ADB

ASIA CAPITAL MARKETS MONITOR

AUGUST 2011

Asian Development Bank

Asia Capital Markets Monitor

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Printed on recycled paper.

Cataloging-In-Publication Data

ISBN 978-92-9092-377-0
Publication Stock No. RPT113834

Asia Capital Markets Monitor—2011
Mandaluyong City, Philippines: Asian Development Bank, 2011.

1. Regionalism 2. Subregional cooperation 3. Economic development 4. Asia
I. Asian Development Bank.

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Photo Credit: Santiago Martin Barcelona

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, "Financial Integration and Capital Flow Volatility in Emerging Asia: Issues and Policies."

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

The ACMM was prepared by ADB's Office of Regional Economic Integration (OREI), headed by Iwan J. Azis. The team was led by Cyn-Young Park, with Sabyasachi Mitra and Noel Reyes as primary contributors. The authors thank John Stuermer and his *AsianBondsOnline* team; OREI's Asia Regional Integration Center; and consultants Prince Christian Cruz, Ma. Concepcion Latoja, and Benjamin Radoc for their valuable inputs and research assistance.

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Contents

Abbreviations and Acronyms

ACMM	Asia Capital Markets Monitor
ADB	Asian Development Bank
ADO	Asian Development Outlook
AEM	Asia Economic Monitor
ALBI	Asian Local Bond Index
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
bps	basis points
CB	central bank
CGIF	Credit Guarantee and Investment Facility
EBITDA	earnings before interest, taxes, depreciation and amortization
EV	enterprise value
FDI	foreign direct investment
FPI	foreign portfolio investment
G3	US, eurozone, Japan
GDP	gross domestic product
HSBC	Hong Kong and Shanghai Banking Corporation
IFS	International Financial Statistics
IMF	International Monetary Fund
IPO	initial public offering
KOSPI	Korea Composite Stock Price Index
LCY	local currency
LHS	left-hand scale
MSCI	Morgan Stanley Capital International
NBER	National Bureau of Economic Research
NIE	newly industrialized economy
OREI	Office of Regional Economic Integration
P/B	price-to-book value ratio
P/E	price-to-earnings ratio
PEG	price-to-earnings ratio to growth ratio
PRC	People's Republic of China
q-o-q	quarter-on-quarter
repo	repurchase agreement
RHS	right-hand scale
US	United States
VR	variance ratio
WFE	World Federation of Exchanges
y-o-y	year-on-year
YTD	year-to-date

Highlights

Global and Regional Environment

- The two-speed global economy—moderating yet robust growth in emerging markets against the painfully slow recovery in advanced economies—continues to chug along, with more modest growth expected in 2011.

- The pattern of anemic growth in advanced economies will likely continue beyond 2011—even as Japan's reconstruction efforts boost its economy and authorities struggle to deal with Europe's bailout negotiations and the US debt limit.

- Strong growth in emerging Asia is set to moderate as monetary tightening to fight inflation takes hold.

- Financial volatility has returned to the global marketplace amid renewed uncertainty over the strength of the global economy, spreading social unrest in the Middle East, and deepening fiscal concerns in Europe.

- Government bond yields in major advanced economies have declined due to widespread "flight to safety."

- The diverging growth and inflation outlooks between emerging markets and advanced economies mean associated monetary and fiscal policies are diverging as well.

- External funding conditions for emerging Asia remain favorable given its relatively strong growth prospects; the low interest rate environment in mature markets continues to push investors to search for yield in emerging market debt.

Emerging Asia's Market Performance and Outlook

- Strong economic fundamentals support emerging Asia's equity markets following a wave of market corrections.

- Nonetheless, the outlook for emerging Asian equities has softened as markets factor in higher profit risks amid greater global economic uncertainty; Asia's equity results remain tightly linked to global financial developments.

- After last year's recovery-fueled growth bolstered emerging Asia's share of the global local currency bond market, government issuance eased this year as authorities unwind fiscal stimulus; nonetheless, corporate bond issuance remains strong given the region's robust outlook.

- Broadening the investor base and improving bond market liquidity remain key policy challenges for deepening emerging Asia's local currency bond markets.

- The size and pace of capital flows to emerging Asia have moderated since last year's resurgence, but the region's strong economic growth and widening interest rate gaps with mature markets continue to attract investors.

- While the return of capital flows to emerging Asia is welcome, today's dramatic increase in capital inflows, especially driven by short-term flows, may well presage tomorrow's large outflows.

- Sustained recoveries in trade and investment flows continue to push emerging Asia's currencies higher on a broad front, although the moderating growth outlook is reducing some appreciation pressures.

- Real effective exchange rates for emerging Asian currencies have stabilized, since late 2010, on slowing nominal appreciation, rising inflation, and divergent currency movements of the region's major trading partners.

- The share of international portfolio assets and liabilities held by emerging Asian investors is increasing over time, with wider geographic diversification and more regional assets held by regional investors.

Financial Integration and Capital Flow Volatility in Emerging Asia: Issues and Policies

- Financial integration and contagion are two sides of the same coin: while a virtuous cycle in good times, greater integration reduces defense against negative shocks.

- Emerging Asia's equity markets—particularly those tightly linked to global markets—are vulnerable to abrupt swings in global investor sentiment, potentially increasing capital flow volatility.

- The region's local currency bond markets remain largely fragmented; while protected from external shocks, fragmentation hinders market liquidity.

- Emerging Asia should continue strengthening macroeconomic management and macro-prudential supervision to attract stable and long-term capital flows.

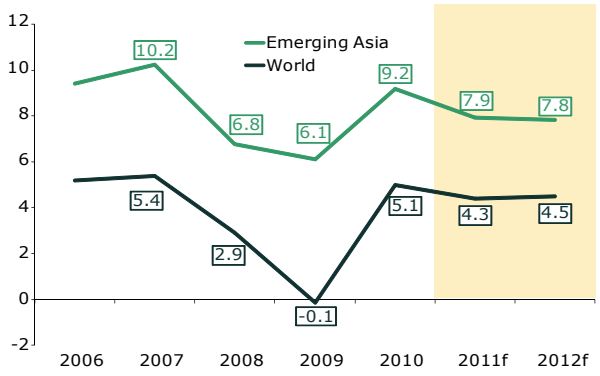
- The 1997/98 and 2008/09 crises highlight the region's vulnerability to financial instability arising from rapid financial globalization, large and unfettered short-term capital flows, exchange rate volatility, and the lack of crisis control mechanisms.

- Asia must assume greater responsibility in reforming the global financial architecture by actively participating at all levels of governance.

At a Glance

Global economic growth slows—emerging Asia's strong growth moderates on monetary tightening while advanced economies continue to struggle with debt

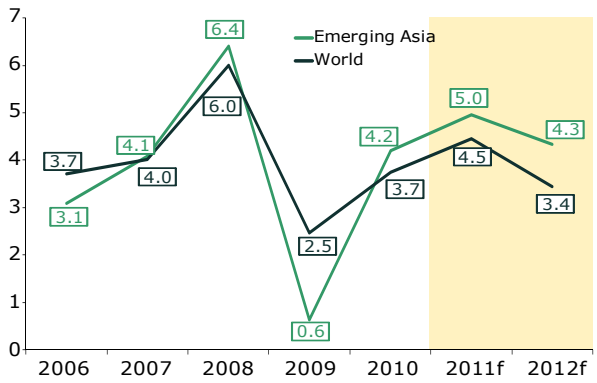
GDP Growth—Emerging Asia and World (year-on-year, %)



f = forecast, GDP = gross domestic product.
Notes: Emerging Asia includes People's Republic of China; Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Taipei,China; Thailand; and Viet Nam. 2011 and 2012 figures are estimates.
Source: ADB Office of Regional Economic Integration using data from *Asia Economic Monitor July 2011*, ADB; *World Economic Outlook Database April 2011* and *World Economic Outlook Update June 2011*, International Monetary Fund.

Inflation continues to rise on broadening global recovery; core inflation accelerates in emerging Asia on closing output gaps

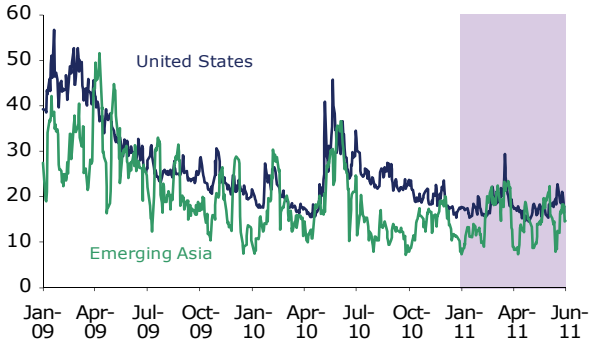
Inflation—Emerging Asia and World (year-on-year, %)



f = forecast.
Notes: Emerging Asia includes People's Republic of China; Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Taipei,China; Thailand; and Viet Nam. 2011 and 2012 figures are estimates.
Source: ADB Office of Regional Economic Integration using data from *Asia Ecnomic Monitor July 2011*, ADB; *World Economic Outlook Database April 2011* and *World Economic Outlook Update June 2011*, International Monetary Fund.

Financial volatility returns to global markets amid uncertainty over the global economic recovery, social unrest in the Middle East, and fiscal concerns in Europe

Equity Price Volatility



MSCI = Morgan Stanley Capital International.
Notes: The United States data refer to the implied volatility for options on the Standard and Poors (S&P) 500 Index. Emerging Asia data refer to 10-day price volatility based on MSCI All Country Asia ex-Japan Index, a free-float weighted equity market.
Source: Bloomberg.

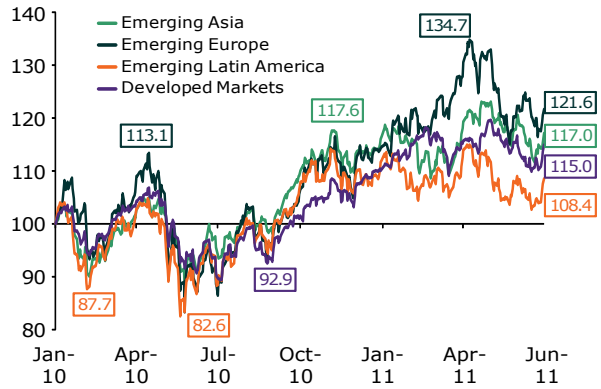
External funding conditions for emerging Asia remain favorable given relatively strong growth prospects and the global search for yield

Bond Spreads—Emerging Asia (basis points)

US = United States.
Note: Data refer to JP Morgan EMBI (Emerging Market Bond Index) corporate and sovereign stripped spreads (over corresponding US zero-coupon rate).
Source: Bloomberg.

