
Hong Kong, China	19.0	19.2	19.6	20.2	19.6
Indonesia	19.2	20.2	18.0	24.8	26.3 ¹
Korea, Rep. of	21.3	20.8	22.1	20.2	...
Malaysia	14.1	10.6	9.6	9.3	9.4
Philippines	28.6	31.6	32.0	30.0	29.6
Singapore	17.7	17.1	16.5	15.9	16.2
Taipei, China	15.2	14.2	12.1	12.0	12.0
Thailand	17.8	16.0	16.0	15.8	17.5

... = not available.

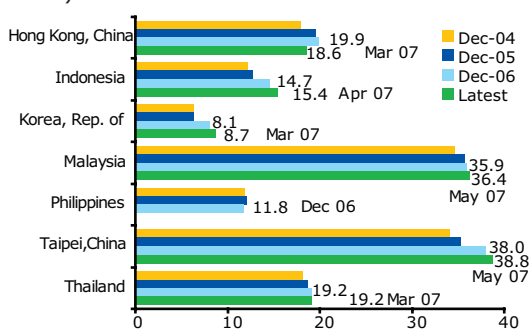
Note: For Indonesia, claims rather than securities data are used.

¹ As of February 2007.

Sources: CEIC, Hong Kong Monetary Authority, Bank Indonesia, and Bangko Sentral ng Pilipinas.

new risks related to interest rates, equity prices, the household sector, and conditions in property markets.

Securities investments (including sovereign bonds) now represent a significant share of bank assets in the region, exposing banks to new kinds of risks (Table 5). While holdings of sovereign and highly-rated private bonds tend to reduce the credit risk banks assume—compared with general business lending—they tend also to increase the exposure to market risk. In response, authorities in the region have been enforcing capital requirements for market risk under Basel I—and with effect on 1 January 2007 under Basel II in Hong Kong, China—and have been stress testing their banking systems to increases in interest rates and market volatility. While the results of these tests generally imply enhanced robustness, new important sources of risk are apparent (see Box 5).

Figure 21: **Real Estate Loans** (% of total loans)

Sources: Bank Indonesia, Financial Supervisory Service (Korea), Bank Negara Malaysia, Bangko Sentral ng Pilipinas (Philippines), Bank of Thailand, Hong Kong Monetary Authority, and CEIC.

Secured and unsecured household lending are also becoming more important in the region (Table 6a–c), making banks vulnerable to a sharp correction in real estate prices. Given that growth has generally come off a low base, total household indebtedness in relation to GDP still remains low in most economies in the region, but has risen to over 40% of GDP in Hong Kong, China; Korea; Malaysia; Singapore; and Taipei, China.³ Of this, a significant share is mortgage-related, rather than unsecured credit. As a result, real estate-related loans (as classified by national authorities) have accounted for an increasing share of total financial sector lending in many economies (Figure 21). While helping to sustain

³ A large part of Hong Kong, China's household indebtedness is mortgage loans, which as a ratio of GDP tend to be high because of the high price of residential property.

Table 6a: **Household Indebtedness** (% of GDP)

	2002	2003	2004	2005	2006	2007Q1
Indonesia	5.4	6.7	8.2	9.1	8.5	8.0
Hong Kong, China	60.5	60.2	58.2	55.5	52.1	52.3
Korea, Rep. of	32.5	34.9	35.3	37.6	40.8	42.4
Malaysia ¹	47.2	49.2	50.0	52.5	53.1	53.5
Philippines	5.3	4.8	5.2	4.7	4.2	4.1
Singapore ²	...	...	51.0	49.4	46.4	44.9
Taipei,China	43.2	47.2	53.0	58.3	56.7	54.2
Thailand	...	...	24.5	24.7	23.7	22.3

Table 6b: **Household Non-mortgage Indebtedness** (% of GDP)

	2002	2003	2004	2005	2006	2007Q1
Indonesia	4.2	5.2	6.4	7.1	6.3	5.9
Hong Kong, China	10.3	10.3	10.9	11.6	11.7	12.2
Korea, Rep. of	13.2	13.8	13.6	14.2	15.2	15.8
Malaysia ¹	21.0	21.3	21.9	23.7	24.8	24.9
Philippines	4.5	4.1	4.5	4.1	3.6	3.5
Singapore ²	...	...	18.0	16.7	15.4	14.8
Taipei,China	16.3	18.4	21.5	23.5	19.5	18.2
Thailand	...	...	8.4	7.6	6.5	5.9

Table 6c: **Household Mortgage Indebtedness** (% of GDP)

	2002	2003	2004	2005	2006	2007Q1
Indonesia	1.2	1.5	1.8	2.0	2.2	2.1
Hong Kong, China	50.3	49.9	47.3	43.9	40.3	40.1
Korea, Rep. of	19.3	21.1	21.8	23.4	25.6	26.6
Malaysia ¹	26.2	27.8	28.0	28.7	28.4	28.6
Philippines	0.8	0.7	0.7	0.6	0.6	0.6
Singapore ²	29.3	32.9	33.0	32.7	31.0	30.1
Taipei,China	26.9	28.9	31.5	34.8	37.2	36.0
Thailand	13.9	14.6	16.1	17.1	17.2	16.4

... = not available.

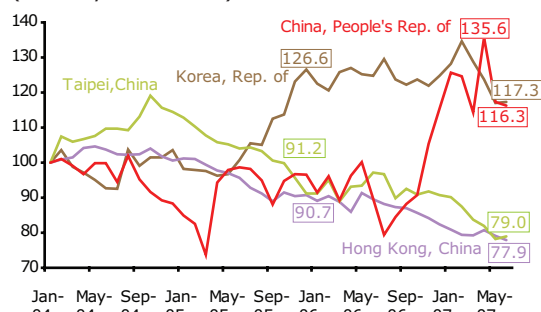
¹ Sum of loans for personal use, credit cards, purchase of consumer durable goods, and purchase of passenger cars for commercial banks, merchant banks, and finance companies. 2006 and 2007 data from commercial banks and merchant banks only.

² Refers to consumer loans from commercial banks and finance companies.

Sources: CEIC; *Monthly Statistical Bulletin*, Bank Negara Malaysia; *Monthly Statistical Bulletin*, Monetary Authority of Singapore; and Hong Kong Monetary Authority.

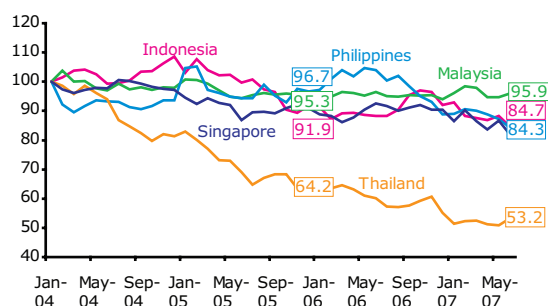
profitability, this has increased banking systems' exposure to sharp declines in real estate prices. In response, national authorities have been seeking to enforce increasingly conservative loan-to-valuation ratios in real estate lending—limiting a property loan to, say, a maximum of 70–80% of property value. The aim is to ensure adequate cushions for financial institutions in the event of property price corrections. In addition, measures have been implemented in several economies to cool real estate and other markets that have been excessively frothy. In the PRC, a series of measures over the past 3 years has been implemented to limit run-ups in real estate markets and, most recently, to

Figure 22a: **Ratio of Financial Stock Price Index to Overall Stock Market Index—**
(January 2004=100)



Source: Bloomberg.

Figure 22b: **Ratio of Financial Stock Price Index to Overall Stock Market Index—**
(January 2004=100)



Source: Bloomberg.

cool down the richly valued stock market. In Korea, as property prices continued to rise in the Seoul region, the government has implemented new measures to alleviate apartment shortages and curb speculation. In Viet Nam, commercial banks have boosted lending to local investors, leading to a sharp increase in equity prices.

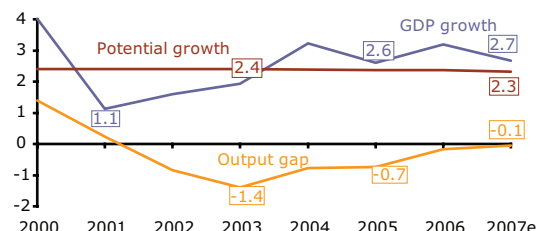
Market Indicators

Given the extensive restructuring of the banking sector in many economies—and the high levels of official support provided—a relatively stronger bank performance might have been expected.

Assessments by credit rating agencies, as well as the performance of bank shares generally, paint a somewhat less encouraging picture of banking systems than the officially-reported indicators (see Table 18). Based on historical experience, however, credit ratings have tended to lag rather than lead changes in performance and it may be that ratings will eventually be upgraded, provided recent improvements in banking performance are sustained. In terms of bank share prices, the picture is not uniformly favorable. On a positive note, weakness in bank share prices relative to overall indices has been partially reversed in Korea and Malaysia, and bank share prices recently have been slightly outperforming the market in Malaysia (Figures 22a–b). Elsewhere, however, with the exceptions of Singapore and Hong Kong, China, banks have been underperforming the market, in some cases by growing amounts. In view of the sharp rise in many regional equity markets in recent years, comparing bank performance relative to the overall market might be an exceedingly demanding benchmark.

Economic Outlook for 2007–2008, Risks, and Policy Issues

Figure 23: **OECD GDP Growth, Potential Growth, and Output Gap (%)**



e = estimate

Notes:

1. The 30 members of the Organisation for Economic Co-operation and Development (OECD) include the 12 eurozone and 10 other European countries, plus Australia, Canada, Japan, Republic of Korea, Mexico, New Zealand, Turkey, and the US.
2. The output gap is defined as deviations of actual GDP from potential GDP as a percent of potential GDP. Potential output is estimated using a Cobb-Douglas production function approach taking into account the capital stock, changes in labor supply, factor productivities and underlying "non-accelerating inflation rates of unemployment" (NAIRU) for each member country.
Source: OECD Economic Outlook No. 81, May 2007.

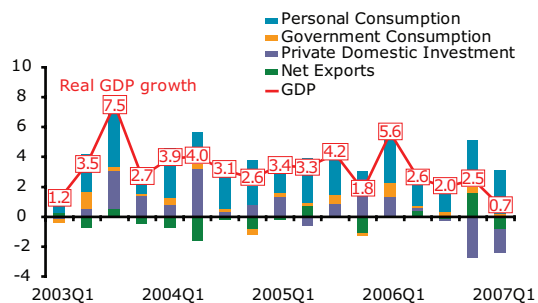
External Economic Environment

In 2007, the world's major industrial economies should continue to make the transition to lower yet more sustainable growth rates.

Economic growth in the Organisation for Economic Co-operation and Development (OECD) is projected to slow from 3.2% in 2006 to 2.7% in 2007. Large output gaps in the OECD economies—resulting from the 2001 global downturn—closed substantially in 2006, and capacity utilization rates are expected to tighten further in 2007 (Figure 23). Thus, persistently tight global and national resource markets in key economies will keep monetary authorities vigilant against inflation.

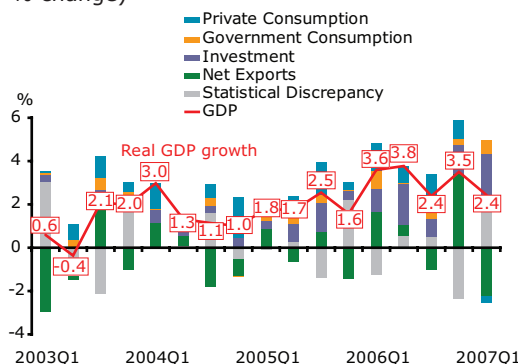
The US economy is likely heading toward a soft landing in 2007, with inflation contained and the current account deficit likely to narrow somewhat.

Figure 24: **Contributions to Growth—US**
(seasonally adjusted, annualized, q-o-q, % change)



Source: US Bureau of Economic Analysis.

Figure 25: **Contributions to Growth—euro area**
(seasonally adjusted, annualized, q-o-q, % change)



Source: Eurostat website.

After slowing to about 2.2% in the second half of 2006, GDP growth dipped further to 0.7% (annualized quarterly growth) in the first quarter (Q1) of 2007. The effects on construction from the housing market correction and on manufacturing from an inventory drawdown are likely to continue to constrain growth in 2007 (Figure 24). Housing starts have stabilized in the past few months, but were still down 29% from a year ago. New manufactured goods orders barely increased in the first 5 months of 2007, compared with the same period of 2006. However, unemployment remains at a 6-year low and personal income is growing, which should help limit the depth and breadth of the slowdown. While headline inflation climbed to 5.0% during Q1, from 2.5% in 2006, due to large rises in energy and food prices, core inflation declined to 2.3% in the first half, from 2.6% in 2006. Inflation in general is expected to remain under control. After growing by nearly 10% in 2006, real exports stalled in Q1, while real import growth surged to 5.5%. The US current account imbalance remains substantial. While the US Federal Reserve kept its official rate steady on 28 June, and has done for 12 months, the US yield curve steepened in recent months as long-term rates rose sharply.

The graph illustrates the fluctuations of the U.S. Consumer Price Index over a five-year period. The index starts at approximately 90 in Jan-02, rises to a peak of 98 in Jan-02, then declines to a low of 95 in May-05. It then trends upward, reaching 99 in Sep-03 and 112 in Jan-07.

Month	Index Value
Jan-02	98
Sep-03	99
May-05	95
Jan-07	112

Source: Bloomberg.

Quarter	Private Consumption	Government Consumption	Investment	Net Exports	Statistical Discrepancy	Real GDP growth
2003Q1	-1.3	0.0	0.0	0.0	0.0	-1.3
2003Q2	0.0	0.0	0.0	0.0	0.0	0.0
2003Q3	2.9	0.0	0.0	0.0	0.0	2.9
2003Q4	2.0	0.0	0.0	0.0	0.0	2.0
2004Q1	6.4	0.0	0.0	0.0	0.0	6.4
2004Q2	4.7	0.0	0.0	0.0	0.0	4.7
2004Q3	-0.8	0.0	0.0	0.0	0.0	-0.8
2004Q4	1.2	0.0	0.0	0.0	0.0	1.2
2005Q1	-0.7	0.0	0.0	0.0	0.0	-0.7
2005Q2	2.8	0.0	0.0	0.0	0.0	2.8
2005Q3	3.8	0.0	0.0	0.0	0.0	3.8
2005Q4	3.0	0.0	0.0	0.0	0.0	3.0
2006Q1	1.5	0.0	0.0	0.0	0.0	1.5
2006Q2	2.2	0.0	0.0	0.0	0.0	2.2
2006Q3	1.8	0.0	0.0	0.0	0.0	1.8
2006Q4	0.3	0.0	0.0	0.0	0.0	0.3
2007Q1	5.4	0.0	0.0	0.0	0.0	5.4
2007Q2	3.3	0.0	0.0	0.0	0.0	3.3

Source: Cabinet Office, Government of Japan.

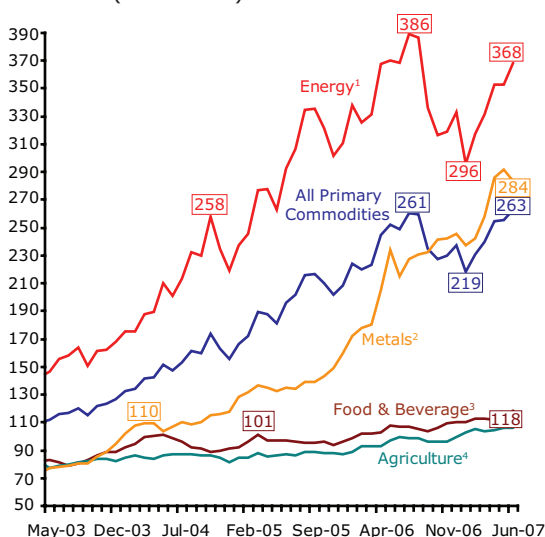
Quarter	New Jobs (Millions)
2000Q1	41.5
2000Q2	42.5
2000Q3	43.5
2000Q4	43.0
2001Q1	38.5
2001Q2	38.5
2001Q3	35.5
2001Q4	34.0
2002Q1	35.5
2002Q2	37.5
2002Q3	38.0
2002Q4	37.5
2003Q1	36.5
2003Q2	35.0
2003Q3	36.0
2003Q4	39.5
2004Q1	40.0
2004Q2	42.5
2004Q3	43.5
2004Q4	44.5
2005Q1	45.5
2005Q2	45.0
2005Q3	45.5
2005Q4	45.0
2006Q1	48.0
2006Q2	48.0
2006Q3	46.0
2006Q4	48.0
2007Q1	47.0

Source: Bloomberg.

