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The *Asia Capital Markets Monitor* (ACMM) reviews recent developments in emerging Asia's stock, bond, and currency markets along with their outlook, risks, and policy implications. This issue features a special section, "Managing Capital Flows: Issues and Challenges for Emerging Asia."

The ACMM covers the capital markets of China, People's Republic of; Hong Kong, China; India; Indonesia; Korea, Republic of; Malaysia; Philippines; Singapore; Taipei,China; Thailand; and Viet Nam.

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Abbreviations and Acronyms

ACMM	Asia Capital Markets Monitor
ADB	Asian Development Bank
ADO	Asian Development Outlook
ARIC	Asia Regional Integration Center
ASEAN	Association of Southeast Asian Nations
ASEAN+3	ASEAN plus People's Republic of China, Japan, and Republic of Korea
BIS	Bank for International Settlements
BI	Bank Indonesia
BSP	Bangko Sentral ng Pilipinas
CDS	credit default swap
CoCo	contingent convertible
CMI	Chiang Mai Initiative
CMIM	Chiang Mai Initiative Multilateralization
ECB	European Central Bank
FDI	foreign direct investment
FX	foreign exchange
G3	US, eurozone, Japan
G20	Group of 20
GARCH	Generalized Autoregressive Conditional Heteroskedasticity
GDP	gross domestic product
HKMA	Hong Kong Monetary Authority
IMF	International Monetary Fund
IPO	initial public offering
JCI	Jakarta Composite Index
KOSPI	Korean Stock Price Index
LCY	local currency
LIBOR	London Interbank Offered Rate
MSCI	Morgan Stanley Capital International Inc.
m-o-m	month-on-month
NEER	nominal effective exchange rate
NIE	newly industrialized economy
NPL	nonperforming loan
OECD	Organisation for Economic Co-operation and Development
OIS	overnight index swap
OREI	Office of Regional Economic Integration
P/E	price-to-earnings
PRC	People's Republic of China
q-o-q	quarter-on-quarter
repo	reverse repurchase
STI	Straits Times Index
TWSE	Taiwan Stock Exchange Index
UK	United Kingdom
URR	unremunerated reserve requirements
US	United States
vols	volatility units
y-o-y	year-on-year

Highlights

Global and Regional Environment

- Global economic and financial conditions have improved over the past year in part due to the unprecedented policy measures taken in response to the global financial crisis.
- As a result of the improving external environment and swift policy responses of the region's governments, emerging Asia's economic recovery has gained substantial traction.
- Inflation, though rising, remains manageable; while balance of payments across the region remain in surplus as exports rebound and capital inflows surge.
- External funding conditions for emerging Asia have vastly improved as the global credit environment eases and investors' risk appetite returns.
- The Greek debt crisis and fears of contagion effects have weighed on investor sentiment—although the impact on emerging Asia's capital markets has been and is expected to remain limited.
- The timing and pace of exits from fiscal and monetary stimulus will also influence the region's capital markets.

Emerging Asia's Market Performance and Outlook

- The global economic recovery, very low returns on safe assets in developed countries, and attractive valuations drove the post-crisis rebound in emerging Asian equity markets.
- Emerging Asian equities delivered lofty returns in 2009 and market capitalization soared, though still remained below pre-crisis levels.
- Despite favorable cyclical developments, the strong performance of emerging Asian equities in 2009 limits room for further gains this year.
- The region's low interest rate environment, stable financial markets, economic recovery, and improved risk appetite brought a surge in issuance on local currency bond markets.
- Risk premiums for high-yield papers remain elevated, even as credit spreads on high-grade emerging Asian local currency corporate bonds tighten.
- Government bond yield curves are steepening—due to a combination of concerns over supply, the buildup of public debt, and strong recovery in other asset markets.
- Yields on government bonds may rise further amid increasing inflation expectations as monetary authorities raise interest rates.
- Emerging Asia's currencies broadly strengthened against the US dollar in 2009, although the extent of appreciation varied depending on country-specific economic conditions.
- Appreciation pressures on Asian currencies will likely intensify as capital inflows surge on improved economic prospects for the region.

Managing Capital Flows: Issues and Challenges for Emerging Asia

- Improved risk appetite and the region's strong economic recovery have led to a surge in capital flows to emerging Asia.

- This surge has been driven by portfolio equity flows—creating net inflows in 2009—spurred by increased earnings potential in emerging Asian markets.

- While the return of capital flows is welcome, surges in short-term capital inflows could destabilize financial markets and pose a risk to stability.

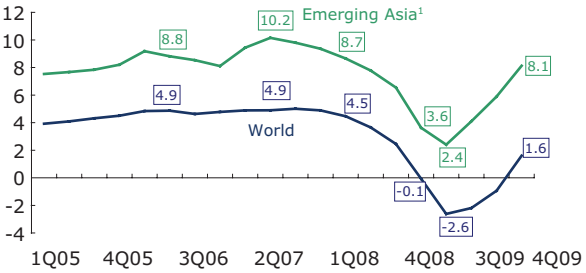
- Managing capital flows effectively requires an array of policy measures, including (i) sound macroeconomic management, (ii) flexible foreign exchange regimes, (iii) resilient financial systems, and (iv) temporary and targeted capital controls.

- The use of capital controls may be appropriate when capital inflows are transitory, add undue pressure on exchange rates, and pose risks to financial stability; and where the effectiveness of macroeconomic policies is uncertain.

At a Glance

Global economic recovery takes hold, growth in emerging Asia gains traction

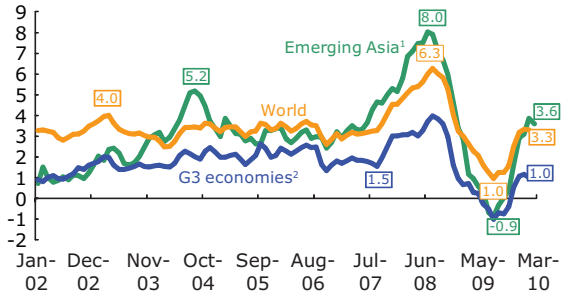
GDP Growth—Emerging Asia and World (year-on-year, %)



Note: Aggregates are weighted based on gross national income levels (Atlas Method in current USD prices) from *World Development Indicators,* World Bank.
¹Emerging Asia includes China, People's Rep. of; Hong Kong, China; India; Indonesia; Korea, Rep. of; Malaysia; Philippines; Singapore; Taipei,China; Thailand; and Viet Nam.
Source: National sources accessed through CEIC database and *World Economic Outlook April 2010,* International Monetary Fund.

Inflation edges up as many economies prepare to exit from stimulus packages and tighten monetary policies

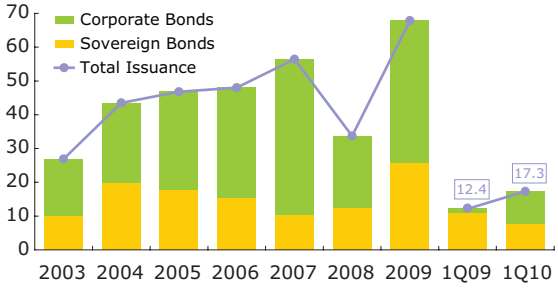
Headline Inflation—Emerging Asia, G3 Economies, and World (year-on-year, %)



¹Emerging Asia includes China, People's Rep. of; Hong Kong, China; India; Indonesia; Korea, Rep. of; Malaysia; Philippines; Singapore; Taipei,China; Thailand; and Viet Nam. ²G3 economies include eurozone, Japan, and United States.
Source: *World Economic Outlook April 2010,* International Monetary Fund; and national sources accessed through CEIC database.

External funding conditions for emerging Asia turn favorable and sovereign and corporate eurobond issuance jumps

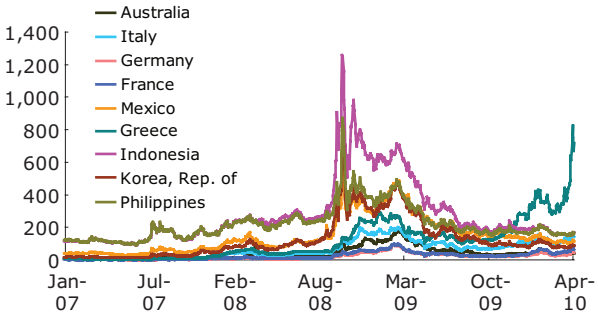
Corporate and Sovereign Eurobond¹ Issuance—Emerging Asia² (USD billion)



¹Includes US dollar, euro, and Japanese yen bond issuances. Sovereign bonds refer to those issued by national governments and government agencies. Data excludes certificate of deposits. ²Includes China, People's Rep. of; Hong Kong, China; Indonesia; India; Korea, Rep. of; Malaysia; Philippines; Singapore; Thailand; and Viet Nam.
Source: OREI staff calculations using Bloomberg data.

However, Greece's debt crisis and fears of contagion weigh on investor sentiment

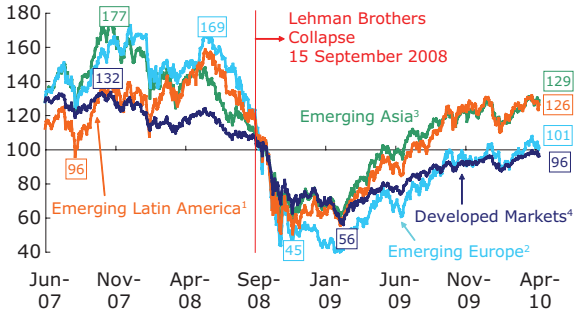
Credit Default Swaps Spreads—Selected OECD and Emerging Asian Economies (basis points)



OECD = Organisation for Economic Cooperation and Development.
Source: Thomson Datastream.

Emerging Asian equities rebound, spurred by economic recovery, attractive valuations, and rising investor confidence

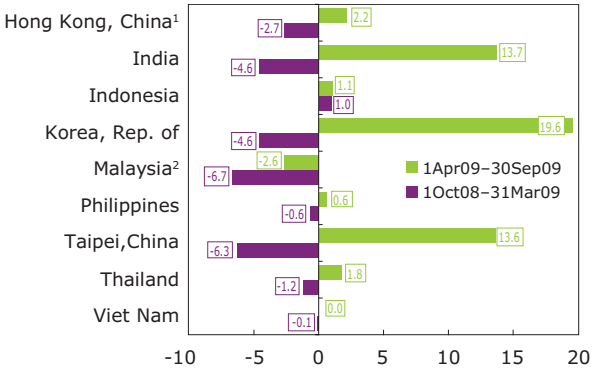
MSCI Equity Market Indexes
(15 September 2008 = 100)



[1]Includes Brazil, Chile, Colombia, Mexico, and Peru. [2]Includes Czech Republic, Hungary, Poland, Russia, and Turkey. [3]Includes China, People's Rep. of; India; Indonesia; Korea, Rep. of; Malaysia; Philippines; Taipei,China; and Thailand. [4]Includes Canada, France, Germany, Italy, Japan, United Kingdom, and United States.
Source: Morgan Stanley Capital International (MSCI) Barra.

Net foreign investment in Asian equities turns positive as investors regain confidence and global liquidity conditions improve

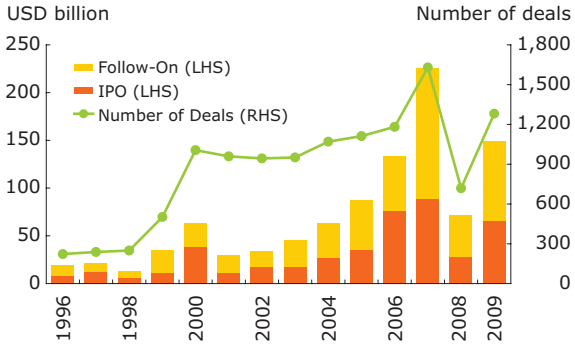
Net Foreign Portfolio Investment in Equities
(USD billion)



[1]Data refers to net portfolio investment in equity securities. [2]Values refers to net foreign and domestic portfolio investment in shares and corporate securities.
Source: Bloomberg, CEIC database, and Bank Negara Malaysia.

Issuance in emerging Asian equity markets rebounds strongly in 2009 as stability returns and economic prospects brighten

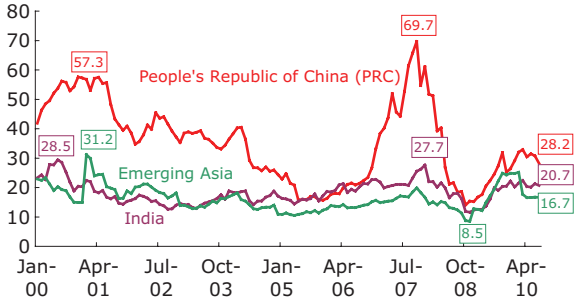
Equity Issuance—Emerging Asia[1]



IPO = initial public offering, LHS = left-hand side, RHS = right-hand side.
[1]Includes China, People's Rep. of; Hong Kong, China; India; Indonesia; Korea, Rep. of; Malaysia; Philippines; Singapore; Taipei,China; Thailand; and Viet Nam.
Source: Dealogic.

Despite the favorable cyclical developments, the strong performance of emerging Asian equities in 2009 limits room for further gains

Price–Earnings Ratio—Emerging Asia,[1] PRC, and India



[1]Data refers to MSCI All Country Asia (excluding Japan) Index, which includes China, People's Rep. of; Hong Kong, China; India; Indonesia; Korea, Rep. of; Malaysia; Philippines; Singapore; Taipei,China; and Thailand. [2]Price-earnings ratio of combined Shanghai and Shenzhen Composite, weighted by their respective market capitalizations.
Source: Bloomberg and CEIC database.

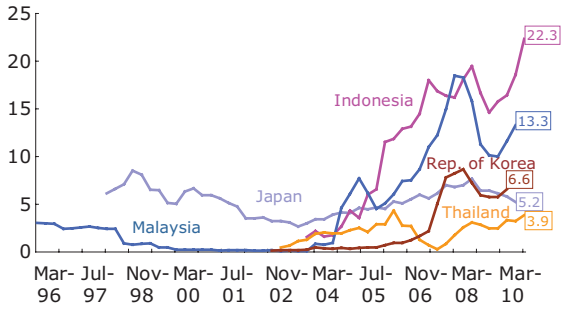
Low interest rates, improved risk appetite, and issuance contribute to robust growth of local currency (LCY) bond markets

Total Bonds Outstanding—Emerging Asia
(USD billion)

Note: Emerging Asia includes China, People's Rep. of; Hong Kong, China; India; Indonesia; Korea, Rep. of; Malaysia; Philippines; Singapore; Thailand; and Viet Nam.
Source: *AsianBondsOnline* and Bloomberg.

Foreign holdings of LCY government bonds rise as investors hunt for yields and regional currencies appreciate

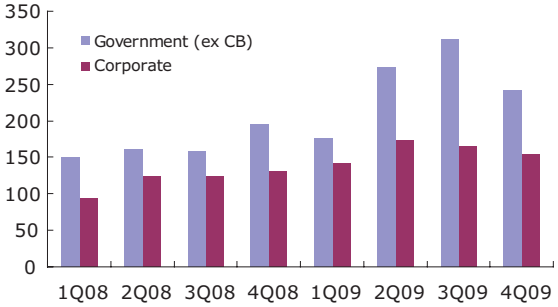
Foreign Holdings of Local Currency Government Bonds (March 2010)



Note: Data for the Republic of Korea is as of September 2009. Data for Malaysia and Japan are as of December 2009.
Source: *AsianBondsOnline.*

LCY issuance rises as governments finance increased deficits and firms raise fresh funds

Government (excluding Central Bank) and Corporate Bond Issuance—Emerging Asia
(USD billion)

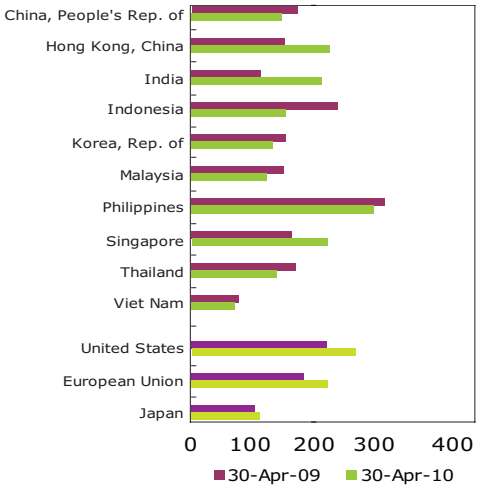


CB = Central Bank.
Notes:
1. These data include both bonds and bills issued by governments and central banks as well as commercial paper issued by corporate entities.
2. Includes local currency (LCY) bond issuance of China, People's Rep. of; Hong Kong, China; India; Indonesia; Korea, Rep. of; Malaysia; Philippines; Singapore; Thailand; and Viet Nam.

Source: China, People's Rep. of (*ChinaBond*); Hong Kong, China (Hong Kong Monetary Authority); India (Bloomberg); Indonesia (Bloomberg); Korea, Rep. of (Bank of Korea); Malaysia (Bank Negara Malaysia); Philippines (Bloomberg); Singapore (Singapore Government Securities and Bloomberg); Thailand (Bank of Thailand); and Viet Nam (Bloomberg).

Yield curves steepen amid rising inflationary expectations

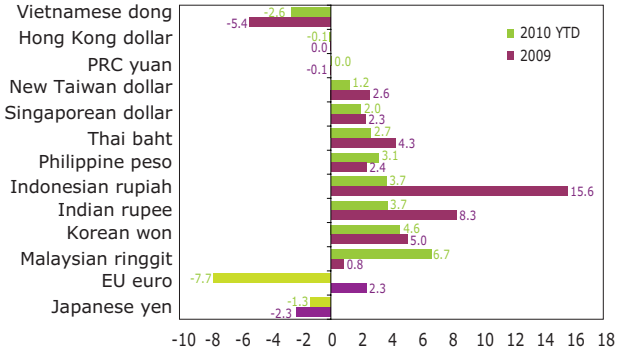
Yield Spreads Between 2- and 10-Year Government Bonds (basis points)



Source: Based on data from Bloomberg.

Emerging Asian currencies broadly appreciate as recovery gathers pace and interest rate differentials widen

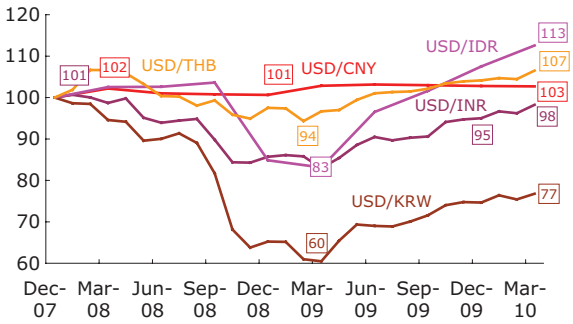
Change in Exchange Rate versus the US Dollar[1] (%)



EU = European Union, PRC = People's Republic of China.
[1]Year-to-date (YTD) figures for 2010 from 4 January to 30 April. Negative figures indicate depreciation of local currency; positive values indicate appreciation of the local currency.
Source: OREI staff calculations based on Reuters data.

Emerging Asian currencies as an asset class post strong gains, spurred by surges in capital flows

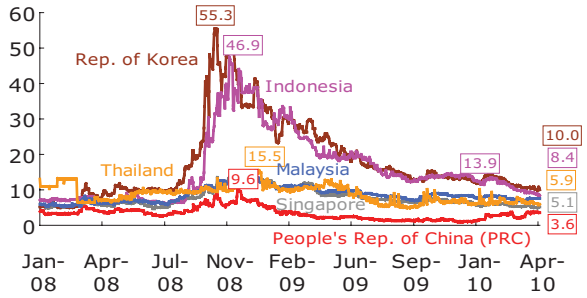
Currency Returns—Selected Asian Emerging Economies (December 2007 = 100)



Source: OREI staff calculations based on Reuters data.

Exchange rate volatility subsides steadily across emerging Asia as financial markets stabilize

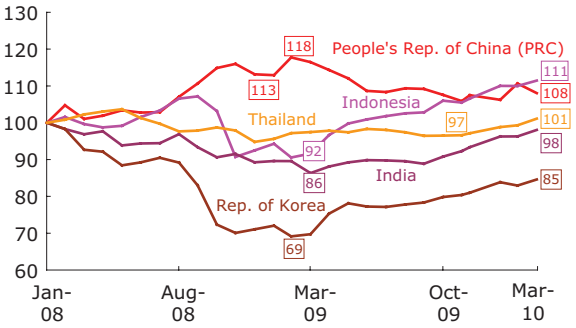
Implied Volatility of Exchange Rates[1]—Selected Emerging Asian Economies (%)



[1]Data refers to 3 months implied volatility at-the-money (ATM) strike.
Source: Bloomberg.

Real effective exchange rates for many emerging Asian currencies make gradual upward movements, with the notable exception of the yuan

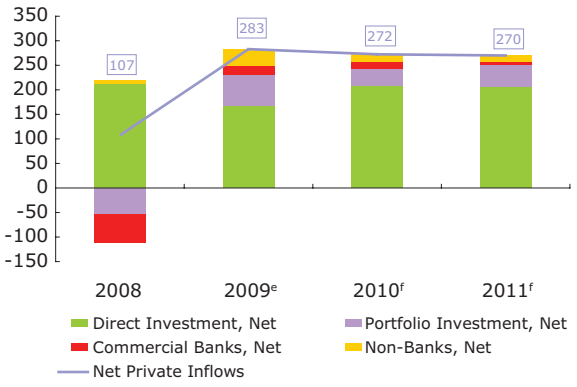
Real Effective Exchange Rates[1]— Selected Emerging Asian Economies (January 2008 = 100)



[1]Adjusted by relative consumer prices.
Source: OREI staff calculations using data from the Bank for International Settlements.

Capital inflows return to emerging Asia, led by more volatile short-term portfolio investment

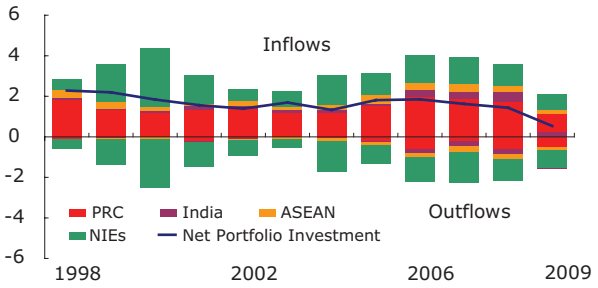
Net Private Capital Flows—Emerging Asia[1]
(USD billion)



e = estimate, f = forecast.
[1]Emerging Asia includes China, People's Rep. of; India; Indonesia; Korea, Rep. of; Malaysia; Philippines; and Thailand.
Source: *Capital Flows to Emerging Market Economies (April 2010),* Institute for International Finance.

The People's Republic of China (PRC) continues to dominate foreign direct investment (FDI) flows to emerging Asia

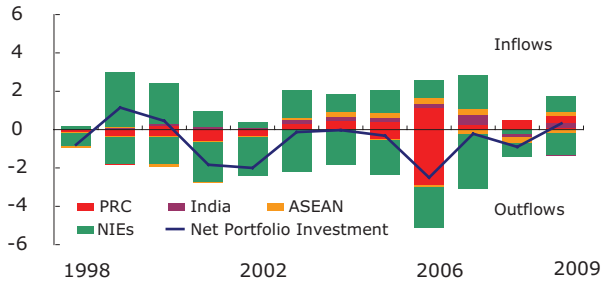
Foreign Direct Investment Flows—Emerging Asia (% of GDP)



ASEAN = Association of Southeast Asian Nations, GDP = gross domestic product, NIEs = newly industrialized economies, PRC = People's Rep. of China.
Note: Emerging Asia includes China, People's Rep. of; Hong Kong, China; Indonesia; India; Korea, Rep. of; Malaysia; Philippines; Singapore; Taipei,China; and Thailand.
Source: *International Financial Statistics* and *World Economic Outlook Database,* International Monetary Fund; and CEIC database.

Financial deregulation and liberalization has led to foreign portfolio investment flow increases in both directions since the 1997/98 crisis

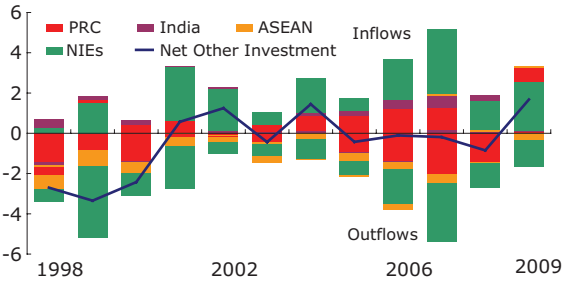
Foreign Portfolio Investment Flows—Emerging Asia
(% of GDP)



ASEAN = Association of Southeast Asian Nations, GDP = gross domestic product, NIEs = newly industrialized economies, PRC = People's Rep. of China.
Note: Emerging Asia includes China, People's Rep. of; Hong Kong, China; Indonesia; India; Korea, Rep. of; Malaysia; Philippines; Singapore; Taipei,China; and Thailand. Inflows refer to foreign portfolio liabilities; outflows refer to foreign portfolio assets.
Source: *International Financial Statistics* and *World Economic Outlook Database,* International Monetary Fund; and CEIC database.

Other investment flows prove more volatile and vulnerable to external shocks and currency instability

Other Investment Flows—Emerging Asia
(% of GDP)



ASEAN = Association of Southeast Asian Nations, GDP = gross domestic product, NIEs = newly industrialized economies, PRC = People's Rep. of China.
Note: Emerging Asia includes China, People's Rep. of; Hong Kong, China; Indonesia; India; Korea, Rep. of; Malaysia; Philippines; Singapore; Taipei,China; and Thailand. Inflows refer to other investment liabilities; outflows refer to other investment assets. Values include financial derivatives.
Source: *International Financial Statistics* and *World Economic Outlook Database,* International Monetary Fund; and CEIC database.

Global and Regional Environment

Global and Regional Environment

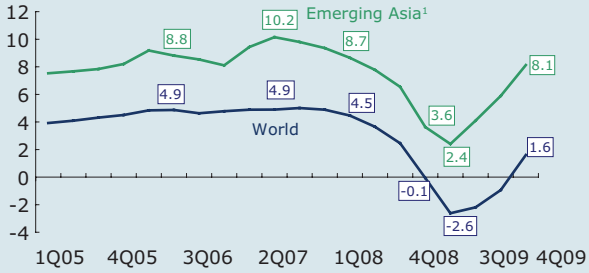
Global economic and financial conditions have improved over the past year in part due to the unprecedented policy measures taken in response to the global financial crisis.

Recovery from the global financial crisis is gaining traction thanks to sustained policy support **(Figures 1.1a and 1.1b)**.[1] World output is expected to grow 4.2% in 2010, in sharp contrast to a contraction of 0.6% in 2009, according to the International Monetary Fund (IMF).[2] However, challenges lie ahead in the form of exits, policy reforms, and the buildup of public debts, while the recovery remains uneven and is relying heavily on policy stimulus. As global financial institutions and markets have yet to fully regain their credit and funding ability, and unemployment remains high, the recovery is subject to downside risks. For example, global equities tumbled in late January as fiscal problems in some European economies deepened.

The global economic outlook has brightened as the recovery takes hold across the world's major economies.

A gradual recovery is underway in the world's major advanced economies **(Figure 1.2)**. Leading indicators suggest continued recovery in the United States (US) and Japan **(Figures 1.3a, 1.3b, and 1.3c)**. In the US, new orders for durable goods are on the rise, indicating a turnaround in business and consumer spending. However, while consumer spending has generally held up—due in part to fiscal stimulus programs such as tax credits, rebates, and "cash for clunkers"—persistently high unemployment and a sluggish housing sector continue to be weak spots **(Figure 1.4)**. The Japanese recovery has been driven by strong export growth spurred by resilient demand from emerging Asia, especially the People's Republic of China (PRC). As robust exports and production exert a positive influence on business investment and household spending, the recovery is also becoming more broad-based. Meanwhile, problems in the eurozone, such as high unemployment and diminishing spending incentives, have depressed consumption. Greece's debt crisis is also weighing down on consumer sentiment. As the eurozone governments continue to struggle to contain the fallout of the Greek crisis, their economies will likely suffer more.

Figure 1.1a: GDP Growth—Emerging Asia and World (year-on-year, %)



Note: Aggregates are weighted based on gross national income levels (Atlas Method in current USD prices) from World Development Indicators (World Bank).
[1]Emerging Asia includes China, People's Rep. of; Hong Kong, China; India; Indonesia; Korea, Rep. of; Malaysia; Philippines; Singapore; Taipei,China; Thailand; and Viet Nam.
Source: National sources accessed through CEIC database and *World Economic Outlook April 2010*, International Monetary Fund.

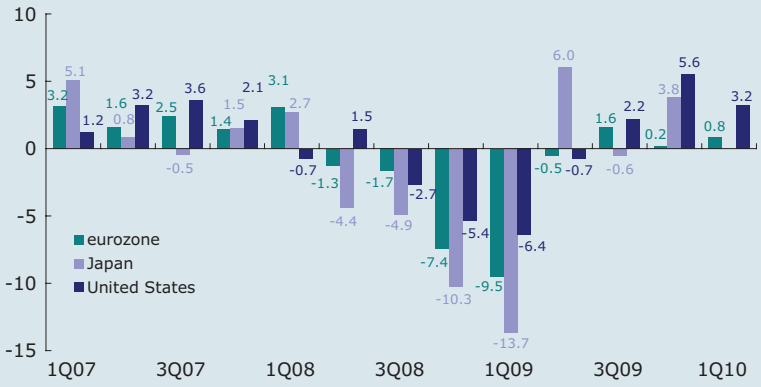
Figure 1.1b: MSCI Equity Indexes—Developed and Emerging Markets (1 January 2008 = 100)

[1]Refers to MSCI World Index, which includes 23 developed markets.
[2]Refers to MSCI Emerging Market Index, which includes 22 emerging markets
Source: OREI staff calculations using data from Morgan Stanley Capital International (MSCI) Barra.

[1]The last date used for daily market movements throughout this publication is 30 April 2010.

[2]See International Monetary Fund. 2010. *World Economic Outlook.* Available: http://www.imf.org/external/pubs/ft/weo/2010/01/

Figure 1.2: GDP Growth—eurozone,[1] Japan, and United States
(quarter-on-quarter, saar,[2] %)



GDP =gross domestic product.
[1]Refers to eurozone 16 countries; [2]saar = seasonally adjusted annualized rate.
Sources: Eurostat (eurozone), Bureau of Economic Analysis (United States), and CEIC database.

As a result of the improving external environment and swift policy responses of the region's governments, emerging Asia's[3] economic recovery has gained substantial traction.

The global recovery is being led by emerging market economies, including emerging Asia. Aggregate gross domestic product (GDP) growth in emerging Asia is set to accelerate further as the global recovery gains traction **(Table 1.1)**. Asia's larger economies—the PRC, India, and Indonesia—continue to lead the region's economic turnaround and policy cycles. The improvement in the external environment should also help the region's economies gain further momentum. Across emerging Asia, exports and industrial production are already up sharply from the lows experienced in the wake of the collapse of Lehman Brothers **(Figures 1.5a and 1.5b)**. Strong retail sales also point to a firming recovery. As the recovery gains momentum, governments and central banks in the region are weighing the issues surrounding the timing of their exit policies. While inflation remains generally tame, some economies have seen a sharp rise in equity and property prices. Large budget deficits associated with aggressive fiscal stimulus in some economies have also raised concerns about the sustainability of public debts given the recent debt fiasco in Greece.