Emerging Asian equities consolidate strong gains since early 2011 following another year of stellar performance

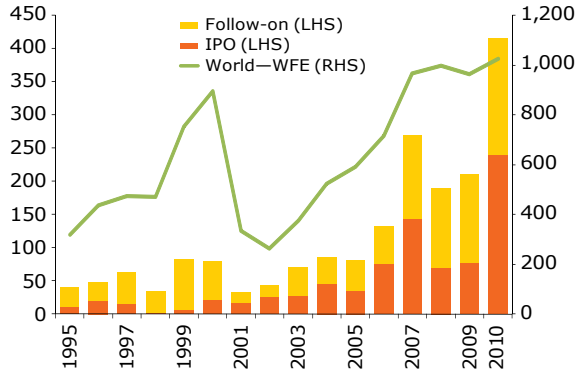
MSCI Equity Market Indexes (1 January 2010 = 100)



MSCI = Morgan Stanley Capital International.
Notes: Emerging Asia includes People's Republic of China; Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Taipei,China; and Thailand. Emerging Europe includes Czech Republic, Hungary, Poland, Russian Federation, and Turkey. Emerging Latin America includes Brazil, Chile, Colombia, Mexico, and Peru. Developed markets includes Canada, France, Germany, Italy, Japan, United Kingdom, and United States.
Source: Bloomberg.

Equity issuance on emerging Asian markets surges; leading in global initial public offerings on healthy regional corporate earnings and growth prospects

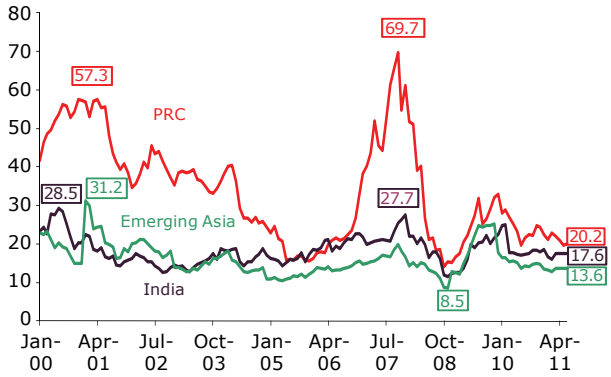
Equity Issuance—Emerging Asia (US$ billion)



IPO = initial public offering, LHS = left-hand scale, RHS = right-hand scale, WFE = World Federation of Exchanges.
Note: Emerging Asia includes People's Republic of China; Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Taipei,China; Thailand; and Viet Nam.
Sources: World Federation of Exchanges, Bank of Korea, Monetary Authority of Singapore, Reserve Bank of India, and International Financing Review Asia.

Following early-year market corrections, valuations appear to match corporate fundamentals—earnings, cash flows, and growth

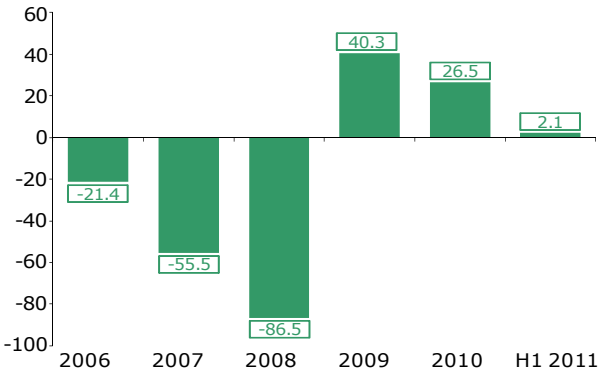
Price–Earnings Ratio—Emerging Asia, PRC, and India



PRC = People's Republic of China, MSCI = Morgan Stanley Capital International.
Notes: Data for emerging Asia refer to MSCI All Country Asia ex-Japan Index, which includes People's Republic of China; Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Taipei,China; and Thailand. PRC data refer to combined Shanghai and Shenzhen composite, weighted by their respective market capitalization.
Source: Bloomberg.

Net foreign investment in emerging Asian equities has moderated since its rapid return toward the end of 2009

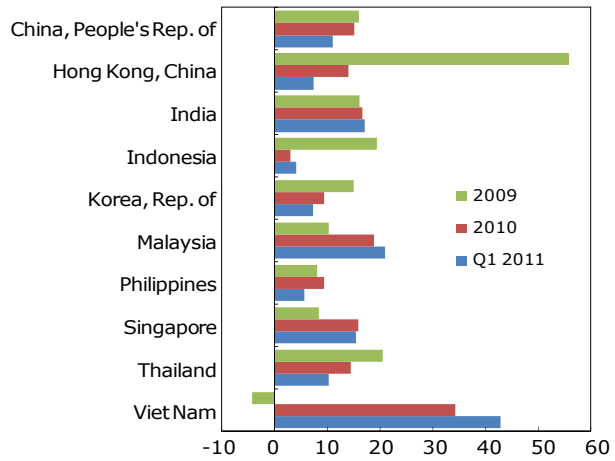
Net Foreign Portfolio Investment in Equities—Emerging Asia, excluding Hong Kong, China (US$ billion)



H1 = first half.
Notes: Emerging Asia includes India; Indonesia; Republic of Korea; Malaysia; Philippines; Taipei,China; Thailand; and Viet Nam. Data unavailable for the People's Republic of China and Singapore.
Sources: Bloomberg and Bank Negara Malaysia.

Emerging Asia's local currency bond markets continue to expand, accounting for a rapidly rising share of the global local currency bond market total

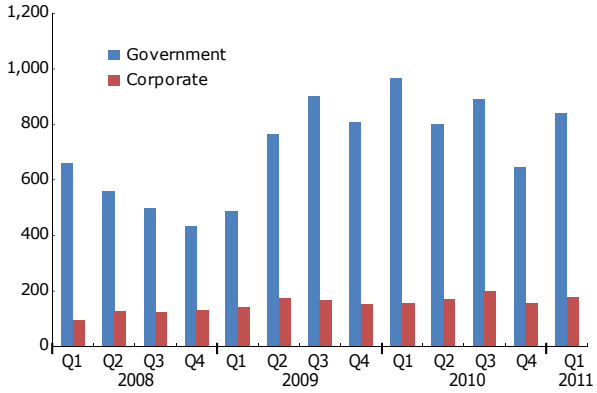
Growth of Local Currency Bond Markets in 2009, 2010, and Q1 2011 (year-on-year, %)



Q = quarter.
Sources: ADB *AsianBondsOnline* and Bloomberg.

Asian local currency bond issuance decline on lower fiscal spending; corporate bond issuance continue to grow rapidly

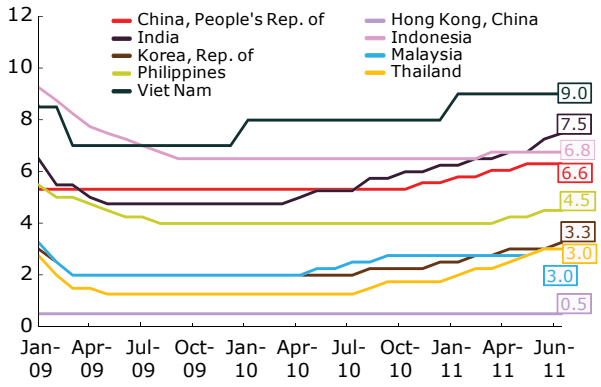
Government and Corporate Bond Issuance—Emerging Asia (US$ billion)



Note: Includes local currency bond issuance of People's Republic of China; Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Thailand; and Viet Nam.
Sources: ADB *AsianBondsOnline* and Bloomberg.

Emerging Asia's monetary authorities step up fight against inflation

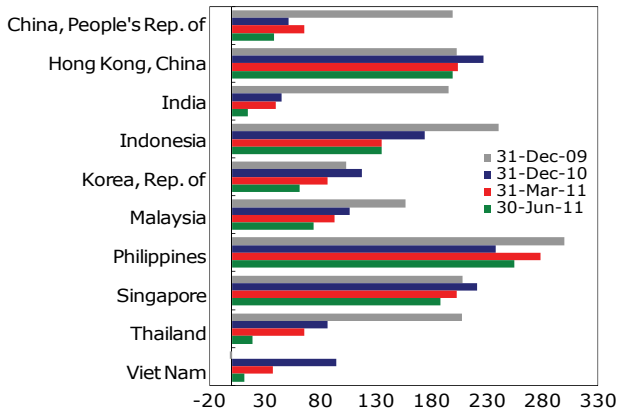
Policy Rates—Emerging Asia (% per annum)



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

Yield curves flatten across the region, driven mainly by increases in policy rates in response to rising inflationary pressures

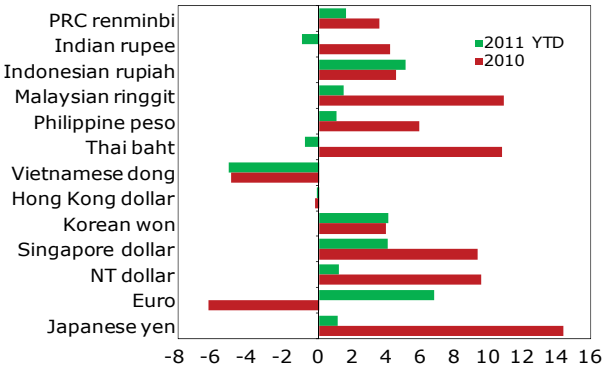
10-Year and 2-Year Government Bond Yield Spreads—Emerging Asia (basis points)



Source: Bloomberg.

Emerging Asian currencies appreciate on steady recovery in trade and investment flows, lured by growth and interest rate differentials

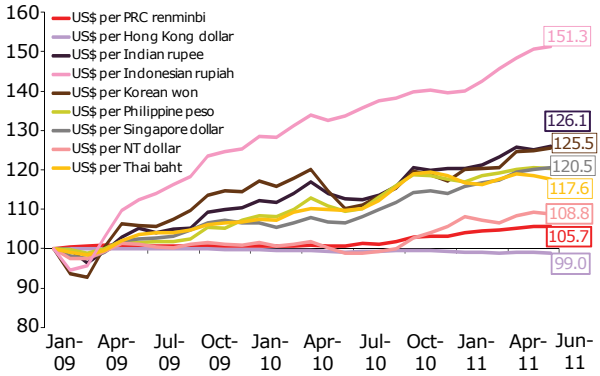
Change in Exchange Rate versus US dollar (%)



PRC = People's Republic of China, US = United States, YTD = year-to-date.
Note: Year-to-date figures for 2011 are from 3 January to 30 June. Negative figures indicate depreciation of the local currency versus the US dollar; positive values indicate appreciation of the local currency. NT dollar is the currency of Taipei,China.
Source: ADB Office of Regional Economic Integration using data from Thomson Reuters accessed through Datastream.