In Q1, the euro-area economy held firm on the back of robust investment and German industrial strength, expanding 3.0% over the previous year (Figure 25). However, that pace is likely to moderate somewhat as a slowing US economy and a stronger euro dampen export growth, and further monetary tightening cools domestic demand. Nonetheless, improved economic sentiment, bolstered by stronger fundamentals such as faster productivity growth, should sustain GDP growth in 2007 (Figure 26). Euro-area inflation rose above 2.0% for most of 2006, peaking at 2.5% in Q2, before easing slightly below 2% in the first 5 months of 2007. However, as resource markets tighten and the recovery appears set to be stronger, inflation may rise in the short term. After raising the official rate to 4% in June, the European Central Bank maintained its key rate at its July meeting, but said that “the medium-term outlook for price stability remains subject to upside risks.” The appreciating euro notwithstanding, sustained export growth in late 2006—especially in Germany—and a narrowing trade deficit underpin expectations of balanced external accounts in 2007.

GDP growth in Japan is projected to reach about 2.5% in 2007, slightly above the 2.2% rate in 2006.

Supported by a rebound in consumer spending, Q1 GDP growth rose to 3.3% (annualized), from 2.2% in 2006 (Figure 27). While external demand eases, Japan's private demand growth will likely stay robust in 2007, bolstered by a still-accommodative monetary stance and by resilient consumer and business sentiment (Figure 28). Headline inflation will remain close to zero in 2007, reflecting moderate wage growth and the base effect of a re-weighting of the consumer prices index basket. The weak yen has been a major support for Japanese corporations and, together with strengthening domestic demand, underpins Japan's economic expansion. The Bank of Japan raised its policy rate in February 2007 and kept the rate unchanged at recent meetings, but has stressed that inflation is likely to follow a positive trend in the longer term.

Figure 29: **Primary Commodity Price Indexes** (1995=100)¹Crude oil, natural gas, coal.²Copper, aluminum, iron ore, tin, nickel, zinc, lead, uranium.³Cereal, vegetable oils, meat, seafood, sugar, bananas, oranges, coffee, tea, cocoa.⁴Timber, cotton, wool, rubber, hides.

Source: IMF website.

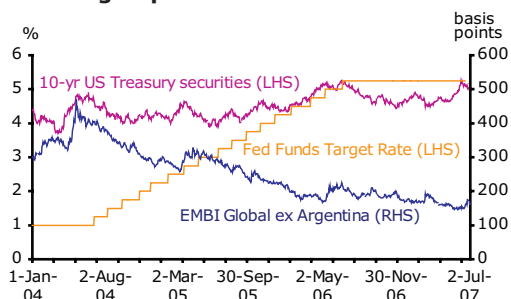
World trade volume growth will likely moderate slightly in 2007 from the above-trend growth of nearly 10% in 2006, as growth slows in several key economies and adjustments to inventory levels affect global industrial production.

Overall, the projected slowdown in world trade growth is expected to be relatively modest, as OECD leading indicators suggest industrial production is poised for a rebound. Meanwhile, a sustained rise in demand for information technology—boosted by the rapid growth of internet use for increasingly sophisticated activities—bolsters medium-term prospects for high-tech manufacturing. After falling in mid-2006, the semiconductor book-to-bill ratio rose in recent months from 0.94 in October 2006 to 1.0 in May 2007.

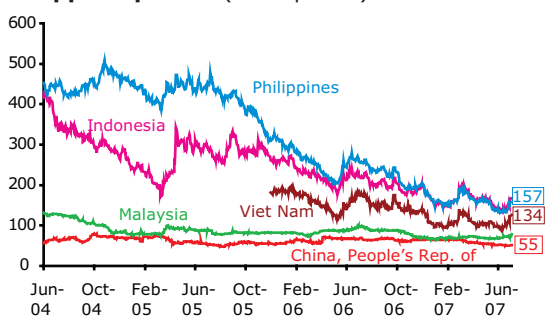
Energy and commodity prices are expected to remain elevated, given tight supply conditions.

Crude oil flirted with record highs (just under \$80) in July on expectations that demand will pick up in the summer travel season in the northern hemisphere. At the same time, limited spare capacity and continued geopolitical uncertainties will leave prices subject to volatility. Other commodity prices, including metals, grains, and fats and oils, made significant gains through to June 2007 (Figure 29). They have yet to clearly show the moderating trend widely expected in 2006.

While the current monetary tightening cycle may have reached its peak in the US, official interest rates may continue to rise in other parts of the world in 2007.

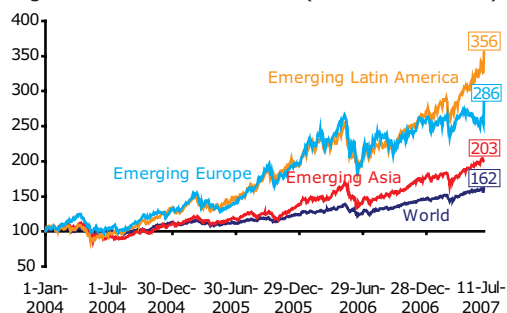
Figure 30: **US Interest Rates and Sovereign Spreads**

Sources: Bloomberg, JP Morgan, and US Federal Reserve.

Figure 31: **JP Morgan EMBI Sovereign Stripped Spreads** (basis points)

Source: Morgan Markets, JP Morgan.

The US Federal Reserve paused in its step-by-step tightening of policy in June 2006, but other major economies continued to tighten over the second half of the year, and into 2007. In early June 2007, a sharp sell-off in bond markets pushed up the yield on the 10-year US Treasury bond to its highest level since 2002 (Figure 30). Yield curves in the euro area, where markets appear to anticipate further rate hikes, shifted upward and steepened. While interest rates are rising in industrial countries, emerging market sovereign spreads on US dollar debt remain relatively compressed, although they have widened a little from late 2006 lows (Figure 31). Corporate spreads are also rising and there is

Figure 32: **MSCI Indexes** (1 Jan 2004=100)

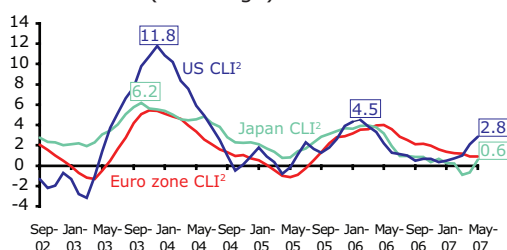
Source: MSCI Barra.

evidence that lending standards are tightening in some credit markets.

A period of stable gains in global financial markets is giving way to a return of volatility amid reemerging investor sensitivity to risk.

After corrections in February and March 2007, equity markets continued to rise. Posting an 18.8% increase in 2006, the world Morgan Stanley Capital International Inc. (MSCI) Index was up by 8% for the first half of 2007 (Figure 32). The sharp rise in long-term bond yields may signal that ample global liquidity is evaporating, which could lead to a rise in volatility as financial markets re-price risk. Despite recent developments, global financial volatility is expected to remain manageable and its impact on global economic activity limited. In the US, for example, deterioration in asset quality is thus far primarily confined to sub-prime mortgage markets.

The overall external environment for emerging East Asia remains generally supportive for 2007, with easing yet solid global growth and more volatile yet favorable financial conditions.

Figure 33: **OECD Composite Leading Indicators¹** (% change)

¹ Composite Leading Indicators (CLIs) are constructed to signal turning points in growth cycles of aggregate economic activity.

² 6-month, annualized, trend restored.

Source: OECD website.

Leading indicators released in recent months are showing signs that industrial production may soon pick up, pointing to prospects for solid if somewhat softer growth of external demand for regional products (Figure 33). Inflation risks, however, tend to the upside because global spare capacity is shrinking and commodity prices have remained elevated in recent months. If the recent rise in long-term interest rates in industrial economies is sustained and extended, this may encourage stronger capital inflows back to those markets and help alleviate currency pressures in emerging markets. With resource markets relatively tight, global monetary policy rates should remain near cyclical peaks or climb higher. As risk spreads come off recent lows amid a return to volatility, financial conditions will warrant close monitoring.

Regional Economic Outlook for 2007–2008

Continued strong growth momentum in the PRC coupled with slightly moderating expansions in the NIEs and most ASEAN economies should lead to a slightly slower yet robust growth in emerging East Asia this year and in 2008.

In general, emerging East Asia economies appear poised to continue to enjoy strong economic expansions in 2007 and 2008, but below the high 8.4% GDP aggregate growth rate of 2006 (Table 7). Mirroring external trends, aggregate emerging East Asia exports should moderate in 2007 from very high growth in 2006. The region's export growth was rapid in 2003–06 because of increasing export volumes and rising export prices, especially for commodities. As expansions mature in major industrial economies, export volume growth is likely to taper off while, in some cases, export prices are expected to fall as well. This latter effect will have a greater impact on the commodity-exporting ASEAN economies, which are forecast to see a drop in export growth in 2007. PRC export growth is forecast to slow as some policy measures (such as reductions in tax rebates for exports) start to take effect.

The PRC economy is forecast to maintain its strong growth momentum in 2007, but is expected to moderate somewhat in 2008, primarily due to tightening policy actions—introduced in late 2006 and this year—to curb strong investment and asset price inflation.

GDP growth in the PRC is projected to ease marginally to 11.0% in 2007 from 11.1% in 2006, due to falling growth in fixed-asset investment, a gradually appreciating renminbi, continued monetary tightening, and an expected slight deceleration in the growth of external demand. However, the offsetting stimulus of increased public spending, especially related to the 2008 Olympic Games and efforts to encourage the rural economy, should sustain rapid growth in 2007.

Table 7: **Annual GDP Growth Rates (%)**

	Postcrisis Average							ADB Forecasts	
	1999-2006	2001	2002	2003	2004	2005	2006	2007 ⁶	2008 ⁶
Emerging East Asia ^{1,2}	7.2	4.6	7.0	7.0	8.0	7.8	8.4	8.1	7.9
ASEAN ^{1,2}	7.2	2.7	5.0	5.7	6.0	5.4	5.7	5.6	6.0
Brunei Darussalam	2.5	2.7	3.9	2.9	0.5	0.4	3.8	...	...
Cambodia	9.7	7.7	6.2	8.6	10.0	13.4	10.4	9.5	9.0
Indonesia ³	4.4	3.6	4.5	4.8	5.0	5.7	5.5	6.0	6.3
Lao PDR	6.4	5.8	5.9	6.1	6.4	7.0	7.3	6.8	6.5
Malaysia	5.6	0.5	5.4	5.8	6.8	5.0	5.9	5.4	5.7
Myanmar ⁴	12.5	11.3	12.0	13.8	13.6	13.2	11.8	...	...
Philippines ⁵	4.6	1.8	4.4	4.9	6.4	4.9	5.4	5.8	5.7
Thailand	5.0	2.2	5.3	7.1	6.3	4.5	5.0	4.0	5.0
Viet Nam	7.2	6.9	7.1	7.3	7.8	8.4	8.2	8.3	8.5
Newly Industrialized Economies ¹	4.9	1.1	5.3	3.2	6.0	4.8	5.4	4.7	4.8
Hong Kong, China	5.3	0.6	1.8	3.2	8.6	7.5	6.9	5.4	5.2
Korea, Rep. of	5.7	3.8	7.0	3.1	4.7	4.2	5.0	4.5	4.8
Singapore	5.7	-2.4	4.2	3.1	8.8	6.6	7.9	6.0	5.5
Taipei, China	4.0	-2.2	4.6	3.5	6.2	4.1	4.7	4.3	4.5
China, People's Rep. of	9.4	8.3	9.1	10.0	10.1	10.4	11.1	11.0	10.5
Japan	1.4	0.2	0.3	1.4	2.7	1.9	2.2	2.5	2.3
US	2.9	0.8	1.6	2.5	3.9	3.2	3.3	2.3	3.0
Euro area	2.1	1.9	0.9	0.8	2.0	1.5	2.7	2.6	2.1

... = not available

¹ Aggregates are weighted according to gross national income levels (atlas method, current \$) from *World Development Indicators* (World Bank).² Excludes Brunei Darussalam and Myanmar for all years as weights are unavailable.³ For Indonesia, GDP growth rates from 1996–2000 are based on 1993 prices, while growth rates from 2001 onward are based on 2000 prices.⁴ For FY April–March.⁵ Figures for 2004–2006 are not linked to the GDP figures 2003 backwards due to NSO revisions of sectoral estimates.⁶ Forecasts for People's Republic of China, euro area, Japan, Philippines, and United States have been updated from the March 2007 issue of the *Asian Development Outlook* (ADO) based on revisions supplied by the ADO team.

Sources: ADB; government estimates (Brunei Darussalam); Eurostat website (euro area); Economic and Social Research Institute (Japan); Bureau of Economic Analysis (US).

In the NIEs, moderating external demand combined with country-specific domestic demand factors will likely slow GDP growth to 4.7% in 2007 and 4.8% in 2008.

Consumption and investment growth are likely to slow in Korea, as consumer and business sentiment sag under the weight of concerns about a strong won and the sustainability of high real estate prices. In Singapore, in contrast, rising consumer demand and a fading inventory correction are partly offsetting the effects of a moderation of fixed-investment growth, which expanded rapidly in 2006. And in Hong Kong, China, GDP growth will likely

continue to ease after peaking in 2004 at 8.6% and moderating through 2005–06. For Taipei,China, weaker consumption and investment, held back by high credit-card debt and sluggish industrial production, will lead to lower GDP growth in 2007 than in 2006.

GDP in the four large economies in ASEAN is forecast to grow 5.3% in 2007 and 5.8% in 2008.

Despite slowing export growth, the possible harmful effects of El Niño, and lagging structural reforms, Indonesia's GDP growth is forecast to pick up in 2007, stimulated by moderately supportive fiscal policy, falling inflation, and monetary easing. In Malaysia, growth in domestic demand should remain relatively robust, supported by strong public spending. In the Philippines, the outlook is favorable for 2007; GDP growth accelerated in Q1 and, given capacity constraints, is likely to be higher in 2007. Thailand's GDP growth is forecast to ease in 2007 because of the lingering effects of the political turbulence and policy uncertainty in 2006. However, an expansionary fiscal policy and an easier monetary stance will help mitigate slower export growth.

Of the smaller ASEAN economies—Cambodia, Lao People's Democratic Republic (Lao PDR), and Viet Nam—are expected to sustain very robust growth rates in 2007. Viet Nam's booming economy is forecast to maintain its pace in 2007, after growing 8.2% in 2006, in part because its January 2007 accession to the World Trade Organization (WTO) is expected to spur fixed-investment growth. Cambodia and Lao PDR should see economic growth slowing somewhat in 2007 from recent high rates, which were stimulated in part by liberalization of the global textile market. For Cambodia, GDP growth is forecast to slow from 10.4% in 2006 to 9.5% in 2007, ending 3 straight years above 10%. Similarly, GDP growth in Lao PDR should slip from 7.3% in 2006 to 6.8% in 2007.

With economic expansion remaining strong and oil prices elevated, any further reductions in inflation in the NIEs and ASEAN-4 economies are expected to be limited in 2007. As food prices stabilize, inflation in the PRC should not rise further in the coming quarters. Overall, robust growth, relatively tight labor markets across the region, and higher energy prices are expected to generally increase inflationary pressures throughout the region in 2007.

Current account surpluses are expected to remain very large in 2007 in PRC; Hong Kong, China; Malaysia; and Singapore. However, they are likely to be closer to balance in Indonesia, Korea, Thailand, and Viet Nam. Reflecting trends in global financial markets—world long-term interest rates are on the rise—net capital inflows to the region may remain somewhat volatile during the remainder of 2007. Persistent current account surpluses and net capital inflows will continue to put appreciation pressure on several regional currencies, though to a varying degree. As authorities intervene in the foreign exchange markets to curb appreciation, foreign exchange reserves will continue to rise across the region. Currencies in the region will also appreciate in real terms as inflation potentially heads higher.

Risks to the Outlook

Despite declining headline and core inflation rates in key industrial economies, inflation remains elevated and—with shrinking output gaps and tight resource markets—could stay that way.

Recent trends and projections suggest OECD labor markets are becoming relatively tight and wages are beginning to rise faster, even as productivity growth levels or slows (Table 8). While labor income growth lagged both productivity growth and growth of the return on capital during much of the current expansion, there is a risk of faster wage growth that would feed into inflation. In its 28 June policy meeting, the US Federal Reserve noted that the high level of resource use could potentially sustain inflationary pressures. Also, inflationary pressures are showing up in emerging East Asia—in the PRC, for example, inflation increased rapidly in the first half of 2007 as the economy steamed ahead. Sustained government efforts to rein in excessive investment growth have had some success, but there remains a risk of reacceleration, which could add to regional and global inflationary pressures. Labor markets have tightened in several economies in the region (Table 9). If inflation—especially core inflation—remains elevated, monetary authorities in the region would have less flexibility in dealing with possible weakness in economic activity.