Inflation in the region, though rising, remains manageable, given the remaining slack in demand across most emerging Asian economies.

The strong economic turnaround has generated inflationary pressures in some of the region's economies. An uptick in inflation has been most visible in the PRC; Hong Kong, China; India; Philippines; Singapore; Thailand; and Viet Nam; as their economies gather steam **(Figures 1.6a and 1.6b)**. Nevertheless, inflation rates remain far below their peaks prior to the crisis. As output gaps are gradually closing, inflation is expected to be moderate. Meanwhile in Japan, deflation continues to be a concern.

[3]Includes China, People's Republic of (PRC); Hong Kong, China; India; Indonesia; Korea, Republic of; Malaysia; the Philippines; Singapore; Taipei,China; Thailand; and Viet Nam.

Figure 1.3a: Industrial Production Growth[1]—G3 Economies (year-on-year, %)

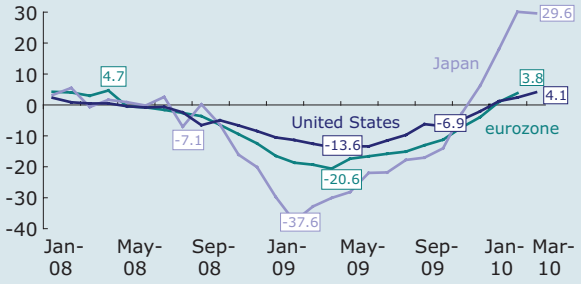


Figure 1.3b: Manufacturing New Orders Growth[2] —Advanced Economies (year-on-year, %)

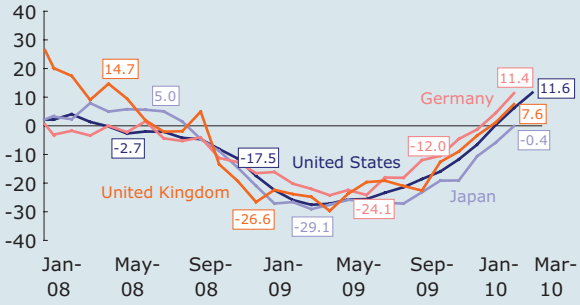
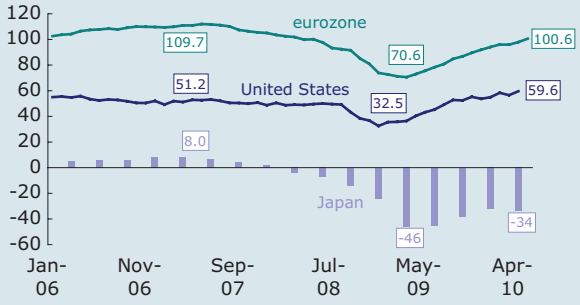
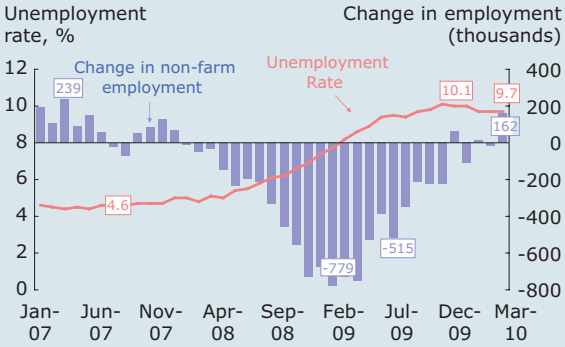


Figure 1.3c: Business Confidence Indexes[3]—G3 Economies



[1]Values for eurozone refer to industrial production in euro area 16 countries (excluding construction). Data for Japan includes manufacturing, mining, electricity, and gas. [2]Data for the United States refers to new orders for manufacturing durable goods; for Japan machinery orders private demand; for the Germany durable consumer goods; and for the United Kingdom, manufacturing new orders. Values are computed as the year-on-year change of the 3-month moving average. [3]For the United States' data, a reading of more than 50 reflects more positive than negative responses. For Japan, a positive figure indicates that there are a higher percentage of companies that report favorable business conditions from those that say conditions are unfavorable. For eurozone, the indicator is a composite index of business and consumer confidence indicators based on surveys of economic assessments and expectations in the eurozone. Data from the Japan Tanken Survey All Enterprises, Economic Sentiment Indicator (eurozone), and United States ISM Business Confidence Index.
Source: OREI staff calculations using data from CEIC database and Datastream.

Figure 1.4: Change in Non-Farm Employment and Unemployment Rate[1]—United States



[1]Unemployment rate refers to seasonally adjusted figures.
Source: OREI staff calculations based on data from Datastream.

The balance of payments across emerging Asia remain in surplus as exports rebound and capital inflows surge.

The current account balance has remained in surplus for many emerging Asian economies despite the global recession. As the global recovery gains momentum, emerging Asian exports should improve further. However, imports are also rising fast on strengthening domestic demand and increasing costs of raw materials, which will likely limit the size of current account surpluses **(Tables 1.2a, 1.2b, 1.2c, and 1.2d)**. Capital flows, which registered a net outflow from the region in the wake of the financial crisis, reversed in the second half of 2009 as stability returned to financial markets and investors rediscovered their risk appetite. Net capital inflows should continue this year. With output gaps narrowing and inflation edging up, some of the region's monetary authorities have already begun the process of unwinding their extraordinary easing measures, while many others are expected to begin reigning in monetary stimulus this year. As monetary policies are diverging between advanced and emerging Asian economies, reflecting the different pace of economic recovery, capital inflows to emerging Asia may increase further in a search for higher yields. Foreign reserve accumulation accelerated in the second half of 2009 primarily due to a surge in

Table 1.1: Annual GDP Growth Rates (%)

	2003	2004	2005	2006	2007	2008	2009	ADB Forecasts[1]	
								2010	2011
Developing Asia	**7.1**	**7.9**	**8.0**	**8.9**	**9.6**	**6.6**	**5.2**	**7.5**	**7.3**
Emerging Asia[2]	**7.1**	**7.9**	**8.0**	**8.9**	**9.6**	**6.7**	**5.4**	**7.8**	**7.5**
ASEAN-5	**5.7**	**6.0**	**5.5**	**5.7**	**6.3**	**4.8**	**1.7**	**5.0**	**5.4**
Indonesia	4.8	5.0	5.7	5.5	6.3	6.0	4.5	5.5	6.0
Malaysia	5.8	6.8	5.3	5.8	6.2	4.6	-1.7	5.3	5.0
Philippines	4.9	6.4	5.0	5.3	7.1	3.8	0.9	3.8	4.6
Thailand	7.1	6.3	4.6	5.1	4.9	2.5	-2.3	4.0	4.5
Viet Nam	7.3	7.8	8.4	8.2	8.5	6.2	5.3	6.5	6.8
Newly Industrialized Economies	**3.1**	**5.9**	**4.8**	**5.8**	**5.7**	**1.8**	**-0.8**	**5.2**	**4.5**
Hong Kong, China	3.0	8.5	7.1	7.0	6.4	2.1	-2.7	5.2	4.3
Korea, Rep. of	2.8	4.6	4.0	5.2	5.1	2.3	0.2	5.2	4.6
Singapore	3.8	9.2	7.6	8.7	8.2	1.4	-2.0	6.3	5.0
Taipei,China	3.7	6.2	4.7	5.4	6.0	0.7	-1.9	4.9	4.0
China, People's Rep. of	10.0	10.1	10.4	11.6	13.0	9.6	8.7	9.6	9.1
India[3]	8.5	7.5	9.5	9.7	9.2	6.7	7.2	8.2	8.7
Memo									
eurozone[4]	0.8	2.2	1.7	3.0	2.7	0.6	-4.1	1.1	1.6
Japan	1.4	2.7	1.9	2.0	2.4	-1.2	-5.2	1.3	1.4
United States	2.5	3.6	3.1	2.7	2.1	0.4	-2.4	2.4	2.6

ASEAN = Association of Southeast Asian Nations, GDP = gross domestic product.
Note: Aggregates are weighted according to gross national income levels (Atlas Method, in current USD prices) from *World Development Indicators,* World Bank.
[1]Forecasts are sourced from the *Asian Development Outlook 2010* (April 2010). [2]Includes ASEAN-5; newly industrialized economies; China, People's Rep. of; and India. [3]For fiscal year April–March. Data for 2009 advance estimates. [4]Values refer to eurozone 12 countries.
Source: Asian Development Bank; Eurostat (eurozone); and national sources accessed through CEIC database.

Figure 1.5a: Merchandise Export Growth[1]
(year-on-year, %)

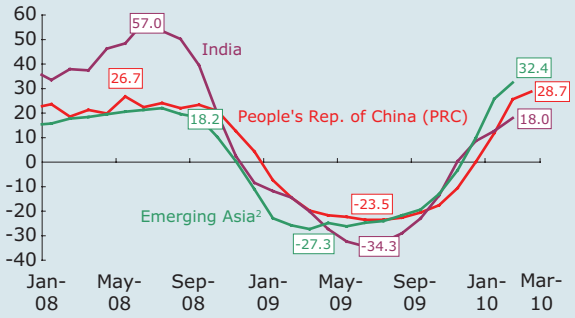
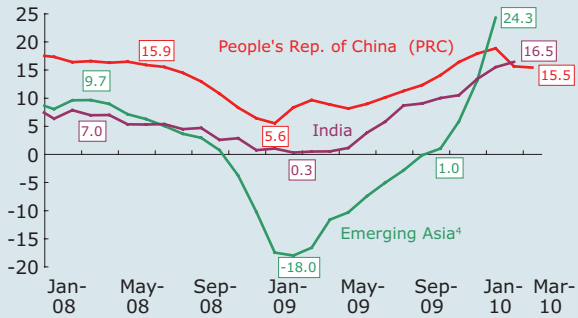


Figure 1.5b: Industrial Production Growth[3]
(year-on-year, %)



[1]3-month moving average of the US dollar value of exports. [2]Includes Hong Kong, China; Indonesia; Korea, Rep. of; Malaysia; Philippines; Singapore; Taipei,China; Thailand; and Viet Nam. [3]3-month moving average index. [4]Includes Indonesia; Korea, Rep. of; Malaysia; Philippines; Singapore; Taipei,China; and Thailand.
Source: OREI staff calculations based on CEIC data.

Figure 1.6a: Headline Inflation[1]—PRC, India, and NIEs (year-on-year, %)

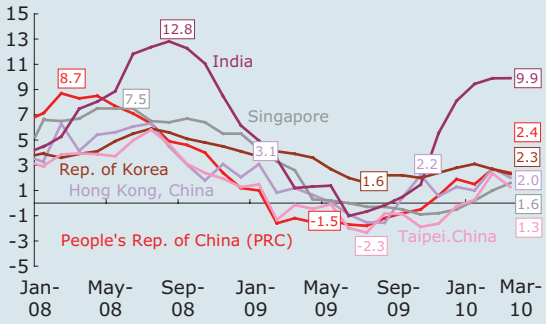
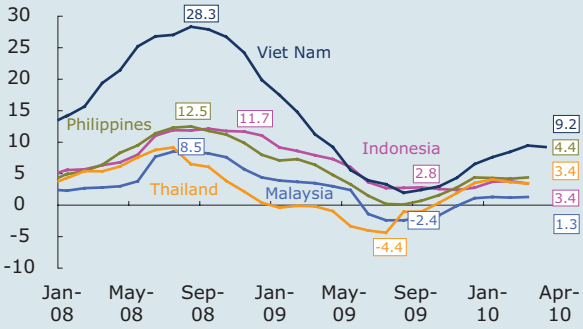


Figure 1.6b: Headline Inflation[1]—ASEAN-5 (year-on-year, %)



ASEAN = Association of Southeast Asian Nations, NIEs = newly industrialized economies.
[1]Values computed as the year-on-year growth of consumer price index.
Source: National sources accessed through Datastream and CEIC database.

capital inflows and is expected to rise throughout 2010 as inflows are sterilized.

While the robust economic recovery is expected to continue, pockets of vulnerability remain.

Despite visible signs of stabilizing, the global economic and financial outlook remains vulnerable to various risk factors. The immediate challenge is that investor concerns about fiscal sustainability in some European economies are intensifying and spreading, limiting the room for fiscal support and increasing borrowing costs for households and companies. As the global recovery gathers pace,

Table 1.2a: Balance of Payments—ASEAN-4 (% of GDP)

	2000–2004 Average	1H04	2H04	1H05	2H05	1H06	2H06	1H07	2H07	1H08	2H08	1H09	2H09
Current Account	**4.2**	**2.2**	**4.4**	**1.3**	**3.0**	**4.1**	**6.4**	**5.6**	**6.7**	**4.5**	**3.0**	**7.1**	**5.3**
Net goods balance	8.3	5.8	7.9	3.6	6.4	6.3	8.1	6.9	7.8	5.7	4.7	7.8	7.1
Net services	-2.0	-1.1	-1.3	-0.8	-1.6	-0.9	-0.8	-0.4	-0.2	-0.4	-0.8	-0.4	-0.7
Net income	-3.6	-3.9	-3.6	-3.5	-4.1	-3.3	-3.0	-2.8	-2.7	-2.6	-2.6	-2.2	-2.6
Net transfers	1.4	1.4	1.3	1.9	2.3	2.0	2.0	1.9	1.8	1.7	1.7	1.9	1.6
Capital and Financial Account	**-1.8**	**0.6**	**2.2**	**3.2**	**-1.9**	**1.6**	**-1.9**	**1.2**	**-2.3**	**2.8**	**-6.7**	**-4.6**	**0.2**
Capital account[1]	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0
Net direct investment	0.9	0.9	1.3	2.7	1.8	1.8	1.4	1.0	0.5	0.5	0.0	0.3	-0.4
Net portfolio investment	0.2	1.5	3.0	2.1	0.6	1.9	1.6	4.3	-2.2	0.8	-5.8	-1.3	1.5
Net other investment	-2.9	-1.9	-2.1	-1.7	-4.4	-2.2	-5.0	-4.1	-0.7	1.4	-1.0	-3.6	-0.9
Net errors & omissions	-0.4	0.7	-1.3	-1.4	-0.7	-0.1	-1.0	-0.3	-0.5	0.0	-0.4	0.7	-1.0
Overall Balance	**2.0**	**3.4**	**5.4**	**3.1**	**0.4**	**5.6**	**3.5**	**6.5**	**3.8**	**7.4**	**-4.1**	**3.3**	**4.5**

ASEAN-4 = Indonesia, Malaysia, Philippines, and Thailand. GDP = gross domestic product.
[1]Capital account records acquisitions less disposals of non-financial assets by resident units and measures the change in net worth due to saving and capital transfers.
Source: *International Financial Statistics Online*, International Monetary Fund; and CEIC database.

Table 1.2b: Balance of Payments—NIEs (% of GDP)

	2000–2004 Average	1H04	2H04	1H05	2H05	1H06	2H06	1H07	2H07	1H08	2H08	1H09	2H09
Current Account	**5.2**	**5.5**	**7.4**	**4.9**	**5.6**	**4.3**	**6.4**	**5.7**	**6.5**	**4.2**	**5.6**	**9.7**	**7.7**
Net goods balance	4.8	5.3	6.7	4.7	6.0	4.2	5.5	4.3	5.0	1.7	1.5	6.1	5.3
Net services	0.4	0.7	0.4	0.4	0.7	0.6	0.9	1.2	1.7	1.8	2.7	2.1	1.9
Net income	0.6	0.3	1.0	0.5	-0.4	0.4	0.6	1.0	0.4	1.4	1.9	1.9	1.2
Net transfers	-0.6	-0.8	-0.7	-0.7	-0.6	-0.8	-0.6	-0.7	-0.6	-0.7	-0.4	-0.5	-0.7
Capital and Financial Account	**-1.2**	**1.3**	**-3.0**	**0.3**	**-4.4**	**-1.4**	**-3.1**	**-4.3**	**-4.7**	**-1.1**	**-7.5**	**1.0**	**7.0**
Capital account[1]	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	0.0	0.0	0.2	0.4	0.3
Net direct investment	0.5	-0.5	0.1	1.3	-0.1	0.5	0.2	0.1	-1.7	-0.9	1.9	-0.2	-0.5
Net portfolio investment	-2.7	-6.5	-0.4	-4.5	-0.5	-2.8	-5.4	-5.1	-4.5	-4.0	-6.7	-2.0	-2.2
Net other investment	1.3	8.4	-2.5	3.9	-3.6	1.2	2.3	0.9	1.5	3.8	-2.8	2.9	9.4
Net errors & omissions	0.5	0.8	0.7	0.2	0.6	0.0	-0.1	0.7	1.0	-0.2	0.7	0.1	-0.2
Overall Balance	**4.5**	**7.5**	**5.1**	**5.5**	**1.8**	**3.0**	**3.1**	**2.2**	**2.8**	**2.9**	**-1.1**	**10.8**	**14.5**

NIEs = Hong Kong, China; Korea, Rep. of; Singapore; and Taipei,China. GDP = gross domestic product.
[1]Capital account records acquisitions less disposals of non-financial assets by resident units and measures the change in net worth due to saving and capital transfers.
Source: *International Financial Statistics Online,* International Monetary Fund; CEIC database; and national sources.

Table 1.2c: Balance of Payments—People's Republic of China (% of GDP)

	2000–2004 Average	1H04	2H04	1H05	2H05	1H06	2H06	1H07	2H07	1H08	2H08	1H09	2H09
Current Account	**2.4**	**0.9**	**5.7**	**6.9**	**7.3**	**7.9**	**10.4**	**11.2**	**10.2**	**10.0**	**8.9**	**6.6**	**5.2**
Net goods balance	2.9	0.7	4.9	5.5	6.2	6.9	8.9	9.3	8.8	6.9	8.7	5.8	4.6
Net services	-0.5	-0.7	-0.4	-0.4	-0.4	-0.5	-0.2	-0.2	-0.2	-0.2	-0.3	-0.8	-0.4
Net income	-0.9	-0.3	-0.1	0.5	0.5	0.3	0.7	0.9	0.6	2.0	-0.3	0.8	0.4
Net transfers	0.9	1.2	1.2	1.2	1.0	1.2	1.0	1.2	1.0	1.3	0.8	0.7	0.7
Capital and Financial Account	**2.8**	**7.9**	**4.1**	**3.9**	**1.9**	**3.3**	**-2.1**	**6.2**	**-0.8**	**3.8**	**-2.0**	**3.0**	**2.8**
Capital account[1]	0.0	0.0	0.0	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0
Net direct investment	3.0	3.6	2.1	2.3	3.5	2.7	1.7	3.5	3.4	2.1	2.0	0.8	0.7
Net portfolio investment	-0.2	3.3	-0.7	-0.1	-0.3	-2.5	-2.5	-0.3	1.1	1.0	0.9	1.0	0.6
Net other investment	0.0	1.0	2.7	1.5	-1.5	3.0	-1.4	2.9	-5.5	0.5	-5.0	1.2	1.5
Net errors & omissions	0.3	-0.9	3.2	-0.5	-0.9	-0.7	-0.3	0.9	0.2	0.9	-1.6	-0.5	1.3
Overall Balance	**5.5**	**7.9**	**12.9**	**10.2**	**8.3**	**10.5**	**8.0**	**18.3**	**9.5**	**14.7**	**5.3**	**9.1**	**9.3**

GDP = gross domestic product.
[1]Capital account records acquisitions less disposals of non-financial assets by resident units and measures the change in net worth due to saving and capital transfers.
Source: *International Financial Statistics Online*, International Monetary Fund; and CEIC database.

Table 1.2d: Balance of Payments—India (% of GDP)

	2000–2004 Average	1H04	2H04	1H05	2H05	1H06	2H06	1H07	2H07	1H08	2H08	1H09	2H09
Current Account	**0.5**	**3.5**	**-2.9**	**-0.2**	**-2.3**	**0.0**	**-2.0**	**-0.1**	**-1.3**	**-1.0**	**-4.0**	**-1.3**	**-3.7**
Net goods balance	-3.1	-2.1	-6.0	-5.3	-6.3	-6.5	-6.9	-5.9	-7.4	-7.8	-12.0	-8.1	-9.6
Net services	1.1	2.4	1.6	2.6	2.4	3.8	2.7	3.4	3.4	3.0	4.6	3.5	2.3
Net income	-0.9	-0.4	-0.8	-0.5	-1.1	-0.5	-0.8	-0.6	-0.5	-0.1	-0.4	-0.6	-0.4
Net transfers	3.4	3.7	2.3	3.1	2.8	3.2	3.1	3.1	3.3	3.9	3.8	3.9	4.1
Capital Account	**4.1**	**3.7**	**6.5**	**5.3**	**5.1**	**5.4**	**6.3**	**8.2**	**14.8**	**6.5**	**-0.1**	**3.8**	**9.6**
Net direct investment	0.7	0.5	0.5	0.6	0.6	0.2	1.1	0.7	0.7	2.7	0.9	1.6	1.6
Net portfolio investment	0.8	1.2	1.4	1.2	1.7	0.9	1.2	1.7	3.8	-1.2	-1.2	1.0	2.3
Net other investment[1]	2.6	1.9	4.5	3.5	2.7	4.3	4.0	5.8	10.2	5.0	0.2	1.3	5.7
Net errors & omissions	0.0	0.2	0.0	0.2	-0.3	0.1	0.1	0.1	0.1	0.2	0.1	0.1	-0.3
Overall Balance	**4.7**	**7.4**	**3.7**	**5.3**	**2.5**	**5.5**	**4.4**	**8.3**	**13.6**	**5.6**	**-4.0**	**2.6**	**5.6**

GDP = gross domestic product.
[1]Net other investment includes loans, banking capital, rupee debt service, and other capital.
Source: National source accessed through CEIC database.

Figure 1.7a: Headline Inflation—Emerging Asia, G3 Economies, and World (year-on-year, %)

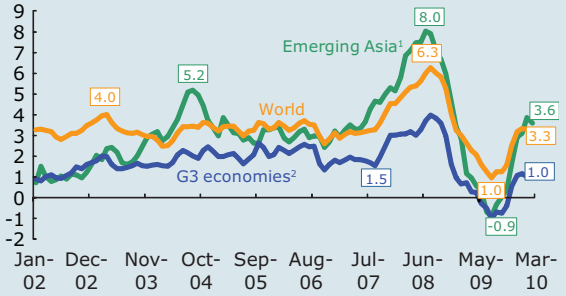
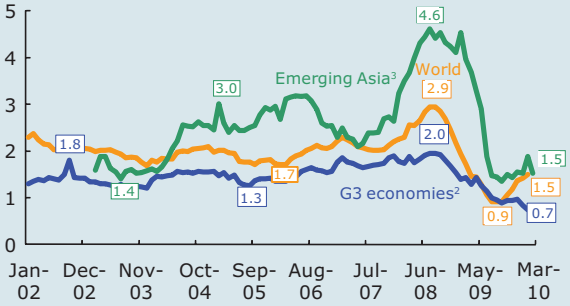


Figure 1.7b: Core Inflation—Emerging Asia, G3 Economies, and World (year-on-year, %)



[1]Emerging Asia includes China, People's Rep. of; Hong Kong, China; India; Indonesia; Korea, Rep. of; Malaysia; Philippines; Singapore; Taipei,China; Thailand; and Viet Nam. [2]G3 economies include eurozone, Japan, and United States. [3]Emerging Asia includes Hong Kong, China; Indonesia; Korea, Rep. of; Malaysia; Philippines; Singapore; Taipei,China; and Thailand. Data for Hong Kong, China; Malaysia; and Singapore are OREI staff estimates.
Source: *World Economic Outlook April 2010,* International Monetary Fund; and national sources accessed through CEIC database.

inflation will also become a major policy concern **(Figures 1.7a and 1.7b)**. Global commodity prices have been rising, which is putting pressure on headline inflation in some economies already **(Figures 1.8a and 1.8b)**. Although persistent slack in demand has kept inflationary pressures relatively well controlled, inflation risks will be a key determining factor in the timing and speed of monetary tightening. The region's monetary authorities may tighten sooner rather than later, especially in economies where output gaps are closing rapidly. The reactions of emerging Asian equities to the start of the PRC's policy tightening

Figure 1.8a: Primary Commodity Price Indexes
(January 2008 = 100)

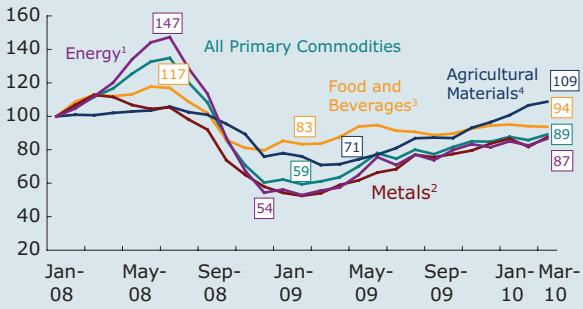
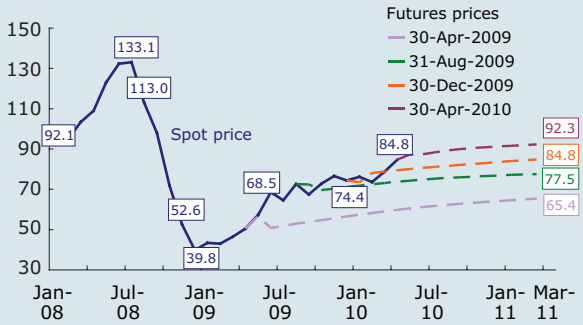


Figure 1.8.b: Brent Spot[5] and Futures Prices
(USD per barrel)



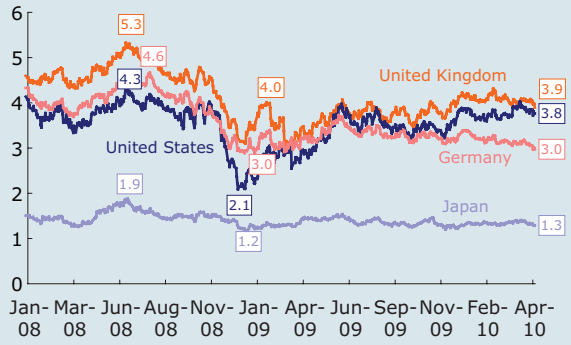
[1]Includes crude oil, natural gas, and coal. [2]Includes copper, aluminum, iron ore, tin, nickel, zinc, lead, and uranium. [3]Includes cereal, vegetable oils, meat, seafood, sugar, bananas, oranges, coffee, tea, and cocoa. [4]Includes timber, cotton, wool, rubber, and hides. [5]Monthly average of daily spot prices.
As of 30 April 2010.
Source: OREI staff calculations based on data from IMF Primary Commodity Prices, International Monetary Fund; and Datastream.

early this year demonstrated markets' ongoing vulnerability to sudden shifts in policies. Market volatility will likely pickup, requiring higher risk premiums for emerging Asian equities when the policy cycles start to reverse.

Global monetary stimulus and excess liquidity have steepened the region's yield curves, as inflation expectations push long-term rates higher and short-term rates remain low.

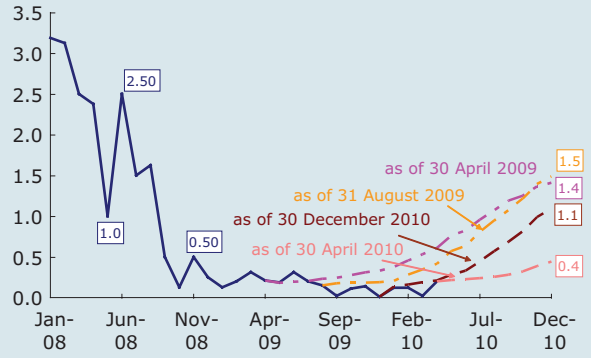
Very low policy rates continue to prevail in major advanced economies, while a rise in inflation expectations and growing concerns about fiscal sustainability has lifted long-term yields **(Figure 1.9)**. For example, yields on 10-year US Treasury bonds climbed higher, rising from a historic low of 2.1% in December 2008 to 4.0% in early June 2009, before moving in a tighter range through the rest of the year and into 2010. The fragility of the economic recovery is expected to keep policy rates low for some time **(Figure 1.10)**. This implies potential gains from long-term investing by borrowing short-term **(Figure 1.11)**. With the benchmark interest rate near zero, the US dollar has also become a popular vehicle for the carry trade as well. Credit markets continue to normalize. However, banks remain reluctant to lend, especially to small- and medium-sized enterprises, as they can make easier profits on the interest-rate carry trade. While steep yield curves continue to encourage this type of carry trade—long-term investing with short-term funding—a sudden unwinding of such speculative positions could have a destabilizing effect on currency and financial markets.

Figure 1.9: 10-Year Government Bond Yields
(% per annum)



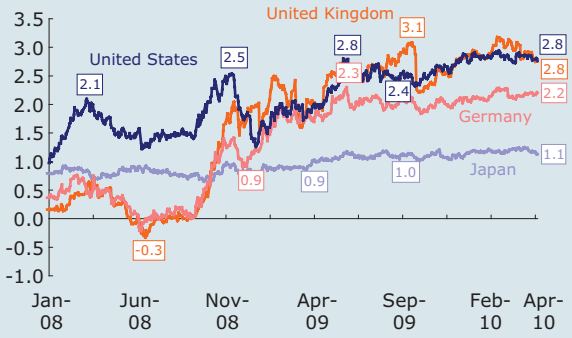
Source: Datastream.

Figure 1.10: US Federal Funds Rate and Futures Rates (%)



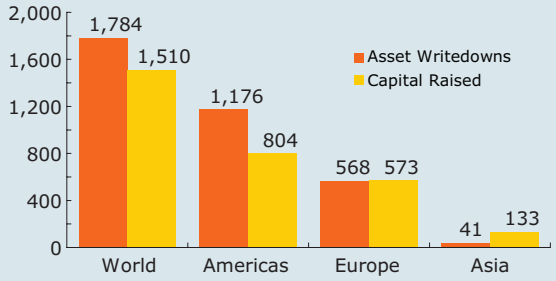
US = United States.
Source: Bloomberg

Figure 1.11: 10-Year and 2-Year Government Bond Yield Spreads (% per annum)



Source: OREI staff calculations using data from Datastream.

Figure 1.12: Writedowns and Capital Raised by Major Banks since 3Q07
(USD billion, as of 30 April 2010)



Source: Bloomberg.

Banks worldwide will continue to face funding and capital pressures; they continue to repair balance sheets as emergency funding support is withdrawn and new capital adequacy rules are introduced.

Write-downs by major banks worldwide since the outbreak of the US subprime crisis have continued to rise, reaching USD1.8 trillion at the end of April 2010 **(Figure 1.12)**. Banks have been proactive in issuing large amounts of equities and convertible bonds to raise new capital. Particularly noticeable was the introduction of a new hybrid by the banks to raise capital. As a hybrid between debt and equity, contingent convertible (CoCo) bonds are issued as debt and converted automatically into equity when a bank faces financial distress. The first CoCo bonds were issued by Lloyds Banking Group of the United Kingdom in November 2009. Reflecting such proactive efforts, the Tier 1 capital ratios of major banks have significantly improved since the peak of the crisis. Nevertheless, recent proposals for stricter capital and liquidity regulations in many advanced economies have put added pressure on banks with respect to their funding and capital raising efforts, creating a tension between enforcing critical reforms and ensuring that banks are extending credit.