Emerging Asian currencies continue to offer favorable risk-adjusted returns, providing attractive investment opportunities

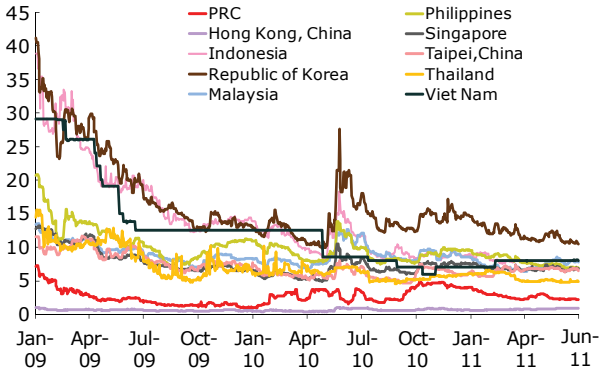
Currency Returns (January 2009 = 100)



PRC = People's Republic of China, US = United States.
Note: NT dollar is the currency of Taipei,China.
Source: ADB Office of Regional Economic Integration using data from Thomson Reuters accessed through Datastream.

Exchange rate volatility subsides to pre-crisis levels

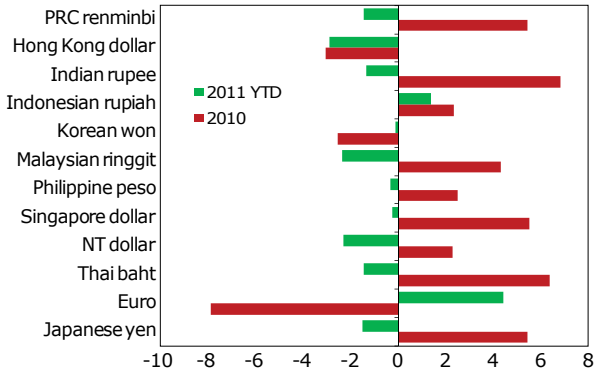
Implied Volatility of Exchange Rates—Emerging Asia (%)



PRC = People's Republic of China.
Note: Data refer to the implied volatility from 3-month at-the-money options on exchange rates.
Source: Bloomberg.

Real effective exchange rates stabilize for many emerging Asian currencies; some depreciation evident year-to-date

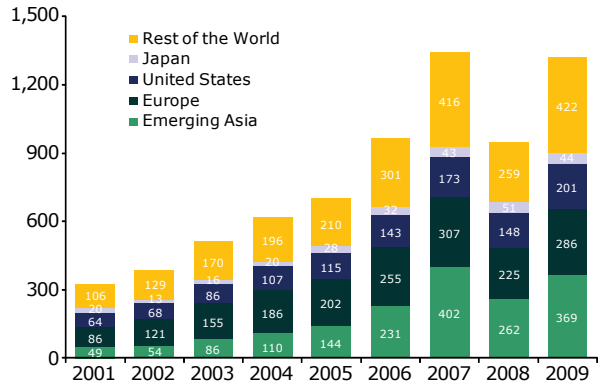
Change in Real Effective Exchange Rates (%)



PRC = People's Republic of China, YTD = year-to-date.
Note: NT dollar is the currency of Taipei,China.
Source: Bloomberg.

Emerging Asia's financial integration continues with improved geographic diversification in cross-border asset holdings

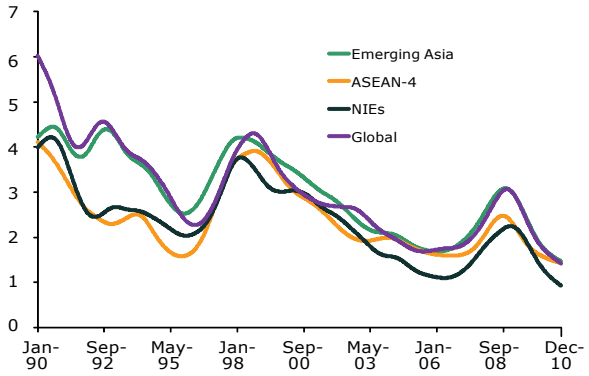
Cross-Border Portfolio Asset Holdings—Emerging Asia (US$ billion)



Notes: Emerging Asia includes Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; and Thailand. Europe includes Austria, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and United Kingdom.
Source: *Coordinated Portfolio Investment Survey*, International Monetary Fund.

Emerging Asian equity markets are increasingly correlated with both regional and global markets

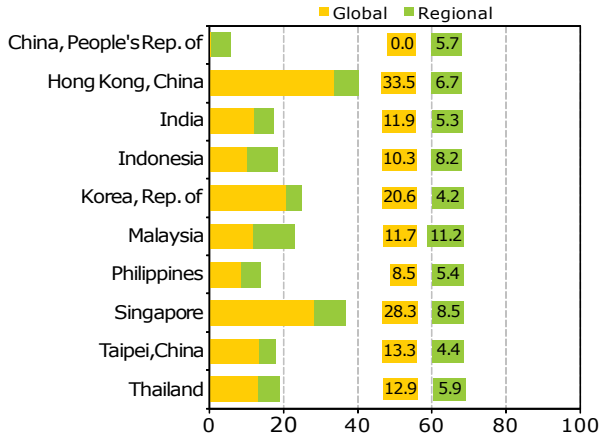
Cross-Market Convergence of Weekly Equity Returns (%)



ASEAN = Association of Southeast Asian Nations, NIE = newly industrialized economy.
Notes: Values were smoothened using Hodrick-Prescot filter method. Stock price index for each country is in local currency units. Emerging Asia includes People's Republic of China; Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Taipei,China; and Thailand. ASEAN-4 consists of Indonesia, Malaysia, Philippines, and Thailand. NIEs consists of Hong Kong, China; Republic of Korea; Singapore; and Taipei,China. Global includes 25 advanced and emerging economies, including those from Asia.
Source: ADB Office of Regional Economic Integration using data from Bloomberg. Accessed January 2011.

Greater financial integration also means greater contagion from external shocks; global factors explain a large part of emerging Asian equity market volatility

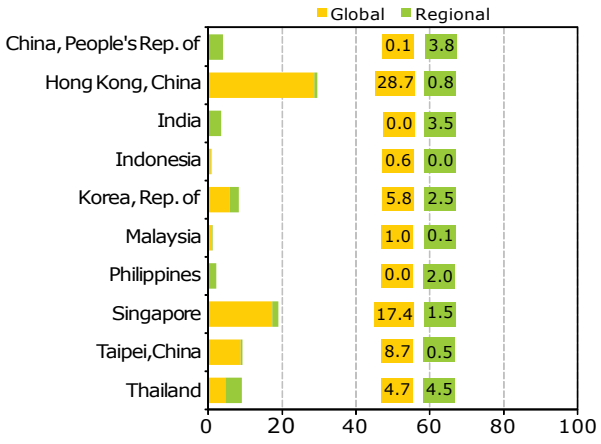
Share of Variance in Local Equity Returns Explained by Global and Regional Shocks, 1994–2010 (%)



Note: Variance share shows the proportion of total domestic equity return volatility caused by either regional or global shocks.
Source: ADB Office of Regional Economic Integration.

The degree and pace of integration in Asian local currency bond markets lag far behind that of stock market integration; fragmentation can protect from external shocks, but hinders market liquidity

Share of Variance in Local Bond Returns Explained by Global and Regional Shocks, 2001–2010 (%)



Note: Variance share shows the proportion of total domestic bond return volatility caused by either regional or global shocks.
Source: ADB Office of Regional Economic Integration.

Global and Regional Environment

Global and Regional Environment

The two-speed global economy—moderating yet robust growth in emerging markets against the painfully slow recovery in advanced economies—continues to chug along; with more modest growth expected in 2011.

The global economy is expected to grow 4.3% in 2011 and 4.5% in 2012, down from an estimated 5.0%, according to the International Monetary Fund (IMF) **(Figures 1.1a and 1.1b)**.[1] Albeit tempered, the recovery is expected to continue as consumption and business demand is broadening in both advanced and developing economies. Economic activity in emerging and developing economies has been particularly buoyant. Backed by robust demand from the People's Republic of China (PRC) and India, emerging Asian economies rebounded strongly and regained their precrisis strength in 2010. The weighted average gross domestic product (GDP) growth of emerging Asia was 9.2% in 2010, with annual growth expected to reach 7.9% in 2011 and 7.8% in 2012. Headline inflation has picked up across the board on the steady rise in oil and commodity prices.

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

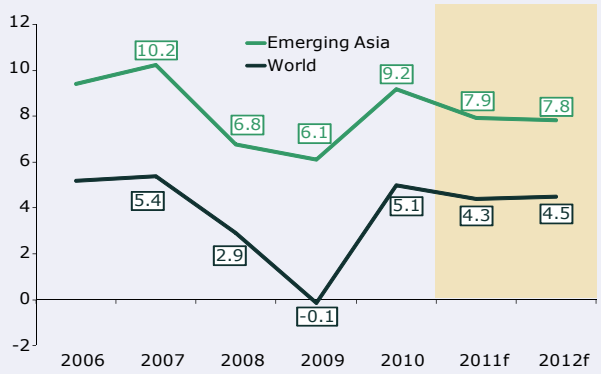
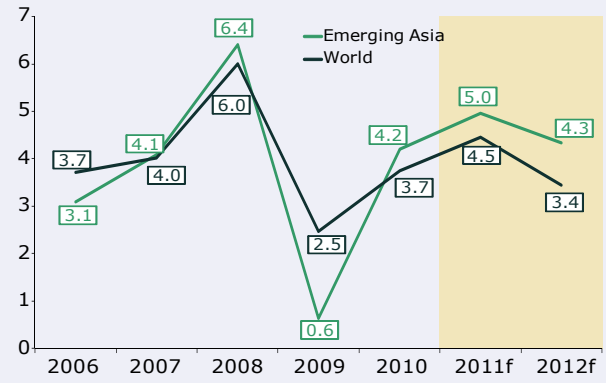


Figure 1.1b: Inflation—Emerging Asia and World (year-on-year, %)



f = forecast, GDP = gross domestic product.
Notes: Emerging Asia includes People's Republic of China; Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Taipei,China; Thailand; and Viet Nam. 2011 and 2012 figures are estimates.
Source: ADB Office of Regional Economic Integration using data from *Asia Economic Monitor July 2011,* ADB; *World Economic Outlook Database April 2011* and *World Economic Outlook Update June 2011*, International Monetary Fund.