The potential for more severe financial market volatility—arising from uncertainty about key economic trends and from heightened market sensitivity to risk—is significant.

The global financial market recovered quickly from the jitters in February and March. The sell-off in the bond markets in early June, however, may be signaling that ample global liquidity is

Table 8: **OECD Unemployment** (% of labor force)

	2003	2004	2005	2006	2007 f
Total OECD	6.9	6.7	6.5	6.0	5.8
United States	6.0	5.5	5.1	4.6	4.6
Euro area	8.7	8.8	8.5	7.8	7.1
Japan	5.3	4.7	4.4	4.1	3.8

f = forecast

Source: *OECD Economic Outlook* No. 81, May 2007.

Table 9: **Unemployment Rate in Selected Emerging East Asian Economies** (% , end of period)

	China, People's Rep. of	Hong Kong, China	Korea, Rep. of	Malaysia	Singapore	Viet Nam
2000	...	4.9	4.4	3.1	2.7	...
2001	...	5.1	4.0	3.7	2.7	6.3
2002	4.0	7.3	3.3	3.5	3.6	6.0
2003	4.2	7.9	3.6	3.6	4.0	5.8
2004	4.3	6.8	3.7	3.6	3.4	5.6
2005	4.2	5.6	3.7	3.6	3.1	5.3
2006	4.2	4.8	3.5	3.3	2.7	...

... = not available

Sources: Official statistics bureaus and Bloomberg.

beginning to evaporate. The volatility followed a sustained run-up in global and regional asset prices, and these gains appeared increasingly unrelated to economic fundamentals, leaving markets vulnerable. Investors are skittish partly because of feared losses arising from policy uncertainty. With additional uncertainty arising from conflicting signals about future global economic trends, there is a real risk of further, possibly more severe volatility, which could be accentuated by any unwinding of yen-carry trades. As markets swing between fears of upside and downside risk, the adjustment to reduced global liquidity, until now relatively smooth, could become disruptive, with a sharp re-pricing of risk that would raise regional financing costs. As of the end of June, there was little sign of a re-pricing of risk with sovereign

spreads remaining low. To the extent that lower spreads reflect clear improvement in fundamentals, any deterioration should be limited. However, those economies that previously saw the most rapid spread compression (such as Indonesia and the Philippines) now face a greater likelihood of increasing risk premiums.

Although it is widely expected that the US economy will pick up in the second half of 2007, uncertainties about its economic trends persist, given market jitters about the possibility that weakness in the sub-prime mortgage market will spread to the wider economy.

With global liquidity falling amid multi-year bull runs in many asset markets, investors are increasingly sensitive to any evidence of weakness in the 5-year global—and US—expansion. This is especially true of any evidence pointing to a deepening of the industrial production correction or of a wider and deeper impact of the US housing market correction. Emerging East Asian economies are vulnerable to further slowing of growth if external demand turns out weaker than expected.

The impact of recent swings in global financial flows—with investors searching for yield while oscillating between fears of recession and inflation—are exacerbated by vulnerabilities within the underlying global payments imbalances. Large and persistent structural payments imbalances and the associated policies have impact on market outcomes. Perceived exchange rate misalignments in emerging economies encourage local and global investors to take risks. This is especially true given prevalent views that these imbalances will eventually be unwound by a weakening US dollar. At the same time, however, sudden changes in risk perceptions on emerging markets can send investors fleeing for the security of deeper markets and safer assets. Recent research suggests that persistent global payments imbalances may arise partly due to sharply differing levels of financial depth between developed and emerging markets. These imbalances are unlikely to be corrected solely by a rebalancing of global sources of growth away from the US, and will likely require significant exchange rate movements. A disorderly adjustment in the global payments imbalance could lead to a sharp contraction of US aggregate demand and could be accompanied by a rapid fall in investor confidence, which would have a serious impact on the region.

Severe noneconomic disruptions, such as a geopolitical shock or an avian flu pandemic, may have a relatively low probability, but potentially could still impose large costs on global and regional economies.

Given present inflation and recession risks, a large oil price shock could ignite an episode of stagflation. This would be particularly true if the source of the shock were geopolitical—such as an increase in instability in the Middle East. The potential for a global health pandemic also remains a risk. Avian flu, for example, again made international headlines when infected poultry appeared in the United Kingdom in January 2007 (Table 10). In the region, Indonesia continues to see significant numbers of human cases and casualties. Finally, there is a risk of damage from natural disasters arising, for example, from an El Niño pattern, or even anomalous weather patterns associated with possible global warming.

Table 10: **Confirmed Cases of Avian Influenza A/(H5N1)**—as of 29 June 2007

		Date of Onset					
		2003	2004	2005	2006	2007	Total
ASEAN+3 (I)	cases	4	46	98	73	34	255
	casualties	4	32	43	58	27	164
Cambodia	cases	0	0	4	2	1	7
	casualties	0	0	4	2	1	7
China, People's Rep. of	cases	1	0	8	13	3	25
	casualties	1	0	5	8	2	16
Indonesia	cases	0	0	20	55	26	101
	casualties	0	0	13	45	22	80
Lao	cases	0	0	0	0	2	2
	casualties	0	0	0	0	2	2
Thailand	cases	0	17	5	3	0	25
	casualties	0	12	2	3	0	17
Viet Nam	cases	3	29	61	0	2	95
	casualties	3	20	19	0	0	42
Other Regions (II)	cases	0	0	0	42	20	62
	casualties	0	0	0	21	6	27
Total (I) + (II)	cases	4	46	98	115	54	317
	casualties	4	32	43	79	33	191
	% fatalities	100	70	44	69	61	60

Notes:

1. Total number of cases includes number of casualties.

2. The World Health Organization reports only laboratory-confirmed cases.

Source: World Health Organization.

Policy Issues

Given the outlook for robust and sustained economic growth in the region, and the risks outlined above, monetary authorities in emerging East Asia should be vigilant, attuning policy responses to their individual economic circumstances.

In economies with rising inflation and surging domestic liquidity, such as the PRC and possibly Korea, there is a clear case for more monetary tightening. In those with benign inflation, however, authorities may have more room to support growth. In other cases, such as Indonesia and Thailand, continued easing of relatively tight monetary conditions might be warranted if inflation continues to fall. Inflation needs to be managed within the context of expectations that global interest rates will rise further. This in turn has consequences for both the conduct of monetary policies and the management of external balances.

Surging capital inflows have contributed to excess liquidity growth and are associated with significant increases in asset prices. Gross capital inflows to the region have reached record levels, in both absolute terms and ratios relative to GDP, and have direct effects on asset prices in the region. A package of policies is needed to address basic macroeconomic problems complicated by capital flows and specific market problems that capital inflows contribute to. These options include enhancing exchange rate flexibility, carefully crafting any monetary policy response, being cautious on fiscal policy responses, refining or liberalizing capital outflows, and strengthening financial market regulation and supervision.

Administrative restrictions to reduce asset price or exchange rate appreciation should be used with caution. Recent financial market nervousness about the actual or potential imposition of administrative measures to reduce speculation in currency and asset markets indicates the need for a cautious approach. Certainly, as investor euphoria grew, explosive price appreciation in recent months in several regional asset markets became increasingly divorced from underlying economic fundamentals, complicating macroeconomic management. Yet, hurried administrative measures are potentially disruptive and may only temporarily alleviate the symptoms of underlying structural problems. Policy makers should especially strive for effective communication of policy intentions to avoid skittish, rumor-

driven markets. In addition, regulators should be vigilant against imprudent financial sector practices that foster speculation—such as excessive bank lending to stock investors.

Authorities in the PRC have been taking various policy measures to restrain excessive investment in recent years, while investment remains stubbornly low in the ASEAN economies most affected by the crisis.

While the PRC is trying to control the excessive investment of recent years, in ASEAN-4 economies, improvements in the investment climate are needed to help stimulate investment and reduce the potential for speculative bubbles by channeling funds to productive investments and rebalancing sources of growth. The need for action is clear: in some cases, aspects of the investment climate have actually deteriorated over the past decade (Box 1). Governance issues such as policy uncertainty, a weak rule of law, and poor regulatory quality are key areas of weakness. Regional forums such as the ASEAN+3 Economic Review and Policy Dialogue can encourage progress by forging views on “best practice” policies conducive to regional and national economic development, and can provide a collective voice for promoting them.

Measures to develop deeper financial markets in the region can also help reduce the risk of asset bubbles forming in shallow real estate and equity markets, as well as vulnerability to a potentially disorderly correction of the global payments imbalance.

Regional policy makers are well aware of the problem posed by the shallowness of financial markets in the region relative to deeper markets in the US, Europe, and the developed Asian economies. Indeed, the Asian Bond Markets Initiative represents a clear desire to develop efficient and liquid bond markets in the region. Recent global turbulence reinforces the importance of such development. Local investor interest in domestic financial instruments is soaring in the region and financial markets and regulators must keep up. It is not just that financial markets in the region lag global markets in sophistication and depth; financial markets lag behind as compared with development in other sectors—especially the region’s export-related sectors. In some areas, such as electronics, telecommunications, commerce,

and transportation, rapid technological gains are turning into large profit and income gains, in turn boosting savings and the demand for financial assets.

Allowing market signals to encourage energy conservation policies could also make macroeconomic management easier.

Global oil prices have started to rise again in 2007, and most experts foresee continued tightness in energy markets, especially if demand growth from emerging markets is left unchecked. With a return to cheap energy unlikely, budget-constrained regional policy makers—many of them overseeing energy-intensive yet resource-scarce economies—face some tough choices (Box 2). Moreover, promoting efficient regional energy markets remains imperative, with efforts focused on (i) reducing subsidies and bringing local prices in line with global prices to eliminate wasteful, low-value uses; (ii) introducing measures to promote energy efficiency; (iii) avoiding distorting and possibly ineffective administrative price controls; and (iv) fostering competitive energy markets which reward private sector innovation.

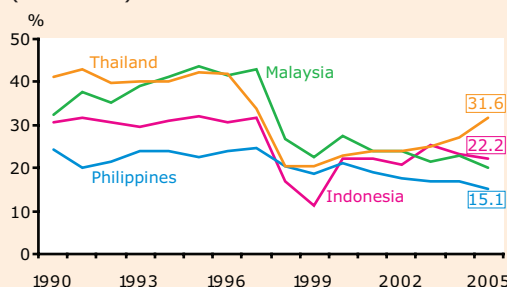
Box 1: Investment Climate in ASEAN-4—Ten Years after the Crisis

Ten years after the Asian financial crisis, investment rates in the crisis-affected ASEAN economies of Indonesia, Malaysia, Philippines, and Thailand have settled at much lower levels (Figure B1.1). This is despite the return of interest rates to normal levels and the general stability of macroeconomic conditions, including more prudent fiscal and monetary policies, more flexible exchange rates, substantial foreign exchange reserves, and sustainable external debt.

In general, the investment slowdown is attributed to two sets of factors. The first includes underused capacity, the presence of financing constraints, falling public sector investment, increased competition for investment capital from the PRC and Viet Nam, and an increased perception of risk and uncertainty. The second set refers to various,

location-specific factors which shape the opportunities and incentives for firms to invest, and define a country's investment climate. These include inadequate infrastructure, a shortage

Figure B1.1: Gross Domestic Investment
(% of GDP)



Source: World Development Indicators.

of skilled labor, weak institutions, excessive regulation, and the low quality of institutions.

While the first set of factors

underpinned the investment slowdown during the early part of the crisis, they are less important 10 years later. In particular, underused capacity has slowly declined with the recovery in manufacturing and strong output growth. Financing constraints have also eased given high savings, stronger bank balance sheets, and a sizeable restructuring of nonperforming loans. Consolidation efforts have also dramatically improved fiscal conditions, while foreign direct investment has recovered in some crisis-affected economies (Figure B1.2).

Notwithstanding these reforms, a weak investment climate continues to restrain capital spending, with concern in the following areas: (i) a somewhat uncertain macroeconomic environment; (ii) inadequate infrastructure; (iii) a shortage of skilled labor; and (iv) a heavy regulatory

burden arising from poor governance and weak institutions.

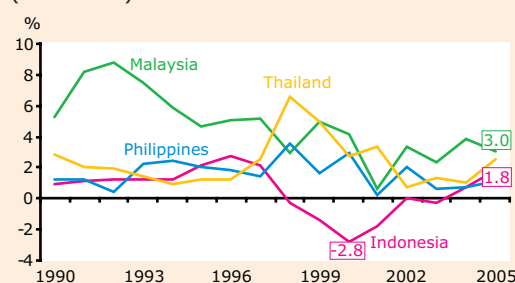
While the macroeconomic environment has remained sound in recent years, the overall outlook has ebbed in the crisis-affected ASEAN economies. This is evident from slowing trend growth, increased growth volatility, and lower mean expectations for future growth. In combination with lower capital and labor productivity growth, these suggest that expected returns from investment have eased.

Private infrastructure investment has fallen since the 1997 economic crisis, particularly in countries such as Indonesia and the Philippines, contributing to a huge gap between the need for investment and actual spending. Emerging East Asian economies now need more than \$200 billion annually to close this infrastructure gap, and to finance new investment and maintenance in the power, transport, information and communications technology, and water sectors. Infrastructure is clearly a key business concern, with about 20% of firms in the region reporting that poor access to power, telecommunications, or transportation has been a major or severe obstacle. In the crisis-affected ASEAN economies, the factors hurting business include (i) poor access to power and frequent power interruptions; (ii) inadequate shipping facilities and the high cost of transporting goods; (iii) traffic congestion; and (iv) poor communication facilities.

A skilled workforce is also essential for firms to adopt new technologies and absorb new ideas and innovations. Yet surveys show that 20% of firms in many

developing countries rate inadequate skills and education of workers as a major obstacle. In general, skills shortages stem from poor education systems. In Thailand, for example, a shortage of skills cost firms on average the equivalent of 15% of output; the country's secondary school completion rate, at 4.2% in 2000, is among the

Figure B1.2: **Foreign Direct Investment**
(% of GDP)



Source: World Development Indicators.

lowest in the region. In Malaysia, the education completion rate, at 6.3% in 2000, is lower than the middle-income norm. In the Philippines, the low quality of education is an issue, as seen in its low ranking in the 2003 Trends in International Mathematics and Science Study. To improve education outcomes and create a skilled workforce a number of complementary reforms are needed. These include (i) greater public funding to expand access to education; (ii) better quality of education and an improved certification and accreditation system; (iii) facilitation of private sector provisions; and (iv) support to life-long learning.

In terms of the business operating climate, it takes longer to open a

business in Indonesia, to close one or resolve bankruptcy in Indonesia and the Philippines, and to obtain a license in Malaysia and Indonesia, than in the baseline economies.⁴ It is also more difficult to hire and fire workers in Indonesia, while investor protection is weak in the Philippines. In most of the crisis-affected economies, it takes a long time to enforce contracts. In the near term, it is important that these countries streamline business procedures, promote competition by speeding up privatization and facilitating trade and customs reform, enhance regulatory capacity through improved transparency and accountability, liberalize labor markets, and strengthen courts and the judiciary.

Reducing barriers to investment across ASEAN-4 would generate growth and reduce poverty. However, the magnitude of the gains and how best to achieve them are not currently well understood. In the post-crisis years, although Indonesia, Malaysia, Philippines, and Thailand have taken several initiatives to streamline their investment climates, macroeconomic volatility, inadequate infrastructure, and burdensome regulations relating to business operations likely impeded investment to varying degrees. There is clearly scope for improving the various elements of the investment climate. Putting in place appropriate policy reforms to improve the investment climate could help revive investment and improve productivity.

⁴ See *World Bank Governance Indicators Database*.

Box 2: Coping with an Oil Price Shock

Oil prices are on the rise again. The price of Brent Crude flirted again with nearly \$80 per barrel (bbl) in July, after troughing at \$51.3/bbl in January, well down from its former peak in August 2006 at \$78.6/bbl (Figure B2.1). Global

oil demand is strong, driven in particular by continued robust demand from the United States (US) and the People's Republic of China (PRC), and partly reflecting a stronger-than-expected global economy. On the supply side,

the Organization of the Petroleum Exporting Countries continues to curb production to meet lower targets. And tight market conditions have been further aggravated by recent supply disruptions in Nigeria and Iraq, and

as geopolitical uncertainties weigh on many major production facilities.