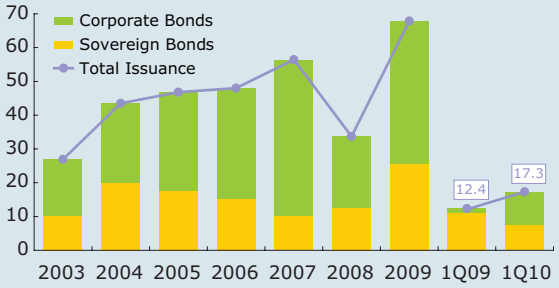
External funding conditions for emerging Asia have vastly improved as the global credit environment eases and investors' risk appetite returns.

Credit spreads on emerging Asia's sovereign and corporate bonds have narrowed sharply since the second quarter of 2009 **(Figure 1.13)**. Taking advantage of favorable market conditions, overseas bond issuance surged to USD17.3 billion in January–March 2010, up from USD12.4 billion during the same period a year ago **(Figure 1.14)**. Sovereign borrowers have been very active, accounting for

Figure 1.13: Emerging Asia Bond Spread[1]
(basis points)

[1]Refers to JP Morgan Emerging Market Bond Indices (EMBI) Asia corporate and sovereign stripped spreads (over corresponding US zero-coupon rate).
Source: Bloomberg.

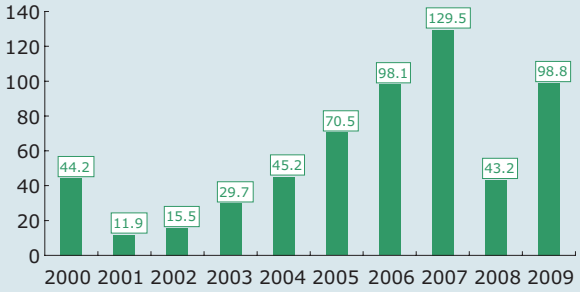
Figure 1.14: Corporate and Sovereign Eurobond[1] Issuance—Emerging Asia[2]
(USD billion)



[1]Includes US dollar, euro, and Japanese yen bond issuances. Sovereign bonds refer to those issued by national government and government agencies. Data excludes certificate of deposits. [2]China, People's Rep. of; Hong Kong, China; Indonesia; India; Korea, Rep. of; Malaysia; Philippines; Singapore; Thailand; and Viet Nam.
Source: OREI staff calculations using Bloomberg data.

about 44.5% of total emerging Asia's borrowing. Even as fears over fiscal problems in the eurozone spread, international demand for emerging Asian economies' sovereign debt has been relatively resilient on the back of comparatively sound fiscal positions and positive growth prospects. Meanwhile, total international equity issuance by the economies of emerging Asia in 2009 amounted to USD98.8 billion from USD43.2 billion in 2008 **(Figure 1.15)**.

Figure 1.15: International Equity Issuance[1]—Emerging Asia[2] (USD billion)



[1]Refers to announced issues, including those that involve a combination of domestic and international tranches. [2]Includes China, People's Rep. of; Hong Kong, China; India; Indonesia; Korea, Rep. of; Malaysia; Philippines; Singapore; Taipei,China; and Thailand.
Source: Bank for International Settlements.

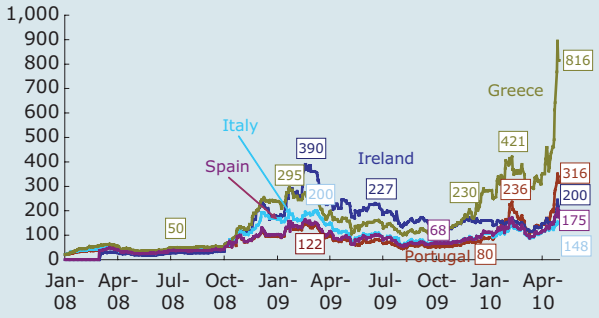
The Greek debt crisis and fears of contagion have weighed on investor sentiment—although the impact on emerging Asia's capital markets has been and is expected to remain limited.

Greece's fiscal worries first drew investor attention late last year when its high budget deficit prompted rating agencies to downgrade its sovereign bonds.[4] This increased concerns of rising default risks, which saw credit default swap (CDS)[5] indexes for a number of European sovereign bonds increase sharply **(Figure 1.16)**. European leaders are now calling for stricter rules on speculative activity in sovereign bond trading, including a ban on naked CDS trading—buying insurance without owning the underlying bond—and short sales. Although the absence of an international consensus casts doubts on the enactment and effectiveness of such measures, the possibility of stricter regulation is nonetheless discouraging investors in derivatives

[4]Fitch Ratings cut Greece's long-term debt to BBB+ from A- on 8 December. Standard & Poor's and Moody's followed suit later in the same month, downgrading Greece's rating from A- to BBB+ and from A1 to A2, respectively.

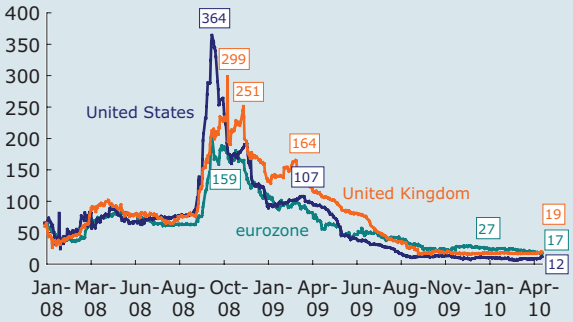
[5]The price of a credit default swap (CDS), often dubbed a CDS spread, is a key measure of risk aversion. A CDS is a credit derivative contract, in which the buyer makes periodic payments to the seller and, in return, receives a payoff in the event of specified credit incidents—typically a default. A CDS contract is often compared with insurance because the contract provides protection against defaults or restructuring of the underlying financial instrument.

Figure 1.16: Sovereign Credit Default Swaps[1]—Selected European Economies (basis points)



[1]5-year senior.
Source: Datastream.

Figure 1.17: 3-Month LIBOR minus OIS Spreads (basis points)



LIBOR = London Inter-Bank Offered Rate, OIS = overnight index swap.
Sources: OREI staff calculations based on Bloomberg data.

and CDS trading. Meanwhile, with continued liquidity support, major international money markets have returned to normality. London Inter-Bank Offered Rate (LIBOR)–overnight index swap (OIS) spreads, which reflect a combination of credit and liquidity risks, have narrowed recently despite some disruptions earlier this year **(Figure 1.17)**.

The timing and pace of exits from fiscal and monetary stimulus will influence the region's capital markets.

As the recovery gains momentum, the region's policymakers prepare to exit from the extraordinary stimulus measures introduced to support growth and contain the crisis' effects. In the PRC, GDP growth is expected to accelerate to 9.6% this year even as the authorities phase-out stimulus measures. Private consumption and investment demand in the PRC remain strong, although fixed-asset investment growth, which was the main driver of growth last year, is moderating as the government introduces measures to curb loan growth in the banking sector. The recovery is also gathering steam in India, where countercyclical measures have taken effect and a strong manufacturing performance has spurred economic activity. India's GDP growth is forecast at 8.2% for 2010. On the back of buoyant economies and rising inflationary pressures, authorities in the PRC and India have begun to steer gradual exits from crisis measures **(Table 1.3)**. Although both governments have reiterated that there will be no drastic shift in policy, fiscal stimulus programs are expected to recede over time.

Emerging Asian equities are making a swift rebound, spurred by strengthening economic prospects and robust policy support.

Global equity markets have resumed growth following a setback experienced in early 2010. The strong rally in global equities over the course of 2009 stalled in early 2010 because of concerns over fiscal problems in Greece, Portugal, and Spain; monetary tightening in the PRC; and regulatory reform proposals for banks in the US. Along with the subsequent stabilization in global stock markets, emerging Asian equities are also on the rise again. However, investors continue to focus on economic data releases and news about potential policy changes, reflecting greater uncertainty about the robustness of the recovery in major advanced economies and the impact of exit policies. Uncertainty about bank reforms in major advanced economies may also be weighing on global investor sentiment. For example, US President Barack Obama unveiled proposals in January for banking sector regulation to prevent

Table 1.3: Policy Tightening Measures—Emerging Asia

Country	Fiscal Policy	Monetary Policy
China, People's Rep. of	• The State Council required a higher down payment for the purchase of a second home, stricter supervision of municipalities' residential housing construction plans, and tax audits of state-owned enterprise (SOE) investments in real estate projects (Jan 2010). • The Ministry of Finance announced plans to nullify all guarantees by local governments for loans made through their financing vehicles (Mar 2010).	• The People's Bank of China increased the yield on 3-month central bank bills (Jan 2010) and thrice raised the reserve requirement ratio for banks (Jan, Feb, and Apr 2010). • The China Banking Regulatory Commission capped bank lending in 2010 at CNY7.5 trillion (Jan 2010) and issued rules restricting bonus payments for bankers (Mar 2010). • Securities regulators imposed a partial ban on listed companies raising capital from equity markets to repay bank loans or replenish working capital (Feb 2010).
Hong Kong, China	• The budget for FY2010 raises the rate of the stamp duty on property transactions of more than HKD20 million to 4.25% from 3.75%, without option of deferment, in an effort to curb speculation in the property market.	—
India	• The price of petrol was raised by 6.0% and diesel by 7.8% in a bid to raise revenue and rein in the budget deficit (Feb 2010). • The 2010/11 budget announced Feb 2010 outline a schedule of progressive deficit reduction, with the budget targeted to narrow gradually from an estimated 6.7% of GDP in 2009/10 to 4.1% in 2012/13. Fuel subsidy program reform, higher proceeds from the divestment of shares in state-owned firms and auctions of third-generation (3G) telecommunications licences are expected to help decrease the deficit.	• The Reserve Bank of India (RBI) raised repurchase (repo) and reverse repo rate for the second straight month—by 25 basis points each to 5.25% and 3.75%, respectively (Apr 2010). • RBI also lifted the cash reserve ratio for banks to 6.0% from 5.75% (Apr 2010).
Indonesia	—	—
Korea, Republic of	• The Ministry of Strategy and Finance announced that about 60% of the 2010 budget will be spent in the first half of the year, with plans to streamline expenditure to reach a balanced budget between 2013 and 2014 (Oct 2009 and Jan 2010).	• The Financial Services Commission will gradually cut the loan-to-deposit ratio for local banks to 100% by 2014 (Mar 2010). •The Bank of Korea announced, in coordination with the Bank of Japan, the expiration of the measure to raise the maximum amount of bilateral exchange rate swap arrangement between the two currencies on 30 April 2010.
Malaysia	• The fiscal deficit will fall to 5.6% of gross domestic product (GDP) in 2010 compared with 7.4% estimated in 2009. • The 2010 budget is 11.2% less than in 2009 due to large cuts in operating expenditures (Oct 2009). • The subsidy for white bread was removed and sugar prices were allowed to increase partly to minimize the fiscal burden (Jan 2010).	• Bank Negara Malaysia raised the overnight policy rate by 25 basis points to 2.25%, after leaving it unchanged since February 2009 (Mar 2010).
Philippines	• The fiscal deficit will fall to 3.5% of GDP in 2010 from 3.9% in 2009 (Dec 2009). • The government's fiscal stimulus program in 2010 will total PHP100 billion, down by more than two-thirds from PHP330 in 2009 (Mar 2010).	• The Bangko Sentral ng Pilipinas (BSP) restored the peso rediscount rate to a level equal to the overnight reverse repo rate effective 1 Feb 2010. • BSP also phased out liquidity enhancing measures in Mar 2010: (i) reduced the peso rediscount budget from PHP60 billion to PHP40 billion, (ii) restored the loan value of all eligible rediscounting papers to 80% of the borrowing bank's credit instrument, and (iii) brought back the non-performing loan ratio requirements for banks wishing to avail of the rediscounting facility. • BSP further reduced the peso rediscounting budget to the pre-crisis level of P20 billion (Apr 2010).

Continued on next page

Table 1.3 continued

Country	Fiscal Policy	Monetary Policy
Singapore	• The budget for FY2010 will focus on raising productivity and promoting long-term growth, and targets a smaller basic deficit of SGD6.2 billion from SGD8.5 billion in 2009 (Feb 2010). • The special risk-sharing initiative was extended until 2011, but with reductions in loan quantum limits and lower shares of government lending risk (Dec 2009). • The Jobs Credit Scheme was extended for another 6 months with reduced payout rates of 6% in 1Q10 and 3% in 2Q10, replacing the 12% rate set in 2009 (Oct 2009).	• The Monetary Authority of Singapore's (MAS) currency swap arrangement with the US Federal Reserve was allowed to expire on 1 February 2010. • MAS shifted the policy band from zero appreciation to modest and gradual appreciation (Apr 2010).
Thailand[1]	—	—
Viet Nam	• The fiscal deficit as a portion of GDP is set to fall to 6.2% in 2010 (announced November 2009) from the officially-approved ceiling of 7.0% in 2009. • The short-term loan interest rate subsidy was terminated (Dec 2009). • The medium- and long-term loan interest rate subsidies were cut from 4% to 2% (Jan 2010).	• The State Bank of Viet Nam (SBV) raised the prime interest rate from 7% to 8% per annum (Dec 2009) • SBV also raised the refinancing interest rate and discount rate by one percentage point to 8% and 6%, respectively (Dec 2009).

— = no announced policy tightening measure, FY = fiscal year.
[1]A fiscal-deficit-to-GDP ratio of 3.5% for FY2010 was announced in September 2009, lower than the 4.8% ratio in FY2009. However, the 2010 program does not yet include the second stimulus program announced in 2Q09 for implementation over the period 2010–2012.
Source: Press releases, press statements, government websites, and news articles.

another financial crisis, including a plan to charge banks a fee for the cost of the government bailout of the financial industry and a proposal to ban commercial banks from engaging in proprietary trading—the so-called "Volcker rule" named after Paul Volcker, the former US Federal Reserve chairman.[6] Indeed, shares across Asia fell in January when the US banking reform plan was introduced.

The region's low interest rate environment, stable financial markets, economic recovery, and improved risk appetite brought a surge in issuance on local currency (LCY) bond markets.

A low interest rate environment, the need for governments to finance their fiscal deficits, increased issuance by domestic companies, and improved investor confidence all led to strong and balanced growth in emerging Asia's LCY bond markets. The value of emerging Asia's LCY bonds outstanding rose 16.5% year-on-year (y-o-y) in 2009 to reach USD5.1 trillion.

Strong growth prospects for emerging Asian economies and the return of risk appetite underpin the strength of the region's currencies.

Emerging Asian currencies, which depreciated sharply against the US dollar in the wake of the global financial crisis, are making a recovery. Although the pace of appreciation slowed in early 2010 as the PRC's monetary tightening and Greek sovereign debt worries dented risk appetite, the region's currencies have recovered quickly since then, taking advantage of relatively stronger growth momentum, healthier fiscal and external positions **(Figures 1.8a and 1.18b)**, and more favorable interest rate differentials. Most currencies in the region have managed to gain since the beginning of the year **(Figure 1.19)**. The longer-term trend is expected to favor the currencies of emerging Asia due to diverging growth prospects

[6]It is still unclear whether and when the related bill will be passed, and in what form. Nevertheless, it is certain that US financial institutions will face increased regulatory oversight and tougher conditions, and hence it will be difficult to generate the kinds of excess returns seen prior to the crisis.

Figure 1.8a: Fiscal Position—Emerging Asia and G3 Economies
(2009, % of GDP)

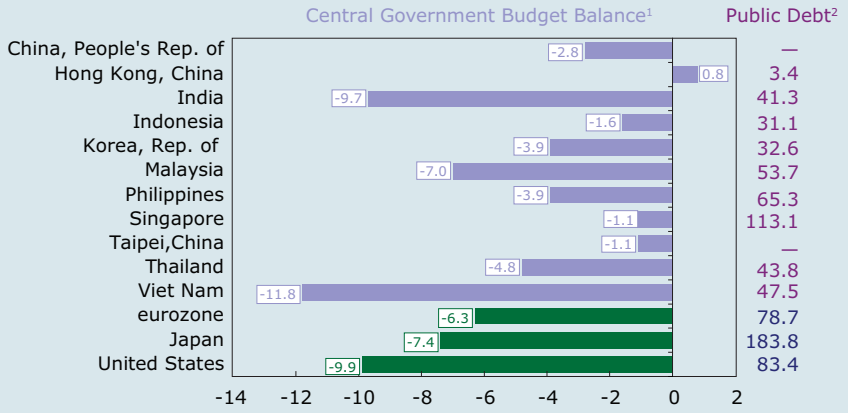
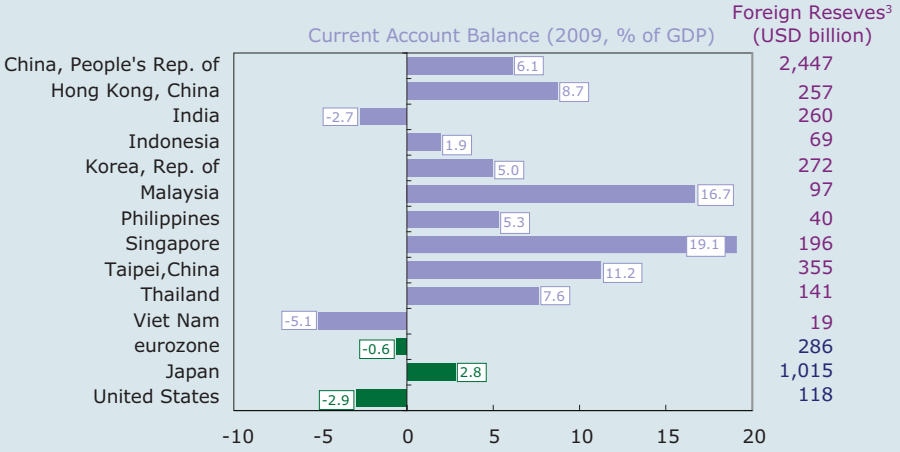


Figure 1.8b: External Position—Emerging Asia and G3 Economies



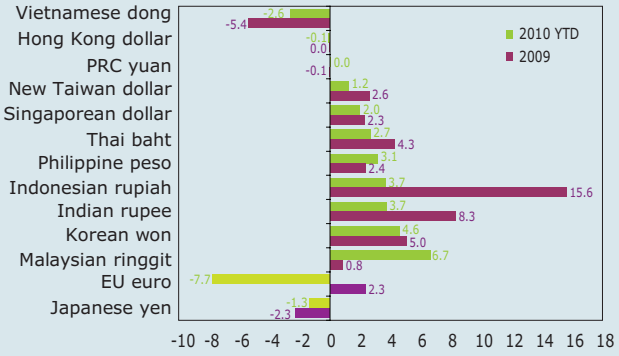
— = data unavailable.
[1]Data for China, People's Rep. of refers to general government balance; for United States government budget projection [2]Values refer to general, central, or public debt; India: central government public domestic debt; Indonesia: IMF estimate; and United States: federal government debt. [3]Values refer to foreign reserves less gold. Data as of March 2010, except for Hong Kong, China as of January 2010, India; Malaysia; eurozone; and United States as of February 2010; and Viet Nam as of September 2009.
Source: *Asian Development Outlook 2010*, Asian Development Bank; national sources; CEIC database; and International Monetary Fund.

between the US and emerging Asian economies. The region's currencies will likely benefit from vulnerable market sentiment about the world's major currencies given the uncertainty surrounding the strength of economic recovery, timing and pace of monetary tightening, and effectiveness of fiscal consolidation plans in many advanced economies.

Capital flows to emerging Asia are beginning to surge once more from growing optimism over the region's economic outlook.

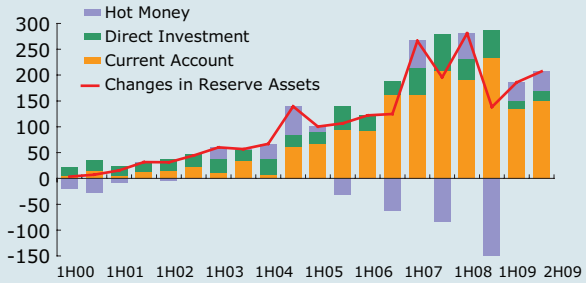
The positive growth outlook for the economies of emerging Asia provides a backdrop for strong capital flows to the region. Higher growth levels and rapidly narrowing output gaps in the region's economies compared with the advanced economies suggest that interest rate differentials are likely to widen in 2010. Relatively benign macroeconomic conditions, for example fiscal sustainability, are also setting the stage for an extended boom in capital flows to emerging Asian economies. Meanwhile, expectations of currency appreciation and widening interest rate gaps vis-à-vis US rates continue to attract strong speculative capital. In recent months, short-term capital flows have accelerated into the PRC—especially in the form of short-term borrowings that can be used for locking in foreign exchange rate risks as well as arbitraging. **Figure 1.20** shows the rising gap between the sum of the PRC's trade surplus and interest income on reserves, reported FDI inflows, and reserve growth. Although not a perfect measure, this widening gap suggests a possible increase in hot money flows.

Figure 1.19: Change in Exchange Rate versus the US dollar[1] (%)



EU = European Union, PRC = People's Republic of China.
[1]Year-to-date (YTD) figures for 2010 from 4 January to 30 April. Negative figures indicate depreciation of local currency; positive values indicate appreciation of the local currency.
Source: OREI staff calculations based on Reuters data.

Figure 1.20: Flows of Hot Money[1]—People's Rep. of China (USD billion)



[1]Hot money is defined as changes in reserve assets (absolute value) minus changes in the current account balance (absolute value) and net direct investments (absolute value).
Source: OREI staff calculations using data from CEIC database.

Equity Markets

Equity Markets

Recent Performance and Outlook

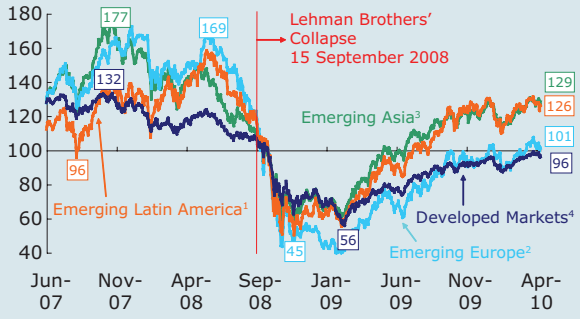
The global economic recovery, very low returns on safe assets in developed countries, and attractive valuations drove the post-crisis rebound in emerging Asian equity markets.

Emerging Asia's equity markets have trended upward since the peak of the global financial crisis. Improved risk appetite has also lifted emerging market equities higher compared with advanced markets **(Figure 2.1)**. While market volatility has subsided, a slight uptick was visible early this year, reflecting uncertainty in the strength of the global and regional economic recoveries, and the impact of pending exit policies. In such an environment, concerns about the bankruptcy of Dubai World in November and Greek sovereign debt defaults in January and February dented investor confidence. The Greek debt crisis and fears of contagion again continue to weigh on market sentiment, triggering a broad sell-off in emerging Asian equity markets in early May. However, the impact of these European fiscal problems in the region has been relatively limited, as reflected in the subsequent rally that followed the announcement of rescue package backed by the International Monetary Fund.

Despite a moderate correction early this year, emerging Asian equities have made steady gains since their plunge following Lehman Brothers' bankruptcy in September 2008.

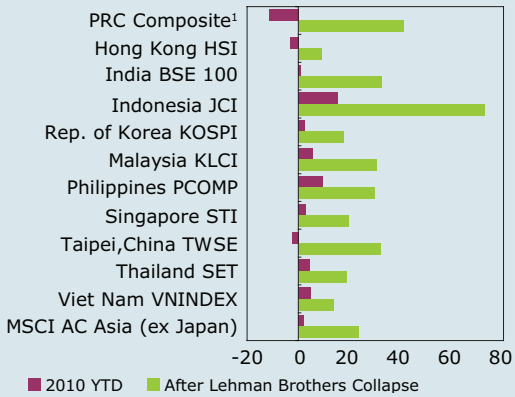
Emerging Asia's broad market price indexes continue to recover, rising between 9.1% and 72.8% since Lehman Brothers' bankruptcy in September 2008. The best performer has been Indonesia, where the broad market index has surged 72.8% since Lehman's collapse **(Figure 2.2)**. The People's Republic of China (PRC) is a close second, rising 41.0%. The region's stock indexes gained in both local currency and USD terms over the course of 2009 **(Table 2.1)**. A broad-based rebound has continued since the second quarter of 2009 on firming economic recovery and sustained policy support, although a moderate sell-off in mid-January brought down the price of riskier assets, including regional equities, in the first quarter of 2010. Although the prospect of rapidly increasing

Figure 2.1: MSCI Equity Market Indexes
(15 September 2008 = 100)



[1]Includes Brazil, Chile, Colombia, Mexico, and Peru. [2]Includes Czech Republic, Hungary, Poland, Russia, and Turkey. [3]Includes China, People's Rep. of; India; Indonesia; Korea, Rep. of; Malaysia; Philippines; Taipei,China; and Thailand. [4]Includes Canada, France, Germany, Italy, Japan, United Kingdom, and United States.
Source: Morgan Stanley Capital International (MSCI) Barra.

Figure 2.2: Change in Stock Price Indexes—Emerging Asia (%)



PRC = People's Rep. of China, AC= All Country, HSI = Hang Seng Index.
Note: 2010 year-to-date (YTD) from 4 January to 30 April; period after Lehman Brothers collapse from 15 September 2008 to 30 April 2010.
[1]Daily stock price indexes of combined Shanghai and Shenzhen Composite weighted by their respective market capital.
Source: OREI staff calculations based on Reuters and Bloomberg data.

Table 2.1: Growth of MSCI[1] Index (end-of-period, %)

	Local Currency Terms															
	2Q08		3Q08		4Q08		1Q09		2Q09		3Q09		4Q09		1Q10	
	y-o-y	q-o-q	y-o-y	q-o-q	y-o-y	q-o-q	y-o-y	q-o-q	y-o-y	q-o-q	y-o-y	q-o-q	y-o-y	q-o-q	y-o-y	q-o-q
China, People's Rep.of	(1.6)	(4.6)	(48.1)	(26.0)	(52.2)	(11.2)	(36.5)	1.3	(11.2)	33.3	28.8	7.3	58.9	9.6	54.5	(1.4)
Hong Kong, China	0.4	(5.0)	(37.6)	(23.9)	(53.2)	(19.7)	(42.5)	(0.9)	(19.0)	33.8	21.0	13.7	55.3	3.0	60.3	2.2
India	(9.0)	(14.2)	(27.5)	(6.6)	(56.8)	(27.4)	(40.4)	2.4	4.5	50.4	33.6	19.5	91.5	4.0	89.0	1.1
Indonesia	21.1	(5.6)	(22.0)	(25.3)	(50.8)	(23.8)	(42.5)	7.1	(17.7)	35.1	42.4	29.2	90.3	1.8	89.3	6.5
Korea, Republic of	(2.5)	(2.5)	(24.5)	(12.6)	(40.6)	(23.3)	(29.3)	8.2	(16.5)	15.1	18.8	24.3	56.6	1.1	44.6	(0.1)
Malaysia	(14.3)	(7.9)	(25.7)	(14.4)	(40.8)	(13.8)	(31.1)	1.4	(8.1)	22.8	20.2	12.1	46.2	4.9	48.7	3.1
Philippines	(37.2)	(19.6)	(30.2)	6.9	(46.8)	(24.9)	(31.7)	5.9	4.4	22.9	9.6	12.3	55.8	6.6	48.9	1.2
Singapore	(17.5)	(4.0)	(36.0)	(19.1)	(49.5)	(26.6)	(45.3)	(4.2)	(22.4)	36.3	10.2	14.9	63.0	8.6	67.1	(1.8)
Taipei,China	(16.6)	(10.8)	(38.5)	(23.8)	(48.1)	(22.5)	(41.1)	11.9	(20.1)	20.9	23.0	17.3	70.7	7.5	45.6	(4.5)
Thailand	2.1	(7.4)	(29.1)	(22.8)	(48.7)	(25.0)	(48.5)	(4.1)	(19.4)	45.0	21.3	16.2	63.0	0.8	85.6	9.2
Viet Nam[2]	(61.0)	(22.7)	(56.4)	14.3	(66.0)	(30.9)	(45.7)	(11.1)	12.2	59.7	27.2	29.6	56.8	(14.8)	77.9	0.9
Asia (ex Japan)[3]	**(7.0)**	**(6.7)**	**(35.9)**	**(19.7)**	**(49.2)**	**(20.2)**	**(38.0)**	**3.8**	**(14.3)**	**29.0**	**23.3**	**15.5**	**63.1**	**5.5**	**56.5**	**(0.4)**
	USD Terms															
	2Q08		3Q08		4Q08		1Q09		2Q09		3Q09		4Q09		1Q10	
	y-o-y	q-o-q	y-o-y	q-o-q	y-o-y	q-o-q	y-o-y	q-o-q	y-o-y	q-o-q	y-o-y	q-o-q	y-o-y	q-o-q	y-o-y	q-o-q
China, People's Rep.of	(1.3)	(4.7)	(48.0)	(25.7)	(51.9)	(11.0)	(36.2)	1.3	(10.7)	33.3	29.1	7.3	58.8	9.5	54.3	(1.6)
Hong Kong, China	0.7	(5.2)	(37.5)	(23.5)	(52.9)	(19.6)	(42.2)	(0.9)	(18.5)	33.8	21.2	13.7	55.2	3.0	59.9	2.1
India	(13.9)	(20.0)	(38.5)	(14.4)	(65.1)	(30.1)	(52.9)	(1.6)	(6.2)	59.3	30.5	19.0	100.5	7.5	113.6	4.8
Indonesia	18.6	(5.8)	(24.4)	(27.0)	(57.6)	(34.1)	(54.2)	1.0	(25.7)	52.9	39.0	36.5	120.8	4.7	140.4	10.0
Korea, Republic of	(13.9)	(7.7)	(42.7)	(24.3)	(55.9)	(26.5)	(49.4)	(1.5)	(31.4)	25.0	21.7	34.4	69.4	2.3	76.7	2.8
Malaysia	(9.5)	(9.8)	(26.4)	(18.7)	(43.4)	(14.2)	(39.5)	(3.8)	(14.6)	27.3	19.6	13.8	47.8	6.0	66.2	8.2
Philippines	(35.3)	(25.2)	(33.2)	2.0	(53.8)	(25.7)	(40.9)	4.2	(2.6)	23.4	8.9	14.1	60.2	9.3	59.2	3.5
Singapore	(7.2)	(2.6)	(33.5)	(23.1)	(49.5)	(27.2)	(50.4)	(9.2)	(27.2)	43.1	11.8	18.0	67.3	9.0	81.7	(1.4)
Taipei,China	(9.7)	(10.8)	(37.6)	(28.1)	(48.7)	(24.0)	(47.2)	8.3	(26.1)	24.9	23.1	19.8	75.1	8.1	55.5	(3.8)
Thailand	5.4	(12.8)	(28.2)	(23.7)	(50.3)	(27.0)	(54.3)	(5.9)	(20.9)	50.9	22.9	18.5	70.0	1.0	103.6	12.6
Viet Nam[2]	(62.7)	(26.1)	(57.7)	16.0	(68.8)	(34.4)	(50.8)	(12.6)	6.2	59.7	18.3	29.3	48.3	(17.8)	66.0	(2.2)
Asia (ex Japan)[3]	**(7.7)**	**(8.6)**	**(40.3)**	**(23.9)**	**(53.6)**	**(21.8)**	**(45.5)**	**0.2**	**(20.3)**	**33.7**	**23.7**	**18.1**	**68.3**	**6.4**	**69.6**	**1.0**

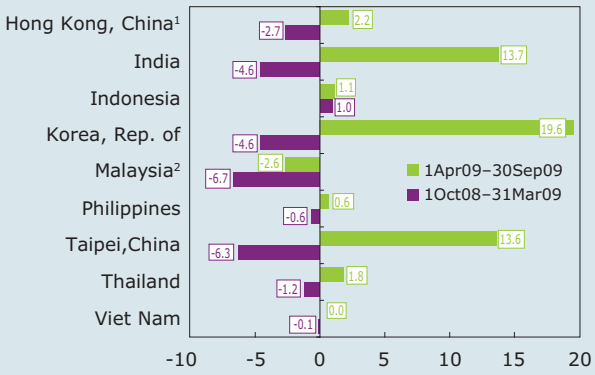
y-o-y = year-on-year, q-o-q = quarter-on-quarter.
[1]MSCI = Morgan Stanley Capital International. [2]Refers to the VNINDEX. [3]Data refers to MSCI All Country Asia (excluding Japan), which includes China, People's Rep. of; Hong Kong, China; India; Indonesia; Korea, Rep. of; Malaysia; Philippines; Singapore; Taipei,China; and Thailand.
Source: OREI staff calculations using data from Bloomberg.