The pattern of anemic growth in advanced economies will likely continue beyond 2011—even as Japan's reconstruction efforts boost its economy and authorities struggle to deal with Europe's bailout negotiations and the US debt limit.

Leading indicators suggest a slowdown in economic activity in advanced economies, at least in the short run **(Figures 1.2a-1.2d)**. The devastating effects of the earthquake and tsunami in Japan on 11 March, followed by the nuclear crisis, are having visible effects on industrial production in many advanced economies due to disruptions in the supply chain. A recovery in business confidence and capital spending has also stalled. The setback is likely to be temporary, however, as reconstruction activity in Japan is expected to boost industrial production, and generally low inventory levels elsewhere suggest a pending rebound in business investment. A recent surge in new orders for durable goods also signals a turnaround in business and consumer spending. In contrast, more structural problems—such as lingering housing concerns and sluggish job growth in the United States, and growing fiscal challenges in Europe—are likely to keep a lid on growth for some time to come. Core inflation remains subdued despite a rise in headline inflation, reflecting large output gaps.

[1] International Monetary Fund. World Economic Outlook Update June 2011. Available at http://www.imf.org/external/pubs/ft/weo/2011/update/02/index.htm#tbl1

Figure 1.2a: Industrial Production Growth[a]—G3 Economies (year-on-year, %)

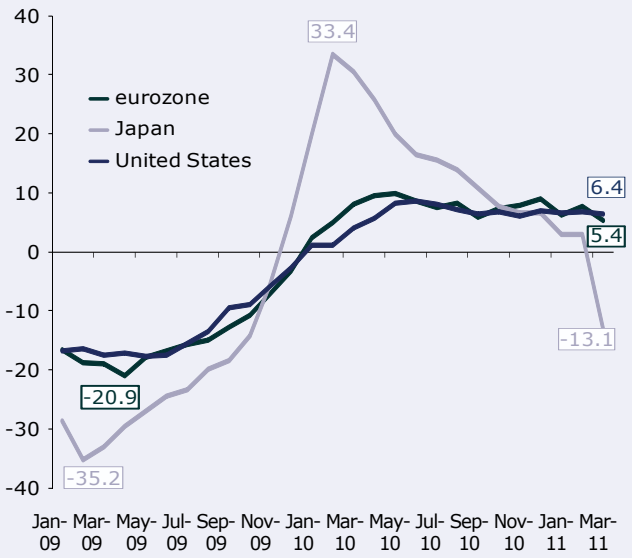


Figure 1.2b: Manufacturing New Orders—Advanced Economies (year-on-year, %)

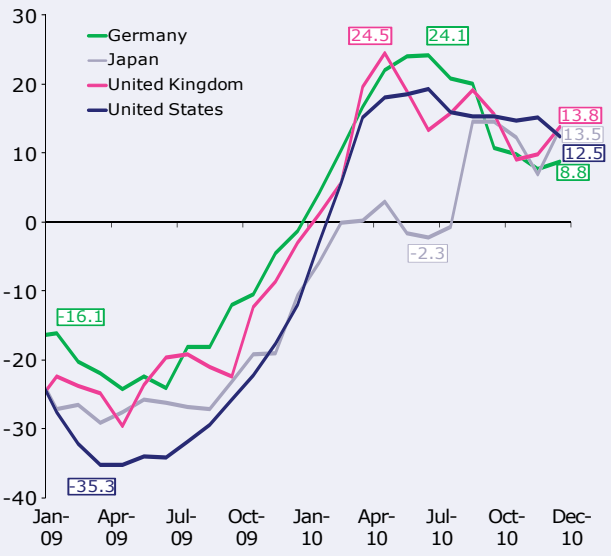


Figure 1.2c: Business Confidence Indexes[b]—G3 Economies

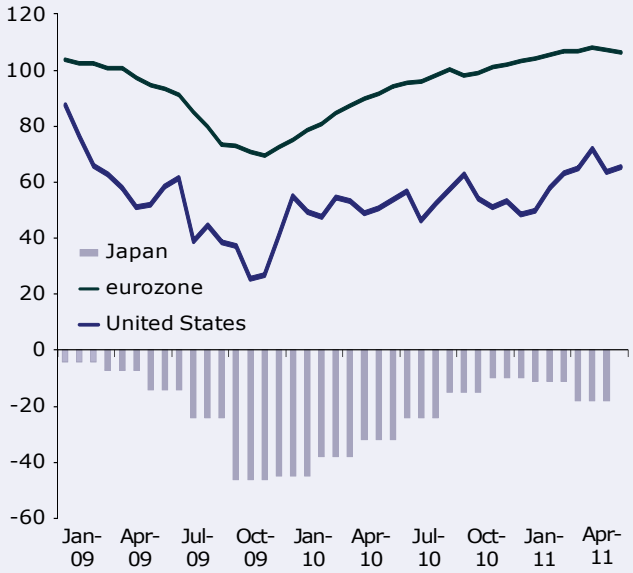
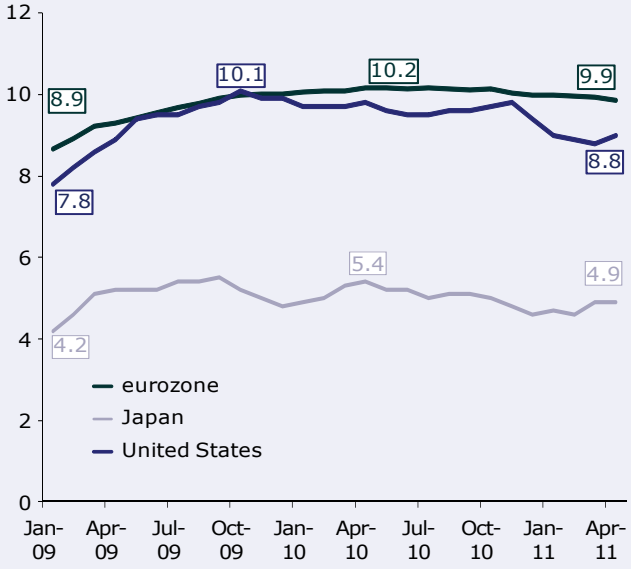


Figure 1.2d: Unemployment Rate—G3 Economies (%)



[a] Values for eurozone refer to industrial production in 16 eurozone countries (excluding construction). Data for Japan include manufacturing, mining, electricity, and gas.

[b] For the United States (Institute for Supply Management Business Confidence Index), a reading of more than 50 reflects more positive than negative responses. For Japan (Tankan Survey All Enterprises), a positive figure indicates there is a higher percentage of companies reporting favorable business conditions than those saying conditions are unfavorable. For the eurozone (Economic Sentiment Indicator), the indicator is a composite index of business and consumer confidence indicators based on surveys of economic assessments and expectations in the eurozone.

Sources: CEIC database, European Central Bank, Japan Ministry of Information and Communication, and United States Bureau of Labor Statistics, Datastream; 2010 and 2011 data for Japan obtained online from Tankan Short Term Economic Survey of Enterprises in Japan, available at http://www.boj.or.jp/en/statistics/tk/zenyo/2006/all1012.htm/

Strong growth in emerging Asia should moderate as monetary tightening to fight inflation takes hold.

Growth in emerging Asia has proved to be a major engine of the global economic recovery and growth **(Figures 1.3a–1.3c)**. The PRC and India, with combined average GDP growth of 9.5% in 2010, made the most contribution to growth in Asia. Yet growth was broadly based, with the newly industrialized economies (NIEs) of the Republic of Korea; Hong Kong, China; Singapore; and Taipei,China recording aggregate growth of 8.2% in a strong rebound from a 0.7% contraction during 2009, while GDP growth in the Association of Southeast Asian Nations (ASEAN)-5 countries—Indonesia, Malaysia, the Philippines, Thailand, and Viet Nam—was 6.9%, up from 1.6% in 2009. With many economies in the region reaching full capacity, however, there are signs of overheating, including rising real and financial asset prices and inflation. Across the region inflation has climbed higher. Unlike advanced economies, where slack demand is keeping core inflation at bay, emerging Asian economies see core inflation accelerating on rising demand pressure. This has prompted governments to wind down fiscal stimulus and pushed monetary authorities to be less accommodating. Emerging Asian economies are expected to make a transition towards a moderated and yet more sustainable growth path. Growth prospects remain sound as a broad-based recovery is increasingly driven by strong domestic demand, while growing intraregional trade props up the region's export industries **(Figures 1.4a–1.4d)**.

Financial volatility has returned to the global marketplace amid renewed uncertainty over the strength of the global economy, spreading social unrest in the Middle East, and deepening fiscal concerns in Europe.

Global financial markets have been in a phase of correction and volatility since early March 2011 **(Figures 1.5a–1.5d)**. Various factors are at play here. The recovery—which gained ground through 2010 until early 2011 on the back of vibrant domestic

Figure 1.3a: GDP Growth—Emerging Asia
(year-on-year, %)

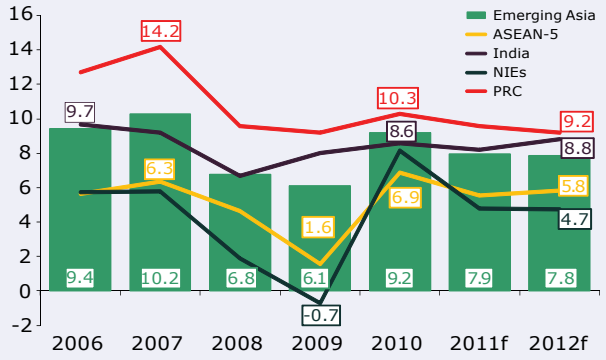


Figure 1.3b: Headline Inflation—Emerging Asia
(year-on-year, %)

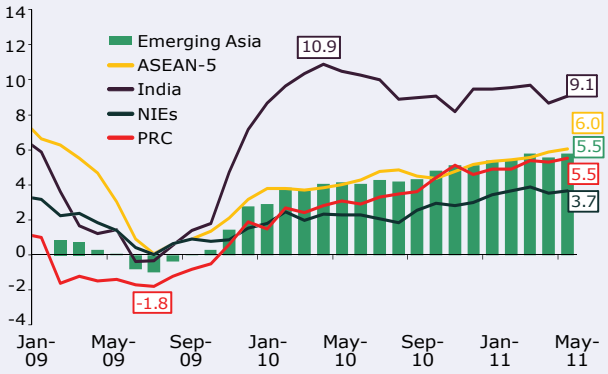
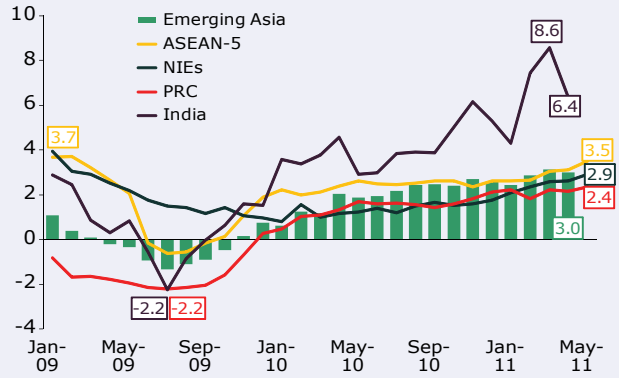