Nonetheless, the economic impact on emerging East Asia of sustained high oil prices has been much more modest this time around than in previous episodes: GDP growth averaged 7.6% over the past 5 years and is expected to reach 8.1% in 2007. Several factors may have contributed. Importantly, sound macroeconomic environments with stable inflation, healthy fiscal balances, and low levels of external debt in the region have allowed greater policy flexibility for coping with the oil shock. Second, the current oil shock is driven largely by rapid demand growth from a strong global economy, providing a favorable external environment for emerging East Asia. Third, unlike previous oil spikes caused by severe supply disruptions, the current rise has been gradual, allowing affected economies more time to adjust. And finally, the current rise has been

less inflationary in emerging East Asia, where annual inflation averaged only 2.6% in 2003–2006, edging up to only 2.8% by May 2007 (see Figure 10). Sluggish investment and improved monetary policy may have also contributed to low inflation.

Still, the impact of higher oil prices has not been evenly spread, as different policy frameworks and responses contributed to diverse outcomes. In countries such as the Republic of Korea (Korea), Philippines, and Thailand, monetary policy has been more active, and effectively used inflation targeting to curb the effects of higher oil prices. And greater exchange rate flexibility in some economies—Korea, Philippines, Thailand and, to a lesser extent, Malaysia—has mitigated the immediate

pass-through of higher oil prices to local prices.

The degree of direct pass-through from global to local energy prices has also been controlled through national energy policies and pricing structures. To varying degrees, retail gasoline and diesel prices in the PRC, Indonesia, Malaysia, and Thailand have held below prevailing prices in the low-tax, but competitive US market.

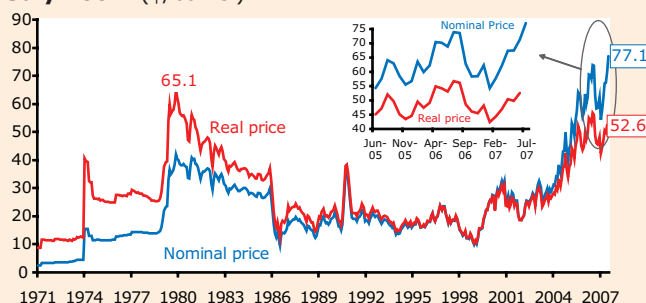
maintain a stable macroeconomic environment of low inflation and prudent fiscal balances with modest levels of debt at any time. Sound initial conditions not only provide a buffer against any unexpected external shocks, but also allow room for policy makers to take economic stabilization measures when necessary.

It is also important to understand that there will be trade-offs in

macroeconomic stabilization policies, though discretion may be warranted to help the necessary adjustments and minimize costs. For example, when the shock is temporary and inflationary expectations are low, monetary authorities can afford to care more about growth and unemployment. However, in the absence of timely monetary responses, inflationary expectations could rise and trigger spiral increases in domestic prices and wages. Likewise, the use of subsidies or price controls cause significant economic distortions and fiscal costs.

Finally, policies that reduce the intensity of oil use over time will mitigate the risk of higher oil prices in the future. Long-term measures to promote energy efficiency are also crucial for environmentally sustainable development. Emerging East Asia's energy policies need to ensure coherent policy management within broader policy frameworks to achieve sustainable energy and development. A priority for national energy policies has to be setting out clear strategies for ensuring efficiency in energy use, development of alternative energy sources, adequacy and reliability of supply, and measures to mitigate environmental impact.

Figure B2.1: **Brent Crude Oil Prices, January 1971–July 2007¹** (\$/barrel)



¹ Refers to the period 1–19 July 2007.

Note: Real Brent price was deflated using producer's price index of all commodities with December 2001 as base year.

Sources: *International Financial Statistics* (IMF), Bloomberg, and US Bureau of Labor Statistics.

However, subsidies or administered prices, while temporarily mitigating the inflationary effects of rising crude prices, have delayed necessary economic adjustments and produced fiscal strains. In Thailand, fuel subsidies introduced in 2004 were abandoned after little more than a year, having incurred an estimated fiscal cost of about \$2.2 billion. In Malaysia, price subsidies have been also gradually reduced, lifting gasoline and diesel prices in 2005–06. In Indonesia, the high cost of fuel subsidies compromised fiscal sustainability and contributed to a sharp depreciation of the rupiah in August 2005, after which subsidies were significantly reduced.

Important lessons arise from the Asian experience. It is essential to

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.⁵ 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.

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.

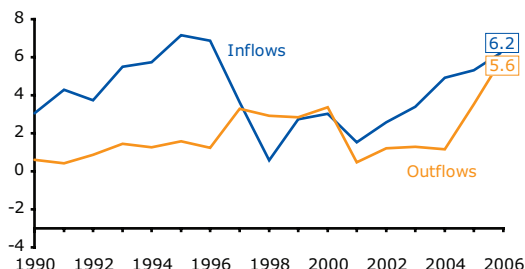
For the six large emerging East Asian economies, aggregate reserves nearly tripled from \$528 billion in 2002 to \$1.5 trillion in 2006, rising from 21.2% of aggregate gross domestic product (GDP) to 34.8%—perhaps more than adequate for macro-prudential needs. Excluding the People's Republic of China (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 11: **Balance of Payments** (% of GDP)

	2000	2001	2002	2003	2004	2005	2006
ASEAN-4							
Current Account Balance	5.2	4.0	3.9	4.7	3.3	2.2	5.2
Capital and Financial Account Balance	-4.7	-3.1	-0.9	-1.4	0.6	-0.2	-0.3
Errors and omissions, net	-0.4	-0.3	-0.1	-0.8	0.1	-1.2	-0.4
Reserves excluding gold (- = increase)	-0.5	-0.3	-2.3	-2.5	-4.1	-1.3	-5.9
Korea, Rep. of							
Current Account Balance	2.4	1.7	1.0	2.0	4.1	1.9	0.7
Capital and Financial Account Balance	2.4	0.5	1.1	2.3	1.1	0.1	2.1
Errors and omissions, net	-0.1	0.6	0.0	0.0	0.4	0.0	-0.3
Reserves excluding gold (- = increase)	-4.6	-1.6	-2.1	-4.2	-5.7	-2.5	-2.5
China, People's Rep. of							
Current Account Balance	1.7	1.3	2.4	2.8	3.6	7.2	9.5
Capital and Financial Account Balance	0.2	2.6	2.2	3.2	5.7	2.8	0.4
Errors and omissions, net	-1.0	-0.4	0.5	1.1	1.4	-0.7	-0.5
Reserves excluding gold (- = increase)	-0.9	-3.6	-5.2	-7.1	-10.7	-9.2	-9.4
Total							
Current Account Balance	2.6	1.9	2.4	3.0	3.6	5.1	6.9
Capital and Financial Account Balance	-0.3	1.0	1.4	2.1	3.8	1.7	0.6
Errors and omissions, net	-0.6	-0.1	0.3	0.5	0.9	-0.7	-0.4
Reserves excluding gold (- = increase)	-1.7	-2.5	-3.9	-5.6	-8.3	-6.3	-7.3

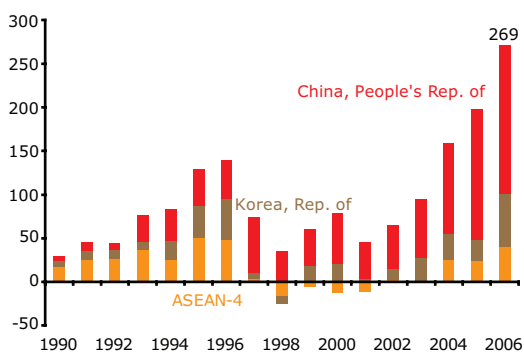
Sources: International Financial Statistics (IMF), World Economic Outlook Database (IMF), Regional Economic Outlook (IMF), and CEIC.

Figure 34: **Emerging Asian Economies—Gross Capital Inflows and Outflows** (% of GDP)



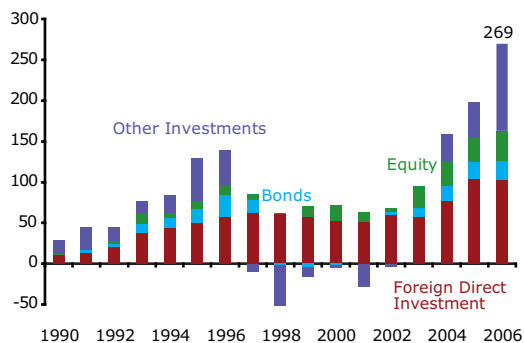
Sources: *International Financial Statistics* (IMF), CEIC, and *World Economic Outlook Database* (IMF).

Figure 35: **Emerging Asian Economies—Trends in Gross Capital Inflows** (\$ billion)



Sources: *International Financial Statistics* (IMF) and CEIC.

Figure 36: **Emerging Asian Economies—Composition of Gross Capital Inflows** (\$ billion)



Sources: *International Financial Statistics* (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 aggregate capital account moving into surplus only in 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).⁶ 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,

⁶ Gross capital inflows are defined as the sum of total inflows from foreign direct investment, portfolio investments, and other investment transactions by nonresidents. Regional aggregates are simply the sum of respective components of individual economies.

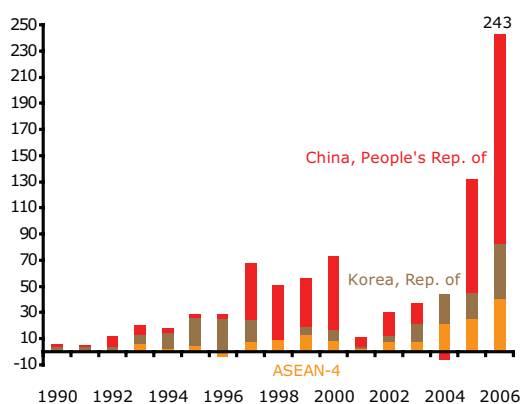
when the largest component was “other investments” (mainly short-term debt)—one of the root causes of the financial crisis. Gross inflows in other investments, however, rose significantly in 2006 in the PRC and Korea. It is also important to note that portfolio flows have become large relative to the 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.⁷ 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

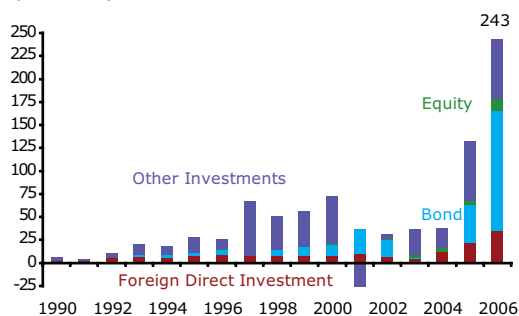
⁷ Bilateral capital flows data are unavailable for the large emerging East Asian economies. According to the International Monetary Fund's *Coordinated Portfolio Investment Survey*, bilateral portfolio investment flows between either Singapore or Hong Kong, China and the six economies have increased significantly in recent years, though the bilateral flows among the six remained small.

Figure 37: **Emerging Asian Economies—Trends of Gross Capital Outflows** (\$ billion)



Source: *International Financial Statistics* (IMF) and CEIC.

Figure 38: **Emerging Asian Economies—Composition of Gross Capital Outflows** (\$ billion)



Source: *International Financial Statistics* (IMF).

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).⁸ 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.

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.⁹ 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.¹⁰

⁹ Net capital inflows are gross capital inflows minus gross outflows.

¹⁰ See Albuquerque, Rui, 2003, "The Composition of International Capital Flows: Risk Sharing Through Foreign Direct Investment", *Journal of International Economics*, December, pp 353–83.

There are both similarities and differences among these trends compared with emerging Europe and emerging Latin America.¹¹ 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

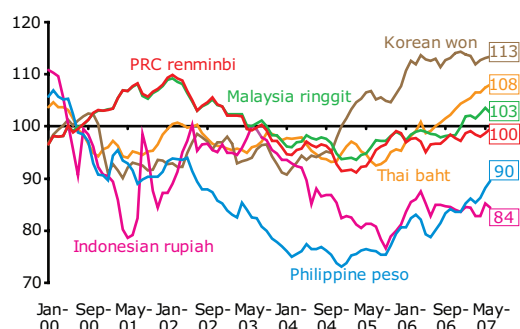
Given the different composition of capital inflows and outflows, analyzing “gross” rather than “net” inflows is more relevant, as they directly affect the domestic economy and asset markets—posing major challenges for macroeconomic management.

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.¹² 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

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

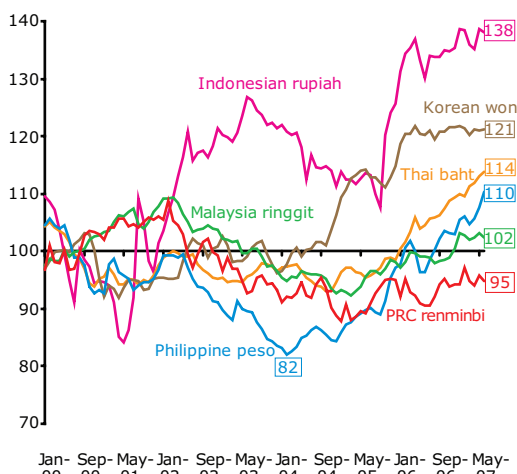
¹² See, for example, Krugman, P., 1998, *What Happened to Asia*, <http://web.mit.edu/krugman/>; Mishkin, F. S., 1999, “Lessons from the Asian Crisis,” *Journal of International Monetary and Finance*, 18 (4), pp.709–723; and Sachs, Jeffrey D. and Woo, W.T., 2000, “Understanding the Asian Crisis,” in Sachs, Jeffrey D. and Klaus Schwab ed., *The Asian Financial Crisis: Lessons for a Resilient Asia*, MIT Press.

Figure 39: **Nominal Effective Exchange Rate**¹ (broad indexes, 2000 = 100)



¹ Weighted average of a basket of 51 bilateral exchange rates adjusted by relative consumer prices. The weights are derived from manufacturing trade flows. An increase is an appreciation.
Source: Bank for International Settlements.

Figure 40: **Real Effective Exchange Rate**¹ (broad indexes, 2000 = 100)



¹ Weighted average of a basket of 51 bilateral exchange rates adjusted by relative consumer prices. The weights are derived from manufacturing trade flows. An increase is an appreciation.
Source: Bank for International Settlements.

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.

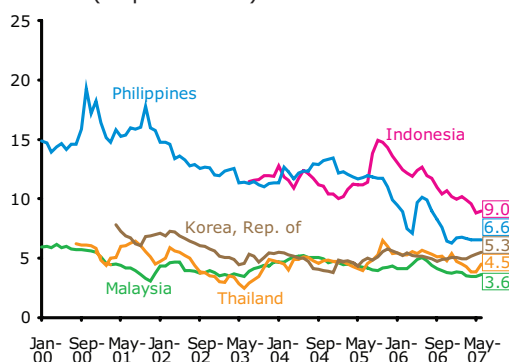
Large capital inflows have pressured currencies to appreciate.

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’état. 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.

Figure 41: **10-Year Government Bond Yields** (% per annum)

Source: Bloomberg.

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.

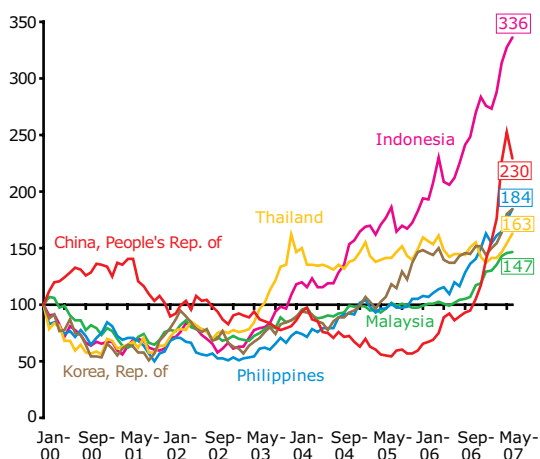
While the rise in stock market indexes has been steady in Indonesia, Korea, Philippines, and Malaysia, stock prices in the PRC began to soar in late-2005 and continued their surge through June 2007 (Figure 42). These increases may have also contributed to falling bond yields in these economies (see Figure 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.