Table 2.2: MSCI Returns Index[1] Growth
(year-on-year, %)

	Average 2003–2007	2008	2009	Jan–Apr 2010[2]
Asia (ex Japan)	**32.4**	**(52.2)**	**72.5**	**10.0**
China, People's Rep. of	51.6	(50.8)	62.6	7.4
Hong Kong, China	28.6	(51.2)	60.2	7.0
India	51.8	(64.6)	102.8	12.8
Indonesia	55.2	(56.2)	127.6	14.4
Korea, Rep. of	32.5	(55.1)	72.1	14.9
Malaysia	25.5	(41.2)	52.1	14.8
Philippines	38.9	(51.9)	68.0	17.5
Singapore	29.9	(47.3)	74.0	11.1
Taipei,China	17.9	(45.9)	80.2	5.5
Thailand	42.2	(48.3)	77.3	16.6
Memo				
eurozone	26.1	(46.3)	32.4	(1.7)
Japan	16.0	(29.1)	6.4	6.1
US	13.4	(48.3)	27.1	11.0

[1]Morgan Stanley Capital International (MSCI) Returns Index is valued in US dollars and calculated on a gross basis. It is measured as the price index plus reinvested dividends. [2]Refers to year-to-date growth.
Source: OREI staff calculations using data from Bloomberg.

Figure 2.3: Net Foreign Portfolio Investment in Equities (USD billion)



[1]Data refers to net portfolio investment in equity securities. [2]Values refers to net foreign and domestic portfolio investment in shares and corporate securities.
Source: Bloomberg, CEIC database, and Bank Negara Malaysia.

ratios of government debt to gross domestic product (GDP) in several European countries reignited investors' risk aversion in early 2010, most emerging Asian markets have stabilized since, reaching their local peak levels in mid-January.

Emerging Asian equities yielded a 73% return in US dollar terms in 2009, with India and Indonesia leading the way.

Emerging Asian equities provided superior returns compared with advanced economies' markets in 2009 **(Table 2.2)**. The surge in stock prices from mid-March 2009 through mid-January 2010 has been due in large part to growing optimism that a recovery is underway. In particular, the prospect of stronger growth in emerging Asia has attracted large portfolio investment inflows, boosting local stock markets. Equity flows in emerging Asia quickly swung from large net outflows in the second half of 2008 to net inflows over the course of 2009 **(Figure 2.3)**. In 2010, equity inflows are continuing, albeit at slower pace. Large short-term capital flows, however, could complicate macroeconomic management in emerging market economies.

Market capitalization in emerging Asian economies increased 83% annually in 2009, but remains substantially below the pre-crisis peak.

Emerging Asia's equity markets have staged a relatively quick rebound since November 2008, when most reached their troughs. After an extended period of spectacular growth leading up to the crisis, emerging Asian equity markets appeared to be a bit overstretched prior to the crisis, with market capitalization-to-GDP ratios exceeding most advanced markets' ratios. During the height of the global crisis of 2008/09, market capitalization-to-GDP ratios in emerging Asia fell sharply and, in some markets, reached lows not seen since the 2001/02 economic downturn. Since then, stock markets have expanded relative to GDP in most emerging Asian economies **(Table 2.3)**, while market capitalization-to-GDP ratios have shown steady and robust growth across emerging Asia over the course of 2009. Although many stock markets in the region have yet to reach their respective pre-crisis market capitalization-to-GDP ratios, these ratios continue to exceed their counterparts in major industrial economies.

Table 2.3: Market Capitalization

	Apr 2010		2009		2008		2007		Peak	Trough
	USD billion	% of GDP	USD billion	% of GDP	USD billion	% of GDP	USD billion	% of GDP	% of GDP	% of GDP
Emerging Asia	**9,767.6**	**101.9**	**9,745.8**	**111.1**	**5,340.4**	**62.7**	**12,196.8**	**165.5**	**165.5 Dec-07**	**59.0 Jul-04**
China, People's Rep. of	2,995.3	56.9	3,302.9	69.4	1,775.6	41.0	4,459.5	131.8	131.8 Dec-07	16.3 Jan-06
Hong Kong, China	2,262.0	1,024.3	2,305.0	1,103.7	1,328.9	617.1	2,653.6	1,281.5	1,437.6 Oct-07	415.2 Apr-04
India	1,411.7	105.4	1,301.2	104.7	637.3	52.8	1,815.0	164.9	164.9 Dec-07	33.2 Jun-04
Indonesia	265.2	46.6	212.1	41.2	95.9	18.7	204.8	47.4	47.4 Dec-07	15.3 Nov-08
Korea, Rep. of	900.2	105.2	822.1	102.7	484.0	52.1	1,103.3	105.2	118.4 Oct-07	41.2 Jul-04
Malaysia	331.3	153.3	284.0	137.0	186.3	84.1	324.4	174.3	174.3 Dec-07	79.1 Nov-08
Philippines	146.8	85.8	130.1	82.0	85.7	51.3	192.7	133.8	139.2 Oct-07	51.3 Dec-08
Singapore	484.5	271.2	448.3	274.8	248.0	136.3	498.0	298.3	322.5 Oct-07	123.9 Nov-08
Taipei,China	745.0	193.4	733.1	205.1	386.7	98.8	701.1	182.2	212.0 Oct-07	94.3 Nov-08
Thailand	187.7	66.5	173.7	65.2	99.0	36.2	212.9	86.5	86.5 Dec-07	31.5 Nov-08
Viet Nam	37.9	36.8	33.3	36.3	13.0	14.5	31.4	44.1	44.1 Dec-07	11.2 Feb-09
Memo										
United Kingdom	2,989.5	127.0	2,989.9	136.0	1,995.7	74.5	4,046.9	144.5	155.9 Dec-06	71.9 Nov-08
Japan	3,760.3	72.5	3,466.6	68.7	3,264.8	66.5	4,545.9	103.8	120.8 Apr-06	53.3 Feb-09
United States	14,481.9	98.5	13,740.1	96.3	10,606.3	73.4	17,663.5	125.5	133.5 May-07	61.3 Feb-09

Note: Peaks and troughs were defined over the period January 2004 to February 2010, except for Viet Nam from April 2007 to February 2010.
Source: OREI staff calculations based on data from Bloomberg and *World Economic Outlook Database,* International Monetary Fund.

Initial public offerings (IPOs) and private equity deals soared in the second half of 2009, as global financial markets continued to stabilize and increasing liquidity encouraged companies to raise capital through emerging Asian equity markets.

IPOs and secondary share offerings in emerging Asian stock markets posted strong growth in 2009, especially in the latter half. Emerging Asia's total equity issuance amounted to USD149.9 billion in 2009, up from USD71.9 billion the previous year **(Figures 2.4a, 2.4b, and 2.4c)**. There was significant IPO activity in the region's fastest growing economies—the PRC and India. IPOs by companies in the PRC, including those listed on stock exchanges in Hong Kong, China, accounted for more than three-quarters of the region's IPO activity in 2009. IPOs in the retail and property sectors grew most strongly, reflecting the PRC's burgeoning consumption demand and recent rises in the real estate market. In India, IPOs declined by nearly half in 2008 compared with the year before as the global crisis intensified, but deals are gradually returning. Although total IPOs in India in 2009 were still less compared with 2008, most of the deals were made in the latter half of the year. As the economic recovery firms up and financial conditions improve, IPOs and private equity deals are expected to rise further throughout 2010.

Figure 2.4a: Equity Issuance—Emerging Asia[1]

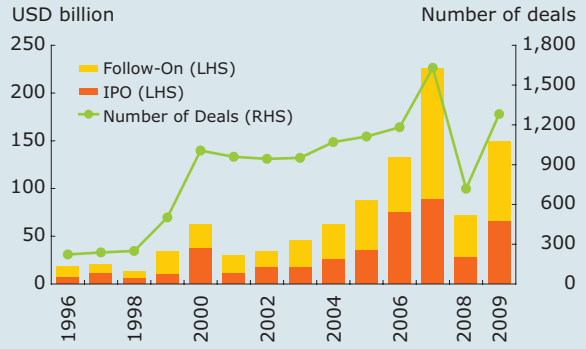


Figure 2.4b: Total Equity Issuance (USD billion)

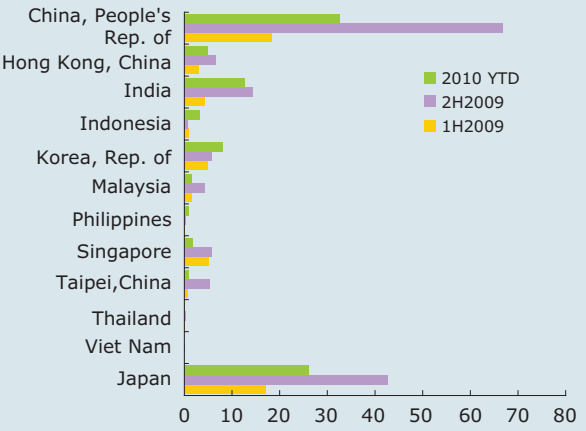
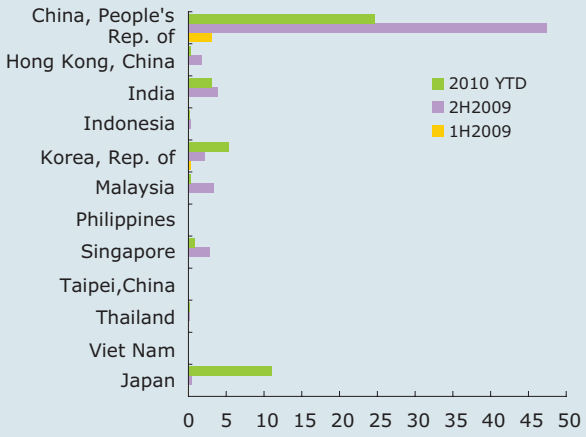


Figure 2.4c: Initial Public Offerings (USD billion)



IPO = initial public offering, LHS = left-hand side, RHS = right-hand side.
Note: Year-to-date (YTD) period for 2010 from 4 January to 4 May.
[1]Includes China, People's Rep. of; Hong Kong, China; India; Indonesia; Korea, Rep. of; Malaysia; Philippines; Singapore; Taipei,China; Thailand; and Viet Nam.
Source: Dealogic.

Increased turnover and reduced price volatility across emerging Asia's stock markets indicate liquidity conditions have improved.

Measured by turnover—defined as the total value of traded shares divided by market capitalization—many emerging Asian equity markets showed substantial growth in depth and volume in 2009 **(Table 2.4)**. In 2008, however, turnover fell across the board. The crisis disrupted trading activities in the PRC, Korea, Malaysia, and Philippines more than elsewhere. India and Indonesia managed to keep their markets relatively active throughout the crisis. In Thailand, trading activity had been affected by prolonged political uncertainties even before the crisis started. Price volatility has generally come down from its highs during the crisis, as financial markets stabilized **(Figures 2.5a, 2.5b, and 2.5c)**. Reflecting an increase in investors' risk perceptions, volatility picked up in many emerging Asian markets in early 2010. In Viet Nam, a noteworthy increase in volatility started earlier than elsewhere due to changes in monetary and foreign exchange policies late last year.

Capital flows to emerging Asia—particularly equity portfolio investments—have increased sharply, contributing to the robust growth in the region's stock markets.

The return of foreign capital continues to boost the region's stock markets, which suffered a sharp reversal of capital flows at the onset of the crisis. However, as aggressive policy support helped stabilize global financial markets and the region's economic powerhouses continued to grow despite the severe recession in advanced economies, capital found its way back to the region. Global investors with improved risk appetite also favor emerging market equities, especially in an environment of very low returns on safe assets. With the return of equity investment flows to the region, foreign participation in local equity markets appears to be on the rise. Foreign holdings of emerging Asian equities average about 20% of total market

Table 2.4: Equity Turnover (USD million)

	2002		2003		2004		2005	
	Value[1]	Average Daily Turnover[2]	Value[1]	Average Daily Turnover[2]	Value[1]	Average Daily Turnover[2]	Value[1]	Average Daily Turnover[2]
China, People's Rep. of	352,305	1,487	396,252	1,644	517,286	2,129	392,772	1,623
Hong Kong, China	194,004	785	296,156	1,194	439,464	1,765	464,273	1,880
India	197,073	785	291,975	1,150	378,657	1,491	473,671	1,887
Indonesia	13,050	53	14,652	61	27,518	114	41,633	171
Korea, Rep. of	596,632	2,445	459,035	1,858	625,186	2,511	1,210,662	4,862
Malaysia	32,923	133	52,233	212	61,636	249	51,601	209
Philippines	3,093	13	2,673	11	3,681	15	6,982	28
Singapore	63,048	251	91,928	365	107,296	424	116,457	466
Taipei,China	633,632	2,555	591,718	2,376	718,804	2,875	585,379	2,370
Thailand	41,289	169	102,421	415	116,381	475	95,646	390
Memo								
eurozone	4,537,489	17,794	5,084,897	19,941	6,300,180	24,325	7,860,655	30,586
Japan	1,688,261	6,863	2,221,254	9,066	3,352,475	13,628	4,679,558	19,100
United States	10,310,055	40,913	9,691,335	38,458	11,618,151	46,104	14,125,292	56,053

	2006		2007		2008		2009	
	Value[1]	Average Daily Turnover[2]	Value[1]	Average Daily Turnover[2]	Value[1]	Average Daily Turnover[2]	Value[1]	Average Daily Turnover[2]
China, People's Rep. of	1,158,997	4,809	6,074,604	25,102	3,848,930	15,774	7,835,708	32,114
Hong Kong, China	832,400	3,370	2,133,643	8,673	1,629,782	6,652	1,501,638	6,031
India	638,051	2,552	1,095,109	4,363	1,027,047	4,175	1,050,036	4,321
Indonesia	48,810	202	114,631	466	109,432	456	94,351	391
Korea, Rep. of	1,342,086	5,434	2,005,641	8,254	1,432,480	5,776	1,559,040	6,162
Malaysia	75,205	306	169,723	684	93,784	383	86,033	344
Philippines	11,214	45	29,172	120	17,090	69	20,802	86
Singapore	180,243	721	381,289	1,519	259,885	1,031	245,425	970
Taipei,China	736,469	2,970	1,010,040	4,089	829,612	3,332	905,131	3,606
Thailand	100,929	415	117,893	481	115,980	470	126,097	519
Memo								
eurozone	10,387,373	40,735	15,680,872	61,253	13,302,436	51,963	6,714,583	26,229
Japan	6,258,821	25,237	6,765,972	27,616	5,887,892	24,032	4,161,946	17,127
United States	21,789,471	86,811	29,113,787	115,991	33,638,937	132,960	17,784,586	70,574

[1]Turnover value refers to transaction value for the period. [2]Average daily turnover is the turnover value divided by the number of trading days.
Source: OREI staff calculations using data from World Federation of Exchanges.

capitalization **(Figure 2.6)**. The trend of foreign participation will likely continue, contributing to a deepening and broadening of local equity markets. The increased financial openness, however, may expose emerging Asian markets to the vagaries of global investors, such as a sharp reversal in portfolio investment flows, as well as various external risk factors.

Valuation and Risk

Despite favorable cyclical developments, the strong performance of emerging Asian equities in 2009 limits room for further gains this year.

Current valuations may not warrant sufficiently high risk premiums commonly associated with emerging market equities. On the basis of the price-to-earnings (P/E) ratio—a key indicator of market valuation—emerging Asian equities

Figure 2.5a: Implied Equity Price Volatility[1]—Emerging Asia,[2] India, and the PRC

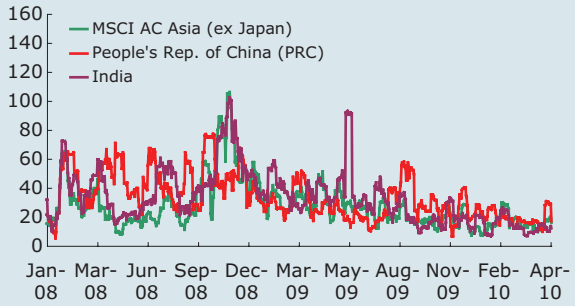


Figure 2.5b: Implied Equity Price Volatility[1]—ASEAN-5

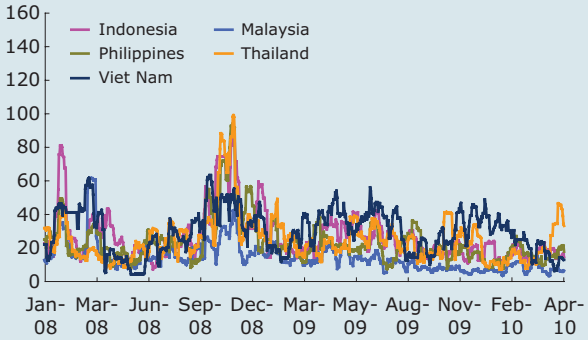
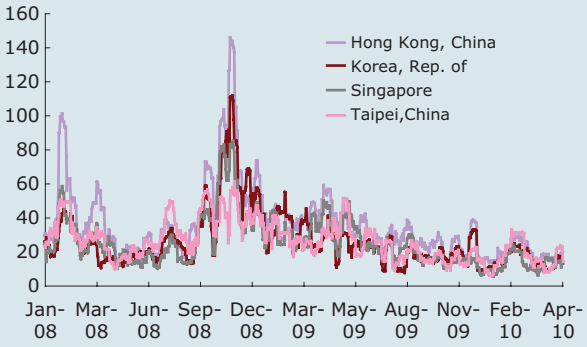
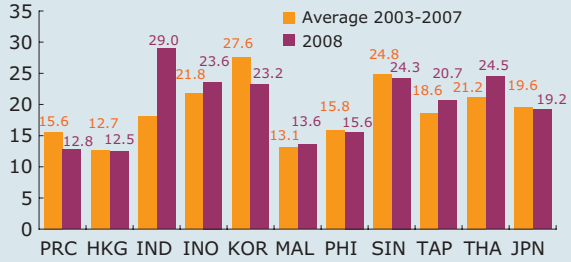


Figure 2.5c: Implied Equity Price Volatility[1]—NIEs



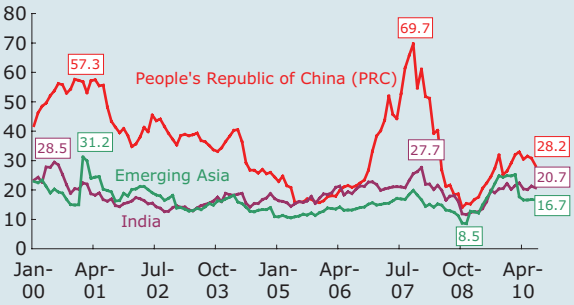
AC = All Country, ASEAN = Association of Southeast Asian Nations, NIEs = newly industrialized economies.
Note: Data for the PRC refers to Shanghai Composite Index.
[1]Refers to 10-day price volatility. [2]Includes China, People's Rep. of; Hong Kong, China; India; Indonesia; Korea, Rep. of; Malaysia; Philippines; Singapore; Taipei,China; and Thailand.
Source: Bloomberg.

Figure 2.6: Average Foreign Holdings of Equity—2003–2007 and 2008
(% of total market capitalization)



PRC = China, People's Rep. of; HKG = Hong Kong, China; IND = India; INO = Indonesia; KOR = Korea, Rep. of; MAL = Malaysia; PHI = Philippines; SIN = Singapore; TAP = Taipei,China; THA = Thailand; and JPN = Japan
Source: OREI staff calculations based on data from *Coordinated Portfolio Investment Survey*, International Monetary Fund; and Bloomberg.

Figure 2.7: Price–Earnings Ratio—Emerging Asia,[1] PRC, and India



[1]Data refers to MSCI AC Asia (excluding Japan) which includes PRC; Hong Kong, China; India; Indonesia; Korea, Rep. of; Malaysia; Philippines; Singapore; Taipei,China; and Thailand. [2]Price-Earnings Ratio of combined Shanghai and Shenzhen Composite, weighted by their respective market capitalization.
Source: CEIC database and Bloomberg.

have already narrowed the large discounts seen during the crisis **(Figure 2.7)**. For most emerging Asian markets, P/E ratios have exceeded their averages over the 5-year period prior to the crisis, implying the region's equities are no longer cheap **(Table 2.5)**. The price-to-book ratios indicate multiple valuations for some of the region's best performers in 2009, such as the PRC and India, suggesting that their equities are expensive. Company values vis-à-vis cash flows also point to the possibility of overvaluations in some markets.

Table 2.5: Equity Valuation Indicators (end-of-period)

	Price-Earnings Ratio				Price-to-Book Ratio				EV/EBITDA[1]				Earnings per Share[2] (y-o-y growth, %)			
	Average 2003-2007	2008	2009	Apr-10	Average 2003-2007	2008	2009	Apr-10	Average 2003-2007	2008	2009	Apr-10	Average 2003-2007	2008	2009	Apr-10
MSCI Asia (ex Japan)	14.8	12.8	17.7	16.7	2.0	1.3	2.1	2.0	8.2	7.0	8.4	8.6	9.4	(38.5)	(9.0)	49.5
China, People's Rep. of	34.5	15.2	32.9	28.2	4.9	2.0	3.5	3.1	14.5	9.9	14.9	15.1	—	(2.8)	(4.9)	27.6
Hong Kong, China	18.6	8.5	19.6	16.6	2.1	1.4	2.0	1.9	13.7	8.0	8.5	10.2	—	(10.0)	(5.4)	35.4
India	21.0	12.4	22.4	20.7	4.6	2.1	3.5	3.4	11.7	12.3	9.4	9.2	26.3	7.2	(7.3)	24.7
Indonesia	12.5	12.2	15.2	—	2.0	1.6	2.7	3.0	6.8	5.0	7.0	6.4	22.6	12.3	(5.3)	24.4
Korea, Rep. of	13.1	9.0	23.7	15.4	1.1	0.9	1.3	1.3	—	—	—	—	27.4	(20.0)	16.7	90.0
Malaysia	15.2	12.2	22.4	18.9	1.9	1.3	2.2	2.2	9.0	7.7	8.9	8.2	—	(6.1)	(6.0)	21.3
Philippines	16.3	9.8	15.2	14.7	2.0	1.4	2.1	2.2	7.0	7.1	7.7	7.7	36.8	(7.0)	7.3	20.9
Singapore	19.1	6.2	19.3	—	—	1.1	1.7	1.7	—	6.8	9.4	9.7	—	—	(12.9)	37.4
Taipei,China	15.9	11.6	27.4	15.1	1.8	1.3	2.2	2.1	—	—	—	—	43.7	(35.2)	(24.5)	156.5
Thailand	13.2	7.0	25.6	13.8	2.1	1.0	1.6	1.6	8.5	6.2	9.9	8.0	—	16.4	(10.2)	24.8
Memo																
eurozone	15.6	16.6	28.5	18.3	2.1	1.2	1.4	1.1	12.6	15.1	15.5	16.7	11.4	(16.9)	(34.5)	15.4
Japan	20.9	19.7	38.1	19.9	1.7	1.0	1.1	1.2	10.4	8.9	16.0	13.7	7.0	(45.8)	(45.4)	136.3
United States	18.0	14.6	18.0	17.5	2.9	2.0	2.2	2.3	12.4	9.2	9.9	10.0	12.1	(16.6)	(17.3)	40.3

— = data not available, y-o-y = year-on-year.
[1]Refers to the ratio of enterprise value-to-earnings before interest, taxes and depreciation, and amortization (EBITDA). Enterprise value (EV) is the measure of a company's worth and is computed as market capitalization less cash and cash equivalent, plus preferred stock and debt. EBITDA is a measure of company's operational cash flow. [2]Average values for 2003-2007 are based on MSCI stock earning per share ratios (except for eurozone and Japan based on benchmark stock price indexes). Figures for 2008 onwards are based on benchmark stock price indexes using estimated values from Bloomberg.
Source: OREI staff calculations based on data from Bloomberg and CEIC database.

However, earnings have improved significantly across emerging Asia and in some cases remain supportive of further gains given growth potential. The widening growth gap between emerging Asia and advanced markets, boosted by relatively sound economic fundamentals and sustained policy support, is also positive for emerging Asian equities. On a relative basis, the region's equities will likely benefit from capital flows on the back of stronger economic prospects, which may push emerging Asian equities further in the short run.

With excess liquidity being withdrawn globally, bargain hunting for equities should also wane.

Global liquidity conditions are important for the region's equity markets. A robust growth outlook, rising current account surpluses, and appreciating currencies across emerging Asia have provided a strong backdrop for equity investment flows into the region. However, the current external environment, which is characterized by very low interest rates and ample liquidity, is also an important factor behind the strong capital inflows to emerging market economies. The world's major central banks have already begun liquidity draining operations. Although the ongoing operations have been geared toward neutralizing monetary conditions, rather than tightening, their lagged effects could still create some headwinds for emerging Asian equities. As global liquidity conditions become more neutral, the liquidity-driven rally in emerging market economies will likely lose momentum. If the economic fundamentals do not justify the rise in asset prices, capital flows to emerging Asia could reverse yet again.

Several current and leading economic indicators suggest that investment opportunities in emerging Asian equities may become more neutral.

Risks to emerging Asian equities are generally balanced in the near term. On the upside, the improving external environment presents opportunities for further gains in emerging Asian markets. Barring the risk of a double dip in advanced economies, exports will rise on the back of a strengthening global economy, which should underpin earnings growth for many Asian exporters. On the downside, emerging Asian markets entered this year highly valued. Valuations indicate that the markets have already priced most upside risks into emerging Asian equities. However, emerging Asian equities continue to project strong growth potential on the back of a growing domestic investor base and deepening market liquidity in the long run. The key to navigating through rough times is maintaining investor confidence by ensuring sound macroeconomic management and deepening structural reforms. In this regard, structural adjustments such as strengthening consumption and promoting investment could provide a further boost for emerging Asian equities in the long run.

Downside near-term risks—both external and regional—continue to weigh on investor sentiment across emerging Asian markets.

Following the 2009 rally, emerging Asian equity markets remain vulnerable to market corrections. Due to the strength of the economic rebound and resurgence of capital inflows, equity markets in the region racked up gains in the second half of 2009. Foreign funds also flowed back into the region, which improved the outlook for the region's economies. Equity and real estate prices have recovered in many economies and continue to rise rapidly in some major cities across the region. However, with global policy cycles shifting, this situation may change. Amid growing uncertainty, investors may become more risk averse, triggering a correction. Although healthy corrections could turn out to be a positive for long-run market performance, the magnitude and duration of a market correction is often unpredictable. The risk of a hard landing cannot be ruled out in cases where equity prices deviate substantially from the underlying fundamentals.

Policy Implications

While the region's fast-growing economies offer potentially large investment opportunities, near-term risks include the fragility of advanced economies' recovery, worsening fiscal problems in Europe, and unintended policy errors in exiting from stimulus measures.

Uncertain global economic and policy conditions are weighing on emerging market equities' performance. Although the weaknesses of more advanced economies may divert capital flows to emerging Asian economies for now, temporarily boosting equities, another outright recession in the world's major economies could derail the fragile global recovery and destabilize financial markets again. There is also a risk that the fiscal woes in many European economies might spread more broadly. Fiscal positions in many advanced economies have weakened considerably following their aggressive budgetary expansions during the crisis. Meanwhile, it is still unclear that private demand is sufficiently strong to support recovery even as monetary and fiscal conditions will soon require some normalization of crisis responses. Financial markets (both global and regional) are reacting vigorously to any news about changes in existing policy stances, reflecting investors' heightened anxiety about seemingly inevitable exits. Market volatility is expected to rise until large economic and policy uncertainties dissipate over time.

Resilience in emerging Asia's equity markets ultimately depends on the ability of the region's policymakers to support investor confidence by maintaining macroeconomic and financial stability.

Prudent management of capital flows and foreign exchange policies are needed to reinforce macroeconomic and financial stability. Capital inflows to emerging economies have resumed, with the capital accounts in many emerging economies turning to net inflows in the second half of 2009 and their foreign exchange reserves rising again in late 2009, as confidence returned to financial markets. The main contributor has been a turnaround in portfolio equity flows. An improved economic outlook and increased stability in emerging Asian economies with high-yielding currencies have also lured investors back to the carry trade. The potential of increasing speculative capital flows pose policy challenges to many emerging Asian economies. Risks are greater for those with limited exchange rate flexibility as this tends to facilitate carry trades and speculative activity. There are genuine concerns about effectively managing volatile capital flows since there is no magic solution to managing these flows or excessive jumps in asset prices. Nonetheless, an appropriate policy package should include currency flexibility, clear and stable monetary and fiscal policies, and enhanced regulatory and supervisory efforts to prevent asset bubbles. Authorities should also communicate clearly and effectively with market participants, which could affect policy outcomes.

Further improvements in the depth and breadth of emerging Asian equity markets are crucial to enhancing financial resilience.

Active steps are required to foster deeper and more liquid domestic capital markets, including broadening the investor base; encouraging development of more diverse local financial products; improving legal, regulatory, and institutional frameworks; upgrading governance and transparency; and establishing more sound market infrastructure and institutions.[7] The crisis also highlighted the importance of regulatory quality to safeguard market integrity. There is a need to improve and streamline the region's regulatory and supervisory regimes, reinforcing global efforts at revamping the financial architecture to avoid a repeat of the crisis. Finally, the development of market infrastructure can also contribute to the efficient functioning of

[7]See *Asia Capital Markets Monitor 2009* for a more detailed discussion. Available at: http://asianbondsonline.adb.org/features/asian_capital_markets_monitor/ACMM-complete.pdf

capital markets by effectively allocating financial resources and ensuring financial stability.

Individual Market Updates

People's Republic of China (PRC)

The PRC's composite price index[8] closed 2009 trading at 2,901.48, which was 85.1% higher than its close at the end of 2008. Top gainers were basic materials and consumer goods. Financial stocks also advanced in anticipation of the launch of stock-index futures in early 2010. Following months of successive gains that began in November 2008, the PRC's composite price index entered a correction phase in August 2009, dropping about 20% in 1 month.[9] While the composite price index gradually recovered in the last quarter of 2009, rising 27.0% from its trough on 31 August, share prices stayed volatile on speculation about growing asset price bubbles and possible monetary tightening. Trading activity remained weak in the first quarter of 2010 as officials imposed a series of monetary tightening measures beginning in January. Authorities raised the reserve requirement for banks, capped bank lending, and imposed a partial ban on listed companies raising capital from equity markets to either repay bank loans or increase working capital. Market performance was also adversely affected by sovereign debt woes in Greece.