Figure 1.3c: Core Inflation—Emerging Asia
(year-on-year, %)



ASEAN = Association of Southeast Asian Nations, PRC = People's Republic of China, GDP = gross domestic product, NIE = newly industrialized economy.
Notes: Emerging Asia includes People's Republic of China; Hong Kong, China; India; Indonesia; Republic of Korea; Philippines; Singapore; Taipei,China; Thailand; and Viet Nam. ASEAN-5 consists of Indonesia, Malaysia, Philippines, Thailand, and Viet Nam. NIEs consists of Hong Kong, China; Republic of Korea; Singapore; and Taipei,China. Real GDP growth rates are weighted according to each country's gross national income share in a given country group. 2011 and 2012 figures are estimates. Core inflation data for Indonesia are not available.
Source: ADB Office of Regional Economic Integration using data from *Asia Economic Monitor July 2011*, ADB; *World Economic Outlook Database April 2011* and *World Economic Outlook Update June 2011*, International Monetary Fund

Figure 1.4a: Merchandise Export Growth[a]—Emerging Asia, India, and the PRC
(year-on-year, %)

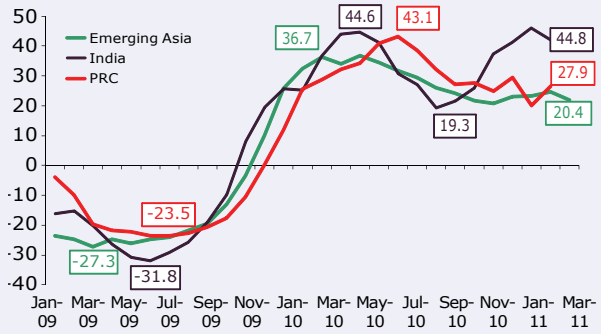


Figure 1.4b: Industrial Production Growth[b]—Emerging Asia, India, and the PRC
(year-on-year, %)

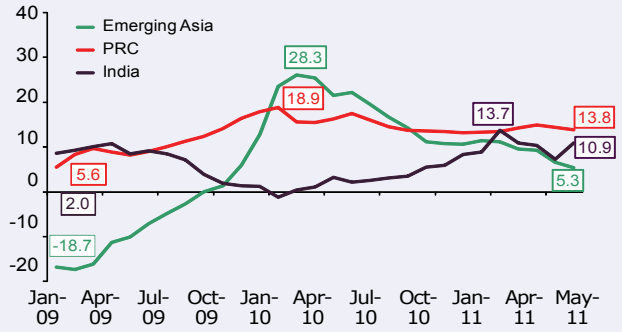


Figure 1.4c: Gross Domestic Investment Growth[c]—Emerging Asia (year-on-year, %)

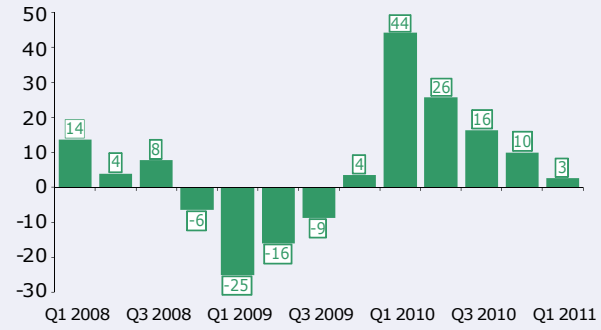
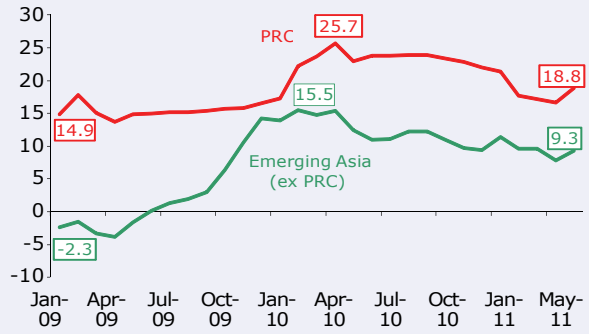


Figure 1.4d: Retail Sales Index Growth[d]—Emerging Asia and the PRC (year-on-year, %)



PRC = People's Republic of China.
[a] Emerging Asia includes Hong Kong, China; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Taipei,China; Thailand; and Viet Nam. Data refer to 3-month moving average of the US dollar value of exports.
[b] Emerging Asia includes Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Taipei,China; and Thailand. Data refer to 3-month moving average index.
[c] Emerging Asia includes Hong Kong, China; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; and Taipei,China.
[d] Emerging Asia includes Hong Kong, China; Indonesia; Republic of Korea; Philippines; Singapore; Taipei,China; Thailand; and Viet Nam.
Source: ADB Office of Regional Economic Integration using data from CEIC database.

demand in developing countries—has hit some unexpected bumps in the road, notably political turmoil in the Middle East and North Africa and the tsunami and nuclear disaster in Japan. Heightened oil and commodity prices have raised the specter of high global inflation, inviting monetary tightening in emerging and developing economies where output gaps have already closed or are closing rapidly. The eurozone's inability to contain the Greek debt crisis adds to investor concerns about potentially serious financial turmoil and its impact on the fragile recovery. With a deteriorating near-term outlook, increased uncertainty affects investor sentiment and reinforces market volatility.

Government bond yields in major advanced economies have declined due to widespread "flight to safety."

The uncertainty surrounding the near-term growth outlook has tempered inflationary expectations in major advanced economies. Long-term bond yields, which had crept up on rising inflationary expectation in the prolonged low interest rate environment, declined sharply in the wake of the March 2011 earthquake and tsunami in Japan **(Figures 1.6a and 1.6b)**. While the immediate impact of the Japanese earthquake on financial markets has receded, slowing economic activity

Figure 1.5a: MSCI Equity Indices[a]—Developed and Emerging Markets (1 Jan 2009 = 100)

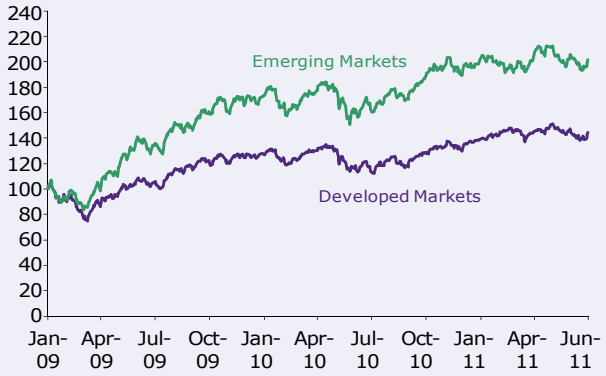


Figure 1.5b: Equity Price Volatility[b]

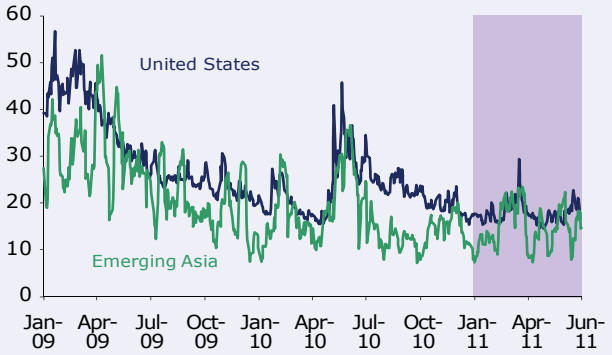


Figure 1.5c: Sovereign Credit Default Swaps—Selected European Economies (basis points)

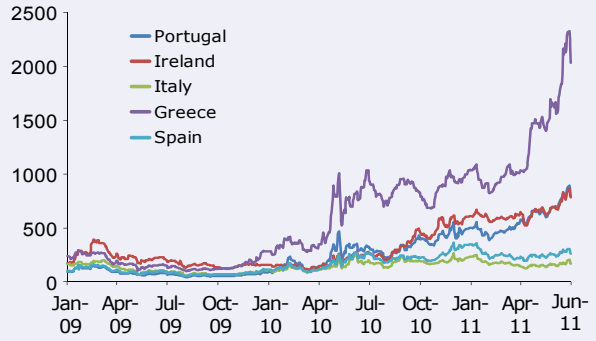
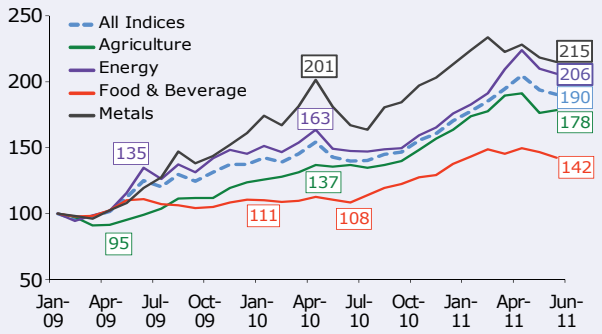
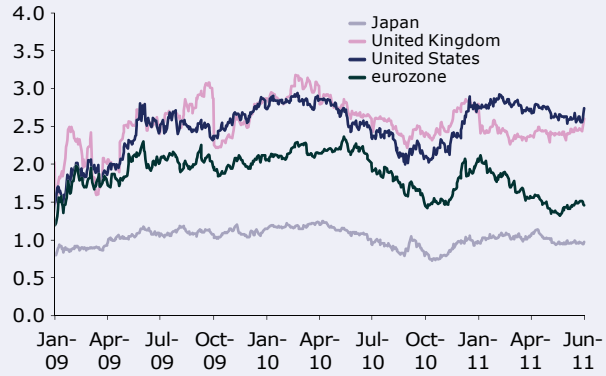


Figure 1.5d: Primary Commodity Price Indexes (Jan 2009 = 100)



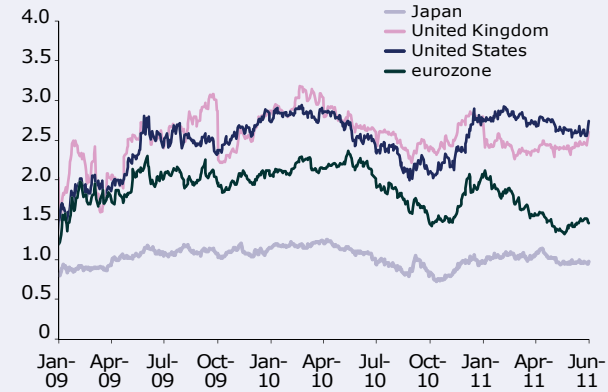
MSCI = Morgan Stanley Capital International.
[a] MSCI World Index includes 23 developed markets. MSCI Emerging Market Index includes 22 emerging markets.
[b] The United States data refer to the implied volatility for options on the Standard and Poors (S&P) 500 Index. Emerging Asia data refer to 10-day price volatility based on MSCI All Country Asia ex-Japan Index, a free-float weighted equity index.
Source: ADB Office of Regional Economic Integration using data from MSCI; Bloomberg; Datastream; and *Primary Commodity Prices*, International Monetary Fund.