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

	1999	2000	2001	2002	2003	2004	2005	2006
Indonesia								
Change in Foreign Reserves	16.4	7.8	-4.4	13.7	12.9	0.0	-5.6	24.1
Change in M2	11.9	15.6	13.0	4.7	8.1	8.1	16.4	14.9
Malaysia								
Change in Foreign Reserves	19.7	-7.4	4.2	13.0	31.4	50.3	6.0	17.6
Change in M2	13.7	5.2	2.2	5.8	11.1	25.4	15.4	16.6
Philippines								
Change in Foreign Reserves	43.1	-1.4	2.9	-1.1	2.4	-3.9	21.4	25.7
Change in M2	19.3	4.8	6.9	21.0	4.2	10.2	10.3	21.4
Thailand								
Change in Foreign Reserves	18.2	-6.0	1.1	17.6	8.0	18.5	4.2	28.8
Change in M2	2.1	3.7	4.2	2.6	4.9	5.4	8.2	6.0
Korea, Rep. of								
Change in Foreign Reserves	42.4	29.9	6.9	18.1	28.0	28.2	5.7	13.6
Change in M2	5.1	5.2	8.1	14.0	3.0	6.3	7.0	12.5
China, People's Rep. of								
Change in Foreign Reserves	5.7	6.7	28.1	35.0	40.2	50.6	33.7	30.1
Change in M2	14.7	15.4	14.4	16.9	19.6	14.5	16.7	16.9

Source: International Financial Statistics (IMF).

Figure 42: **Composite Stock Price Indexes¹—ASEAN-4, People's Republic of China, and Republic of Korea** (end-of-month, January 2000 = 100, local index)



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.

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.¹³ 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.

¹³ Land price data were provided by Maria Bautista of Bank for International Settlements and were compiled by Jones Lang La Salle Research. Housing prices for Korea are obtained from the Bank of Korea website, and housing prices for the PRC and rental prices for the Philippines are from CEIC.

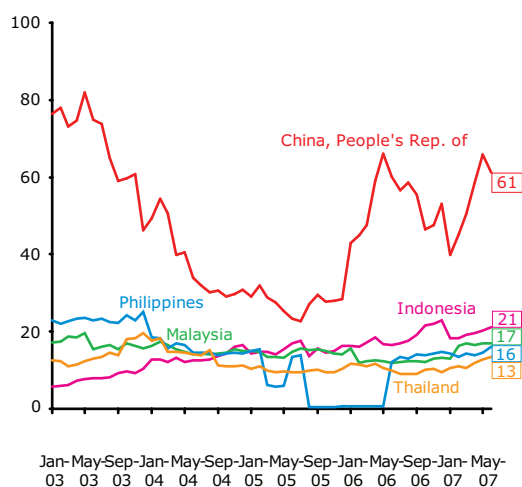
Moreover, more capital inflows encourage domestic markets to adopt more internationally-accepted practices and standards in the financial systems.

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.

Figure 43: **Price Earnings Ratio¹—ASEAN-4 and People's Republic of China**



¹ Weekly averages of JCI (Indonesia), KLCI (Malaysia), PCOMP (Philippines), SET (Thailand), and Shenzhen composite indexes (People's Republic of China).
Source: Bloomberg.

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.¹⁵ Arguably, it may be preferable to introduce greater exchange

¹⁵ See Eichengreen, B., 1999, Kicking the Habit: Moving from Pegged Rates to Greater Exchange Rate Flexibility, *Economic Journal* 109, Conference Papers, pp C1-C14; and Duttagupta, R., G., Fernandez, and C. Karacadag, 2005, Moving to a Flexible Exchange Rate: How, When, and How Fast?, *Economic Issues* 38, International Monetary Fund.

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.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.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,

¹⁶ See Magud, Nicolas and Carmen M. Reinhart, 2006, *Capital Controls: An Evaluation*, NBER Working Paper 11973.

¹⁷ See Kristin J. Forbes, 2005, *The Microeconomic Evidence on Capital Controls: No Free Lunch*, NBER Working Paper 11372.

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 policies 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.¹⁸ 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.¹⁹ 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:

$$y_t^i = c^i + B(L)y_{t-1}^i + u_t^i,$$

where c^i is a 5x1 constant matrix, $B(L)$ is a matrix polynomial in the lag operator L , u_t^i is a matrix of shocks with a variance/covariance matrix of Σ , y is the variables listed above and $i = 1$ to 5.

A recursive assumption on the contemporaneous relation among variables was used.²⁰ 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.²¹

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.

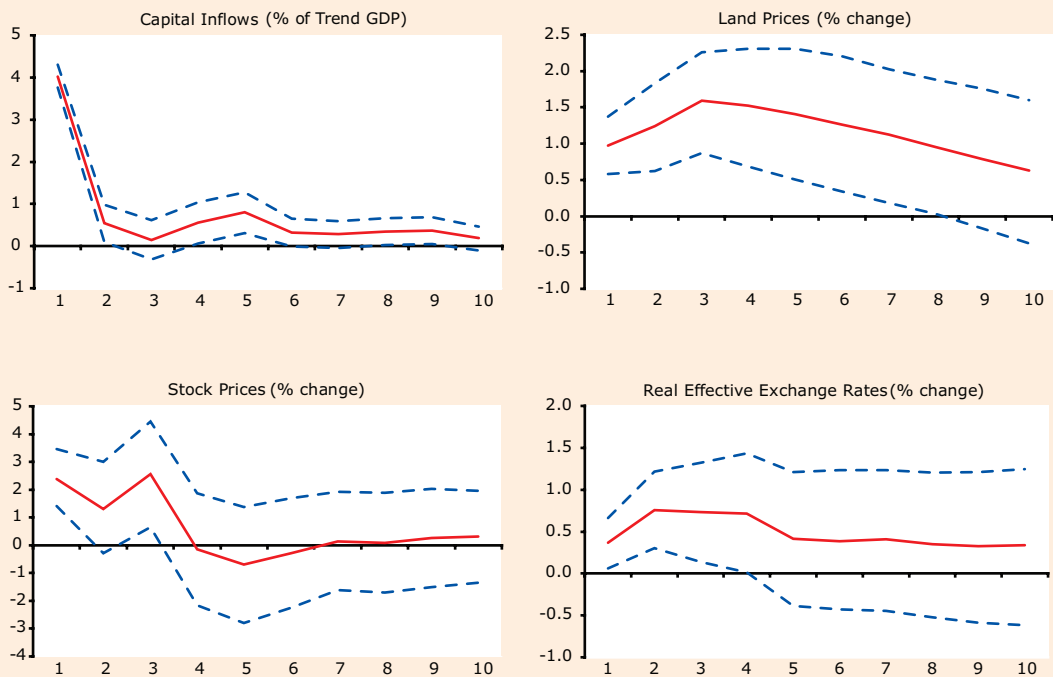
¹⁸ For the details of the empirical analysis, see Kim, Soyoung and Doo Yong Yang, 2007 "The Impact of Capital Inflows on Emerging Asian Economies: Is Too Much Money Chasing Too Little Good?", mimeo, Asian Development Bank.

¹⁹ Stock prices are obtained from Bloomberg, land price data for Malaysia, Thailand, and Indonesia are provided by Maria Bautisca 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.

²⁰ For details, see Sims, C.A., 1980, "Macroeconomics and Reality", *Econometrica*, 48, pp.1-48.

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.

Emerging East Asian Banking Systems—Ten Years after the Crisis

1. Introduction

The Asian crisis was a twin crisis. Initially, it struck as a currency crisis—when the Bank of Thailand (BOT) sold its foreign reserves forward to protect the baht’s value as investment capital was withdrawn. BOT was finally forced to let the currency float, resulting in large, rapid currency depreciation. Contagion made it a regional crisis, affecting Indonesia, Republic of Korea (Korea), Malaysia, and Philippines as well. But the underlying structural problems—weaknesses in bank balance sheets, together with currency and maturity mismatches—severely exacerbated the ensuing downturn and led to widespread bank insolvencies, creating a more deep-seated banking crisis.

There have been many changes in emerging East Asian²² banking systems since the crisis, including (i) major restructuring through bank consolidation; (ii) resolution of nonperforming loans (NPLs) through asset management companies (AMCs); (iii) fresh capital injections, widening ownership structures—including foreign ownership; (iv) movement into new business lines, including an increase in household lending and investment banking; (v) the strengthening of prudential regulatory and supervisory oversight to increase transparency and adapt to changing conditions in regional and global financial markets.²³

Still, while banking systems have largely recovered, problems remain. For example, bank lending to private business in much of the region continues to be subdued and many regional bank credit ratings are still relatively weak.

This chapter analyzes key features of emerging East Asian banking systems 10 years after the 1997/98 crisis—what has been done in terms of reforms and restructuring, and what the future holds for

²² In this chapter, emerging East Asia includes People’s Republic of China (PRC); Hong Kong, China; Indonesia; Republic of Korea (Korea); Malaysia; Philippines; Singapore; and Thailand.

²³ Extensive reviews of the reform efforts can be found in various issues of the IMF *Global Financial Stability Report*, various issues of the *Asia Economic Monitor*, and Ghosh, Swati R., 2006, *East Asian Finance: The Road to Robust Markets*, World Bank.

further banking system development.²⁴ It also considers how the risks faced by regional banking systems may have changed since the crisis and how resilient they may be to potentially adverse shocks to the macroeconomic or financial environment.

The analysis is subject to four important caveats.

(i) It examines national banking systems rather than individual banks. In some countries in the region, for example, Indonesia, Philippines, and Thailand, a number of somewhat weak banks operate alongside stronger and larger institutions, and this is obscured to some extent by the use of indicators of banking sector performance weighted by (bank) asset size.²⁵ A focus on size-weighted indicators is warranted to the extent to which large banks are usually most relevant for systemic risk.²⁶ Arguably, however, the overall efficiency of a banking system also depends on its smaller and medium-sized banks; in some circumstances, these may also pose systemic risk.²⁷

(ii) Officially reported indicators are used for bank profitability, asset quality, and capital positions. Even when accurately measured, these are rough estimates at best for determining bank soundness—which fundamentally depends on other qualitative factors such as a bank's risk management system and the strength of supervisory and regulatory regimes. This shortcoming is alleviated to some extent through the use of forward-looking market indicators, such as bank share prices and credit ratings, which presumably take these latter factors into account.

(iii) Individual national banking systems are reviewed and presupposes a relatively low degree of bank integration across the region. Even though foreign commercial bank presence and

²⁴ Numerous studies of regional financial systems have been undertaken or are in process. This chapter draws on a recent Bank for International Settlements (BIS) study of emerging market banking systems and, in particular, Turner, Philip, 2007, "Are Banking Systems in East Asia Stronger," *Asian Economic Policy Review* 2.

²⁵ Many of the indicators are asset-weighted means or medians of banking sector performance.

²⁶ Systemic risk refers to the risks faced by a banking or financial system as a whole and differs from the risk faced by individual financial institutions. See Schinasi, Garry J., 2006, *Safeguarding Financial Stability: Theory And Practice*, IMF.

²⁷ For example, there is systemic risk if large banks maintain exposures to smaller and medium-size banks on the interbank market. Such exposures, of course, are netted out when considering total banking system exposure as against the rest of the economy.

intraregional capital flows increased over the past 10 years,²⁸ most national banking systems in the region remain “local”—with the notable exceptions of Singapore and Hong Kong, China.

(iv) Only institutions classified as commercial (or deposit taking) banks are included. In much of the region, these institutions have been increasingly branching out into new investment banking-type activities. This blurring of types of financial institutions raises issues when “bank” performance is compared. Differences in performance can reflect differences in the importance of various activities across institutions and over time.

The organization of the chapter is as follows: Section 2 examines key changes in the structure, ownership, and activities of regional banking systems—including supervisory and regulatory regimes—over the past 10 years; Section 3 analyzes the operational efficiency, profitability, and soundness of these banking systems; Section 4 considers market soundness indicators of regional banking systems to help determine whether recent subdued bank lending implicitly signals continued weaknesses in the region’s banking systems; Section 5 examines how the systemic risks faced by banking systems may have changed since the crisis and the robustness of recently reported improvements in banking sector performance. Some tentative answers to the issues raised are posited in the final section.

2. Structural Changes in Regional Banking Systems

The 1997/98 Asian financial crisis stressed the urgency for creating sound and transparent mechanisms to intervene in troubled financial institutions; write down impaired assets and maximize recovery value; separate “good” from “bad” banks in order to facilitate new lending; and redistribute losses among various claimants.

Once the crisis struck, bankruptcy procedures required strengthening in a number of economies. In view of the sheer scale of the banking crisis, it also underscored the potentially important

²⁸ Unfortunately, reliable information on the size and distribution of intraregional bank flows is unavailable. Many believe that these flows likely remain small, however. See Lee, Jong-Wha, 2006, “Patterns and Determinants of Cross-border Financial Asset Holdings in East Asia”, mimeo, and IMF, 2006, *Global Financial Stability Report*.

role of “extraordinary” measures to deal with systemic crises, including centralized official AMCs; appropriately implemented blanket deposit guarantees; and injections of official capital when private sources were not available. Most significantly, however, given the major costs of the crisis, the experience underscored the importance of strengthening regional financial systems and reducing their vulnerability to future crises.

Given this backdrop, the restructuring of regional banking systems over the past 10 years has centered around five main elements: (i) banking sector consolidation; (ii) resolution of nonperforming assets; (iii) fresh capital injections from official and private sources; (iv) new lines of banking business; and (v) strengthening of prudential regulation and supervisory oversight.

The relative importance of the five elements has varied across economies and over time. In the case of the crisis-affected countries, banking sector consolidation, resolution of nonperforming assets, and fresh capital injections were critical in the period immediately following the crisis. In Indonesia, Korea, Malaysia, and Thailand substantial restructuring and consolidation took place relatively quickly as a number of troubled financial institutions—banks and nonbanks²⁹—were closed or merged with healthier institutions; official and private AMCs were established or strengthened to assist in resolving impaired assets; and official and private capital was injected into the banking sector.³⁰ Even without a banking crisis, the PRC has also undertaken substantial restructuring over the past 10 years, mainly in dealing with NPLs and the need for fresh capital,³¹ as has the Philippines. Most emerging East Asian economies—including Hong Kong, China; Malaysia; Philippines; Singapore; and Thailand—adopted master actions plans directed at financial sector strengthening and reform. Thus, a key feature of much of the recent financial sector restructuring across the region has been the key role played by governments.

²⁹ In the case of Korea, a number of merchant banks were also closed, while in Thailand, a large number of finance companies were closed.

³⁰ For a discussion and evaluation of the different approaches, see Adams, C., R. E. Litian, and M. Pomelearno eds., 2001, *Managing Financial and Corporate Distress: Lessons from Asia*, Brookings Institution Press, Washington D.C.

³¹ This was in response to long-standing weaknesses in the PRC banking system and commitments to financial services liberalization associated with entry into the World Trade Organization.

- **Banking sector consolidation and concentration**

Since the crisis, there has been significant consolidation in emerging East Asian banking systems.

With the closing down and/or merger of troubled banks with stronger institutions, the number of banks has declined, possibly resulting in further concentration of banking systems.³²

With the notable exception of the PRC—where bank concentration has traditionally been very high—there has been some increase in concentration in many regional banking systems over the past 10 years (Table 13). Not all indicators, however, point unambiguously in the same direction.³³ Increases in concentration have occurred not only in some of the crisis-affected countries, but also in the relatively mature banking systems of Singapore and Hong Kong, China, where the increases appear to reflect consolidation among medium-to-larger size banks. These appear to have been induced by competition rather than bank weaknesses. Conversely, in the crisis-affected countries, consolidations have largely reflected a truncation of the tail-end of bank distribution, as a number of relatively small and weaker banks were shut down or merged with other institutions. Notwithstanding the recent increase in banking sector concentration in the region, it does not appear excessive when measured against international norms.³⁴ Indeed, to the extent to which banking systems in the region had too many small—and poorly regulated—banks before the crisis, the subsequent consolidations may have improved efficiency and lowered risk.

³² In addition, many economies have increased the minimum amount of capital required to establish a bank, in addition to the required prudential capital ratios—some above international standards—that have also been applied in many economies in the region.

³³ This is not entirely unexpected, reflecting the fact that the various concentration measures focus on different dimensions of concentration and different ranges in the distribution curve of banks.

³⁴ Ghosh (2006) op. cit., Turner (2007) op. cit., and "The Banking System in Emerging Economies: How Much Progress Has Been Made?" BIS Papers No. 28 (August 2006).

- **Resolution of nonperforming loans**

NPLs have declined significantly across the region since the crisis. However, using wider definitions of distressed loans—such as including restructured loans—some banking systems still have significant NPL exposure.