Hong Kong, China

Hong Kong, China's equity market has rallied since March 2009, with the Hang Seng Index hitting a 16-month high of 22,943 points in mid-November and closing the year up 52.0%. Top gainers were technology and consumer goods. The rally was primarily driven by ample liquidity in money markets, rising property prices, and the positive effects of robust economic growth in the PRC. The upbeat market sentiment was, in part, supported by a revival in IPOs and a low interest rate environment. However, local stocks plunged toward the end of 2009 on speculation of a possible Dubai World debt default, potential asset bubbles, and the reversal of fund flows. Stock prices slumped in the early part of 2010 on uncertainties over further monetary tightening in the PRC and the potential adverse impact of the proposal to limit proprietary trading and the size of financial institutions in the United States.

India

The Bombay Stock Exchange 100 Index (BSE 100) rebounded strongly through most of 2009 as economic growth prospects improved and net foreign investment inflows increased. The BSE 100 closed 2009 at 9,229.7 points, up 85.0% from its end-2008 level. The rally started to lose momentum as monetary tightening weighed on investor sentiment in the first quarter of 2010 when the BSE 100 averaged 9,003.5 points. The sentiment was further dented by fears that a stronger rupee could hurt the profitability of companies. Technology, financial, and industrial stocks, however, remained relatively strong during the period.

Indonesia

Indonesia's equity markets performed strongly in 2009. A robust economic recovery combined with improving economic data and resilient corporate earnings pushed equity prices up. The Jakarta Composite Index (JCI) closed at 2,534.3 points in 2009, up 87.0% from its end-2008 level. Healthcare and industrial stocks gained the most for the year, while consumer services stayed weak. Trading activity slowed in September, following months of rally, due to the fasting period and the *Idul Fitri* festival holidays. In the fourth quarter of 2009, the stock market moved sideways due to escalating political tensions. Nonetheless, JCI share prices continued to rise in the first quarter of 2010 as real economic data and corporate earnings remained strong, and credit rating agencies raised the country's sovereign debt ratings.

[8]Refers to Shanghai Composite Index and Shenzhen Composite Index, weighted by their respective market capitalizations.

[9]The PRC's composite price index fell by 23.3% from 4 August to 31 August 2009.

Republic of Korea (Korea)

The Korea Composite Stock Price Index (KOSPI) enjoyed an upward trend beginning in the second quarter of 2009 on improving economic indicators both at home and abroad, a stable USD–KRW exchange rate, and rising foreign fund inflows. The rally was also supported by strong corporate earnings, sustained economic recovery, and solid buying among institutional investors. In November, however, the KOSPI slumped as investors dumped emerging market stocks following Dubai World's request for a debt moratorium. Despite the sell-off, the benchmark index closed 2009 at 1,682.8 points, which was up almost 50% from its end-2008 level, as year-end bonuses and gift shopping boosted consumption and corporate profits. Top performers for the year were technology, consumer goods, and basic materials.

Malaysia

The Kuala Lumpur Composite Index ended 2009 trading higher at 1,272.8 points, up nearly 45% from end-2008. All sectors in the domestic bourse gained in 2009, with healthcare shares leading the advance. Market sentiment improved throughout 2009, supported by signs of economic recovery and investors' returning appetite for emerging markets assets. Share prices continued to rally in the fourth quarter of 2009, driven by firmer signs of global and domestic economic recovery, and in anticipation of the re-listing of Maxis Berhad, a major telecommunications company, in November 2009.

Philippines

Stock market activity was generally bullish in 2009 on the back of improving global and domestic economic indicators, despite the fall in share prices due to investors' profit-taking and weak market sentiment following a severe typhoon that hit the country in September. The Philippine Stock Exchange Composite Index ended 2009 at 3,052.7 points, up 63.0% from end-2008. Utilities and basic materials were the major gainers for the year, while industrials, financials, and consumer goods were also strong performers, recording double-digit rallies. The market opened 2010 on a positive note on better-than-expected economic indicators, although concerns over the rising budget deficit triggered a sell-off in late January and early February.

Singapore

The Straits Times Index (STI) closed 2009 trading at 2,897.6 points, which was 64.5% higher than a year earlier. Oil and gas firms, and providers of basic materials were the top gainers for the year, followed by the technology sector. After reaching a trough in March 2009, the STI rebounded strongly until the third quarter of 2009, when it entered into a consolidation phase. Share prices continued to rise in the last quarter of 2009, led by blue chip stocks in the banking and commodity sectors. The rally in bank shares was mainly driven by good corporate earnings. The STI made a steady advance into early January, but fell in mid-January as investors stayed on the sidelines due to the Greek debt crisis and a lack of market leads.

Taipei,China

The local bourse was one of the best performers in the region last year, growing 78.3% as of end-December from a year earlier. Gains were buoyed by advances in industrials, consumer goods, and technology stocks. Taipei,China's Stock Exchange Index (TAIEX) enjoyed the longest span for a market rebound in the region—from a trough in November 2008 to a peak in January 2010. As economic fundamentals strengthened and corporate earnings recovered, driven by new demand from niche markets, the TAIEX closed 2009 trading at 8,188.1 points. The year-end market rally was bolstered by foreign institutional investors buying domestic assets ahead of the signing of a financial agreement that will relax restrictions on PRC investors in Taipei,China's stock market. However, the PRC's tightening measures in mid-January spurred investor profit-taking, lowering the TAIEX in line with declines in other regional equity markets.

Thailand

The Stock Exchange of Thailand closed 2009 at 734.5 points, up 63.2% from a year earlier. Providers of consumer goods and basic materials led the market advance, while financial and industrial firms also rallied. The rally was driven by improving economic data, ample liquidity in the market, easing political tensions, and resurgent foreign capital flows. The energy sector dominated market trading value in the third quarter of 2009, followed by the banking, property, construction materials, and telecommunications sectors. The rally lost momentum in the fourth quarter on speculation that the weak health of King Bhumibol Adulyadej might spark political instability and on concerns over the Central Administrative Court's temporary injunction to suspend the development of 76 industrial projects in the Map Ta Phut area. The market remains volatile amid growing political uncertainty and Greek debt worries.

Viet Nam

Viet Nam's equity market enjoyed a strong rebound from March until October 2009. The country's local bourse rose 56.8% for the year as a whole. Solid economic growth, fiscal stimulus, and loose monetary policy attracted speculative inflows. Net foreign purchases surged in the third quarter of 2009, but subsequently weakened in the last quarter of the year. The benchmark index further declined in early 2010, in line with the general trend in the region's equity markets for the period.

Bond Markets

Bond Markets

Recent Performance and Outlook

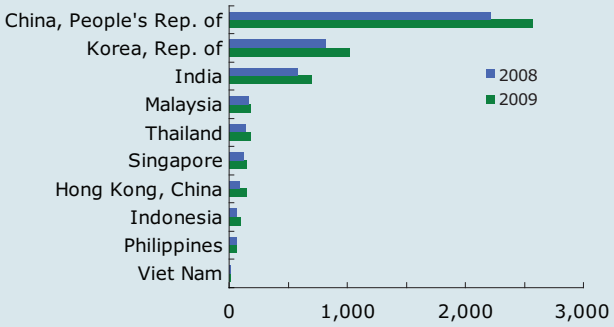
The region's low interest rate environment, stable financial markets, economic recovery, and improved risk appetite helped local currency (LCY) bond markets to expand 17% in 2009.

A low interest rate environment, the need for governments to finance their fiscal deficits, increased issuance by domestic companies, and improved investor confidence led to strong and balanced growth in emerging Asia's LCY bond markets. The value of emerging Asia's LCY bonds outstanding rose 16.5% year-on-year (y-o-y) in 2009 to reach USD5.1 trillion. The increase in value reflected broad-based growth that included Hong Kong, China (55.8%); Thailand (20.5%); Indonesia (19.4%); India (16.1%); Singapore (15.6%); and the Republic of Korea (Korea) (15.0%) **(Figure 3.1)**.

As a result, emerging Asia's share of global bonds outstanding rose in 2009; the People's Republic of China (PRC) remains the largest market in the region.

The global share of emerging Asia's bond markets is increasing, reflecting the rapid development of the region's local debt markets. Emerging Asia's share of the global bond market rose to 7.8% in 2009 from only 2.1% in 1996. The PRC's LCY bond market remains the largest in the region, accounting for approximately 50% of emerging Asia's total bonds at the end of 2009. At the end of the third quarter of 2009, the PRC accounted for 3.8% of the world bond market, a level slightly below that of France and Germany, but well above the United Kingdom's 2.5% global share **(Table 3.1)**.

Figure 3.1: Total Bonds Outstanding—2008 and 2009 (USD billion)



Source: *AsianBondsOnline* and Bloomberg.

Growth trends varied across emerging Asia's markets as the ratio of LCY bonds outstanding to gross domestic product (GDP) rose slightly to 68%.

There was a broad-based and strong growth in LCY bond markets in Hong Kong, China; Thailand; Indonesia; Singapore; and Korea in 2009. In the PRC, corporate bonds registered a blistering growth rate of 77.5% in 2009, while the dominant government bond sector grew 8.0%.

Preliminary data from February and March suggest that government bond market growth rates in Hong Kong, China; Indonesia; and Korea continue to be as robust as they were in 2009. If the growth trends for January and February continue for the year as a whole, all three of these markets could see double-digit annual growth in 2010.

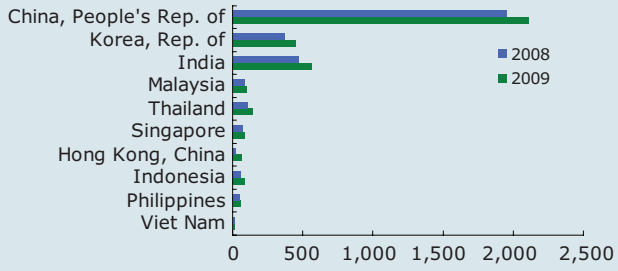
The largest increase in the LCY-debt-to-GDP ratio occurred in Hong Kong, China, where it rose to 68.4% at the end of 2009 from 42.8% at the end of 2008 **(Table 3.2)**. Furthermore, the ratio of LCY debt to GDP rose by more than 10% in four markets in 2009: Korea, Malaysia, Singapore, and Thailand. On the other hand, the LCY-debt-to-GDP ratio increased less than 1% in Indonesia and fell in Viet Nam.

Table 3.1: Domestic Debt Securities

Economy	3Q09		4Q96	
	LCY Bonds Outstanding (USD Billion)	% of World Total	LCY Bonds Outstanding (USD Billion)	% of World Total
United States	25,105	40.0	10,926	42.8
Japan	9,831	15.6	4,456	17.4
France	3,188	5.1	1,303	5.1
Germany	2,927	4.7	1,888	7.4
United Kingdom	1,566	2.5	678	2.7
Emerging Asia	4,873	7.8	537	2.1
of which: PRC	2,415	3.8	62	0.2
of which: Korea, Rep. of	1,001	1.6	283	1.1
of which: India	664	1.1	81	0.3
of which: ASEAN-6	665	1.1	158	0.6
Indonesia	90	0.1	7	0.0
Malaysia	181	0.3	81	0.3
Philippines	59	0.1	28	0.1
Singapore	150	0.2	25	0.1
Thailand	172	0.3	18	0.1
Viet Nam	13	0.0	—	—
Memo Items:				
Brazil	1,227	2.0	299	1.2
Russia	43	0.1	43	0.2

— = data not available, ASEAN = Association of Southeast Asian Nations, LCY = local currency, PRC = People's Republic of China.
Source: Bank for International Settlements and *AsianBondsOnline*.

Figure 3.2: Government Bonds Outstanding—2008 and 2009 (USD billion)



Source: *AsianBondsOnline* and Bloomberg.

Growth in corporate bonds outpaced growth in government debt markets.

Corporate bonds outstanding grew 30.2% in 2009, outpacing the nearly 12% growth in government bonds. The size of emerging Asia's government bond market at the end of 2009 rose to USD3.68 trillion **(Figure 3.2)**. The y-o-y growth rate of the emerging Asian corporate bond market, however, was almost three times that of the government bond market, resulting in total corporate bonds outstanding of USD1.44 trillion at the end of 2009 **(Figure 3.3)**. The largest corporate bond market in the region in 2009 was Korea's at USD575 billion (40% of the region's total), followed by the PRC's at USD454 billion (31.6%). The third largest corporate bond market was that of India at USD135 billion

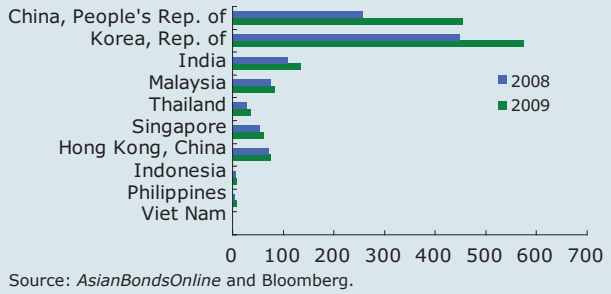
Table 3.2: Size and Composition of Emerging Asia's Local Currency Bond Markets (% of GDP)

	2008	2009		2008	2009
China, People's Rep. of			**Philippines**		
Total	48.1	52.3	Total	36.3	38.0
Government	42.5	43.0	Government	33.4	33.4
Corporate	5.6	9.2	Corporate	2.8	4.6
Hong Kong, China			**Singapore**		
Total	42.8	68.4	Total	68.5	81.9
Government	9.4	33.0	Government	39.3	48.0
Corporate	33.4	35.3	Corporate	29.2	33.8
India			**Thailand**		
Total	55.1	58.5	Total	54.0	65.2
Government	44.6	47.2	Government	42.9	52.1
Corporate	10.4	11.2	Corporate	11.0	13.2
Indonesia			**Viet Nam**		
Total	15.7	16.6	Total	15.7	13.2
Government	14.3	15.0	Government	15.0	12.2
Corporate	1.5	1.6	Corporate	0.7	1.1
Korea, Rep. of			**Emerging Asia**		
Total	100.2	111.3	Total	61.3	67.9
Government	45.2	48.6	Government	46.2	48.8
Corporate	55.0	62.6	Corporate	15.2	19.1
Malaysia			**Japan**		
Total	78.0	94.2	Total	171.0	188.5
Government	42.3	51.4	Government	153.7	169.6
Corporate	35.6	42.8	Corporate	17.3	18.9

Note:
1. Emerging Asia comprises China, People's Rep. of; Hong Kong, China; India; Indonesia; Korea, Rep. of; Malaysia; Philippines; Singapore; Thailand; and Viet Nam.
2. Data for gross domestic product (GDP) is from CEIC.

Source: China, People's Rep. of (*ChinaBond*); Hong Kong, China (Hong Kong Monetary Authority); India (Bloomberg); Indonesia (Indonesia Stock Exchange and Bank Indonesia); Korea, Rep. of (Bank of Korea and *KoreaBondWeb*); Malaysia (Bank Negara Malaysia); Philippines (Bureau of the Treasury and Bloomberg); Singapore (Singapore Government Securities, Monetary Authority of Singapore, and Bloomberg); Thailand (Bank of Thailand); Viet Nam (Bloomberg); and Japan (Japan Securities Dealers Association).

Figure 3.3: Corporate Bonds Outstanding—2008 and 2009 (USD billion)



Source: *AsianBondsOnline* and Bloomberg.

(9.4%). The most rapidly growing corporate bond market in the region remained the PRC's, which grew 77.5% y-o-y in 2009.

The most active corporate bond issuers in most of these markets were in the energy and infrastructure sectors, some of which may have benefited from economic stimulus programs implemented in response to the global recession. The need for increased energy supplies and improved infrastructure—at a time when Asian

economic expansion is leading the global economy out of its downturn—also contributed to corporate bond activity in the region.

Issuance, Yields, and Credit Spreads

LCY bond issuance in 2009 reached USD3.69 trillion, a 41% increase over 2008.

Issuance of central bank and monetary authority bonds in emerging Asia in 2009 was USD2.01 trillion, or 54.4% of total issuance for the year **(Table 3.3)**. Government bond issuance, excluding central banks, was USD1.03 trillion (27.8% of total issuance) and corporate bond issuance was USD657 billion (17.8%). Government bond issuance, excluding central banks, grew 56.0% on an LCY basis for the year as a whole. The annual growth rates for the issuance of corporate and central bank bonds were more moderate at 39.9% and 35.4%, respectively.

Of the USD2.01 trillion in issuance by central banks and monetary authorities in 2009 in emerging Asia, 59% originated in the PRC and Hong Kong, China. The share of central bank and monetary authority issuance as a portion of a local market's total issuance was highest in Hong Kong, China (96.0%); Indonesia (95.5%); and Thailand (77.3%). In the remaining three markets in the region where central banks issue bonds in their own name—the PRC, Korea, and Malaysia—central bank issuance ranged from 46% to 48% of total issuance in the fourth quarter of 2009.

Most bonds were issued in the second and third quarters of 2009 to take advantage of low interest rates and improving investor confidence.

Viewing issuance on a quarterly basis in 2009, the largest amounts of issuance occurred in the second and third quarters of the year in response to rising fiscal deficits. **Figure 3.4a** illustrates this trend for issuance by central banks and governments. **Figure 3.4b** illustrates this trend for government bonds, excluding central banks, and corporates. These two figures confirm that the bulk of issuance for financing economic stimulus programs and raising funds to plug fiscal deficits **(Figure 3.5)** occurred in the second and third quarters of 2009 to take advantage of low interest rates and liquidity in the market.

Figure 3.4a: Government and Central Bank Bond Issuance—Emerging Asia
(USD billion)

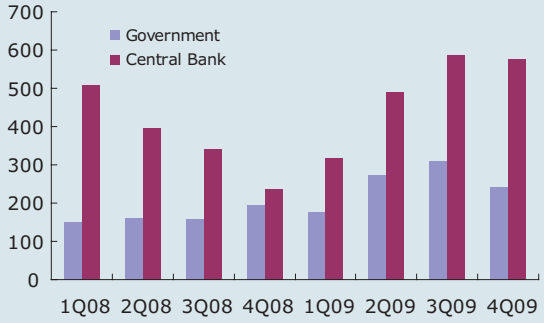
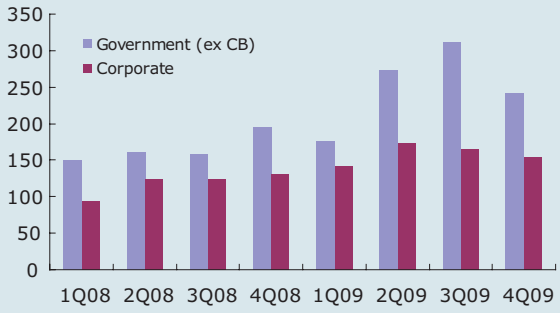


Figure 3.4b: Government (excluding Central Bank) and Corporate Bond Issuance—Emerging Asia (USD billion)



CB = Central Bank.
Notes:
1. These data include both bonds and bills issued by governments and central banks as well as commercial paper issued by corporate entities.
2. Includes local currency (LCY) bond issuance of China, People's Rep. of; Hong Kong, China; India; Indonesia; Korea, Rep. of; Malaysia; Philippines; Singapore; Thailand; and Viet Nam.

Source: China, People's Rep. of (*ChinaBond*); Hong Kong, China (Hong Kong Monetary Authority); India (Bloomberg); Indonesia (Bloomberg); Korea, Rep. of (Bank of Korea); Malaysia (Bank Negara Malaysia); Philippines (Bloomberg); Singapore (Singapore Government Securities and Bloomberg); Thailand (Bank of Thailand); and Viet Nam (Bloomberg).

Table 3.3: Local Currency Denominated Bond Issuance (gross)

	2009 Issuance (USD billion)	Growth Rate			2009 Issuance (USD billion)	Growth Rate	
		2008	2009			2008	2009
China, People's Rep. of				**Philippines**			
Total	1,266	(11.0)	22.3	Total	18	(13.1)	24.2
Government	991	(17.0)	10.8	Government	15	(16.3)	15.0
Central Bank	582	5.5	(7.5)	Central Bank	0	—	—
Govt. ex CB	409	(45.0)	54.5	Govt. ex CB	15	(16.3)	15.0
Corporate	276	63.5	93.9	Corporate	3	30.0	103.1
Hong Kong, China				**Singapore**			
Total	632	12.4	279.4	Total	139	20.0	26.7
Government	607	24.3	308.2	Government	133	16.4	32.6
Central Bank	607	24.3	307.7	Central Bank	0	—	—
Govt. ex CB	1	0.0	—	Govt. ex CB	133	16.4	32.6
Corporate	25	(37.4)	40.3	Corporate	6	74.9	(34.5)
India				**Thailand**			
Total	327	12.7	67.7	Total	326	77.2	(3.5)
Government	288	7.8	75.4	Government	297	92.6	(1.1)
Central Bank	0	(55.4)	(100.0)	Central Bank	252	124.2	(8.9)
Govt. ex CB	288	19.9	87.8	Govt. ex CB	45	(28.4)	92.9
Corporate	39	48.4	26.3	Corporate	29	8.6	(22.3)
Indonesia				**Viet Nam**			
Total	202	(35.0)	(11.8)	Total	2	4.7	(59.3)
Government	198	(35.0)	(12.8)	Government	1	5.2	(66.0)
Central Bank	193	(34.5)	(12.9)	Central Bank	0	493.6	(91.4)
Govt. ex CB	5	(50.2)	(8.6)	Govt. ex CB	1	(18.6)	(56.9)
Corporate	4	(33.9)	87.5	Corporate	0	(2.9)	43.3
Korea, Rep. of				**Emerging Asia**			
Total	673	4.3	67.2	Total	3,691	(0.4)	41.4
Government	427	(1.0)	106.8	Government	3,034	(3.9)	41.7
Central Bank	324	(3.4)	148.0	Central Bank	2,007	7.6	35.4
Govt. ex CB	102	3.4	35.6	Govt. ex CB	1,026	(22.6)	56.0
Corporate	246	10.6	25.6	Corporate	657	19.5	39.9
Malaysia				**Japan**			
Total	105	22.3	(8.6)	Total	1,933	(8.8)	13.9
Government	77	40.6	(7.7)	Government	1,746	(9.4)	15.7
Central Bank	49	58.1	(23.0)	Central Bank	0	—	—
Govt. ex CB	28	3.0	42.9	Govt. ex CB	1,746	(9.4)	15.7
Corporate	28	(9.3)	(11.0)	Corporate	187	(3.2)	(0.2)

— = data not available, CB = Central Bank.
Note:
1. Emerging Asia comprises China, People's Rep. of; Hong Kong, China; India; Indonesia; Korea, Rep. of; Malaysia; Philippines; Singapore; Thailand; and Viet Nam.
2. Corporate bonds include issues by financial institutions.
3. Growth rates are calculated from local currency base and do not include currency effects.
4. Total emerging Asia growth figures are based on end-December 2009 currency exchange rates and do not include currency effects.
Source: China, People's Rep. of (*ChinaBond*); Hong Kong, China (Hong Kong Monetary Authority); India (Bloomberg); Indonesia (Bloomberg); Korea, Rep. of (Bank of Korea); Malaysia (Bank Negara Malaysia); Philippines (Bloomberg); Singapore (Singapore Government Securities and Bloomberg); Thailand (Bank of Thailand); Viet Nam (Bloomberg); and Japan (Japan Securities Dealers Association).

Figure 3.5: Fiscal Balance (% of GDP)

[1]Data for Hong Kong, China based on estimates from 2010—2011 budget. Data for other markets are official figures as released by national authorities.
Source: China; People's Rep. of (Ministry of Finance and CEIC); Hong Kong, China (Hong Kong Monetary Authority and Budget.gov.hk); India (Asian Development Outlook and IMF India: Article IV Consultation, March 2010); Indonesia (Indonesia Debt Management Office); Korea, Rep. of (Asian Development Outlook and IMF Republic of Korea: Article IV Consultation, August 2009); Malaysia (Bank Negara Malaysia and Ministry of Finance); Philippines (Bangko Sentral ng Pilipinas and Bureau of the Treasury); Singapore (Monetary Authority of Singapore and Ministry of Finance); Thailand (Bank of Thailand); and Viet Nam (Viet Nam Ministry of Finance and General Statistics Office of Viet Nam).

Issuance of G3 bonds almost doubled in 2009 to reach USD63.2 billion. This trend of strong issuance has continued into the first quarter of 2010 **(Figure 3.6)**.

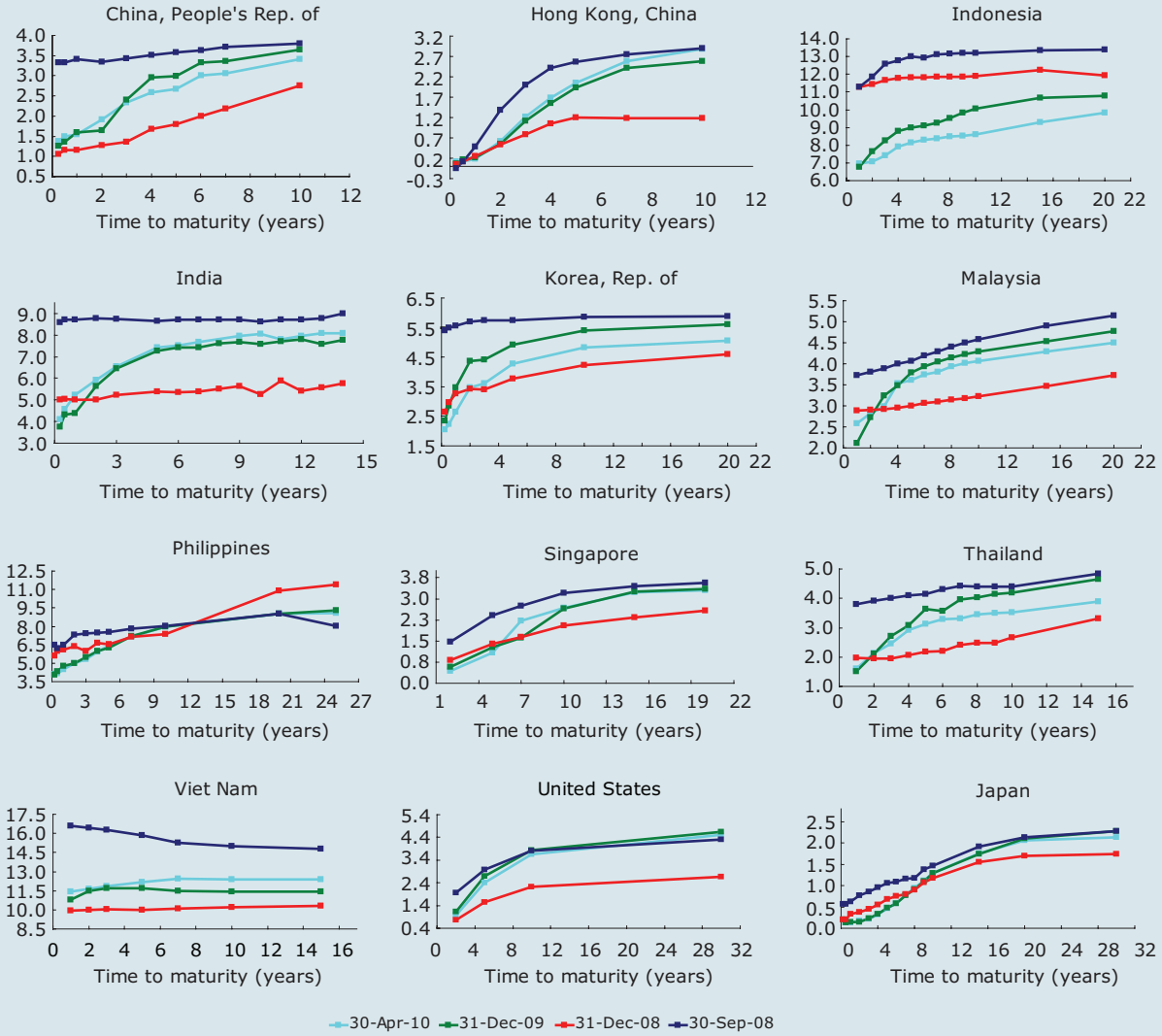
Government bond yield curves are steepening—due to a combination of concerns over supply, the buildup of public debt, and strong recovery in other asset markets.

The region's government bond market yield curves that exhibited the most pronounced steepening toward their longer-ends at end-April, while also hovering near post-Lehman levels, were the PRC; Hong Kong, China; India; and Singapore **(Figure 3.7)**. The longer-end of the government bond yield curves for Korea, Malaysia, and Thailand were very close to their post-Lehman levels at the end of 2009, but have flattened considerably since then. Viet Nam's yield curve has flattened in 2010,

Figure 3.6: G3 Issuance in Emerging Asia
(USD million)

PRC = People's Republic of China.
Notes:
1. Emerging Asia comprises PRC; Hong Kong, China; India; Indonesia; Korea, Rep. of; Malaysia; Philippines; Singapore; Thailand; and Viet Nam.
2. Data excludes certificates of deposit.
Source: *AsianBondsOnline* and Bloomberg.

Figure 3.7: Benchmark Yield Curves—Local Currency Bonds (%)



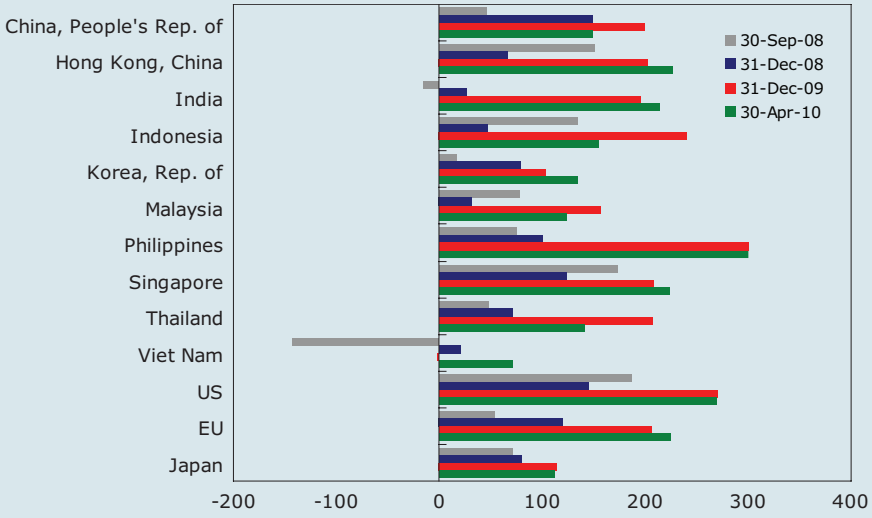
Source: Based on data from Bloomberg.

but only by rising from much lower levels for yields at the end of 2009. The Indonesian yield curve also has flattened in 2010, while the Philippine curve has remained largely unchanged.

These trends have resulted in a very mixed picture for changes in the yield spread between 2- and 10-year bonds for the period between end-December 2009 and end-April 2010 **(Figure 3.8)**.

The 2- versus 10-year yield spread has risen for Hong Kong, China; Korea; India; Singapore; and Viet Nam; but has fallen for the PRC, Indonesia, Malaysia, and Thailand. Yield spreads for the Philippines have remained unchanged since the end of 2009.