Figure 1.6a: 10-Year Government Bond Yields (% per annum)



Source: Datastream.

Figure 1.6b: 10-Year and 2-Year Government Bond Yield Spreads (% per annum)



has rekindled concerns about the pace and strength of the recovery, and these concerns underpin the flight to safety. The fragility of the economic conditions is altering market expectation for the timing of monetary policy tightening, i.e., it is expected later rather than sooner. The combined effect of the weaker recovery outlook and delayed monetary tightening is reinforcing the downward trend in long-term government bond yields. The yield curves also flatten, limiting room for profitability in the banking and finance sector.

The diverging growth and inflation outlooks between emerging markets and advanced economies mean associated monetary and fiscal policies are diverging as well.

The diverging prospects for growth and inflation in emerging Asia are shaping monetary policy actions that are completely different from those in major advanced economies. Authorities have begun tightening monetary policy across the region **(Figures 1.7a-1.7c)**. Asian local currency

Figure 1.7a: Policy Rates[a]—PRC and India
(% per annum)

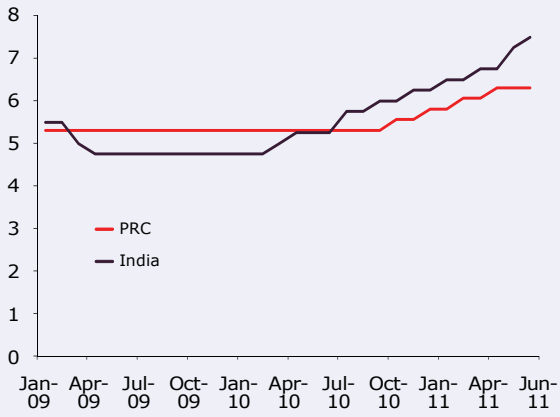


Figure 1.7b: Policy Rates[b]—ASEAN-5 (% per annum)

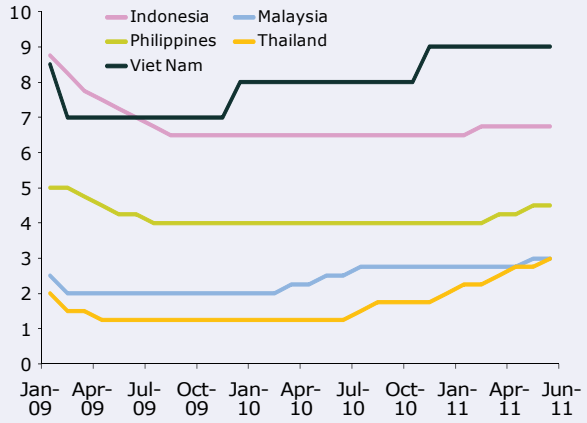
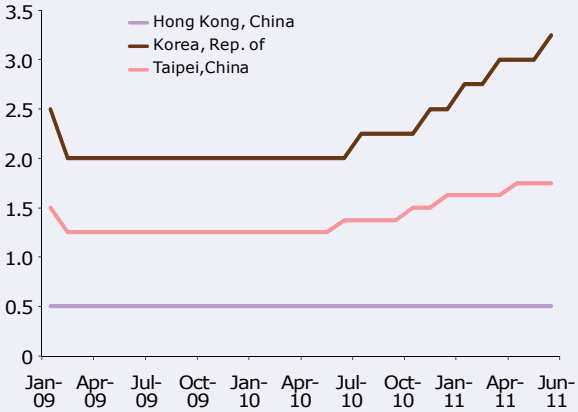


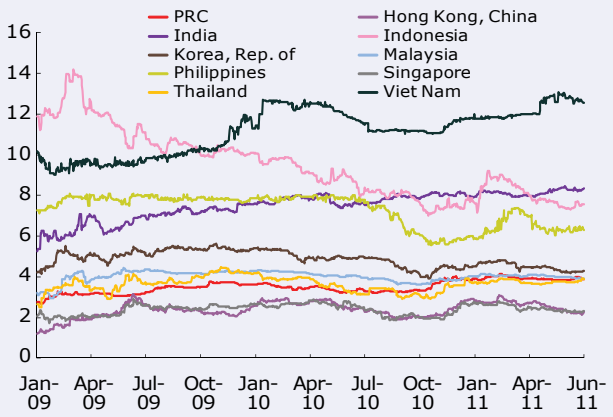
Figure 1.7c: Policy Rates[c]—NIEs (% per annum)



ASEAN = Association of Southeast Asian Nations, PRC = People's Republic of China, NIE = newly industrialized economy.
[a] Policy rate refers to the 6-month-to-1-year lending rate for the PRC and the repo rate for India.
[b] Policy rate refers to Bank of Indonesia rate for Indonesia, overnight policy rate for Malaysia, reverse repo rate for the Philippines, bilateral reverse repo rate for Thailand, and base rate for Viet Nam.
[c] Policy rate refers to discount rate for Hong Kong, China; base rate for the Republic of Korea; and base rate for Taipei,China.
Sources: Bloomberg and Datastream.

bond yields have also generally declined in recent months as investors shift from stocks to bonds, in line with the global trend of seeking safer assets on heightened concerns of spillover effects of the European fiscal woes **(Figure 1.8)**. However, different inflationary developments and monetary responses have allowed significant variations in the extent of the yield movements across the region since the last quarter of 2010 **(see Bond Markets chapter)**. The yield curves show that most economies in the region were behind the curve in their fight against inflation during the last quarter of 2010, i.e., long-term yields increased much faster than short-term yields and hence steepened the yield curves. As many economies tighten their monetary policies, the yield curves flatten, with the short end rising in the first half of 2011.

Figure 1.8: 10-Year Government Bond Yields—Emerging Asia (% per annum)



PRC = People's Republic of China.
Source: Bloomberg.

External funding conditions for emerging Asia remain favorable given its relatively strong growth prospects; the low interest rate environment in mature markets continues to push investors to search for yield in emerging market debt.

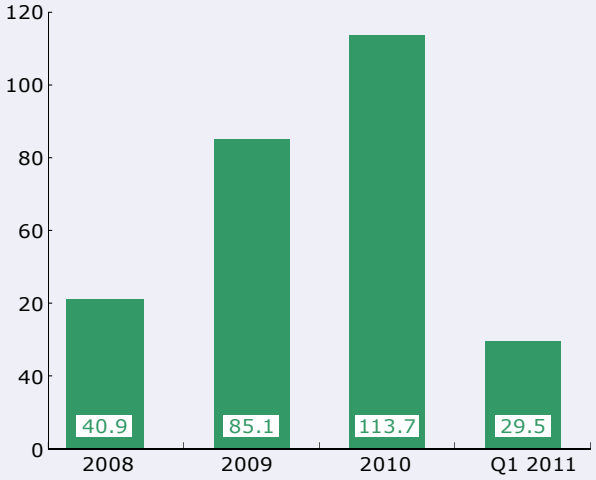
Low interest rates in advanced economies have encouraged investors to move into emerging market assets in search of yields. Emerging Asia borrowers have issued US$29.5 billion in G3 currency-denominated bonds in the first quarter, up from US$24.5 billion during the same period in 2010 **(Figure 1.9)**. Sovereign debt issuance in 2010 accounted for 55.3% of total overseas bond issuance **(Table 1.1)**.[2] Improving market liquidity and a decline in bankruptcies make emerging Asian corporate bonds more attractive. Credit spreads on emerging Asia's sovereign and corporate bonds have picked up since March 2011 amid renewed market jitters about the debt crisis in the European peripheries and slowing global economic activity **(Figure 1.10)**. Even as fears over sovereign defaults in Greece spread, however, international demand for sovereign debts of emerging Asian economies exhibited remarkable resilience on the back of their comparatively sound fiscal position and positive growth prospects. For example, the increased spread offered by emerging Asian bonds is much smaller than that of other emerging market bonds. Total international equity issuance by emerging Asian economies in 2010 was US$147.8 billion compared with US$99.6 billion a year ago **(Figure 1.11)**.

Strong economic fundamentals support emerging Asia's equity markets following a wave of market corrections.

Emerging Asia's equity markets sustained their recovery in 2010, fuelled by strong economic numbers and growth in corporate top lines, earnings, and cash flows. During the year, the PRC, which leads emerging Asia's growth performance, overtook Japan as the second-largest economy in the world, next to the United States (US). A spillover of liquidity from the major advanced economies' loose monetary stance (a consequence of their policy makers' attempts to accelerate their economic recovery and the continued lack

[2] Sovereign debt issuance (US$62.9 billion) is represented by emerging Asia country entries in International Debt Securities—Governments (Table 12.d) of the Bank for International Settlements BIS Quarterly Review June 2011 Statistical Appendix. Total overseas borrowing (US$113.7 billion) refers to G3 currency denominated bonds issued by emerging Asia countries in 2010.

Figure 1.9: G3 Currency Bond Issuance—Emerging Asia (US$ billion)



Notes: G3 currencies are the euro, Japanese yen, and United States (US) dollar. Emerging Asia includes the People's Republic of China; Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Thailand; and Viet Nam.
Sources: ADB *AsianBondsOnline* and Bloomberg.