The percentage of impaired assets is now relatively low in Hong Kong, China; Korea; Malaysia; and Singapore, because banking systems in these economies all have strong fundamentals (see Table 4b). Thailand's NPL ratio is relatively stable, with slow NPL resolution and some lingering vulnerability to recurrent problems in restructured loans. In the PRC, faster NPL disposal and rapid growth of new loans contributed to the continued decline in NPL ratios through the first half of 2006. However, with relatively weak loan quality controls, banks remain vulnerable to the emergence of new NPLs. In Indonesia, NPLs are once again falling after the recovery from the 2005 financial mini-crisis. However, the high ratio of compromised assets leaves banks vulnerable to further instability. And in the Philippines, where asset quality is improving, banks nonetheless retain relatively high levels of distressed assets.³⁵

- **Fresh capital injections from public and private sources**

To shore up crisis-affected banks, fresh capital injections from public and private—including foreign—sources helped begin restore confidence in affected banking systems.

The trend of gradually reducing public sector ownership of banks was interrupted following the crisis, when substantial numbers of crisis-affected banks received capital injections from governments, particularly where private capital was “scarce.”

Many of these public capital injections—either as part of the consolidation process or as loans from central banks—have been reversed (see Table 13) through equity sales to the private sector,

³⁵ Indicators of impaired assets, estimated by major credit rating agencies, continue to be significant elsewhere in the region. For example, Standard & Poor's (S&P) estimates end-2005 nonperforming assets at 25% of total loans in PRC, 20% in Thailand, and 10% in Malaysia. Source: S&P, 13 September 2006, *Asia 1997 Retrospective: Today's Banks Likely to Survive Stress Scenarios*, www.standardandpoors.com.

Table 13: **Changes in the Structure of the Banking Sector**

	Number of Banks			Average Size of Assets (\$ billions)			Median Size of Assets (\$ billions)		Concentration Ratio: Assets of Top Three Banks (%)		Concentration Ratio: Assets of Top Five Banks (%)		Average Foreign Ownership in Top 10 Banks (%)		Average State Ownership in Top 10 Banks (%)	
	1997	2002	2004	1997	2002	2004	1998	2004	1997	2004	1998	2004	1997-99	2004	1997-99	2004
China, People's Rep. of	86	129	135	10.2	13.6	18.0	...	...	73.2	61.0	...	...	0.02	3.2	96.4	89.7
Hong Kong, China	361	224	208	0.8	1.2	1.3	3.3	5.0	29.7	53.4	...	...	63.1	66.5	0.0	0.3
Indonesia	222	142	134	0.5	0.6	0.7	0.2	0.8	...	42.2	29.0	59.1	0.0	16.7	73.8	51.3
Korea, Rep. of	16	11	8	17.8	43.6	79.5	16.7	61.9	50.7	50.6	70.1	60.1	12.2	21.3	37.2	5.8
Malaysia	36	26	25	2.7	3.8	4.8	1.9	7.4	22.8	33.1	53.3	70.7	15.9	26.2	10.9	3.5
Philippines	51	24	24	1.0	1.6	1.7	0.4	1.3	29.6	29.4	41.6	51.5	11.3	9.0	7.8	5.8
Singapore	152	120	113	0.7	1.0	1.2	2.2	0.8	75.6	91.8	...	...	8.3	15.6	0.0	4.0
Thailand	16	13	12	10.6	8.3	11.1	4.4	13.4	47.4	47.8	51.5	69.0	8.1	11.7	1.3	29.3
United States	9060	7798	7532	0.4	0.6	0.7	1.4	2.2	17.3	30.3	...	...	0.0	3.2	0.0	0.0

...= not available

Sources: *International Financial Statistics* (IMF) and World Bank.

but sizable amounts remain in Indonesia and Thailand. In the case of the PRC, capital injections continue but, at the margin, the share of privately-owned banks has been increasing and partial reduction of public equity in banks has begun.³⁶

Since the crisis, there has been a significant increase in foreign capital injections and thus participation and ownership in emerging East Asia's domestic banking systems. Foreign ownership in banking systems has grown significantly in the PRC and Korea, two markets that were relatively closed in the 1990s.

• New Lines of Banking Business

One significant development over the past 10 years—and a challenge banking systems will increasingly face—has been the significant growth of household lending and investment banking.

While the mature banking systems of Singapore and Hong Kong, China were already engaged in household lending before the crisis, since 1997 the trend has moved into Korea, Malaysia, and

³⁶ See ADB, *Asia Economic Monitor* (December 2006) for information about recent capital injections in the PRC through initial public offerings. See also Ghosh (2006) op. cit., and BIS (2007).

Table 14: **Bank Household Lending** (% of total commercial bank loans)

	Housing		Other Consumer		Business	
	1998	2004	1998	2004	1998	2004
China, People's Rep. of	...	...	...	...	...	...
Hong Kong, China	...	...	...	...	...	...
Indonesia	5	6	7	18	34	31
Korea, Rep. of	9	33	18	17	69	47
Malaysia	18	28	8	16	64	45
Philippines	...	...	...	...	...	...
Singapore	...	...	...	...	...	...
Thailand	7	10	3	6	71	68

... = not available

Source: Turner, Philip. "Banking Systems in East Asia: Ten Years Later." BIS. October 2006.

Thailand; and, to a lesser extent, the PRC (Table 14).³⁷ In most economies, the bulk of household lending has been mortgage related, although unsecured lending (including credit card finance) has grown significantly in several economies. Korea had a credit card crisis in 2004, requiring authorities to step in (Box 4). Household lending has been particularly significant in Malaysia and Korea where it is now broadly in line with the longer-term household lending shares of Singapore and Hong Kong, China.

Traditionally, commercial banks have concentrated on the core business of providing relatively illiquid loans to businesses and households, financed by liquid deposit liabilities. While this remains dominant in emerging East Asian banking systems, there has been an increasing number of banks moving into investment-banking activities—especially in Hong Kong, China; Korea; and Singapore.

The extent to which banking systems have been taking on investment banking-type businesses can be gleaned by looking at income diversification—captured by the income diversification index (IDI), which assumes a value of zero when a banking system derives income from a single source and a value of unity when income is equally split between lending and investment banking-type activities (Table 15). While most banking systems in emerging East Asia still rely, not surprisingly, on income from traditional banking, the importance of investment banking income has generally increased and is relatively high in many economies.

³⁷ In several countries, including Korea, nonbank financial institutions initially were the major players in the household (notably credit card) market. See Ghosh (2006) op. cit.

Box 4: **Lessons of the Republic of Korea's Credit Card Crisis**¹

After the Asian financial crisis, borrowing by the Republic of Korea's (Korea's) suffering corporate sector was sluggish, while a perception of higher risk left banks more reluctant to lend to firms. At the same time, the government sought to boost domestic demand by easing monetary policy and expanding domestic credit; banks and credit card companies dramatically increased their lending to households (Figure B4.1). Household debt rose rapidly in 1999, reaching 70% of GDP in 2002. Credit purchases grew strongly, and the rapid household credit expansion saw consumption rise 6.7%, lifting GDP growth to 7.0% in 2002.

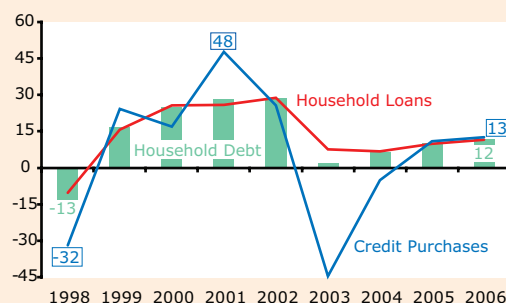
Higher credit card purchases and loans from banks and the credit card companies accounted for the largest part of the household credit expansion. The government had rapidly eliminated regulations on credit card companies and provided tax incentives for credit card purchases. During 1999–2002, credit card issuance increased by 28% per year on average, and credit purchases rose by 82%. However, credit reporting infrastructure at the time was quite limited in terms of customer bases and types of data collection, and information on household credit ratings was not shared appropriately across different financial institutions.

Financial deregulation and easier monetary policy boosted credit card business, while credit card companies relaxed issuance standards to increase market share, issuing to just about anyone who applied. Credit cards per worker increased from 1.8 in 1999 to 4.6 in 2002. The credit card boom was certainly not sustainable. By 2003 8% of the population was delinquent on credit card payments, turning 34% of the assets of credit card companies (about 3% of GDP) bad. The rescue plan for the most severely impaired LG card company alone amounted to

\$4.5 billion, in which state-run Korea Development Bank played a leading role. The plan included the suspension of LG card bond trades, debt-equity swaps and an injection of new capital by the LG group.

The credit card crisis was closely associated with overall banking sector problems for the following three reasons. First, in a number of cases, credit cards were issued by a subordinate division or an affiliate of banks. Most bank-affiliated credit card companies in trouble were forced to merge into the banks, which eroded banks' profits. Second, banks not only provided loans to credit card companies

Figure B4.1: **Household Debt in Korea** (% increase)



Source: Bank of Korea

but also purchased bonds issued by them. When credit card companies had difficulty repaying debt, the banks were in trouble as well. Third, credit card companies effectively acted as banks by providing cash loans, without careful inspection of credit history, to low-credit graders who could find no other sources. Most turned bad.

In response to the crisis, credit card companies tightened lending standards and cut loans, suffering prolonged balance sheet adjustments in the process. Household credit quickly shrank, and the number of bad credit holders soared to 3.7 million in 2003

(about 15% of the labor force) from 1.6 million in 1998. As a consequence, consumption fell by 1.2% in 2003.

The credit card crisis has led to financial sector reforms in the following areas:

- **Early warning signals:** The crisis shows the importance of early detection, the introduction of prompt corrective actions and the development of efficient exit procedures.² The financial supervisory service needs to continuously monitor banks' financial positions and performance. Rapid deregulation without proper oversight aggravated the Korean crisis.
- **A well-functioning credit bureau system:** This is needed for the financial sector to assess the risks of household lending. The credit bureau collects and analyzes individual credit history. The authority needs to require financial institutions that engage in household lending to participate in the sharing of credit history of individuals, given that adequate controls to safeguard data privacy are in place.
- **Infrastructure for handling insolvency:** Bad credit holders would have difficulty finding jobs, increasing unemployment and aggravating the economic impact. Bankruptcy procedures for individuals require insolvency laws and the court systems to support them. These procedures should also allow those bankrupted to start again, so long as significant moral hazard is not created.

¹ Consultant Kwanho Shin contributed to this section.

² See Kang, Tae Soo and Guonan Ma, "Recent episodes of credit card distress in Asia", *BIS Quarterly Review*, June 2007.

Since the crisis, all emerging East Asian economies have strengthened prudential regulation and supervisory systems governing banking systems.

The currency and maturity mismatches that arose prior to the crisis emphasized the need to improve risk management—with a view to strengthen asset quality and reduce bank vulnerability. Substantive efforts have been made to strengthen financial sector supervision and regulation. Better financial and other reporting requirements, independent audits of bank statements—now required in many economies—and much stricter conditions for establishing new banks have strengthened prudential regulation.³⁸ In addition, most banks in the region are now required to hold minimum capital adequacy ratios (CARs) above 8% of their risk-weighted assets in line with the Basel I accords—in fact, several economies have higher minimum CAR requirements.

Most importantly, there have been shifts in many economies toward more forward-looking, risk-based bank supervision with increased use of on-site inspections and evaluation of banks' risk management systems—in line with the 25 Core Principles for Effective Banking Sector Supervision developed by the Basel Committee in 1997 and will be applied under the revised Basel II Framework.³⁹

For example, asset quality is assessed not only on the basis of repayment histories but also on the basis of factors expected to influence future repayments, to adopt prompt corrective action approaches if banks start to experience difficulties. There is relatively high compliance in Singapore and Hong Kong, China, with somewhat lower compliance in other economies in the region.

There is also a move by some authorities to adopt an integrated regulator model where all—or nearly all—financial sector supervision and regulation falls under a single body rather than under different “roofs.” Korea and Singapore have adopted this approach, while it is under discussion in Indonesia and Thailand.

³⁸ This has occurred against the background of general efforts to strengthen corporate governance and transparency. For a fuller discussion, see Ghosh (2006) and various issues of the *Asia Economic Monitor*.

³⁹ See *Core Principles for Effective Banking Supervision*, BIS (2006), or <http://www.bis.org/publ/bcbs30a.htm>.

Table 15: **Banking Sector Securities Holdings and Activities**

	Securities Holdings (% of Total Assets)			Income Diversification Index (IDI)		Market Sensitivity Index (MSI)	
	2001	2004	2006	1998	2004	2000	2004
Hong Kong, China	15.5	19.2	20.2	0.43	0.61	5.61	7.35
Indonesia	...	20.2	24.8	0.46	0.45	1.09	3.38
Korea, Rep. of	26.2	20.8	20.2	0.65	0.61	0.10	3.61
Malaysia	13.0	10.6	9.3	0.53	0.64	7.17	5.33
Philippines	24.6	31.6	30.0	0.57	0.65	4.19	4.47
Singapore	19.0	17.1	15.9	0.40	0.41	5.74	6.38
Thailand	14.1	16.0	15.8	0.41	0.61	6.51	4.71

...= not available

Sources: CEIC, national sources, *International Financial Statistics* (IMF), and World Bank.

Finally, with the recent increase in household lending and given Korea's experience with excessive credit card lending, several economies—including Korea, Malaysia, and Thailand—have begun to implement new systems to monitor household indebtedness.⁴⁰ Monitoring housing markets has grown in several economies—such as Korea and Hong Kong, China—where concerns about run-ups in property prices have grown.⁴¹ This has involved, among other things, the enforcement of conservative loan to valuation ratios to cushion banks from declines in housing prices and stress testing banking systems to possible sharp declines in house price (see Box 5).

3. Efficiency, Profitability, and Financial Soundness of Commercial Banks

The profitability of regional banking systems is influenced by their operational efficiency, as measured by operating costs,⁴² deposit and lending rate spreads, and return on assets.

Return on assets in the region's banking systems has recovered from crisis lows, with average returns generally in the 1.0–1.5% range, broadly in line with international norms.

Particularly in crisis-affected economies, the return on assets rebound appears to reflect lower specific provisioning—deducted from earnings—as nonperforming assets have moved off bank balance sheets. In Indonesia, they remain relatively

⁴⁰ See Fitch IBCA, 2006, at http://www.fitchibca.com/corporate/locked/view_research_locked.cfm?rpt_id=248492.

⁴¹ See discussion in the *Asia Economic Monitor*, December 2006.

⁴² Operational costs do not include provisioning and are based primarily on efficiency and factor costs.

high, apparently related in large measure to the wide spreads between deposit and lending rates and relatively high returns on government securities holdings. The rate of return on bank equity is linked to the rate of return on assets by the degree of banking system leverage.⁴³ Even under relatively strict risk-weighted capital adequacy requirements, most regional banking systems remain highly leveraged—as seen in the large spreads between the returns on assets and equity.

However, since the crisis, unit costs have not declined very much in most of the region’s banking systems.

The operational costs of any banking system depend on factors outside its control—the general level of wages and salaries—and by factors under its control—number of bank branches and staff efficiency, for example. Given the substantial restructuring since the crisis, operational costs in relation to asset size might be expected to have fallen in many regional banking systems, possibly by large amounts. Assessing the size of any cost reductions is difficult, however, given the absence of detailed bank data that would allow for the estimation of the unit cost function at different levels of production. Instead, cost inferences must be made on the basis of comparisons of unit operational costs at possibly different levels of production.⁴⁴ Subject to these limitations, for the most part unit costs have not declined very much in most of the region’s banking systems since the crisis (Table 16). At the same time, data show significant remaining cost differences across the region’s banking systems, with Indonesia and the Philippines in particular exhibiting relatively high costs. However, unit costs in the region’s banking systems generally compare favorably with emerging market banking systems in other regions.⁴⁵

⁴³ The difference between the rates of return on assets and equity is used to infer the equity capital to assets ratio.

⁴⁴ In addition, the extent to which institutions are engaged in commercial or investment banking should be examined, given that costs in the two areas may be different.

⁴⁵ See Ghosh (2006) op. cit.

Deposit/lending rate spreads remain at relatively elevated levels—especially in Indonesia, Philippines, and Thailand—though they provided an important source of income to finance bank recapitalizations.

Given the continued dominant role of traditional financial intermediation in the region's banking systems, spreads between loan and deposit remain the primary source of most banking systems' income. Spreads remain at relatively elevated levels, especially in Indonesia, Philippines, and Thailand. These relatively high spreads have provided an important source of income to finance bank recapitalizations and continue to do so, but to a somewhat lesser degree in recent years. The ability of banks to cover part of their recapitalization costs through lending spreads is, of course, not fully consistent with a competitive banking system unless there are significant weaknesses across many banks. In a very competitive system, relatively strong banks would be expected to bid away business from weak banks to the extent that the latter sought to pay low deposit rates—or charge high loan rates—in order to generate income.