Figure 3.8: Yield Spread Between 2- and 10-Year Government Bonds
(basis points)

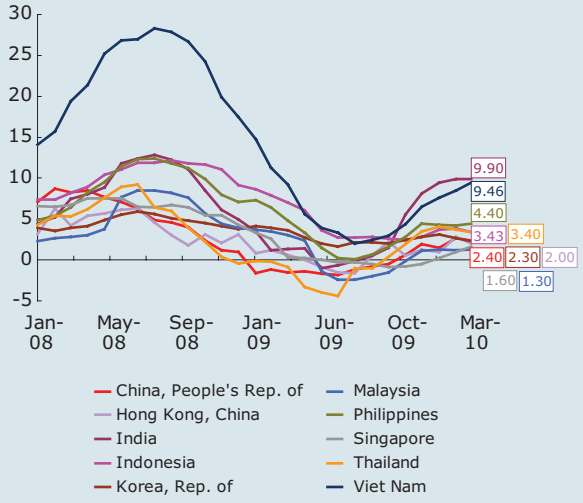


EU = European Union, US = United States.
Source: Based on data from Bloomberg.

Yields on government bonds may rise further amid increasing inflation expectations as monetary authorities raise interest rates.

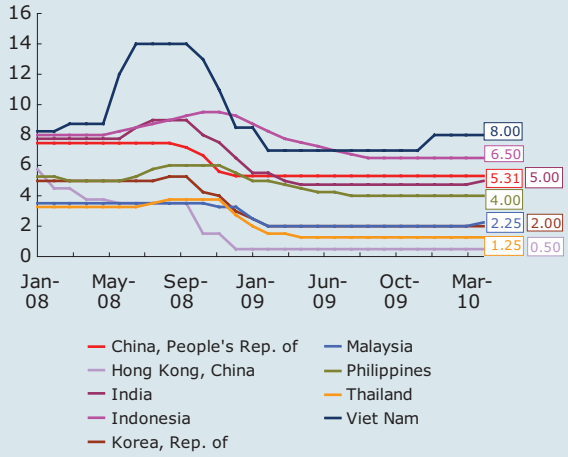
Yields on the region's government bonds could rise further in 2010, given the upward movement of inflation in recent months. As growth picks up traction, authorities will seek the most appropriate timing for normalizing accommodative monetary policies and the unusually low policy rates of the past year **(Figure 3.9)**. For example, the People's Bank of China has accepted mildly higher yields on its bills since January and on 2 May announced a 0.5% increase in the deposit reserve ratio for large institutions to 17% (effective 17 May). Malaysia's central bank raised its policy rate to 2.25% at the beginning of March and on 19 March the Reserve Bank of India raised its reverse repurchase rate—to 3.50% from 3.25%—for the first time in almost 2 years. The Reserve Bank then followed up with a second hike of 25 basis points to 3.75% on 20 April. Viet Nam last increased its policy interest rate in December, but has left it unchanged in recent months **(Figure 3.10)**.

Figure 3.9: Headline Inflation—Emerging Asia
(year-on-year, %)



Source: Based on data from Bloomberg.

Figure 3.10: Policy Rates—Emerging Asia
(% per annum)

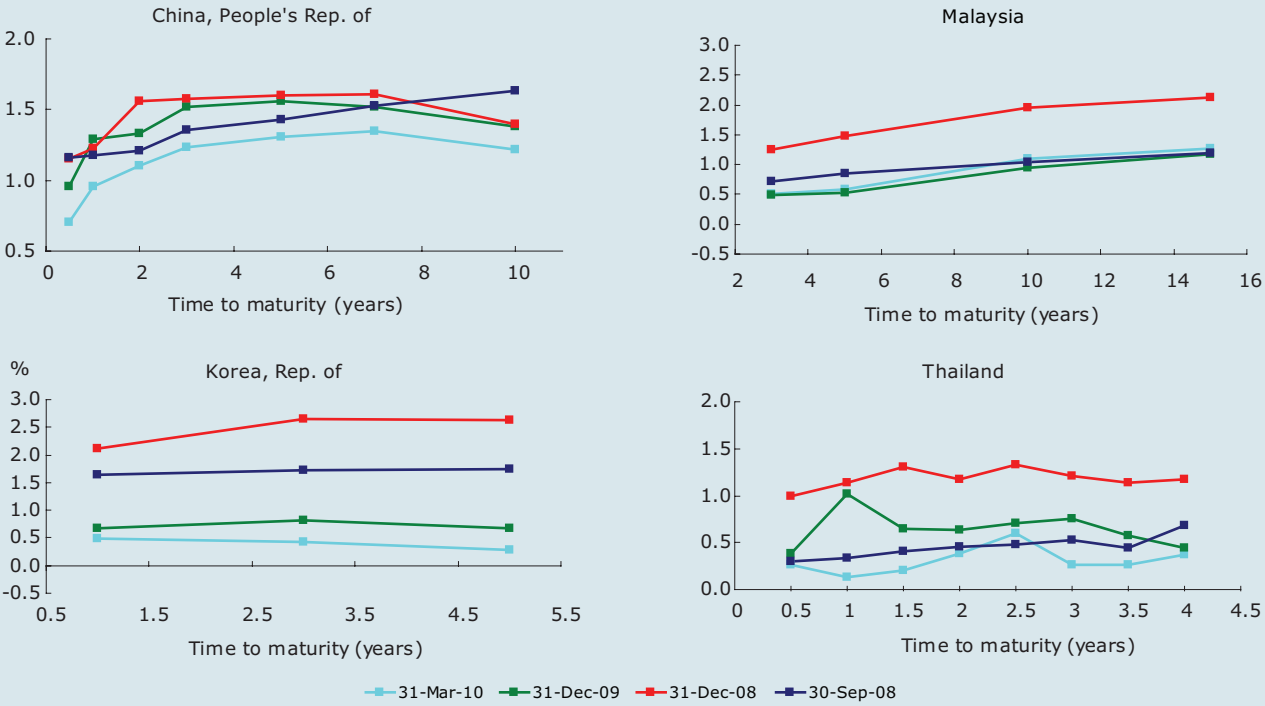


Source: Bloomberg except for Viet Nam (State Bank of Viet Nam).

Risk premiums for high-yield papers remain elevated, even as credit spreads on high-grade emerging Asian LCY corporate bonds tighten.

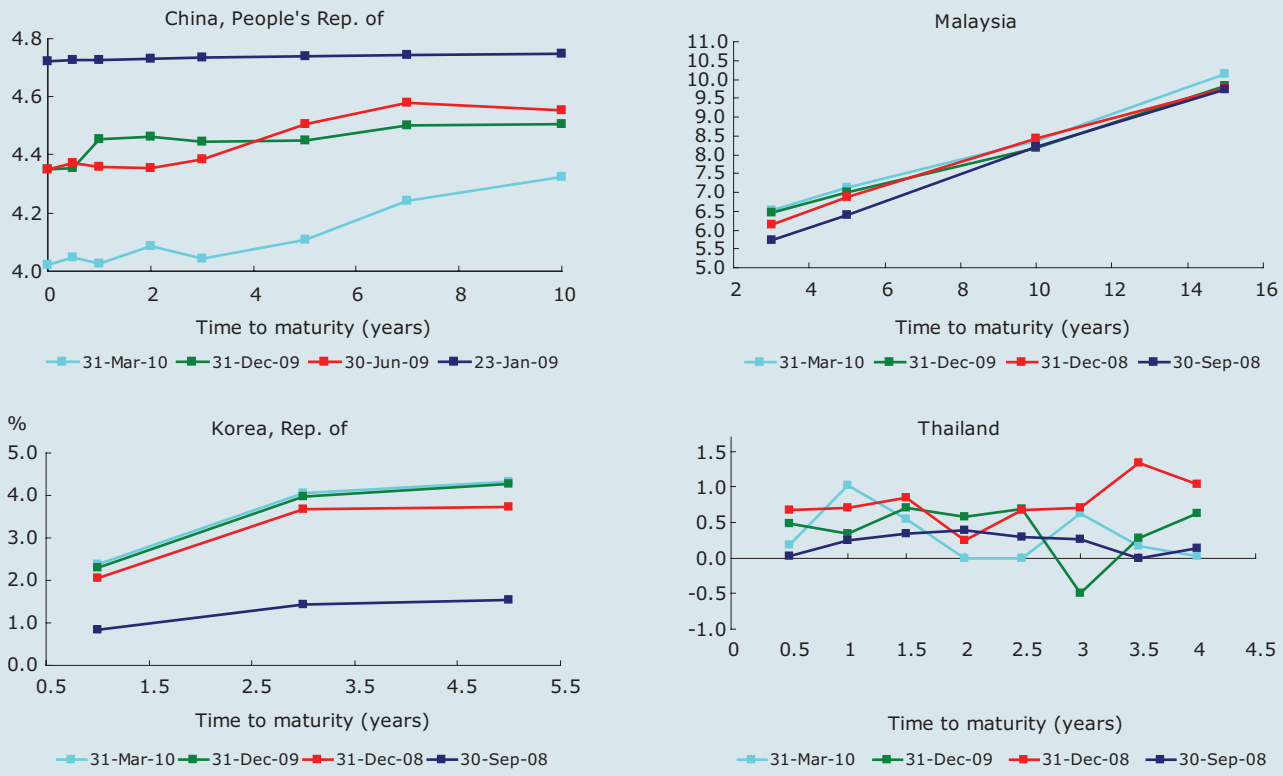
Credit spreads on higher-grade corporate bonds (rated AAA) fell between end-December and end-March, especially at the shorter-end of the curve, for most of the four markets presented in **Figure 3.11a**. Credit spreads fell dramatically along the entire length of Korea's relatively short-dated curve. This resulted in a downward shift of the Korean curve, with credit spreads progressively falling along the entire curve. The credit spread curve for the PRC essentially shifted downward at the end of March compared to its end-December levels, while largely retaining the same shape it had at the end of December.

Figure 3.11a: Credit Spreads—Local Currency Corporates Rated AAA vs. Government Bonds (%)



Note:
1. Credit spreads are obtained by subtracting the government yields from corporate indicative yields.
Source: China, People's Rep. of (*ChinaBond*); Korea, Rep. of (*KoreaBondWeb*); Malaysia (Bank Negara Malaysia); and Thailand (ThaiBMA).

Figure 3.11b: Credit Spreads—Lower Rated Local Currency Corporates vs. AAA (%)



Note:
1. For the People's Republic of China, credit spreads are obtained by subtracting the corporate indicative yields rated as AAA from corporate indicative yields rated as BBB.
2. For Malaysia, credit spreads are obtained by subtracting the corporate indicative yields rated as AAA from corporate indicative yields rated as BBB.
3. For the Republic of Korea, credit spreads are obtained by subtracting the corporate indicative yields rated as AAA from corporate indicative yields rated as BBB+.
4. For Thailand, credit spreads are obtained by subtracting the corporate indicative yields rated as AAA from corporate indicative yields rated as A.

Source: China, People's Rep. of (*ChinaBond*); Korea, Rep. of (*KoreaBondWeb*); Malaysia (Bank Negara Malaysia); and Thailand (ThaiBMA).

Credit spreads for corporate bonds rated between BBB and AAA generally rose between the end of December and the end of March, with the notable exception of the PRC's curve, which shifted sharply downward, albeit with a steepened long-end **(Figure 3.11b)**.

Returns on the region's LCY bonds rose in 2009 as Indonesian bonds sizzled.

The Asian Bond Fund's Pan-Asian Bond Index **(Table 3.4)** rose 5.0% for 2009 as a whole, compared with 4.14% in 2008, which was much higher than the almost negligible return of 0.15% for the first half of 2009. However, this recovery in the second half of the year was narrowly based, driven by a spectacular return of 35.61% for Indonesia and more modest returns of 9.73% for Korea and 11.88% for the Philippines. Returns for the PRC and Hong Kong, China were negative, while returns were almost negligible for Thailand and Malaysia, and only 3.06% for Singapore.

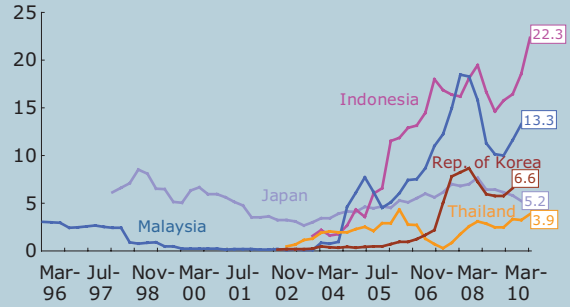
The performance of the Pan-Asian Bond Index in the first quarter of 2010 has been much more impressive. The year-to-date overall return of the index for the first quarter was 4.09%, raising the possibility that returns for 2010 as a whole could once again reach the double-digit levels (or at least high single-digit levels) that were typical

Box 1: Foreign Participation in Emerging Asia's Local Currency Bond Markets

The rapid growth of emerging Asia's bond markets since the 1997/98 financial crisis reflects the region's ability to raise debt in local currency (LCY) to partially support its financial needs and gradually reduce dependence on foreign borrowings, especially in the event of exchange rate depreciation. In the past 4 years, emerging Asia's outstanding LCY debt markets have grown at an average annual rate of 19.1% to reach USD5.1 trillion in 2009.

While domestic banks and financial institutions still dominate many LCY bond markets, their share is declining as the investor base is broadening to include both domestic and foreign institutional investors like mutual funds, pension funds, and insurance companies. In particular, foreign investors' holdings of Asian LCY bonds increased significantly over the past few years as authorities opened local capital markets to foreign portfolio investments and as foreign investors sought to reap the benefits of higher local yields, participate in Asia's economic recovery, and make additional capital gains from the appreciation of the region's currencies.

Figure B1.1: Foreign Holdings of Local Currency Government Bonds (% of total)



Note: Data for Republic of Korea as of September 2009, for Malaysia and Japan as of December 2009.
Source: *AsianBondsOnline*.

As of end-March 2010, foreign investors held 22.3% of Indonesian government bonds and 3.9% of Thai bonds. At the end of 2009, foreigners held 13.3% of Malaysian government bonds and 6.6% of Korean debt **(Figure B1.1)**. The attractiveness of Asian bonds is also reflected in the strong foreign demand for USD-denominated debt sold by governments and domestic companies.

Market participants and authorities view foreign investors as playing an important role in developing LCY bonds markets. Apart from expanding the investor base and improving liquidity, they bring in expertise and technology that are beneficial to developing local markets. In general, investor heterogeneity tends to promote trading as different classes of investors have varying risk profiles and adopt different trading strategies. Foreign participation can facilitate price discovery and lower the cost of borrowing. While banks and financial institutions, which are still major buyers of government debt in the region, tend to buy and hold, foreign investors may act as an important provider of liquidity in many local markets. Furthermore, the scrutiny of foreign investors and foreign analysts can help reduce principal–agent problems, effectively transmitting higher quality reporting and governance standards to firms in developing economies.[1]

However, foreign portfolio investments can be volatile and sensitive to macroeconomic imbalances. During times of market stress, this can impact the conduct of monetary policies if central banks intervene to stabilize government bond yields. The region witnessed the withdrawal of foreign

[1]Obstfeld, Maurice. 1998. The Global Capital Market: Benefactor or Menace? *Journal of Economic Perspectives*. Vol. 12. pp. 9-30. Stulz, Rene M. 1999a. International Portfolio Flows and Security Markets in Martin Feldstein (ed) *International Capital Flows*. University of Chicago Press. pp. 257-293.

funds in some local markets after the collapse of Lehman Brothers in September 2008. This led to a jump in bond yields and pushed up the cost of borrowing for governments and companies. However, as authorities unveiled massive fiscal support packages and eased monetary policies, and the region's economies recovered, foreign investors began returning to the region's LCY bond markets.

Proper regulatory and necessary institutional structures may help reduce volatility stemming from increased foreign holdings of local bonds and improve liquidity in domestic markets. To encourage foreign investor participation and at the same time maintain stability in local capital markets, it is important to understand the factors influencing foreign holdings of LCY debt.

While substantial research has been conducted on foreign portfolio inflows into equity markets, similar research on bond holdings is limited. In a study conducted for this publication, an attempt has been made using a panel least squares estimation technique to test the determinants of foreign participation in LCY government bond markets. The estimates focus on how local (pull factors) and external (push factors) market conditions affect foreign participation.[2] The results show that higher returns in local bond markets and the size of a domestic market significantly influence the amount of LCY bonds held by foreigners. The positive correlation between foreign participation and bond market size supports similar findings from earlier studies. Eichengreen and Luengnaruemitchai[3] explained that the management cost associated with the inclusion of an LCY bond in an investment portfolio might require a minimum efficient market size to encourage foreign investors to hold LCY assets. Similarly, the trade openness of an economy is found to be another factor influencing foreign buying of local bonds.

Another important finding of the study is that controls on capital outflows hinder foreign participation. Barriers to exit are an important factor influencing investor decisions to hold LCY bonds. Interestingly, however, controls on capital inflows are actually found to encourage capital inflows. Garcia-Herrero, Woodridge, and Yang[4] explained that capital controls on inflows were either not effectively binding or imposed in a boom period for capital inflows. Some other studies cite liquidity in local markets, availability of hedging instruments, and presence of developed repurchase (repo) markets as factors influencing foreign holdings of LCY debt. To conclude, pull factors like returns and financial and trade openness, rather than pull factors such as returns and financial and trade openness rather than push factors such as diversification, are the strongest determinants of foreign participation in LCY bond markets.

[2]The equation is defined by

$$FI_t = \alpha_t + \beta_1 Returns_t + \beta_2 Size_t + \beta_3 ERVolatility_t + \beta_4 TOpenness_t + \beta_5 CapControlsIn_t + \beta_6 CapControlsOut_t + \beta_7 Corr_t + \beta_8 SP500_t + \varepsilon_t$$

FI_t is the logarithm of the stock of foreign holdings of LCY bonds, $Returns_t$ are the unhedged return index of the iboxx ABF Index, and $Size_t$ is the amount of LCY government bonds outstanding in the bond market. $ERVolatility_t$, exchange rate volatility, is measured using a 30-day moving standard deviation of the exchange rate. $TOpenness_t$ is a measure of trade openness, which is considered as a prerequisite for a successful financial liberalization and is computed as the ratio of total trade to gross domestic product (GDP). $CapControlsIn_t$ and $CapControlsOut_t$ are the controls on the inflow and outflow of capital, respectively. $SP500_t$ is the end-of-period price index of the S&P 500 and serves as an indicator for investors' preference for risky assets. $Corr_t$ is the 30-day rolling correlation of yields on the 5-year LCY bonds and 5-year US Treasury notes; it tests whether LCY bonds are held for diversification.

[3]Eichengreen, Barry and Pipat Luengnaruemitchai. 2004. Why Doesn't Asia Have Bigger Bond Markets? NBER Working Paper No. 10576. Cambridge, Massachusetts: National Bureau of Economic Research.

[4]Garcia-Herrero, Alicia, Philip Woolbridge and Doo Yong Yang. 2009. Why Don't Asians Invest in Asia: The determinants of Cross-Border Portfolio Holdings. Working Papers 0908. BBVA Bank, Economic Research Department.

Table 3.4: iBoxx Asia Bond Fund Index Family Returns

Market	Modified Duration (years)	2008 Returns (%)		2009 Returns (%)		1Q10 Returns YTD (%)	
		LCY Total Return Index	USD Unhedged Total Return Index	LCY Total Return Index	USD Unhedged Total Return Index	LCY Total Return Index	USD Unhedged Total Return Index
China, People's Rep. of	5.12	11.91	18.71	(0.64)	(0.69)	1.85	1.87
Hong Kong, China	3.58	10.22	10.85	(0.76)	(0.82)	0.48	0.36
Indonesia	5.14	3.22	(12.30)	20.22	35.61	6.83	10.02
Korea, Rep. of	3.65	11.46	(18.20)	1.94	9.73	3.37	6.30
Malaysia	4.44	7.58	2.89	0.48	1.64	1.34	5.96
Philippines	3.67	1.63	(12.55)	9.00	11.88	2.42	4.50
Singapore	5.15	6.75	6.80	0.48	3.06	0.11	0.01
Thailand	4.83	16.88	13.72	(3.47)	0.73	2.20	5.09
Pan-Asian Index	4.45	n.a.	4.14	n.a.	5.00	n.a.	4.09
HSBC ALBI	7.83	n.a.	0.97	n.a.	6.13	n.a.	3.80
US Govt. 1-10 years	3.90	n.a.	10.95	n.a.	(1.38)	n.a.	1.17

ALBI = Asian Local Bond Index, LCY = local currency, n.a. = not applicable, US = United States.
Note:
1. The Asia Bond Fund indices contain only government debt and govenrment-guaranteed debt obligations.
2. Market bond indices are from Iboxx Index Family. 1Q10 returns year-to-date are as of 31 March 2010.
3. Annual return is computed for each year using natural logarithm of end-of-year index value/beginning-of-year index value.
4. Duration is as of 31 March 2010.
Source: *AsianBondsOnline* and Bloomberg/EFFAS for US Government Bond Index.

of the index prior to 2008. Furthermore, returns to the index in the first quarter of 2010 were far more balanced than in 2009 as a whole. Indonesia still generated the highest returns in the index at 10.0%. Meanwhile, returns for Korea, Malaysia, Philippines, and Thailand lay in a range between 4.5% (Philippines) and 6.3% (Korea).

Policy Implications

Key policy challenges include improving LCY bond market liquidity and broadening the investor base.

Liquidity in Asian government bond markets remains moderate, while corporate bonds are largely illiquid, except in the PRC and Korea. The lack of liquidity remains a major hurdle to price discovery and improving efficiency in local markets. One major factor inhibiting liquidity is the concentration of ownership of government bonds and quasi-government corporate bonds in the hands of banks and financial institutions. While other institutional investors like mutual funds, pension funds, and insurance companies are gradually increasing their holdings of LCY bonds, it requires a combination of sound policies, an effective regulatory environment, and market infrastructure to promote investor heterogeneity **(Box 1)**.

The expansion and diversification of LCY corporate bond markets is needed to support a balanced growth of LCY bond markets region-wide.

While LCY corporate bond markets have posted strong growth in the past 2 years, their size remains small in comparison to equity markets. State-owned enterprises remain the dominant players in many local corporate debt markets and issuance is largely led by banks and infrastructure companies. The lack of a diverse corporate debt market, including a weak high-yield sector, remains a major limitation on the development of the region's LCY bond markets.

Improved transparency and disclosure, as well as harmonized standards, can boost investor confidence in emerging Asia's LCY bond markets.

Regulators and market participants need to assess how transparency and disclosure can be provided in various markets, especially for relatively new or illiquid instruments, to reduce uncertainty and improve the pricing and efficiency of transactions. More effective regional cooperation through the harmonization of bond standards and regulatory coordination and monitoring can help boost investor confidence, promote more cross-border transactions, and expand the overall size of LCY bond markets in the region.

Currency Markets

Currency Markets

Recent Performance and Outlook

Emerging Asian currencies broadly strengthened against the US dollar as financial markets stabilized, economic recovery gained substantial traction, and risk appetite returned.

In the first quarter of 2009, most currencies in the region depreciated against the US dollar following the disruptions caused by the collapse of Lehman Brothers in September 2008 **(Figures 4.1a, 4.1b, 4.1c, and 4.1d)**. Even though banking systems in Asia were much less exposed to the malaise afflicting financial systems elsewhere, contagion from the global liquidity crunch led to an outflow of capital from the region towards the end of 2008. International banks withdrew funds to cover liquidity shortages outside the region as deleveraging intensified and risk aversion increased among financial investors, leading to portfolio outflows as Asian equity markets plummeted. Asia's woes were compounded when the global financial crisis triggered a sharp decline in economic activity in developed markets and a collapse in trade that exposed Asia's vulnerability to a decline in export earnings. However, as regional markets showed signs of stability and economic recovery took hold throughout 2009,

Figure 4.1a: Exchange Rate Indexes—eurozone and Japan (USD to 1 unit of local currency, 1 January 2008 = 100)

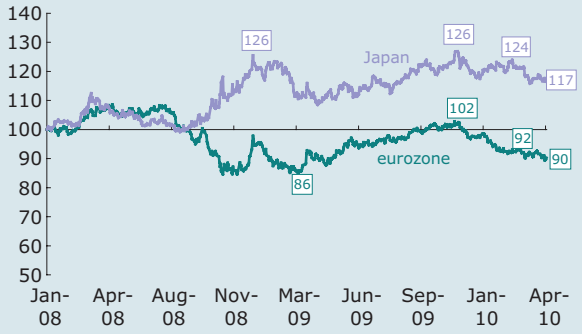


Figure 4.1b: Exchange Rate Indexes—PRC and India (USD to 1 unit of local currency, 1 January 2008 = 100)

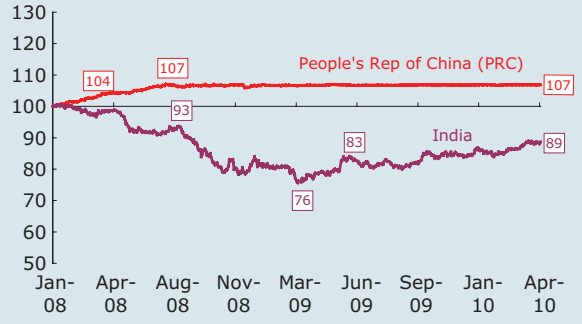


Figure 4.1c: Exchange Rate Indexes—NIEs (USD to 1 unit of local currency, 1 January 2008 = 100)

Figure 4.1d: Exchange Rate Indexes—ASEAN-5 (USD to 1 unit of local currency, 1 January 2008 = 100)

ASEAN = Association of Southeast Asian Nations, NIEs = newly industrialized economies, PRC = People's Rep. of China.
Note: Decreasing values mean depreciation; increasing values mean appreciation.
Source: OREI staff calculations based on Reuters data.

most emerging Asian currencies strengthened. It became clearer over time that the impact of the global financial crisis on growth prospects in Asia would be mild. The return of risk appetite for emerging Asian currencies was further reinforced by the early rebound of export growth, growing evidence of a sustained recovery, and limited job losses as a result of the stimulus measures put in place by Asian authorities. This trend of nominal appreciation has continued for all emerging Asian currencies so far this year, except for the Vietnamese dong.

The extent of currency appreciation varied across the region, with the Japanese yen following a different trajectory than most Asian currencies.

The Korean won, which suffered the region's most spectacular loss in value during the global financial crisis, plummeting 27.9% from end-March 2008 to end-March 2009, rebounded strongly to recover more than half of its losses by the end of 2009. The Indonesian rupiah gave up 20.3% of its value in the first quarter of 2009 compared with a year earlier, but appreciated steadily through the rest of 2009 to return to January 2008 levels. After the declines caused by the outbreak of the crisis through the first quarter of 2009, other emerging Asian currencies appreciated steadily between 4% and 9% in the last three quarters of the year. Viet Nam was the exception to this trend, as the authorities implemented a series of steep devaluations beginning in the second quarter of 2009, lowering the dong's value by 3.9%. Meanwhile, the People's Republic of China (PRC) yuan remained mostly unchanged against the US dollar in 2009.

The Japanese yen experienced a sharp appreciation of 26.5% against the US dollar in nominal terms from its trough in August 2008 to its peak through mid-December 2008 in the wake of the crisis. This can be attributed to an unwinding of the carry trade as risk aversion intensified in the aftermath of the Lehman Brothers' collapse. As global financial markets regained some stability, the yen gave up about half of these gains through early April 2009. The yen subsequently resumed its ascent through the end of November 2009 with the adoption of large stimulus measures and the formation of a new government. But between December 2009 and early January 2010, deepening fiscal concerns triggered by the Greek debt crisis weighed heavily against the currency and the yen weakened moderately before regaining its strength in recent months. As the global recovery matures, improving risk appetite and, hence, the return of the carry trade are expected to curb the yen's strength going forward.

Appreciation pressures on Asian currencies will likely intensify as capital inflows surge on improved economic prospects for the region.

As economic recovery gains traction and monetary policies in many economies are tightened to cool inflationary expectations, capital inflows to the region are likely to surge and intensify appreciation pressures on many Asian currencies. This may generate volatility in some currency markets and pose a challenge to macroeconomic management. The sharp rise in capital inflows along with the recent appreciation of the Malaysian ringgit, Indian rupee, Korean won, Indonesian rupiah, and the Philippine peso have raised concerns about overshooting exchange rates, potential asset bubbles, and capital flows' overall impact on market stability.

As economic recovery takes hold and trade rebounds, real effective exchange rates for many emerging Asian currencies continue to gradually rise, with the notable exception of the yuan.

Even following nominal depreciations in 2008 and the recovery of much of this adjustment in 2009, Asian currencies, with a few exceptions, are likely to appreciate gradually in real effective terms **(Figures 4.2a, 4.2b, and 4.2c)**. The Korean won has shown, the most fluctuations in real effective exchange rates among emerging Asian currencies.

Figure 4.2a: Real Effective Exchange Rates[1]—PRC and India (January 2008 = 100)

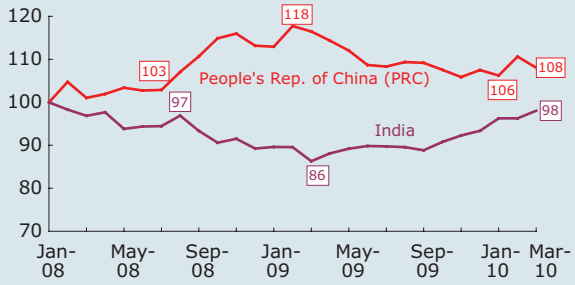


Figure 4.2b: Real Effective Exchange Rates[1]—ASEAN-4 (January 2008 = 100)

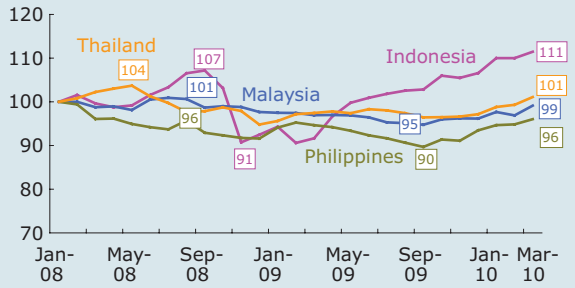
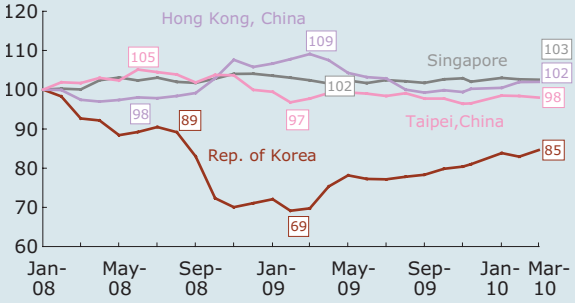


Figure 4.2c: Real Effective Exchange Rates[1]—NIEs (January 2008 = 100)



ASEAN = Association of Southeast Asian Nations, NIEs = newly industrialized economies.
[1]Adjusted by relative consumer prices.
Source: OREI staff calculations using data from Bank for International Settlements.

The Korean won staged a dramatic fall in 2007 after having come the closest to recovering the real effective exchange rate it attained prior to the 1997/98 financial crisis. The depreciation accelerated in 2007/08 amid the recent global crisis, but was followed by an equally sharp reversal, with the won appreciating in real terms significantly during 2009 and into 2010. Similarly, the Indonesian rupiah has also experienced steady appreciation in real effective terms since the 1997/98 crisis, which was only interrupted by the current global crisis, and has since returned to an appreciating trend. The Hong Kong dollar and New Taiwan dollar continue to be the only two Asian currencies showing a declining trend in terms of real effective exchange rates since the 1997/98 crisis.