Figure 1.10: Bond Spreads—Emerging Asia (basis points)

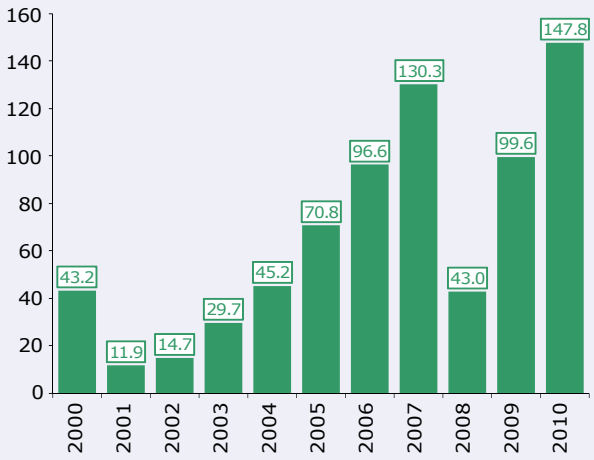
Note: Data refer to JP Morgan EMBI (Emerging Market Bond Index) Asia corporate and sovereign stripped (spread cover corresponding United States zero coupon rate).
Source: Bloomberg.

Table 1.1 Sovereign Debt and Total Overseas Bond Issuance—Emerging Asia, 2010

Economy	Sovereign Debt Issuance[1] (US$ billion)	Total Overseas Bond Issuance[2] (US$ billion)
People's Republic of China	5.8	24.8
Hong Kong, China	1.4	19.2
India	0.0	16.9
Indonesia	18.0	6.8
Republic of Korea	7.1	28.3
Malaysia	3.0	2.0
Philippines	26.9	8.1
Singapore	0.0	4.3
Thailand	0.7	2.4
Vietnam	—	1.0
Emerging Asia	**62.9**	**113.7**

– = data not available, BIS = Bank for International Settlements.
Notes:
[1]Sovereign debt issuance refers to the amount outstanding of international debt securities, Table 12.d of the BIS Quarterly Review, June 2011.
[2]Total overseas bond issuance is represented by total G3 Bond issuance; i.e., bonds issued in euro, Japanese yen, and US dollar.
Sources: ADB *AsianBondsOnline*; *BIS Quarterly Review, June 2011*, Bank for International Settlements.

Figure 1.11: International Equity Issuance—Emerging Asia (US$ billion)



PRC = People's Republic of China, US = United States , YTD = year-to-date.
Notes: Equity issuance refers to announced issues; those that involve a combination of domestic and international tranches are considered in total as international issues. Emerging Asia includes People's Republic of China; Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Taipei,China; and Thailand.
Source: Bank for International Settlements.

of attractive yields in their markets) also helped underpin the rally in stock prices in emerging markets. Notably, the two-speed global recovery, combined with divergent monetary policies, spurred capital flows to emerging Asian economies, supporting the regional equity markets' strong momentum for the second successive year since the September 2008 Lehman Brothers bankruptcy. Emerging Asia's equity markets consolidated their gains in the first half of 2011 as authorities tackled rising inflation pressures with interest rate hikes and tighter fiscal budgets. Investors have also become more conservative following the natural calamities that hit Japan, the further deterioration in the Greek sovereign debt situation, and the political unrest across the Middle East.

Financial stability and strong if moderating post-recovery growth continue to give Asian local currency bond markets a growing share of the global market.

The emerging Asian local currency (LCY) bond market expanded 14.0% in 2010 to US$6.1 trillion at the end of the year from US$5.1 trillion at the end of 2009. Emerging Asian LCY bonds, as the fastest growing segment of the global LCY bond market, accounted for 9.3% of the global market in 2010. Fears of contagion from the European sovereign debt crisis have dented investor confidence in 2011, while fiscal unwinding to fight inflation has reduced new issuance in the government sector. By the end of Q1 2011, the market had grown only slightly, to US$6.2 trillion. Nevertheless, Asia's corporate bond market has continued to expand robustly, growing more than 20.0% year-on-year over the past 2 years. Reflecting the robust recovery under way in most emerging Asian economies, the strong upward trend is likely to resume in the second half of 2011.

The size and pace of capital flows to emerging Asia has moderated since last year's resurgence, but the region's strong economic growth and widening interest rate gaps with mature markets continue to attract investors.

Private capital flows to emerging Asia were US$500 billion in 2010 and are expected to be around US$480 billion in 2011 and US$450 billion in 2012, according to the Institute of International Finance.[3] Following a dip in late 2008 and early 2009, the strong rebound in capital inflows has been driven by foreign purchases of emerging Asian stocks and a rebound in foreign direct investment flows, particularly into the PRC and India. Recent developments—the Japanese earthquake and resurfacing Greek debt crisis—have slowed capital flows to emerging market economies. The prospect of a modest slowdown combined with monetary tightening in emerging Asia is also tempering the pace and magnitude of capital flows to the region. Despite the near-term slowdown, the outlook for capital flows to the region remains bullish on its sound economic fundamentals, widening interest rate gaps, and strong global liquidity conditions.

While the return of capital flows to emerging Asia is welcome, today's dramatic increase in capital inflows, especially driven by short-term flows, may well presage tomorrow's large outflows.

Financial crises are vivid examples of the risk of unbridled capital flows. Booms and sudden stops in capital flows have been an important characteristic of past crises in many emerging market economies, such as seen in Mexico in 1995, Turkey in 1994, and the Asian financial crisis in 1997–1998. The links between capital flows, credit expansion (lending booms with capital account liberalization), and adverse macroeconomic consequences are not new to emerging Asia. A surge in capital inflows could also complicate macroeconomic management

[3] Institute of International Finance (IIF). 2011. Capital Flows to Emerging Market Economies. IIF Research Note. June. Available at http://www.iif.com/press/press+190.php

and threaten financial stability in emerging Asia, especially as many economies already face daunting challenges in keeping inflation in check. Concerns about the negative consequences of unfettered capital flows have prompted many economies in emerging Asia to introduce measures to control the pace and composition of capital flows **(Table 1.2)**.

Table 1.2 Capital Flow Management Measures by Economy—Emerging Asia (June 2000–June 2011)

Economy	Measures
People's Republic of China (PRC)	• December 2003: Only licensed banks allowed to take renminbi deposits onshore. Ratio of liquid assets to short-term liabilities must be greater than 25% for both foreign and local currency businesses on a daily basis. Loan–deposit ratio cannot be higher than 75%. For foreign currency businesses, the ratio of domestic customer deposits to assets in the PRC (both denominated in foreign currency) must be less than 70%, monthly. • August 2005: No entities outside the PRC allowed to participate in trading of renminbi. Corporations registered in the PRC cannot buy or sell foreign currency offshore. • October 2005: Resident borrowing from abroad must be approved by, and registered with, Framework of Standards to Secure and Facilitate global trade (SAFE). • October 2009: Resumed quotas allowing domestic investors to put money into overseas markets. • October 2010: Announced $1.5 billion in new quotas for PRC funds to be invested in overseas assets. • November 2010: Strengthened oversight of fund repatriation by PRC companies listed overseas, and of inbound investment by offshore investors. Imposed a floor on the size of foreign exchange positions that banks operating in the PRC are required to hold overnight. Expanded a program that allows individuals to exchange up to $5,000 per day with nonfinancial institutions. • December 2010: Tightened scrutiny over foreign property investment and prohibited foreign-funded developers from engaging in buying and selling of real estate. • January 2011: Pledged to continue efforts to crack down on "hot money" inflows and step up monitoring of cross-border capital flows. Allowed commercial banks and enterprises located in pilot areas to conduct renminbi settlement for outward direct investment business. • February 2011: Allowed the launch of RMB-FOREX options trading on the interbank foreign exchange market. Implemented differentiated reserve requirements for local financial institutions with legal person status that had relatively low capital adequacy ratios but saw rapid credit increase.
Hong Kong, China	• June 2010: Opened channels for renminbi funds and financial institutions in Hong Kong, China to invest in the PRC. Expanded the list of PRC provinces and cities covered by the renminbi trade settlement scheme introduced in July 2009. • July 2010: Discarded the range of restrictions on renminbi-denominated financial activity. • October 2010: Temporarily removed real estate from the list of investment classes and raised the investment requirement for residency to HK$10 million. • December 2010: Activated currency swap with the People's Bank of China (PBOC) to provide CNY20 billion for cross-border renminbi trade settlements and ensure stable supply of renminbi.
India	• June 2000: Foreign Exchange Management Act, 1999 came into force with effect from 1 June 2000. This provided for the following: Onshore foreign exchange contracts including forwards and derivatives open only to resident entities; exception is foreign institutional investors (FIIs), who are given limited access to forward contracts. Only authorized dealers allowed to offer foreign currency Indian rupee options. Currency swaps not involving Indian rupees open only to resident entities having foreign currency borrowings. Except for FIIs, nonresidents not allowed access to government bonds. Except for nonresident Indians, nonresidents not allowed access to Indian rupee deposits. Nonresident Indians may borrow locally but the money may not be remitted overseas. • December 2010: Reserve Bank of India issued guidelines on over-the-counter foreign exchange derivatives and overseas hedging of commodity price and freight risks, effective 1 February 2011.
Indonesia	• January 2001: Without supporting documents, onshore banks prohibited from lending rupiah offshore, and offshore accounts not allowed to be in overdraft. Prohibited rupiah transfer to offshore entities, unless supported by underlying transactions, which are in turn supported by investment activities in Indonesia. Purchases of foreign currency against rupiah must not be for speculative purposes. Clients required to declare they will not purchase more than $100,000 equivalent of foreign currency in Indonesia. Documentation required for foreign currency purchases exceeding $100,000. • June 2010: Bank Indonesia imposed minimum 1-month holding period for Bank Indonesia certificates. Revised regulations on banks' foreign exchange net open positions (NOPs) by abolishing the on balance sheet NOP limit while maintaining the overall NOP limit, and relaxing real-time compliance on NOP limit to 30 minutes window time. • April 2011: Bank Indonesia decided to replace the 1-month holding period for Bank Indonesia certificates with a 6-month holding period, effective from 13 May 2011, to minimize the negative impact from short-term capital inflows on monetary and financial system stability.