Table 16: **Banking Sector Operational Costs and Profitability**

	Operating Costs to Total Assets (%)			Loan-deposit Spread (percentage points)			Return on Asset (ROA) (%)			Return on Equity (ROE) (%)		
	1998	2001	2004	1998	2001	2004	2001	2004	2006	2001	2004	2006
China, People's Rep. of	1.50	1.10	1.05	2.51	3.52	3.26	...	...	...	...	...	...
Hong Kong, China	1.20	1.18	0.85	2.23	2.68	4.97	1.23	1.50	1.50	...	18.70	18.90
Indonesia	4.03	2.30	3.20	-4.97	2.65	7.22	1.45	3.46	2.60	13.35	42.15	28.00
Korea, Rep. of	2.90	1.35	1.50	1.76	1.81	1.95	0.66	0.85	1.11	12.80	15.16	14.60
Malaysia	1.50	1.65	1.70	3.34	3.63	2.96	1.00	1.40	1.30	13.40	16.30	16.10
Philippines	3.75	3.30	3.10	4.17	3.36	3.67	0.50	1.00	1.30	3.40	7.60	11.50
Singapore	0.80	0.90	1.10	2.71	4.06	4.87	1.00	1.25	1.31 ¹	...	11.80	12.40 ¹
Thailand	2.75	1.90	1.80	3.41	4.59	4.46	1.31	1.25	0.77	...	15.66	8.50

¹ As of September 2006.

Sources: *International Financial Statistics* (IMF), World Bank, CEIC, and national sources.

Increasingly, the financial health of banking systems is being assessed through financial soundness indicators, and these suggest significant improvement in the soundness of emerging East Asian banking systems since the crisis.

Financial soundness indicators (FSIs) cover a range of variables including the amount of regulatory capital held in relation to risk-adjusted assets (Basel I), the quality of assets, domestic liquidity cushions, exposures to certain types of market risk—such as exchange rate or interest rate risk—and any loan concentrations in specific sectors.

Three broad sets of FSIs are computed (Table 17). The indicators fall under three categories: asset quality—NPL ratios; domestic liquidity cushions—measured by two alternative liquidity ratios; and capital cushions—Basel I ratios of regulatory capital to risk-weighted assets and the ratio of market capital to risk-unadjusted assets.⁴⁶ The FSIs suggest significant improvement in the soundness of emerging East Asian banking systems since the crisis.

- ***Substantial strengthening in asset quality has occurred across much of the region—sharp reductions in NPL ratios from crisis peaks—and increases in regulatory capital ratios.***

For crisis-affected economies, the improvement in NPL ratios for the most part reflects the near completion of provisioning for impaired assets.⁴⁷ With this, returns on assets and equity have bounced back in recent years—with less income dedicated to specific provisioning⁴⁸ and higher net income used to build up regulatory capital ratios to high levels. However, NPL ratios remain relatively high in several economies, most notably PRC, Indonesia, Philippines, and Thailand, suggesting continued weak asset quality. While improvements are encouraging, major credit rating agencies suggest that asset quality in some of the region's banking systems may be weaker than implied by official NPL estimates. Based on the standard five-way classification of bank

⁴⁶ This is derived from the spread between the reported rates of return on equity and assets.

⁴⁷ Note that NPLs represent only one measure of asset quality. Broader approaches are based on the five-way classification of loans into categories: standard, watch list, substandard, doubtful, and loss. Different specific levels of provisioning are typically required for each category.

⁴⁸ Whereas general provisioning adds to capital, putting aside funds for specific provisioning subtracts from capital.

Table 17: **Banking Sector Soundness**

	Nonperforming Loans (NPL) (%)			Capital Adequacy Ratio (CAR) (%)			Equity/Asset (%)		Liquid Assets to Total Assets (%)			Liquid Assets to Deposits and Short-term Funding (%)		
	2001	2004	2006	2001	2004	2006	2003	2004	1998	2001	2004	1998	2001	2004
China, People's Rep. of	...	13.21	7.09	...	...	...	...	...	23.83	16.46	13.24	25.47	16.17	12.25
Hong Kong, China	5.16	1.63	1.11	16.50	15.40	14.90	8.28	8.02	37.65	37.05	30.09	43.72	44.07	37.78
Indonesia	12.10	5.75	7.00	20.50	19.40	20.50	108.33	81.40	34.27	68.19	51.21	18.58	27.54	29.39
Korea, Rep. of	2.90	1.70	0.80	11.67	12.06	12.74	5.88	5.92	17.52	11.08	9.74	21.58	12.11	10.89
Malaysia	10.50	6.80	4.76	12.84	14.30	13.10	8.50	8.59	22.17	24.25	28.76	21.83	20.74	26.92
Philippines	17.35	12.72	6.01	15.30	18.70	18.50	12.90	13.16	20.92	19.82	25.50	33.75	35.00	45.42
Singapore	...	4.00	2.40 ¹	18.20	16.20	15.40 ¹	10.68	11.02	37.92	42.86	33.02	39.94	34.75	28.01
Thailand	10.50	10.92	4.18	13.92	13.05	14.50	4.46	8.28	18.21	33.36	23.84	21.86	21.30	19.68

¹ As of September 2006.

Sources: CEIC, national sources, and World Bank.

loans—standard, watch list, substandard, doubtful, and loss—several credit agencies argue that loans in the last three or four classifications might be higher than implied by officially reported. The continued and possibly understated high levels of NPLs—or nonperforming assets⁴⁹—are a concern as they have continued into the current economic expansion, and in circumstances of unusually benign economic and financial market conditions. Any economic downturn could lead to the ratios rising from already elevated levels in a number of economies.

- ***Capital adequacy ratios have generally risen in much of the region with the regulatory risk-weighted capital asset ratios now close to the 15–20% range in many economies⁵⁰—well above the international 8% norm.⁵¹***

Relatively high capital adequacy ratios underscores the improving soundness of regional banking systems.

⁴⁹ In some economies, for example, the Philippines, the quality of bank assets by NPLs is underestimated as any previously restructured loans currently nonperforming are listed as nonperforming assets (NPAs) rather than in NPL ratios.

⁵⁰ National banking systems differ in terms of overall risk, and a case could be made for riskier systems to hold higher regulatory capital ratios; the recent trend appears to be toward convergence. For example, if the regulatory capital ratios in the mature and less risky banking systems of Singapore and Hong Kong, China, currently fall in the appropriate 15–20% range, should less mature and riskier banking systems hold higher regulatory capital ratios? No simple answer can be provided even though the issue relates importantly to how the soundness of different national banking systems is to be assessed.

⁵¹ Many economies in the region require banks to maintain ratios above the international 8% norm.

However, the assessment of the current high levels of reported regulatory capital ratios is not straightforward.⁵²

A fundamental difficulty in using regulatory capital ratios to assess banking sector soundness is related to the fact that the 8% prudential minimum is based on the assumption that risk is appropriately managed and priced. If risk is undervalued and priced by banks,⁵³ the first line of defense against unforeseen losses (loan pricing and profitability) will be inadequate, and the second line of defense (capital and other cushions) might need to be commensurately higher. Unfortunately, there is little systematic evidence on loan pricing across national banking systems; what anecdotal evidence there is—notably the reports of credit rating agencies—is not generally positive, especially for the banking systems of PRC, Indonesia, Philippines, and Thailand.⁵⁴ Whether current regulatory capital ratios are adequate is not clear, and the recent high ratios across the region do not provide grounds for complacency.

Unadjusted capital asset ratios—derived from the rates of return on assets and equity in different banking systems—are based on the market value of equity and make no adjustment for the riskiness of different assets as in the case of the regulatory risk-weighted capital ratios. The unadjusted ratios are generally below regulatory ratios, and in several cases, the divergence appears to be explained by the fact that the credit risk weight on sovereign claims is treated as zero in most banking systems—in line with the Basel I approach. As a result, banking systems that hold sizable claims on their own official sector—such as Indonesia—do not hold capital against the credit risk of these claims, leaving regulatory capital below market capital.

⁵² Part of the difficulty relates to the way in which these ratios are calculated. Under the Basel I capital adequacy framework, regulatory capital is not measured directly by the market value of a bank, but by its historic value adjusted by retained earnings and general provisioning. In these circumstances, the amount of regulatory capital is only related loosely to the book value of a bank (the difference between the market value of its assets and liabilities), and even more loosely to its stock market value. In addition, different financial instruments—including subordinated debt and debt-equity hybrids—can be included as capital under the current framework.

⁵³ For example, by charging high and low risk borrowers the same interest rate.

⁵⁴ The issue here is more one of a lack of information about pricing rather than a clear indication that loans are necessarily underpriced.

4. Bank Credit Ratings, Market Values, and Risk Exposure

Market-based indicators such as credit ratings and bank share prices—and the lending behavior of banks—provide additional information on the health and soundness of banking systems.⁵⁵ Credit ratings and bank share prices, however, did not prove very reliable in the lead-up to the 1997/98 crisis. But subsequent improvements in bank transparency—and strengthened bank monitoring by ratings agencies—should help improve their information content. And, as the traditional business of banking is making loans, bank lending behavior can provide a guide as to whether and to what extent banks are “back in business,” or whether they face impediments in expanding their loan portfolios.⁵⁶

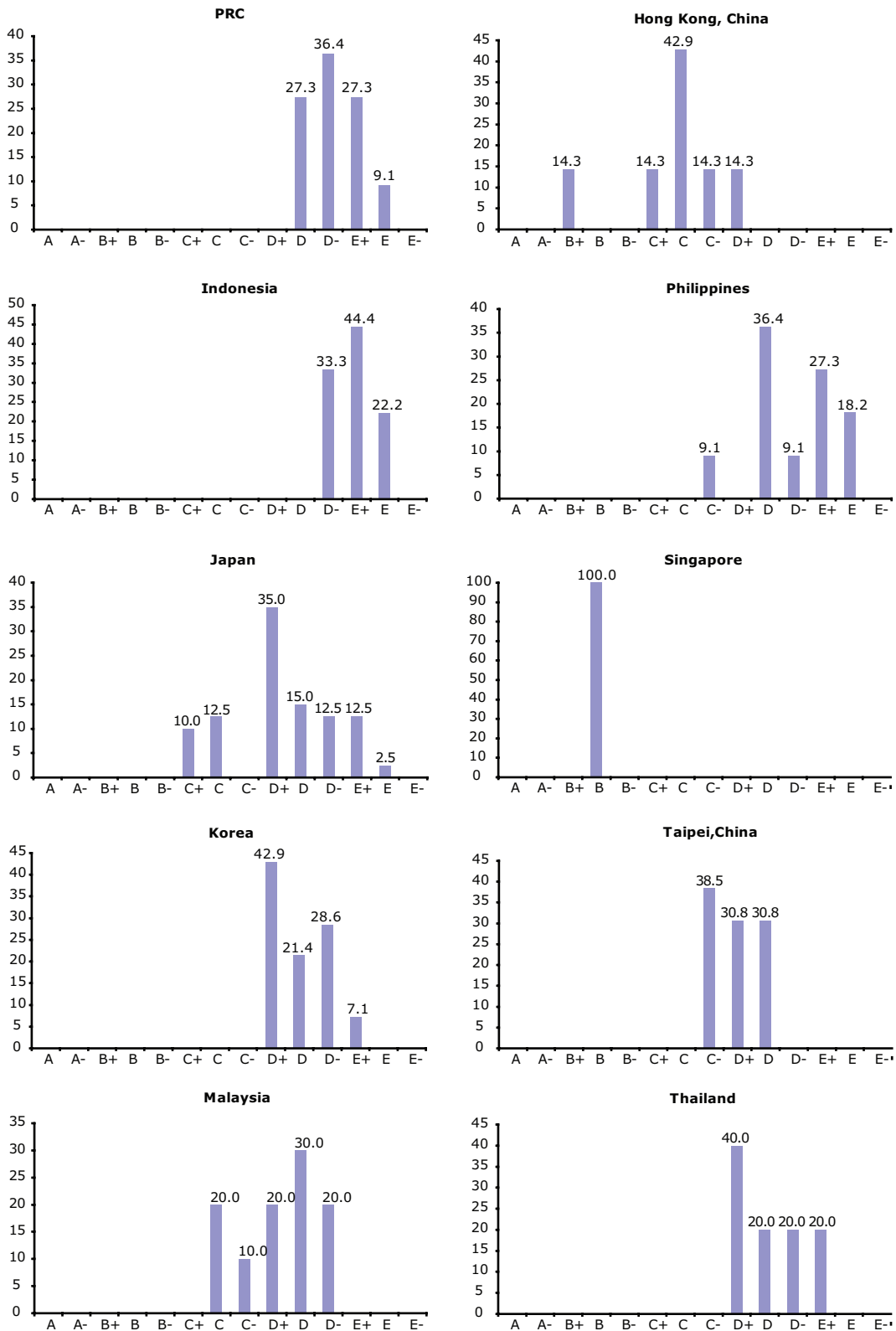
While there have been improvements in credit ratings of banks relative to the crisis lows in crisis-affected economies, most emerging East Asian banks still receive relatively low ratings.

Major credit ratings agencies assess the stand-alone strength of banks in the region on a scale from A (excellent) to E (weakest), with various gradations in between (Figure 44). While there have been improvements in ratings relative to the crisis lows in the crisis-affected economies, most of these banks still receive relatively low ratings—in the D to E range. In addition, not only are banks in crisis-affected economies generally rated below banks in Singapore and Hong Kong, China, their ratings in several cases are not very different than before the crisis. The failure of ratings to exceed pre-crisis levels is surprising given the substantial restructurings over the past 10 years. One possibility is that ratings agencies judge emerging market banks as inherently risky because they operate in more risky environments. Singapore and

⁵⁵ See Persson, M. and M. Blavarg, 2003, “The Use of Market Indicators in Financial Stability Analysis,” *Sveriges Riksbank Economic Review*, 2; and the July and December 2006 *Asia Economic Monitor*. Turner (2007) also studies market indicators.

⁵⁶ The use of market indicators is subject to a number of caveats: (i) Ratings and pricing of banks are invariably influenced by the possibility of official support in the event that a bank runs into difficulty. Major international rating agencies seek to allow for this by issuing stand-alone credit ratings, intended to measure the underlying strength of banks in the absence of support—used here. Arguably, however, the possibility of official support influences many aspects of bank operations, including the cost of funding through either deposits or the interbank market, and it is very difficult to fully adjust for its effects; and (ii) given that the largest and soundest banks in any economy are typically listed and rated, the indicators may not be a good guide to overall banking system quality, and subject to an upward bias.

Figure 44: **Bank Financial Strength Ratings**, as of November 2006 (% of rated banks)



Source: Moody's Investor Service.

Hong Kong, China are viewed and thus treated as special cases. However, other interpretations are possible.⁵⁷

One possibility is that the overall stability of the ratings for these countries conceals implicit upgrades. If, as seems likely, pre-crisis ratings overstated bank strength in the crisis economies, a re-rating to a (more appropriately determined) but similar pre-crisis rating would be an indication of an upgrade. To some extent this appears to be the case, and is implicit to some degree when the ratings agencies explain their assessments. On the other hand, another interpretation—consistent, to some degree, with findings from other regions—is that bank credit ratings tend to lag (rather than lead) improvements in bank performance. If this is the case, continued low ratings might be a transitional phenomenon; eventually there will be upgrades provided the improvements in bank performance indicators discussed in earlier sections are sustained.

With the exceptions of Singapore and Hong Kong, China, equity prices for emerging East Asian banks have underperformed the market, and in some cases, the gap is growing.

In terms of bank share prices, the picture is not uniformly favorable (Table 18).⁵⁸ On a positive note, weakness in bank share prices relative to overall indexes has been partially reversed in Korea and Malaysia and, in Malaysia, bank share prices have recently been slightly outperforming the market. Elsewhere, however, with the exceptions of Singapore and Hong Kong, China, banks have been underperforming the market, in some cases by growing amounts. In view of the sharp run-ups in many regional equity markets in recent years, comparing bank performance against the overall market might be an excessively demanding benchmark. On the other hand, given the extensive restructuring of the banking sector in many countries and high levels of official support provided in the crisis-affected countries, a relatively stronger bank performance might be expected.

⁵⁷ The discussion here is based on Turner (2007) and various issues of the IMF *Global Financial Stability Report*.