However, the PRC's sustained high growth rates and strong exports signal a real appreciation of the yuan that should come in the near term.

The real effective exchange rate of the PRC yuan has steadily declined over the course of 2009 (See Figure 4.2a). This real depreciation partly reflects the depreciation of the US dollar as the yuan was kept stable against the dollar during this period. With a strong recovery in growth and trade, high liquidity levels, capital inflows, and mounting domestic inflationary pressures, it is expected that PRC authorities are primed to allow greater flexibility in the yuan's exchange rate. Asian economies with strong trading links with the PRC will face similar pressures to tighten policy as the economic recovery deepens, due to inflationary pressures and potential complications caused by capital inflows. For these countries, greater flexibility in the exchange rate would provide a useful relief valve. Many emerging Asian exporters compete with the PRC in products and markets. The yuan's appreciation would provide room for these economies to let their currencies strengthen without hurting their export competitiveness.

Figure 4.3a: Implied Volatility of Exchange Rates[1]—PRC and NIEs (%)

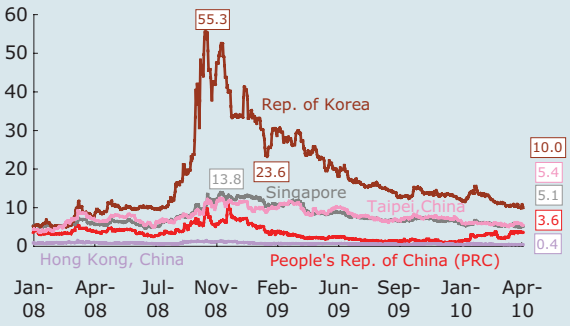
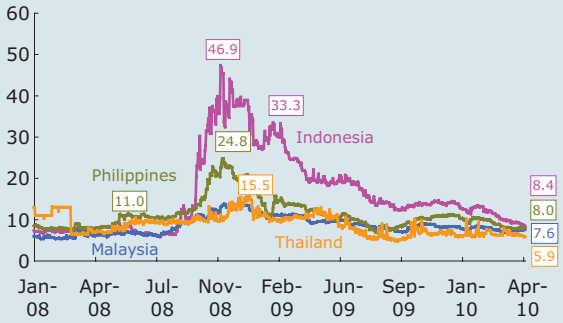


Figure 4.3b: Implied Volatility of Exchange Rates[1]—ASEAN-4 (%)



ASEAN = Association of Southeast Asian Nations, NIEs = newly industrialized economies.
[1]Data refers to 3 months implied volatility at-the-money (ATM) strike.
Source: Bloomberg.

Exchange rate volatility has returned to levels common prior to the global financial crisis.

Korea and Indonesia saw heightened volatility in their currency markets early in 2009 to a degree several times that experienced by other economies in the region. In the aftermath of the global financial crisis, the volatility of most of the region's exchange rates returned somewhat rapidly to the ranges seen in 2006/07. The Korean won was an exception to this trend, with volatility remaining relatively high compared to earlier observed gyrations **(Figures 4.3a and 4.3b)**. As currencies appreciated, authorities in most Asian economies intervened to slow the rate of appreciation, which was reflected in the renewed accumulation of international reserves over the course of 2009 following losses in 2008. Foreign exchange (FX) volatility continues to reflect the relative shallowness of the region's currency markets as further efforts to develop a full array of products, including greater access to mechanisms for hedging and risk diversification, have yet to take hold.

Market Size and Structure

Trading volumes of Asian foreign exchange (FX) markets have recovered as the yen continues to dominate trading.

FX markets in the region have grown in depth and size since the 1997/98 financial crisis.[10] In the course of the current global financial crisis, the region's FX markets shrank considerably in 2008, particularly markets for swap operations, which had previously been a major driver of growth in FX markets.[11] Reports from selected central banks point to a recovery in trading volumes through October 2009. The Japanese yen continues to lead the market in all three areas of FX trades in spot, forwards, and swaps. The yen's average daily volumes are six times larger than those of the next most active Asian currency, the Hong Kong dollar. FX daily swap operations are the largest

[10]Pending the publication of the Bank for International Settlements' (BIS) 2010 survey, this growth is reflected in the 2007 triennial survey report of the BIS on Foreign Exchange and Derivative Market Activity. BIS. 2007. Triennial Central Bank Survey December 2007—Foreign Exchange and Derivatives Market Activity in 2007. Basel. Available at http://www.bis.org/publ/rpfxf07t.pdf?noframes=1

[11]Surveys of foreign exchange trading volumes in October 2009 taken by the US Federal Reserve Bank, Bank of England, Bank of Canada, Bank of Japan, Reserve Bank of Australia, and Singapore Monetary Authority.

component of the FX market for the Japanese yen, Hong Kong dollar, Korean won, Singapore dollar, and Thai baht.

Improved liquidity, relative financial stability, and the region's capital market resilience have increased the efficiency of emerging Asian FX markets.

Table 4.1 indicates FX trading information reported by Deutsche Bank in December 2009, where the bid–ask spreads for both spot and forwards operations appear to be within reasonable ranges to be considered efficient. While trading volumes were reduced by the recent global financial crisis, a strong and sustained economic rebound would likely see the resumption of robust growth in FX transaction volumes. FX options spreads for the Hong Kong dollar in 2009 have been as low as 0.2 volatility units (vols), although they were even lower at 0.1 vols before the global crisis. FX options spreads are as high as 5 vols in the case of the Indonesian rupiah, reflecting Indonesia's relatively flexible exchange rate regime as well as rapid appreciation over the course of 2009, boosted by market confidence in the underlying macroeconomic fundamentals and supporting policy environment.

Policy Implications

Emerging Asia is likely to move toward greater exchange rate flexibility as the pace of economic growth quickens.

Amid appreciating pressures on an exchange rate, there are limits to the effectiveness of intervention and the sterilized accumulation of international reserves. At the same time, the associated unrelenting inflows of capital may only be staunched in the short-term with capital controls and other prudential financial measures. Given these circumstances, the room for maneuverability for authorities is limited. One policy option that can help rebalance growth and reduce inflationary pressures is to allow greater flexibility for the exchange rate to appreciate in an orderly manner. However, it is important that the pace of appreciation is manageable for the region's exporters.

Greater exchange rate flexibility needs to be reinforced by sound macroeconomic management.

FX markets may have to brace for greater than normal volatility until the situation settles at a new equilibrium as emerging Asian exchange rate policies move towards greater flexibility. As fiscal, monetary, and financial policies around the region return to normal with regard to addressing macroeconomic stability and sustainability, their relationship to exchange rate policies is a key element for managing volatility as well as the actual exchange rate. In this situation, emerging Asian authorities may have to consider utilizing the full range of policy instruments to manage risks and macroeconomic stability to support growth. This may include resorting to some form of capital controls where appropriate. However, while capital controls may be effective in some circumstances, they are usually only useful for a short period. Moreover, capital controls are likely to introduce uncertainty in FX markets and lead to more volatility. Against this backdrop, Asian economies should move towards more flexible exchange rate regimes that are underpinned by more disciplined fiscal operations and prudent monetary and financial policies.

Better infrastructure and risk management can further reduce trading volatility and lower transaction costs.

There is additional room to develop FX markets in Asia. Other than straight vanilla spot and futures FX transactions, a wider array of FX products can contribute to better hedging of risks, protection of profitability, and optimum pricing. The expanded use of option contracts, non-deliverable forwards, FX swaps, and straight currency swaps, as well as a broader array of currency pairings in such contracts, should be facilitated. FX markets in the region also need to ensure the relative security

Table 4.1: FX Trading: Average Deal Size vs Bid-Ask Spreads (by product)

	Spot		Forwards		Options (Vanilla)	
	Average Deal Size (USD million)	**Bid-Ask Spread**	**Average Deal Size** (USD million)	**Bid-Ask Spread**	**Average Deal Size** (USD million)	**Bid-Ask Spread** (vols)
USD-HKD	20	HKD0.0002 to 0.0003	30-50	HKD0.0015 up to 1 year	50	0.2 to 0.5 vols
USD-SGD	3	SGD0.0002	50-200	SGD0.00001 for 1 month; 0.0003 for 6 months; 0.0007 for 1 year	50	0.9 vols for 1 week; 0.4 vols for 1-3 months; 0.35 vols for 6-12 months
USD-KRW	10	KRW0.10 to 0.50	20 NDF: 10-20	KRW0.05 for 1 day; 0.10 for 1 month: 0.20 for 2 months; 0.30 for 3 months; 0.50 for 6 months; 1.00 for 9 months to 1 year; NDF: 0.5-1.0	4 NDO: 30-40	0.6 vols NDO: 0.30-0.35 vols
USD-INR	5	INR0.0025 to 0.0100	5 NDF: 15-20	INR0.0200 to 0.0500 overnight to 5 years; NDF: 0.03-0.05 for 1-3 months, 0.05-0.10 for 6-12 months	Variable, a non-OTC market; NDO: 30	0.5-0.7 vols less than 1 year; 0.8-1.0 vols more than 1 year; NDO: 0.4-0.5 vols
USD-CNY	5 to 20	CNY0.0005 to 0.0020	5 to 10 NDF: 10	CNY0.010-0.050 < 6 months; 0.0100 to 0.0600 6-12 months; NDF: 0.010-0.020	NDO: 30	NDO: 0.5 vols; 1.5-2.0 vols on illiquid days
USD-TWD	10	TWD0.002 to 0.020	10	TWD0.005-0.040; NDF: 0.03-0.05	10 NDO: 30-50	0.5 vols NDO: 0.3-0.35 vols
USD-THB	3 to 5	THB0.010 to 0.030	5-20	THB0.010 to 0.030 NDF: 0.10-0.05	10-20	0.8-1.0 vols NDO: 2-4 vols
USD-PHP	2	PHP0.030	4 NDF: 5-10	PHP0.02 for 1 week - 1 month; 0.05 for 2-3 months; 0.12-0.20 for 6 months; 0.25-0.35 for 1 year; NDF: PHP0.050 for 1-3 months; 0.10-0.15 for 6-12 months	1 NDO: 10-15	1.5 vols NDO: 1.5-2.0 vols
USD-IDR	2 to 5	IDR10; 20-30 occassionally	3.5 NDF: 5	IDR5-100 for 1 month; 0-20 for 3 months; 20-40 for 6 months; 40-70 for 1 year; NDF: IDR30 for 1 month; 50 for 6 months; 100 for 1 year	3.5 NDO: 10	5 vols up to 1 year; NDO: 2-4 vols
USD-VND	1	VND50-100	1 NDF: 5	VND50-100 NDF: 100-150	not permitted	

NDO = Non-deliverable option.
Note: The bid-ask spreads in the table are generally the widest that are consistent with the reported observations of Duetsche Bank. Non-deliverable FX forwards (NDF) off-shore, are shown where available, as offshore liquidity is sometimes better.
Source: *Emerging Markets Currency Handbook 2010*, Deutsche Bank.

of cross-border trades, in terms of clearing and settlements, and that payment systems comply with international standards and practices.

Sound regulatory and institutional frameworks can enhance investor confidence and boost the region's FX market resilience.

The region's authorities need to provide regulatory assurances to currency market participants.

Box 2: Foreign Currency Returns and Volatility in the Aftermath of the Global Financial Crisis

As the global liquidity crisis stabilized and financial deleveraging ran its course, Asian currencies regained favor as an asset class.

The disruption caused by the failure of Lehman Brothers in late 2008 continued through the first quarter of 2009 as returns for Asian currencies as an asset class showed steady increases ranging from 3%–24% through the rest of 2009. The figures below show cumulative returns in US dollar terms achieved through rolling a long forward position (at 1- or 3-month tenors) in each currency continuously from end-2007 through March 2010.

The yen benefited from a flight to safety following Lehman Brothers' demise, while heightened risk aversion prompted the unwinding of carry trades.

Massive deleveraging in North American and European financial institutions, and a pullback from risky investment favored the yen as Japanese banks appeared to have been largely shielded from similar financial disruptions. In the first quarter of 2009, however, uncertainty over national elections and the installation of a new government led to a fall in yen profitability and a sharp spike in volatility **(Figure B2.1a)**. For the rest of 2009, the return on the yen showed similar steady improvement as seen with all other Asian currencies.

Figure B2.1a: Currency Returns—euro and Japanese yen (December 2007 = 100)

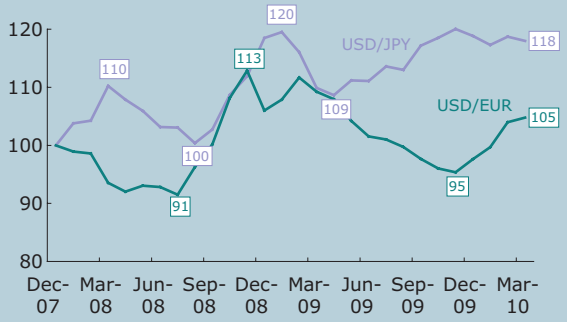


Figure B2.1b: Currency Returns—Korean won and Thai baht (December 2007 = 100)

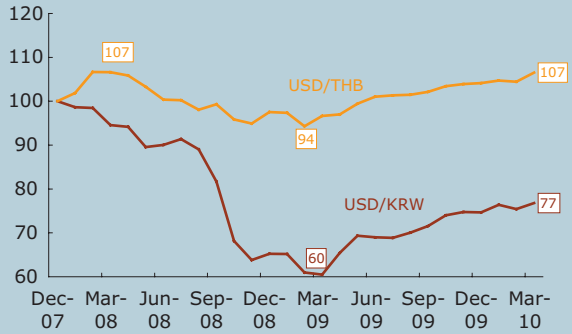


Figure B2.1c: Currency Returns—Philippine peso, Malaysian ringgit, Indonesian rupiah, and Singapore dollar (December 2007 = 100)

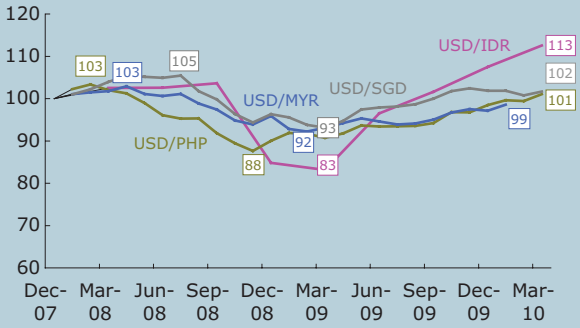
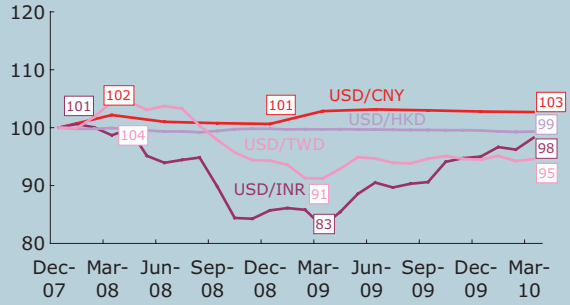


Figure B2.1d: Currency Returns—PRC yuan, Hong Kong dollar, Indian rupee, and New Taiwan dollar (December 2007 = 100)



PRC = People's Rep. of China.
Source: OREI staff computations using data from Thomson Reuters accessed through Datastream.

Some Asian currencies that had depreciated substantially in 2008 amid falling returns recovered strongly in 2009 and the first quarter of 2010.

There was a sharp uptick in returns for the Korean won and Indonesian rupiah beginning after the first quarter of 2009 and lasting into 2010, with the rupiah appreciating 29% and the won 16% against the US dollar **(Figures B2.1b and B2.1c)**. This followed steep drops in returns of –40% for the won and –17% for the rupiah through 2008 and the first quarter of 2009. The Indian rupee also posted strong gains after reaching lows in March 2009, appreciating 15% by the end of March 2010, which reflected market confidence in the country's stable and sustained macroeconomic policies **(Figure B2.1d)**. The won, rupiah, rupee, and—to a lesser extent—the New Taiwan dollar became the main investment targets in the revival of carry trades as investor sentiment improved.

The level of FX volatility seen during the 2008/09 global financial crisis is nowhere near that which prevailed during the 1997/98 Asian financial crisis.

The much lower levels of volatility experienced during the course of the recent global crisis compared with the 1997/98 crisis can be primarily attributed to the fact that the recent crisis originated outside of Asia. Asian financial institutions suffered manageable damages, while Asian economies demonstrated that they have become more resilient since the 1997/98 crisis, in spite of the contagion that disrupted exports and lowered growth during the recent crisis. The Generalized Autoregressive Conditional Heteroskedasticity (GARCH) estimates[1] indicate that the jumps in currency volatility, while high relative to the period before the recent global crisis, were small compared to the magnitudes experienced during the previous crisis, particularly for countries most affected by the 1997/98 crisis such as Korea and Thailand **(Figures B2.2a, B2.2b, B2.2c, B2.2d, and B2.2e)**. Although with regard to the Japanese yen, the hike in currency volatility during the recent crisis was at a level not seen since the end of the 1997/98 crisis and even exceeded those levels seen during the "dotcom bubble" fallout in 2003/04. The volatility for the Singapore dollar also increased in early 2009. Nevertheless, for all countries in which GARCH estimates were undertaken, currency volatility had returned to pre-crisis levels by the end of 2009.

Figure B2.2a: GARCH Volatility—USD to Korean won (%)

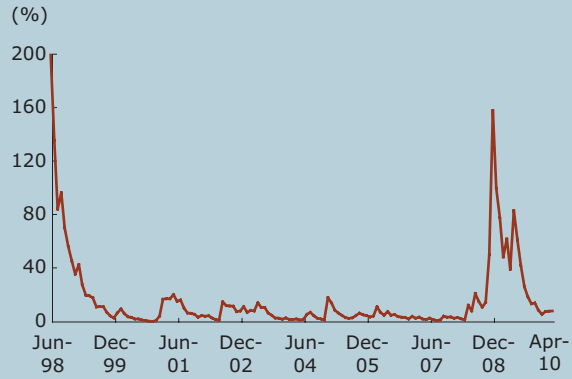


Figure B2.2b: GARCH Volatility—USD to Thai baht (%)

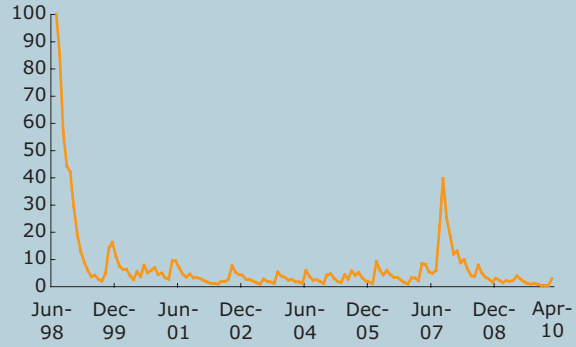
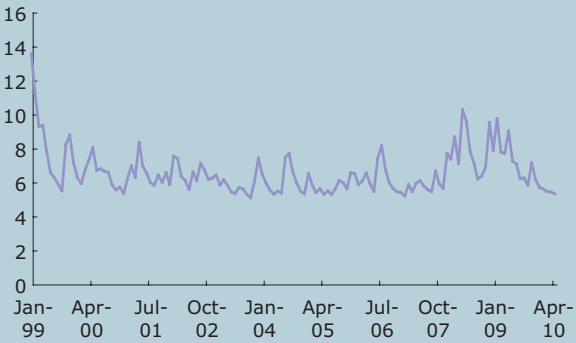


Figure B2.2c: GARCH Volatility—USD to Japanese yen (%)



Source: OREI staff computations using Thomson Reuters data accessed through Datastream.

[1] The Generalized Autoregressive Conditional Heteroskedasticity (GARCH) is a popular stochastic process for modeling financial time series. Here GARCH is used to characterize, estimate, and forecast the conditional volatility for the returns of a financial asset—in this case, nominal exchange rates. GARCH (1, 1) is the simplest form of the general GARCH process. A GARCH (1, 1) model asserts that the best predictor of one-period ahead future variance is a weighted average of long-run average variance, today's predicted variance, and new information in the most recent squared residual. An overview of the GARCH model can be found in Engle. 2001. GARCH 101: The Use of ARCG/ GARCH Models in Applied Econometrics. *Journal of Economic Perspectives*. 15 (4). pp. 157–168.

Figure B2.2d: GARCH Volatility—USD to Singaporean dollar (%)

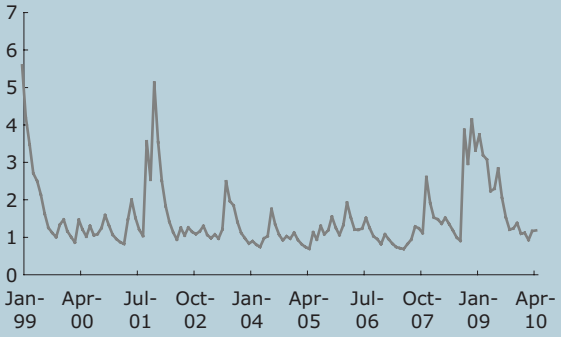
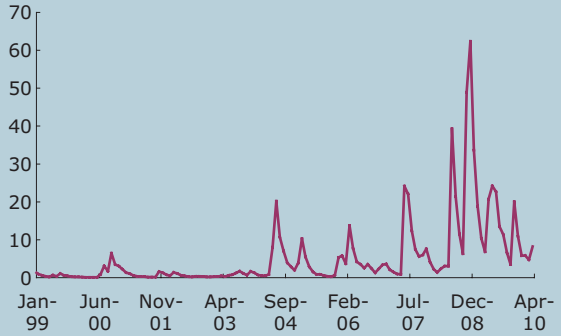


Figure B2.2e: GARCH Volatility—USD to Indian rupee (%)



Source: OREI staff computations using Thomson Reuters data accessed through Datastream.

Regulatory reforms should continue to ensure proportionality is given prominence, while stifling requirements that affect the development of an appropriate variety of instruments, jeopardize FX market efficiency, and hinder price discovery should be eliminated. Greater liberalization and better coordination of cross-border activities in the region will allow investors and the trade sector to better hedge uncertainties, thereby facilitating trade and commerce. In addition, the region's authorities need to ensure that measures are put in place to facilitate the development of efficient trading platforms, payment systems, and regulatory frameworks.

Managing Capital Flows:

Issues and Policy Challenges for Emerging Asia

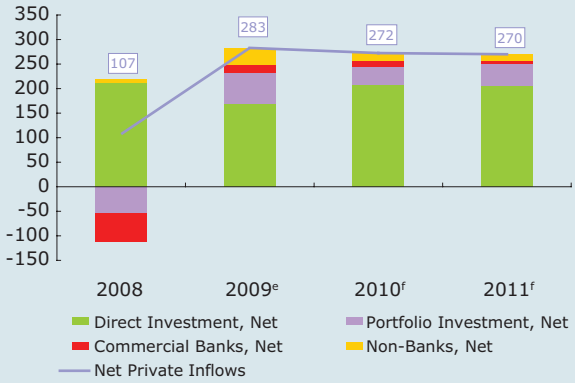
Managing Capital Flows: Issues and Policy Challenges for Emerging Asia[12]

Introduction

Improved risk appetite and the region's strong economic recovery have led to a surge in capital flows to emerging Asia.

Net private capital flows to emerging Asia are expected to reach USD272.4 billion in 2010, down from USD282.9 billion in 2009, according to the Institute of International Finance **(Figure 5.1)**. Following a dip in late 2008 and early 2009, capital inflows have since recovered. The strong rebound in capital inflows has been driven by portfolio equity flows, with a net inflow amounting to USD63.3 billion in 2009, which is a noticeable turnaround from a net outflow of USD54.4 billion in 2008. Spurred by strong economic fundamentals and continued policy support, portfolio equity investments in emerging Asia accelerated in the second half of 2009. The region continues to attract sizeable foreign direct investment (FDI) on the back of sound long-term growth potential. By contrast, net debt inflows have been anemic on limited demand for overseas borrowing by banks and non-bank corporations given the plentiful alternative sources of local funding. Some Asian economies have also introduced prudential measures in their respective banking sectors to control short-term overseas borrowing in a precautionary move to guard against speculative capital inflows and associated currency volatility.

Figure 5.1: Net Private Capital Flows—Emerging Asia[1] (USD billion)



e = estimate, f = forecast.
[1]Emerging Asia includes China, People's Rep. of; India; Indonesia; Korea, Rep. of; Malaysia; Philippines; and Thailand.
Source: *Capital Flows to Emerging Market Economies* (April 2010), Institute for International Finance.

Prospects for higher growth (accompanied by higher interest rates) are attracting potentially speculative capital to many emerging Asian economies, adding to the challenges of macroeconomic management.

While emerging Asian economies may welcome the return of capital flows,[13] these can pose potential problems for the stability and sustainability of the region's economic recovery. For example, capital flows, particularly very large ones of short-term duration, have in the past disrupted

[12]In this chapter, the economies under review include China, People's Republic of (PRC); Hong Kong, China; India; Indonesia; Korea, Republic of (Korea); Malaysia; the Philippines; Singapore; Taipei,China; and Thailand.

[13]Increased capital flows allow those economies with insufficient savings to tap into the larger world pool, which can (i) lead to a better allocation of financial resources, (ii) provide more opportunities for risk sharing and portfolio diversification, and (iii) transfer technology and business know-how to the host country in the case of foreign direct investment (FDI). While more difficult to measure, there are likely positive spillover or collateral effects, stemming from increased competition and better functioning financial markets. International Monetary Fund (IMF). 2007a. Reaping the Benefits of Financial Globalisation. IMF Discussion Paper. Washington: IMF.

the functioning of monetary policy and created financial instability with adverse consequences for growth. The recent financial crisis is a good illustration of the unavoidable side effects that can accompany globalization and the need to have the policy tools to respond effectively in order to minimize the associated risks and costs. Less chaotic times also present their own unique set of challenges for policymakers, as the seeds of the next crisis have often been sown during such periods. Nevertheless, periods of financial stability (and boom) also present opportunities to put in place better policy frameworks and structural reforms aimed at enhancing economic resilience.

Managing capital flows effectively requires an array of policy measures, including (i) sound macroeconomic management, (ii) flexible foreign exchange regimes, (iii) resilient financial systems, and (iv) temporary and targeted capital controls.

Recent surges in capital flows to emerging Asia have mainly been in the form of short-term investments representing portfolio and speculative flows attracted by widening earnings margins in emerging financial markets compared with developed ones. Past experience shows that surges in such capital flows can face an abrupt reversal. Against this background, Asian authorities should consider the full array of policy measures available in their toolkit to manage a surge in capital inflows, with the goal being a stable macroeconomic environment underpinned by transparent policy frameworks aimed at price stability and sustainable fiscal positions. Having a flexible exchange rate can help host countries absorb shocks. In addition to the traditional monetary, financial, exchange rate, and fiscal policies, capital control measures should be considered as part of the mix of available policy instruments.

The rest of this chapter will: (i) look at how emerging Asian economies have coped with the recent financial market meltdown, (ii) assess the implications of the changing composition of capital flows, and (iii) draw policy lessons.

Responses to the Global Financial Crisis of 2008

The global crisis revealed how a decline in the overall risk appetite affects individual emerging Asian financial markets differently—depending on their degree of capital mobility and financial openness.

Starting in September 2008 with the collapse of Lehman Brothers, the crisis intensified significantly as evident by the sharp turnaround in global risk aversion **(Figure 5.2)**. The universal pullback of investors from markets and the sharp decline in aggregate demand in the United States (US) and Europe spilled over into the region, causing growth rates to fall.[14] Not surprisingly, outflows were initially concentrated in banking flows and in more liquid instruments such as bonds and equities.

Figure 5.2: Global Risk Measure (%)

Note: The global risk measure is derived as the first principle component from the seven series, the high-yield and high grade corporate bonds in the US and eurozone, versus their respective government 10-year government bond rates; the difference between the price–earnings ratio and the 10-year real government bond rate in the US and the eurozone; and the global EMBI spread.
Source: *Explaining Risk Premia on Bonds and Equities,* Sløk and Kennedy (2005).

[14] O. Blanchard, H. Farquee, and M. Das. 2010. The Impact of the Crisis on Emerging Market Countries. Brookings Papers on Economic Activity. Forthcoming.

In some cases, domestic borrowers encountered difficulties in rolling over USD-denominated debt. Geographically, some of the largest pullbacks occurred (i) in the region's banking centers [Hong Kong, China and Singapore]; (ii) in economies with relatively high short-term external liabilities [Republic of Korea (Korea)]; and (iii) where equity markets were more liquid and open [India, Malaysia, and Thailand]. However, the crisis eventually spread to countries with relatively closed financial markets as it affected broad economic activity and growth.

Despite the improvement in economic and financial resilience compared with the 1997/98 Asian financial crisis, the region's banks had problems with external funding during the global financial crisis.

The efforts that were made to improve the resilience of financial markets following the 1997/98 crisis paid dividends. While banks in the region did experience some problems during the recent financial crisis, most of them rode out the storm quite well, particularly when compared with the events of 1997/98. Larger corporations and financial institutions that faced foreign currency funding difficulties were able to rely to a greater extent than before on domestic bond and equity markets. This was particularly the case in Korea, Malaysia, the People's Republic of China (PRC), and Thailand. However, as the USD-funding markets dried up, domestic banks had to sell local currency (LCY) assets in order to meet maturing obligations. This threatened to put further downward pressure on exchange rates as well as on asset prices—known as the "double drain", in which there is both capital flight and pressure on bank balance sheets.[15] Credit conditions also deteriorated, particularly for lower-rated, bank-dependent borrowers who needed to refinance their foreign currency liabilities. As the crisis worsened, foreign banks also dramatically cut back their lending to the region. In response, the authorities introduced a number of initiatives designed to provide relief in the face of the outflows.[16]

Timely and effective policy support helped emerging Asian economies ride out the worst of the global financial storm and continued generating investor confidence in regional markets.

Crisis response took a variety of forms, reflecting the larger arsenal of policy options available today compared with the 1997/98 crisis, and they provide an illustration of both the effectiveness of these policy tools as well as their limitations in the face of severe financial market stress. As the crisis worsened in September 2008, most central banks in the region moved aggressively by cutting policy rates—with the exception of India where inflation was still high—in favor of supporting their economies. On the back of generally strong fiscal positions in a number of these economies (the PRC; Hong Kong, China; Korea; Singapore; and Thailand), large stimulus packages were also announced across the region.

Large reserves across emerging Asia proved very useful in stabilizing currency and financial markets in the face of sudden capital outflows.

Heading into the current crisis, the region's reserves holdings were considered to be more than adequate. In some cases, they represented about 12 months of imports and were more than sufficient to cover the rollover of short-term foreign currency debt, which is the Guidotti–Greenspan criteria for reserve adequacy (footnote 15). With these sizeable reserves holdings, many of the region's economies were able to explore various policy options to stabilize currency and financial markets in the face of large swings in exchange rates. The intervention in foreign exchange (FX) markets was one. Indeed, there is evidence that large holdings

[15]M. Obstfeld, J. Shambaugh, and A. Taylor. 2009. Financial Instability, Reserves, and Central Bank Swap Lines in the Panic of 2008. Paper presented at the Allied Social Science Associations (ASSA) meetings in San Francisco. Preliminary draft.

[16]A. Filardo, J. George, M. Loretan, G. Ma, A. Munro, I. Shim, P. Wooldidge, J. Yetman, and H. Zhu. 2009. The International Financial Crisis: Timeline, Impact, and Policy Responses in Asia and the Pacific. Prepared for the Bank for International Settlements' (BIS) Asian Research Programme.

of FX reserves did provide protection against possible disorderly exchange rate fluctuations.[17] In several cases, governments used FX reserves to lend directly to domestic residents to boost market confidence. Further bolstering their ability to deal with outflows, central banks in the region were also drawing on the FX reserves of other central banks through the use of swap lines, including those set up by the US Federal Reserve.

The Changing Composition of Capital Flows

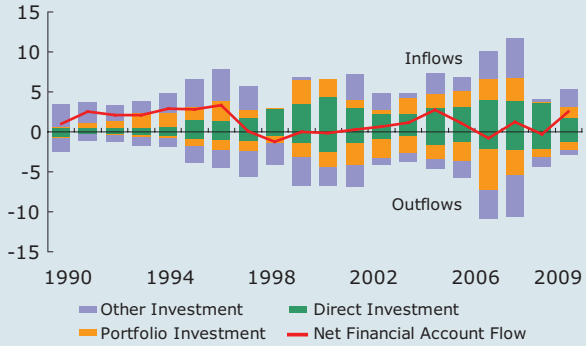
Changes in the composition of capital flows have had important implications on monetary and financial stability across emerging Asian economies.

The wave of financial deregulation and globalization since the 1990s has transformed the nature of capital flows, which can currently be characterized by the dominance of private capital from a variety of sources. While capital inflows bring potentially substantial benefits to recipient economies, spurring investment and economic growth, a surge in capital inflows can also bring significant risks and challenges to developing economies. In particular, short-term flows tend to be more volatile than FDI flows, which are typically longer-term in nature.

Financial crises continue to highlight the volatile nature of short-term flows in and out of emerging Asian markets, underpinning the importance of stabilizing capital flows.

In the period leading up to the 1997/98 financial crisis, many regional economies saw a significant increase in net capital inflows **(Figures 5.3 and 5.4a, 5.4b, 5.4c, 5.4d, 5.4e, 5.4f, 5.4g, 5.4h, 5.4i, and 5.4j)**. In particular, the increase was driven by the rise in "other investment," which mainly consists of banking sector capital flows in the form of currency and deposits. These short-term flows, however, reversed sharply in the wake of the crisis. In the aftermath of the 1997/98 crisis, the region's authorities became more cautious and monitored the patterns of capital flows into their economies more carefully. In the few years prior to the recent global financial crisis, however, a number of Asian economies again experienced very large short-term inflows driven in part by a search for yield in an environment of very low interest rates in the advanced economies. During the recent crisis, large outflows in other investment again instigated currency and financial market instability in the region.

Figure 5.3: Financial Account Flows—Emerging Asia (% of GDP)



GDP = gross domestic product.
Note: Emerging Asia includes China, People's Rep. of; Hong Kong, China; Indonesia; India; Korea, Rep. of; Malaysia; Philippines; Singapore; Taipei,China; and Thailand.
Source: *International Financial Statistics* and *World Economic Outlook Database*, International Monetary Fund; and CEIC database.

The patterns of capital flows have changed significantly since the 1997/98 crisis, reflecting the impact of post-crisis reforms.

Foreign direct investment (FDI) flows

FDI flows are, in general, more stable and less associated with output volatility (footnote 17). The region has been able to attract relatively consistent net FDI inflows. However, the region-wide picture masks significant variance across individual economies **(Figure 5.5)**. The PRC has been the dominant recipient of FDI flows in the

[17] H. Ito, J. Jongwanich, and A. Terada-Hagiwara. 2009. What Makes Developing Asia Resilient in a Financially Globalized World? ADB Economics Working Paper Series no. 181. Manila: Asian Development Bank (ADB).

Figure 5.4a: Financial Account Flows—People's Republic of China (% of GDP)

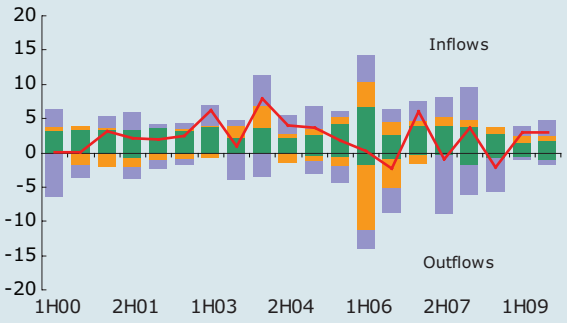


Figure 5.4b: Financial Account Flows—Hong Kong, China (% of GDP)

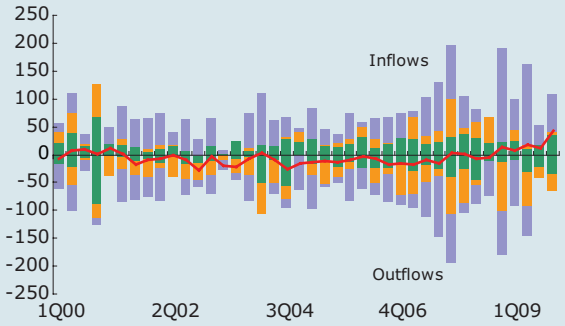


Figure 5.4c: Financial Account Flows—India (% of GDP)

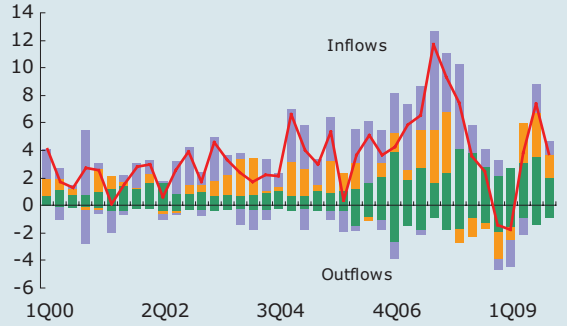


Figure 5.4d: Financial Account Flows—Indonesia (% of GDP)

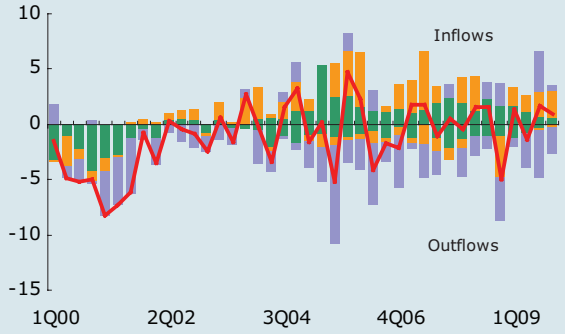


Figure 5.4e: Financial Account Flows—Republic of Korea (% of GDP)

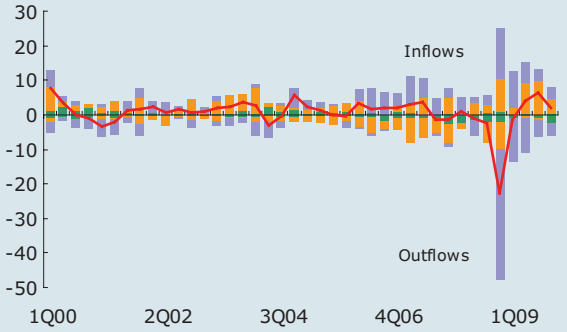
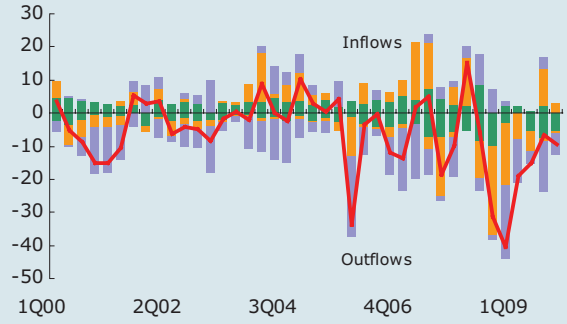


Figure 5.4f: Financial Account Flows—Malaysia (% of GDP)



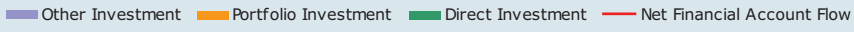


Figure 5.4g: Financial Account Flows—Philippines (% of GDP)

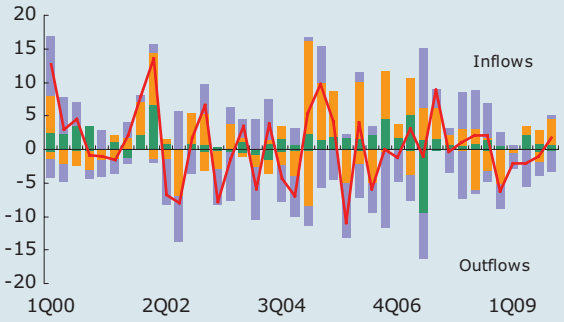


Figure 5.4h: Financial Account Flows—Singapore (% of GDP)

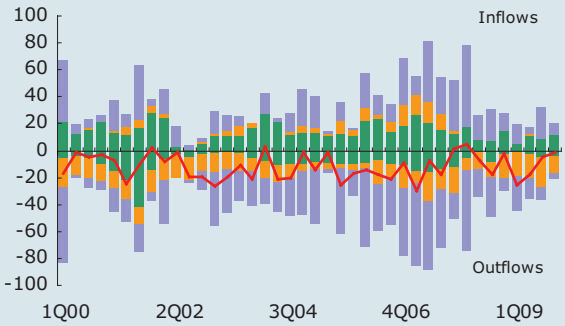


Figure 5.4i: Financial Account Flows—Taipei,China (% of GDP)

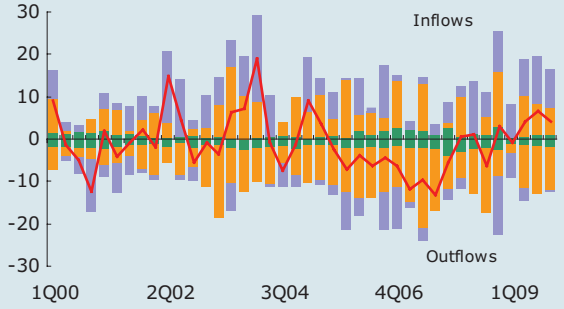
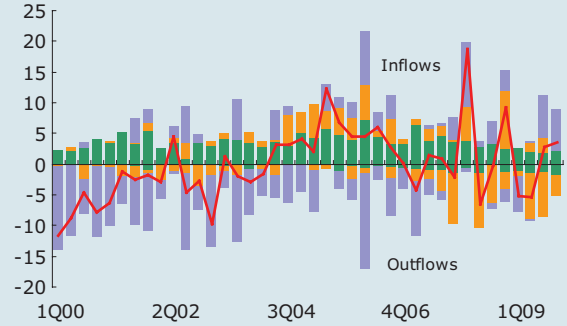
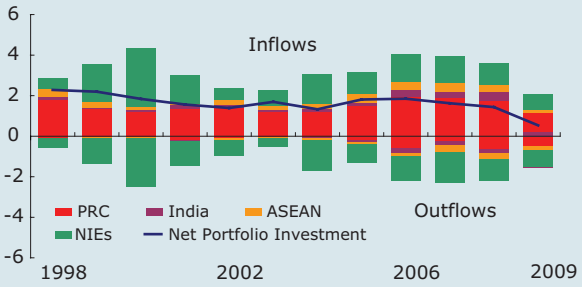


Figure 5.4j: Financial Account Flows—Thailand (% of GDP)



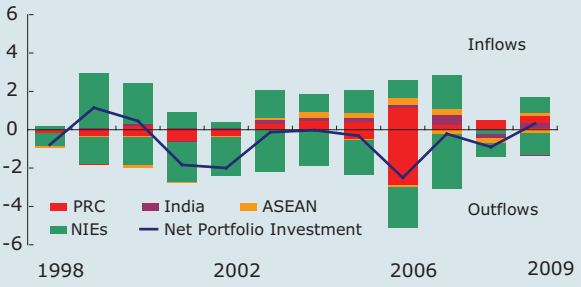
GDP = gross domestic product.
Source: *International Financial Statistics,* International Monetary Fund; and national sources.

Figure 5.5: Foreign Direct Investment Flows—Emerging Asia (% of GDP)



ASEAN = Association of Southeast Asian Nations, GDP = gross domestic product, NIEs = newly industrialized economies, PRC = People's Rep. of China.
Note: Emerging Asia includes China, People's Rep. of; Hong Kong, China; Indonesia; India; Korea, Rep. of; Malaysia; Philippines; Singapore; Taipei,China; and Thailand.
Source: *International Financial Statistics* and *World Economic Outlook Database,* International Monetary Fund; and CEIC database.

Figure 5.6: Foreign Portfolio Investment Flows—Emerging Asia (% of GDP)



ASEAN = Association of Southeast Asian Nations, GDP = gross domestic product, NIEs = newly industrialized economies; PRC = People's Rep. of China.
Note: Emerging Asia includes China, People's Rep. of; Hong Kong, China; Indonesia; India; Korea, Rep. of; Malaysia; Philippines; Singapore; Taipei,China; and Thailand. Inflows refer to foreign portfolio liabilities; outflows refer to foreign portfolio assets.
Source: *International Financial Statistics* and *World Economic Outlook Database,* International Monetary Fund; and CEIC database.

region. Of the region's total FDI inflows, more than half went to the PRC in recent years. An increasingly large proportion is also going to India. The newly industrialized economies (NIEs)—Hong Kong, China; Korea; Singapore; Taipei,China—appear to be another attractive destination for FDI flows, reflecting their high-quality legal, social, and physical infrastructure. Another noticeable change has been a sharp rise in FDI outflows among NIEs. As these economies have become capital rich, investors are seeking opportunities abroad. In recent years, the PRC also joined this group, as the global commodity price boom drove them to invest in resources abroad. On the other hand, FDI flows to many Association of Southeast Asian Nations (ASEAN) economies have yet to fully recover from the 1997/98 crisis, reflecting the lagging investment recovery in these economies.

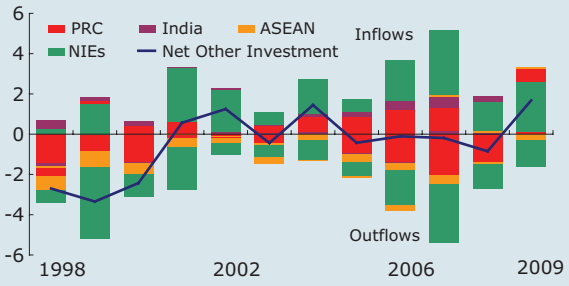
Foreign portfolio investment flows

Foreign portfolio investment flows have also increased in both directions since the 1997/98 crisis, partly reflecting the impact of post-crisis financial deregulation and liberalization **(Figure 5.6)**. From 2003 to 2007, gross foreign portfolio investment inflows averaged 2.2% of gross domestic product (GDP) from 1.3% in the period from 1998 to 2002. Geographically, NIEs dominate the portfolio investment flows in and out of the region, reflecting the openness of their markets and their role as globalized financial centers. The PRC and ASEAN economies have also stepped up their market liberalization efforts, contributing to an increase in outflows in recent years. Especially in the few years leading up to the crisis, some of these economies encouraged equity outflows to reduce currency appreciation pressures in the face of sharp increases in capital flows.

Other investment flows

Other investment flows have been persistently more volatile and tend to be more susceptible to external shocks and currency instability compared to FDI and foreign portfolio investment flows **(Figure 5.7)**. Both crisis periods saw other investment flows fall sharply and turn into relatively large net outflows. Meanwhile, the NIEs comprised the majority of other investment flows in both directions, reflecting greater liberalization in their banking sectors. The PRC is taking an increasingly large share of these types of flows as well. A relatively rigid exchange rate regime in the PRC may be attracting speculative capital betting on an eventual currency revaluation. For example, there was a strong uptick in inflows just before the revaluation of the yuan in 2005 and there has

Figure 5.7: Other Investment Flows—Emerging Asia (% of GDP)



ASEAN = Association of Southeast Asian Nations; GDP = gross domestic product, NIEs = newly industrialized economies; PRC = People's Rep. of China.
Note: Emerging Asia includes China, People's Rep. of; Hong Kong, China; Indonesia; India; Korea, Rep. of; Malaysia; Philippines; Singapore; Taipei,China; and Thailand. Inflows refer to other investment liabilities; outflows refer to other investment assets. Values include financial derivatives.
Source: *International Financial Statistics* and *World Economic Outlook Database,* International Monetary Fund; and CEIC database.

been another uptick this year as the debate over revaluation intensifies.

While recent changes in the patterns of capital flows suggest improved financial resilience, vulnerabilities linger.

Post-crisis reforms have been wide-ranging and evidence points to improved economic and financial resilience across emerging Asia. The patterns of capital flows have become more stable and longer-term, which has been especially noticeable since the 2002/03 global economic downturn. Emerging Asian economies are also investing abroad more actively, achieving better balance between capital inflows and outflows. However, the progress and effects of financial reforms vary substantially across borders, pointing to vulnerable spots. Smaller developing economies need to further enhance their efforts to attract FDI inflows and the region's authorities should continue monitoring volatile banking flows.

Effectively Managing Financial Flows in the Future

Emerging Asia should re-establish a broad and consistent policy framework to create and maintain an economic environment conducive to stable long-term capital flows.

Effective management of capital flows requires a broad and consistent policy framework, with the scope of action extending beyond traditional monetary, fiscal, and exchange rate policies to include trade and investment policy, as well as regulation and development of the financial sector, to accommodate capital flows in a sustainable way. While the emphasis of necessary policy adjustments should be on the longer-term goal of achieving an economic environment that will attract stable capital flows, policymakers also need to consider options to manage short-term surges and sudden swings in flows, which often threaten stability and undermine long-term strategies to strengthen economic fundamentals. Effective short-term interventions dealing with temporary, yet very disruptive, financial movements can also prove beneficial in the event of a crisis by minimizing losses and supporting market confidence.

Prudent macroeconomic management is fundamental and provides an important backdrop for stable and beneficial capital flows.

It is important to put in place a stable macroeconomic environment underpinned by transparent policy frameworks. Key elements for sound macroeconomic policies include sustainable fiscal positions, low and predictable inflation rates, and a flexible exchange rate. Transparency in the conduct of policy is also a key ingredient. Maintaining a healthy macroeconomic backdrop helps provide scope for policymakers to respond in the event of a crisis. Past experience also shows that strong macroeconomic conditions help anchor investors' confidence during times of market stress.

Flexible exchange rate policies can help economies absorb shocks—though a broader range of policy options can be considered to minimize especially large disruptions.

An abrupt and large swing in capital flows could pose a threat to financial market stability, while complicating macroeconomic management, especially if the domestic financial markets do not have the capacity to absorb such flows. If the flows are of a long-term nature and are in response to permanent changes in returns of the host economy, then the exchange rate will have to adjust. However, sudden and large fluctuations in exchange rates in the short run can undermine the effectiveness of monetary policy and prove very disruptive to the sectors exposed to trade. As a result, it may be beneficial for authorities to reduce capital inflows and resist the upward pressure on the currency so as to cushion the effect on the trade sector. In such a situation, policymakers may have three broad options, each with its own set of caveats:

(i) intervention in the foreign exchange market

The first option would be to intervene in the exchange market, with the central bank purchasing FX with domestic currency. In order to sterilize the resulting effect on the money supply, the central bank must mop up the liquidity in the market by selling LCY bonds (typically government bonds) to the public. In this case, however, there are fiscal implications as the government is the ultimate holder of the FX, which can be costly. The central bank could also increase reserve requirements at banks to offset the potential money supply increase. A key determinant of the extent of sterilized interventions is the domestic demand condition. As the economy reaches full employment, there will be upward pressure on interest rates, attracting more capital inflows. In such cases, interventions become rather ineffective and further appreciation may be warranted. However, interventions should be temporary as they potentially complicate the conduct of monetary policy and involve significant fiscal costs the longer they are maintained.

(ii) restrictive fiscal policy

Some economies may have the option of taking direct fiscal actions aimed at reducing domestic demand, thus offsetting the impact of the resource transfer associated with the inflow.[18] However, this option is not without its limitations. First, fiscal responses tend to require a long gestation period and end up being pro-cyclical, thus risking a hard landing in many developing economies.[19] Second, restrictive fiscal policy, through either spending cuts or tax increases, could face unfriendly political environments. Adopting longer-term fiscal rules would be an alternative, making sure that they have broad political support. The fiscal rules should aim to achieve a surplus on a cyclically adjusted basis. These rules can also contribute positively to maintaining fiscal discipline.[20]

(iii) liberalization of outflows

Liberalizing outflows is an attractive option when dealing with surges in capital inflows as it reduces the volume of net capital inflows for a given level of inflows. Studies have also shown that liberalization of equity flows is beneficial for growth.[21] However, liberalization of capital outflows could invite even more capital inflows since such action might bolster investor confidence that funds

[18]S. Grenville. 2008. Central Banks and Capital Flows. ADB Institute Discussion Paper no. 87. Tokyo: Asian Development Bank Institute (ADBI).

[19]S. Schadler. 2008. Managing Large Capital Inflows: Taking Stock of International Experiences. ADB Institute Discussion Paper no. 97. Tokyo: ADBI.

[20]S. Guichard, M. Kennedy, E. Wurzel and C. André. 2008. What Promotes Fiscal Consolidation: OECD Country Experiences. OECD Economics Department Working Papers no. 553. Paris: Organisation for Economic Co-operation and Development (OECD).

[21]P.B. Henry. 2007. Capital Account Liberalization: Theory, Evidence, and Speculation. *Journal of Economic Literature XLV*. December. pp. 887–935.

could be easily repatriated when needed. In addition, as the deregulation of capital flows is often hard to reverse, hasty liberalization without appropriate sequencing and/or the proper establishment of a legal, regulatory, and institutional framework could put macroeconomic and financial stability at risk.

Temporary and targeted use of capital controls may be appropriate when capital inflows are transitory, add undue pressure on exchange rates, pose risks to financial stability, and where macroeconomic policies are ineffective.

There is evidence that capital controls prove helpful in shielding economies from excessive currency and financial market volatility and reduced output declines during a crisis.[22] Empirical studies have typically found that while control measures have limited impact on regulating the volume of flows, they may have positive effects on monetary policy autonomy and the composition of flows by, for example, discouraging short-term flows or limiting certain types of flows. Some studies indicate that capital controls on outflows appear to be more effective than those on inflows for reasons that are not well understood. Some studies also suggest that capital controls have been more successful in economies where financial markets are more developed, reflecting the role of institutional capacity in enforcing capital control mechanisms. However, most economists accept that capital controls involve potentially large costs due to administrative requirements and market distortions, while their effectiveness wanes over time as loopholes and evasion become pervasive. Given that the effectiveness of capital controls is not unambiguously clear, and with the potentially large costs of imposing them, the appropriateness of imposing controls has to be considered in the broad macroeconomic context and should be based on a number of criteria **(Box 3)**.

[22]A list of studies finding positive effects of capital controls can be found in J. Ostry, A. Ghosh, K. Habermeier, M. Chamon, M. Queshi, and D. Reinhart. 2010. Capital Inflows: The Role of Controls. IMF Position Note. Washington: International Monetary Fund (IMF).

Capital controls fall broadly under three categories as follows:

(i) direct (administrative) controls on the volume of inflows

The simplest measure would be an outright prohibition of cross-border capital movements. But, in practice, most controls would involve discretionary approval of certain types and amounts of flows. For example, the imposition of inflow restrictions by Brazil during the 1990s took the form of outright prohibitions against certain types of inflows combined with minimum maturity requirements. However, empirical studies have found no significant impact of such measures on the volume of total capital inflows. Moreover, the imposition of administrative controls can often be very costly and prone to longer-term distortionary effects, particularly if the entrenched administrative apparatus makes it difficult to dismantle the controls later.

(ii) market-based instruments to change the composition of inflows

There are controls aimed at limiting particular types of capital flows by making such flows more costly. The most common instrument to do this is unremunerated reserve requirements (URR), which mandate that a certain percentage of an inflow be deposited with the central bank. The cost of the deposit to the investor is related to the length of time the funds remain in the host country; the longer the funds remain in country, the lower the cost. Effectively, this is a type of tax that discourages short-term flows. Altering the maturity composition of inflows, rather than to preventing them altogether. In Latin America, where URR became broadly popular after Chile first introduced them in 1991, evidence points to some success in altering the maturity composition. Nonetheless, there are reports of some market distortions. For example, small- and medium-sized firms

Box 3: When is it Appropriate to Use Capital Controls?

Past crises highlighted the harmful effects of unfettered capital flows. While the use of capital controls is still subject to debates and not without costs, certain circumstances may warrant the use of controls as part of a comprehensive policy package to manage inflows.[1]

Capital inflows add undue pressures on exchange rates. Authorities are often concerned that surges in capital inflows may exert undue pressure on the exchange rate to appreciate excessively. Especially when the currency is not undervalued, additional appreciation pressure associated with capital inflows is not welcome. Sharp appreciation and/or a sudden swing in the exchange rate, even if capital flows later abate, may cause irreversible damage to the competitiveness of the economy and also have longer-term effects. For emerging Asian economies in which exports remain an important driver of growth, this consideration is particularly pertinent.

The economy nears its potential and sterilization reaches its limits. In the face of a sharp increase in capital inflows to an economy, its central bank often intervenes in the exchange market to slow the pace of currency appreciation. There may also be inflation concerns leading to the central bank sterilizing domestic liquidity injections associated with capital inflows. While capital inflows may present an opportunity to build foreign reserves for some economies as a buffer against a sudden stop, reserve accumulation involves the opportunity cost of not being able to use such reserves for more productive investment or higher returns. Sterilization may also reach the limit of effectiveness if increased issuance of domestic bonds increases fiscal costs and heightened domestic interest rates attract further inflows.

Capital inflows pose risks to financial stability. Beyond macroeconomic effects, surges in capital inflows may present significant risks to maintaining financial stability. For example, in cases when capital inflows are predominantly credit flows denominated in a foreign currency. Especially if such short-term liabilities are invested in longer-term instruments or activities, the recipient economies would be subject to double mismatches—both currency risks and duration mismatches. More generally, capital inflows might fuel a domestic lending boom, leading to asset price bubbles that eventually burst and instigate financial instability.

While controls may be appropriate under the circumstances described above, their effectiveness is likely to be short-lived. Sustained capital inflows will require more in-depth structural countermeasures that take into account the underlying factors behind the prolonged attractiveness of the local economy vis-à-vis foreign savings.

[1]J. Ostry, A. Ghosh, K. Habermeier, M. Chamon, M. Queshi, and D. Reinhart. 2010. Capital Inflows: The Role of Controls. IMF Position Note. Washington: International Monetary Fund (IMF).

that did not have access to external sources of funds ended up paying more to finance their operations.

(iii) prudential measures

Controls may take the form of prudential measures on domestic banks by limiting their net external exposure or circumscribing the taking of long or short currency positions. These prudential measures are also often combined with direct (administrative) and/or market based controls. Empirical findings point broadly to their effectiveness in reducing currency mismatches and limiting debt inflows. For example, in 1994, Malaysia placed ceilings on banks' net liability positions and limited their engagement in non-trade related swaps, while implementing temporary capital controls on short-term inflows. These measures were found to be effective in influencing the volume of short-term inflows during the crisis period. In addition, with concerns about banking stability rising in the run-up to the recent crisis, Colombia imposed limits on the currency derivatives positions of banks in 2007.

Building a resilient financial sector remains key to ensuring the effective management of capital flows and allowing for more efficient allocation of financial resources.

Reflecting the lessons learned during the 1997/98 crisis, many emerging Asian economies have moved to develop a resilient financial sector as a way to better absorb volatile capital flows and provide alternative sources of financing for domestic firms. Creating such a resilient financial environment requires policy actions on various fronts, including (i) putting in place strong prudential and regulatory frameworks; (ii) promoting depth and diversity in domestic capital markets that can fill the funding gaps in the event of "sudden stops";[23] (iii) encouraging the development of local currency bond markets to help reduce currency and maturity mismatches associated with external liabilities; (iv) ensuring that smaller, bank-dependent borrowers can be served in times of crisis; and (v) permitting more active foreign participation to increase competition and introduce new products and best practices into the domestic market.

Finally, the availability of multiple layers of protection against a sudden liquidity disruption—either through bilateral swap lines with foreign central banks or multilateral agreements with regional or global financing facilities—can bolster market confidence and lessen the need for individual central banks to hold large amounts of FX reserves.

Asian economies have maintained large holdings of FX reserves since the 1997/98 financial crisis to act as a buffer against a reversal of capital inflows. However, this strategy is not without costs. During the recent global crisis, the US Federal Reserve offered swap lines to many central banks in both developed and developing economies, which proved effective in countering short-term liquidity shortages and sudden reversals of capital flows. Similarly, the multilateralization of the Chiang Mai Initiative (CMIM)[24] offers another layer of insurance for countries to tap during severe market stress. The International Monetary Fund (IMF) also recently introduced new facilities to make funds available quickly to countries experiencing external funding difficulties. Given the number of options available, authorities are unlikely to rely on a single buffer in times of severe stress, but rather opt for multiple layers and different arrangements to shield them against different sources of financial stress. These arrangements can allow countries to hold smaller amounts of FX reserves, thereby lessening the need for authorities to intervene to prop up domestic currencies and providing them with more flexibility in managing capital flows and related volatility.

[23] A sudden slowdown in private capital inflows into emerging market economies and a corresponding sharp reversal from a large current account deficit to a smaller deficit or a surplus.

[24] The Chiang Mai Initiative Multilateralization (CMIM) came into effect on 24 March 2010 upon agreement among ASEAN+3 members—the ten member economies of ASEAN plus the PRC, Japan, and Korea. The total size of the CMIM is USD120 billion, which can be used for immediate liquidity injections during times of crisis to meet the needs of ASEAN+3 members.

Asia Capital Markets Monitor, May 2010

Asian capital markets have delivered spectacular gains as the prospect of strong growth combined with the return of appetite for emerging-market assets brought a surge in capital inflows to the developing economies of Asia once again, says the 2010 issue of ADB's Asia Capital Markets Monitor. This issue reviews the recent performance in emerging Asia's stock, bond, and currency markets along with the outlook, risks, and policy implications of that performance. A special theme chapter on "Managing Capital Flows: Issues and Policy Challenges for Emerging Asia" is also presented.

The Asia Capital Markets Monitor was prepared by a team of economists from the Office of Regional Economic Integration (OREI) of the Asian Development Bank. Primary contributors include Cyn-Young Park and Sabyasachi Mitra, while OREI consultants, Chee Sung Lee and Mike Kennedy, also contributed to the report. The authors thank John Stuermer and the members of AsianBondsOnline, the Asia Regional Integration Center, and Rogelio Mercado for valuable inputs and research assistance.

The Asia Capital Markets Monitor has been reviewed and approved by Srinivasa Madhur, Senior Director and Officer-in-Charge of OREI.

About the Asian Development Bank

ADB's vision is an Asia and Pacific region free of poverty. Its mission is to help its developing member countries substantially reduce poverty and improve the quality of life of their people. Despite the region's many successes, it remains home to two-thirds of the world's poor: 1.8 billion people who live on less than $2 a day, with 903 million struggling on less than $1.25 a day. ADB is committed to reducing poverty through inclusive economic growth, environmentally sustainable growth, and regional integration.

Based in Manila, ADB is owned by 67 members, including 48 from the region. Its main instruments for helping its developing member countries are policy dialogue, loans, equity investments, guarantees, grants, and technical assistance.

Photo Credit: Ko Fujimura

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