⁵⁸ Please note that Table 18 lists “Bank share prices,” while Figures 22a–b referred to on page 18 illustrate overall “Financial” stock prices.

Table 18: **Bank Share Prices**

	Bank Share Price Index (a) in Real Terms ^{1,2}			Bank Share Price Relative to General Share Price Index ¹			Volatility of Bank Share Price ^{3,4}		Regression Coefficient of (a) on General Index ⁴	
	1995	2000	2005	1995	2000	2005	1995-2000	2001-06	1995-2000	2001-06
Indonesia	383.3	67.3	31.4	209.7	80.3	26.5	15.4	9.8	0.6	0.9
Korea, Rep. of	271.7	47.5	81.0	180.4	50.1	65.2	12.6	7.7	0.7	0.5
Malaysia	103.6	114.3	125.8	74.2	113.2	125.6	12.5	4.8	0.9	0.7
Philippines	215.4	91.7	67.7	113.8	114.9	84.7	8.9	6.2	0.5	0.7
Thailand	318.9	44.8	50.4	123.6	82.9	50.1	15.1	6.6	0.8	0.6
Memo item:										
United States	53.0	94.0	114.5	89.7	68.3	111.4	5.5	3.4	1.3	0.7

¹ 1995–2005 = 100; in local currency terms; annual averages.

² Deflated by consumer prices.

³ Standard deviation over the whole period.

⁴ Calculated based on monthly changes in the log of the index; the second column refers to data up to July 2006.

Source: Turner, Philip. "Banking Systems in East Asia: Ten Years Later." BIS, October 2006.

Over the past 10 years, the overall size of loan exposures has been reduced and the risk composition of loan books has shifted from business toward household and government credit.

Weaknesses in credit risk management, loan concentrations, and inadequate real capital cushions⁵⁹—together with an adverse macroeconomic and financial shock—were key contributors to the severity of the 1997/98 crisis. Therefore, over the past 10 years, banks in the region appropriately have sought to strengthen management of credit risk and build up capital cushions. To varying degrees, lending in relation to bank assets has been scaled back and diversified toward the household sector, with business lending to troubled firms pared back, and holdings of "credit-risk free" government securities increased. As a result, the overall size of loan exposures has been reduced⁶⁰ and the composition of loan books has shifted from business toward household and government credit risk. Whether these changes in the size and composition of loan books on balance has increased or lowered bank risk depends on several considerations.

Based on the experience in mature economies, diversification into mortgage and non-mortgage related household lending and increased holdings of own-government official claims might be

⁵⁹ Prior to the 1997/98 crisis, capital cushions were overstated in a number of economies as a result of imperfect accounting for asset quality.

⁶⁰ In addition, some banking systems have hedged part of their credit risk through credit derivatives. Little information is available on these off balance sheet operations. See IMF, 2005, *Global Financial Stability Report*.

expected to reduce credit risk.⁶¹ Whether these risk reductions will necessarily apply to the region is not straightforward, however. As illustrated by the Korea's credit-card problems (see Box 4), there can be "teething" problems when financial institutions move into new areas. Moreover, even mortgage lending can carry significant risks when loan to valuation ratios are not sufficiently conservative, as was the case in Hong Kong, China early this decade when property prices weakened.

The credit risk associated with bank lending to the business and household sectors is obviously influenced by the environment in which banks operate. The past few years have been characterized by very favorable macroeconomic and financial conditions in the region—reflected in relatively strong growth rates, low inflation, and generally low nominal interest rates. Also, the relatively low volatility of these variables—especially relative to the 1997/98 crisis—created an unusually benign environment.

The financial health of the key sectors that banks lend to has also improved relative to earlier periods (Table 19). However, significant differences persist across economies. The financial health of the household sector (as well as conditions in property markets) is becoming more significant on risks faced by banks though not generally suggestive of a significant accumulation of household indebtedness or overextension (Table 20). However, there is little information on the distribution of credit across households and the extent to which it may have been concentrated in particular income groups.⁶²

On balance, the credit risk on regional banking system balance sheets might arguably be somewhat lower than before the 1997/98 crisis. Importantly, however, such an assessment is predicated on the assumption that the reduction in the overall level of credit risk associated with cutbacks in lending and the improved macroeconomic and financial environment is not offset by increasing risk associated with higher household lending and other bank activities.

⁶¹ These latter claims receive a lower risk weighting under Basel I capital adequacy framework than claims on the business sector.

⁶² Risks associated with elevated property prices are discussed in the December 2006 *Asia Economic Monitor*.

Table 19: **Non-Financial Sector Corporate Health**

Debt to equity ratio (median, %)					
	1994-96	1997-2000	2001-04	2003	2004
China, People's Rep. of	46	48	56	59	62
Hong Kong, China	44	36	32	33	34
Indonesia	71	140	65	64	68
Korea, Rep. of	181	123	60	53	49
Malaysia	49	54	39	40	40
Philippines	39	61	51	45	55
Singapore	38	46	37	38	54
Thailand	94	113	58	59	47
United States	56	64	65	63	54

Interest coverage (median, %)					
	1994-96	1997-2000	2001-04	2003	2004
China, People's Rep. of	4	4	4	4	4
Hong Kong, China	4	3	5	6	7
Indonesia	3	1	2	2	2
Korea, Rep. of	1	2	3	3	4
Malaysia	6	3	4	5	5
Philippines	5	1	1	1	2
Singapore	6	5	7	8	10
Thailand	3	2	6	7	9
United States	7	7	6	5	6

Return on assets (median, %)					
	1994-96	1997-2000	2001-04	2003	2004
China, People's Rep. of	7	4	5	5	4
Hong Kong, China	7	4	4	4	5
Indonesia	9	4	5	4	4
Korea, Rep. of	6	5	5	5	5
Malaysia	8	3	4	4	4
Philippines	8	2	2	2	4
Singapore	5	4	4	5	6
Thailand	7	3	8	8	9
United States	8	9	7	7	8

Source: Ghosh, Swati R. *East Asian Finance: The Road to Robust Markets*. World Bank, 2006.

Table 20: **Household Sector Financial Health**

	Household Indebtedness (% of GDP)			Non-mortgage (% of GDP)			Mortgage (% of GDP)		
	2001	2004	2006	2001	2004	2006	2001	2004	2006
Hong Kong, China	60.3	58.2	52.1	10.5	10.9	11.7	49.8	47.3	40.3
Indonesia	4.3	8.2	8.5	3.1	6.4	6.3	1.2	1.8	2.2
Korea, Rep. of	25.8	35.3	40.8	11.9	13.6	15.2	13.9	21.8	25.6
Malaysia ¹	43.8	50.0	53.1	19.4	21.9	24.8	24.4	28.0	28.4
Philippines	5.8	5.2	4.2	5.0	4.5	3.6	0.8	0.7	0.6
Singapore ²	...	51.0	46.4	...	18.0	15.4	28.5	33.0	31.0
Thailand	...	24.5	23.7	...	8.4	6.5	13.2	16.1	17.2

¹ Refers to sum of loans for personal uses, credit cards, purchase of consumer durable goods & purchase of passenger cars for commercial banks, merchant banks & finance companies; for 2006, only data from commercial banks and merchant banks are available.

² Refers to consumer loans of commercial banks and finance companies.

Sources: CEIC and national sources.

The key market risks currently faced by the region's banking systems are related to securities holdings and lending to the property sector, far different than prior to the crisis.

Securities holdings—with risks of capital loss in the event of sharp increases in interest rates; and lending to the property sector—related to the collateral value of housing are the major market risks currently confronting emerging East Asian banking systems.⁶³ For the most part, the region's banking systems have shifted the interest rate risk associated with mortgage lending to the household sector by issuing adjustable rate mortgages. In the event of financing difficulties due to a sharp rise in interest rates, the effects would be felt in the first instance by households. Faced with a severe shock, however, this risk might be shifted back to the banks if households experience difficulties servicing mortgages. Stress tests have been conducted by central banks and supervisors in the region to assess the robustness of banking systems to market risk shocks associated with increases in interest rates and/or reductions in property prices. The results of these tests provide grounds for guarded optimism (Box 5).

⁶³ In addition, banks face foreign exchange rate and equity price risks. These appear, however, to be small and manageable. See IMF, 2006, *Global Financial Stability Report*.

The key liquidity risks in emerging East Asian banking systems relate to domestic liquidity and to mismatches between the maturity of banks' domestic currency liabilities and assets; as opposed to the currency mismatches that existed in 1997.

Foreign currency liquidity risks associated with currency mismatches played a key role in the 1997/98 crisis. For the most part, these risks appear to have been substantially reduced across the region and economies have accumulated large stocks of international reserves to more than cover total short-term external debt.⁶⁴ In some economies, however, notably the PRC, there have been increases in onshore foreign currency borrowing and lending by domestic banks that have become a source of concern. Notwithstanding a lack of clarity about the maturity structure of these foreign currency liabilities and assets, they are not seen as large enough to pose systemic risks, however.⁶⁵

Against this backdrop, the key risks relate to domestic liquidity and to mismatches between the maturity of banks' domestic currency liabilities and assets. As noted, most regional banking systems currently have relatively comfortable liquidity cushions related either to prudential requirements and/or heightened risk aversion. On balance, domestic liquidity risk does not appear to be very large for most regional banking systems and national authorities have the tools at their disposal to meet any liquidity shocks that might pose systemic risks.

5. The Challenges Ahead

Across much of the region, significant progress has been made cleaning up impaired assets, strengthening risk management systems, and returning banks to robust health—yet progress has been uneven and formidable challenges remain.

Much had changed in regional banking systems over the past 10 years. With extensive restructuring and reform, banking systems have experienced consolidation, previously closed systems have been opened to foreign entry and—abstracting from temporary crisis-induced nationalizations—state ownership has continued to decline. Across emerging East Asia, banks have also been moving

⁶⁴ See the December 2006 *Asian Economic Monitor*.

⁶⁵ See IMF, PRC-2006 Report, Article IV Consultation—Country Report No. 06/394.

into new areas related to investment banking and household lending, and the range of financial services and products has expanded. In addition, supervisory and regulatory systems have been upgraded and become more forward looking and risk based, and have been adapting to the new activities into which banks have been moving.

Most official indicators suggest that the health of banking sectors in the region has improved substantially from crisis troughs even though significant differences persist across countries. At the same time, however, major credit rating agencies continue to maintain relatively low ratings for many banks in the region, bank share prices have generally been underperforming the market, and significant differences persist in the health of different banking systems. In addition, bank lending to the private business sector across much of the region has been weak, and banks are not yet fully “back in business.”

What should one make of these different messages? Based on the analysis, the following tentative conclusions might be drawn.

- ***Rehabilitation and restructuring is a continuing process.***

Indonesia, Philippines, and Thailand have yet to complete the rehabilitation and restructuring processes, along with the reduction of state ownership; Korea and Malaysia seem relatively far advanced in their rehabilitations; the PRC is making significant progress addressing deep-seated weaknesses in its banking system, although state ownership and control remain potential issues; Singapore and Hong Kong, China, remain well advanced.

- ***With the exception of the PRC, bank lending across the region has generally remained subdued due to a lingering and pervasive lull in business investment.***

The pervasiveness of the weakness in bank lending across the region points toward common influences. Especially in the crisis-affected economies, the weakness may to some degree still reflect limitations on credit supply as banks continue to improve asset quality and reduce risk, but the effect is probably by now relatively small. The recent growth in bond markets in the region

may have contributed to the softness in bank lending, but does not seem to be quantitatively very important in most economies. For the most part, the softness appears to reflect the pervasive weakness in business investment in much of the region. If this is the case, the slowdown in bank-based financial deepening does not necessarily signal a structural change in the role of emerging East Asia's predominantly bank-based financial systems, or pervasive banking sector weakness, but is linked to the factors accounting for the weakness in investment.

- ***Manage the risks associated with new business activities and household lending.***

Banking system robustness depends, of course, not only on the amount of risk on bank balance sheets, but importantly, also on the sizes of the capital and other prudential cushions within the system and the types of shocks to which the system may be exposed. Arguably, banking systems across the region are much less exposed to certain risks—such as a withdrawal of foreign currency liquidity—than prior to 1997. However, in moving into new business activities and household lending, they have also assumed new risks. And it is difficult to compare these with those that were important before the crisis. Moreover, the new systems have yet to be tested by a major financial or economic shock. Significant comfort is provided, however, by the relatively large prudential and other cushions that appear to have been built up across emerging East Asia's banking systems. Stress tests on many regional banking systems also provide a basis for guarded optimism, even if these tests cover only a limited range of the risks that banking systems face.

- ***The continued upgrading of governance and disclosure standards is a challenge that will continue to confront banking systems across the region, particularly as the adoption of the revised Basel II Framework begins gradually in 2008.***

Basel II describes comprehensive measures and minimum standards for capital adequacy that supervisory authorities will implement to align regulatory capital requirements more closely to the underlying risks that banks face. It also promotes a more forward-looking approach to capital supervision—one encouraging banks to identify risks they may face—both currently and in the future—with the aim of better managing those risks.

Box 5: **Assessing the Soundness of Banking Systems: Stress Tests**

A key issue in assessing the soundness of a banking system is its robustness in facing a worsening macroeconomic and financial environment and/or the risks associated, for example, with shifts into new activities. Several stress tests are reviewed in which a banking system is subject to a particular “shock” and authorities assess its ability to absorb it. Shocks can include changes in the level and volatility of interest rates, declining property prices, slowing economic growth, and exchange rate changes. Provided they are well designed, and based on the appropriate economic and financial feedbacks, stress tests are an important guide.

Several central banks or financial regulatory authorities have conducted stress tests on the robustness of their banking systems to adverse changes in the macroeconomic and financial environment. Usually, the tests are based on the following assumptions: higher interest rates (Singapore; Hong Kong, China; Thailand; Malaysia); sharp falls in real estate prices (Hong Kong, China; Republic of Korea; Thailand); and a cyclical downturn (Singapore; Hong Kong, China). The Monetary Authority of Singapore has also conducted tests assuming an upturn in volatility and widening corporate interest rate spreads. The Philippine central bank has integrated its stress testing and early warning systems to

help identify emerging vulnerabilities in the banking sector. The test results usually suggest substantial robustness of banking systems in the region to the assumed shocks, albeit with differences in the extent to which earnings, capital cushions, and nonperforming loans absorb them.¹

Notwithstanding the increased confidence in the robustness of banking systems suggested by the stress tests, there is no reason for complacency. Stress tests have two main weaknesses. The first is that the usefulness of the tests is based on the correct identification of the key risks; inevitably

perhaps, the assumed shocks are the ones supervisors are concerned most about—the known unknowns—while it is frequently totally unexpected events, or unknown unknowns, that cause difficulties. Guarding against these latter uncertainties may require prudential cushions that are much larger than those required for the former risks. Moreover, in periods of rapid financial innovation and globalization, these latter uncertainties arguably tend to increase. And stress tests are typically based on the judgment that long-term historical relationships between variables apply during periods of stress—allowing for the use of these relationships. While this may be appropriate for small shocks, it may not apply when the shocks are very large, particularly if contagion occurs, as correlations across many markets may rise and be much higher than normal. In these circumstances, traditional assumptions about “all other things being equal” made in conducting stress tests may not hold.

¹ For descriptions of stress testing in these economies see: Wong, Jim, Choi Ka-fai, and Tom Fong, “A framework for macro stress testing the credit risk of banks in Hong Kong”, *HKMA Quarterly Bulletin*, Dec 2006, HKMA; Nakornthab, Don, Chatsurang Karnchanasai, and Suchot Piamchol, *Bank Lending, The Housing Market and Risks: A test for financial fragility*, Bank of Thailand Discussion paper Nov 2004; Bagsic, Cristeta and Eloisa Glindro, *Modernization: A Policy Perspective*, Bangko Sentral ng Pilipinas BSP Working Paper Series, 2006; Monetary Authority of Singapore, *Financial Stability Review* (various issues); Bank Negara Malaysia, 2006, *Financial Stability Report*; Bank Indonesia, March 2007, *Financial Stress Testing in Indonesia, Financial Stability Review*; Lee, Jang-Yung, “Macroprudential Supervision in Korea: Experiences and Case Studies,” Macroprudential Supervision Conference: Challenges for Financial Supervisors, seminar paper, Bank of Korea (2006).

About the Asian Development Bank

ADB, based in Manila, is dedicated to reducing poverty in the Asia and Pacific region through pro-poor sustainable economic growth, social development, and good governance. Established in 1966, it is owned by 67 members – 48 from the region. In 2006, it approved loans and grants for projects totaling \$8.5 billion, and technical assistance amounting to almost \$242 million.