continued on next page

Table 1.2 continued

Economy	Measures
Republic of Korea	• November 2009: Banks required to hold at least 2% of their total foreign assets in foreign treasury bonds rated A or above, or set aside a certain amount of safe foreign assets, such as treasuries, in proportion to the value of liabilities maturing within a year. Local banks and branches of foreign banks are not allowed to trade foreign exchange forwards worth more than 125% of the value of exports. Banks should classify foreign assets depending on how fast banks are able to cash them in. Banks should raise the ratio of their long-term foreign exchange funding to long-term foreign exchange lending to 90% from the current 80%. • June 2010: Use of foreign currency bank loans enforced on corporations, and underlying transactions for forward contracts of banks with exporters reduced to 100% from 125%. Resident banks' foreign currency loans and held-to-maturity securities with at least 1-year maturity to be covered by at least 100% of foreign currency borrowing with maturity of more than 1 year. Tightened regulations on foreign currency liquidity ratio and on the ratio of mid- to long-term financing for domestic banks. Headquarters for monitoring capital flows established within the Korea Center for International Finance. • July 2010: Foreign currency financing restricted to overseas use, with some exceptions for small and medium-sized manufacturers. • October 2010: Regulators imposed further limits on banks' forward currency trading where the ceiling on resident banks' foreign currency derivatives contracts is set at 50% of capital in the previous month, and for foreign bank branches the ceiling is 250%. • January 2011: Re-introduced a 14% withholding tax on nonresidents' purchases of treasury and monetary stabilization bonds and 20% capital gains taxes on foreign purchases of government bonds. • April 2011: Legislated macroprudential stability levy to be imposed beginning in August 2011. Tax rates for nondeposit foreign currency liabilities will be 20 basis points for less than 1 year foreign liabilities, 10 basis points for 1–3 year liabilities, 5 basis points for 3–5 year liabilities, and 2 basis points for more than 5 year liabilities. Local banks will be given 50% tax reduction on their nondeposit foreign currency liabilities, and less than 100 basis points of additional tax will be imposed in case of an unexpected increase in market volatility and foreign capital inflows. • May 2011: Effective July 2011, the ceiling on the foreign exchange forward position by local branches of foreign banks will be cut to 200% of their capital from 250%, while the ceiling for domestic banks will drop to 40% from 50%.
Malaysia	• May 2008: For cross-border intercompany lending, a resident company is free to obtain any amount in foreign currency from nonresident companies. Resident company borrowing from nonresident banking institutions, however, still subject to ceiling of RM100 million (trade financing capped at RM5 million equivalent). Ringgit credit facilities from nonresident banking institutions are still not permissible. A resident company or individual is free to lend any amount of ringgit to nonresident nonbank companies or individuals to finance activities in the real sector in Malaysia (previously only up to RM10,000), and a licensed onshore bank is free to lend any amount of ringgit to nonresident nonbank companies or individuals to finance activities in the real sector in Malaysia. Nonresident external accounts with onshore financial institutions are permitted. • January 2010: All resident and nonresident participants undertaking commodity *murabahah*[a] through resident commodity trading service providers are allowed to make payment in foreign currency between resident participants and in ringgit onshore between resident and nonresident participants. • April 2010: Resident futures brokers are allowed to make payments to nonresidents for foreign-currency-denominated derivatives transacted on specified overseas exchanges. Further, residents are allowed to transact foreign-currency-denominated derivatives on the specified overseas exchanges only through resident futures brokers. • August 2010: Liberalized administrative rules on foreign exchange transactions: Resident may settle international trade in goods and services with a nonresident in ringgit or in foreign currencies. Resident company may borrow any amount in foreign currency from its nonresident nonbank related company, in addition to its nonresident nonbank parent company. Limit on anticipatory hedging for current account transactions with licensed onshore banks is also abolished.
Philippines	• December 2007: The purchase of foreign exchange for outward investments is allowed up to a maximum of US$30 million without prior approval. Nonresidents are not allowed to access the onshore short-term money market, borrow pesos from onshore banks, and maintain peso deposits onshore unless the deposit is funded by an inward remittance of foreign exchange. • October 2010: Raised from US$30,000 to US$60,000 the ceiling on over-the-counter foreign exchange purchases by residents. Raised from US$200 to US$5,000 the amount departing nonresident tourists may reconvert without proof of sale of foreign exchange. Raised to US$100,000 and up to US$1 million the amount of foreign exchange that residents may purchase to cover advance payment requirements for import transactions. Allowed prepayment of Central Bank of the Philippines (BSP)-registered foreign and/or foreign currency loans, without prior approval. Increased from US$30 million to US$60 million per investor per year the amount that residents may purchase from authorized agent banks for outward investments and/or investments in Republic of the Philippines bonds and other Philippine debt papers issued offshore. Extended the period for inward remittance and conversion to pesos and/or reinvestment of proceeds and related earnings on outward investments of residents from 2–7 banking days to 30 banking days from receipt of funds abroad. • January 2011: BSP allowed regular banking units of thrift banks to invest in readily marketable foreign-currency-denominated debt securities, other than Philippine debt papers restructured during the period of moratorium in the payment of external debt.
Taipei,China	• November 2009: Banned foreign funds from investing in time deposits. • August 2010: Taipei,China's central bank put in place reporting system to track large foreign exchange transactions. • November 2010: Foreign investors barred from holding more than 30% of their funds in local government bonds and money market products with maturities of 1 year or less.

continued on next page

Table 1.2 continued

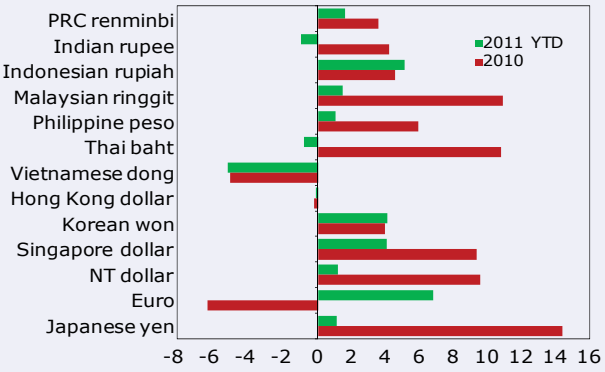
Economy	Measures
Taipei,China	• December 2010: NT dollar[b] demand deposits placed by overseas Chinese, foreign, and PRC area investors subject to a 90% reserve requirement ratio on amount exceeding the outstanding balance recorded on 30 December 2010; a 25% ratio applied to the portion below said level; and zero remuneration rate applied to funds from the aforesaid deposits on banks' B reserve accounts held with the central bank. Adopted a managed float exchange rate regime. • January 2011: Issued new guidelines on foreign exchange settlements for local banks.
Thailand	• December 2003: Introduced measures to curb speculation pressure on baht, including a ban on nonresidents lending more than US$50 million onshore, allowing current and savings accounts for settlement purposes only with a cap at B300 million per nonresident, and no interest paid on deposits of less than 6-months tenor. • December 2007: Imposed 30% Unremunerated Reserve Requirement on all new inflows. • February 2010: Expanded the investment allocation under supervision of the Securities and Exchange Commission from US$30 billion to US$50 billion. Allowed importers and exporters to engage in foreign exchange hedging transactions. Relaxed regulations on corporate treasury centers. Increased the limit for purchase of immovable properties abroad from US$5 million to US$10 million per year, and raised lending to nonaffiliated companies abroad to US$50 million. • October 2010: Increased the amount exporters can keep in overseas bank accounts. Allowed exporters to settle payments with local companies in foreign currency terms. Increased from US$20,000 to US$50,000 threshold amount for which foreign exchange transaction form must be submitted. Reinstated 15% tax on capital gains and interest earned by foreigners from purchases of Thai bonds. Required brokerages to submit daily reports on foreign clients' outstanding cash assets.
Viet Nam	• December 2006: Only residents (central bank, commercial banks, economic entities, and individuals) are allowed to transact foreign exchange forwards and options. Nonresident offshore companies are allowed to open foreign currency accounts but not dong accounts. • January 2010: Lowered to 4% the reserve requirement for foreign currency deposits of less than 12 months, and to 2% the reserve requirement for foreign currency deposits of between 12 months and less than 24 months. • February 2010: Capped at 1% the maximum interest on corporate dollar deposits. • June 2010: Released guidelines on foreign currency lending to commercial banks to ensure that the outstanding of foreign currency loans (including various forms of investment and deposits) is smaller than the foreign currency mobilization. • October 2010: Required credit institutions to submit monthly reports on foreign-currency-denominated loans and investment as well as the sources of repayments. • April 2011: Imposed interest rate cap of 3% on dollar deposits for individuals and 1% on dollar deposits for non-credit institutions. Increased banks' foreign currency reserve requirements and restricted trading of gold bars. • June 2011: Increased the reserve requirement on dollar deposits by 1 percentage point to a range of 4%–7%.

[a] Murabahah is an Islamic term for sale. Its only difference from other kinds of sale is that the seller tells the purchaser the exact cost of the commodity and how much profit the seller will charge in addition to the cost (http://www.accountancy.com.pk/docs/islam_murabahah.pdf).
[b] NT dollar is the currency of Taipei,China.
Sources: News articles and government press releases; *Capital Markets Monitor, January 2011*; Institute of International Finance; N. Magud, C.Reinhart and K. Rogoff. Capital Controls: Myth and Reality—A Portfolio Balance Approach. Working Paper no. 11-7. Peterson Institute for International Economics; Reuters. 2009. FACTBOX: Capital Control Measures in Asia. Available at (http://in.reuters.com/article/2009/11/20/capital-control-south-korea-idINLK62458320091120).

Sustained recoveries in trade and investment flows, lured by growth and interest rate differentials, push emerging Asian currencies higher on a broad front.

In 2010, emerging Asian currencies logged their biggest gains since 2006 as strong economic growth and rising interest rates attracted foreign capital **(Figure 1.12)**. Strong rebounds in merchandise exports and current accounts took their cue from rising demand from the recovering economies of the US and other developed nations. This trade inflow, plus the expansion in emerging Asia's domestic demand, bolstered the region's economic growth, attracting foreign investment inflows that wanted to take advantage of the growth differential between emerging and developed

Figure 1.12: Change in Exchange Rate versus US dollar (%)



PRC = People's Republic of China, US = United States, YTD = year-to-date.
Notes: Year-to-date figures for 2011 are from 3 January to 30 June. Negative figures indicate depreciation of the local currency versus the US dollar; positive values indicate appreciation of the local currency. NT dollar is the currency of Taipei,China.
Source: ADB Office of Regional Economic Integration using data from Thomson Reuters accessed through Datastream.

economies. Malaysia's ringgit led the gains, advancing 11.0% in 2010, followed by the baht, which gained 10.9%. The pace of appreciation has moderated since late last year as investors began focusing on inflationary developments and their impact on growth in Asia. The PRC's monetary tightening and Greek sovereign debt crisis also decreased the appetite for risk, slowing capital flows to the region. However, generally sound fiscal and external positions in the emerging Asian economies, together with widening interest rate gaps **(Figures 1.13a–1.13d)**, continue to draw capital flows and support currencies in the region. Most of these currencies have strengthened further in the year to date following the impressive gains last year.

Figure 1.13a: Central Government Budget Balances—Emerging Asia and G3, 2010 (% of GDP)

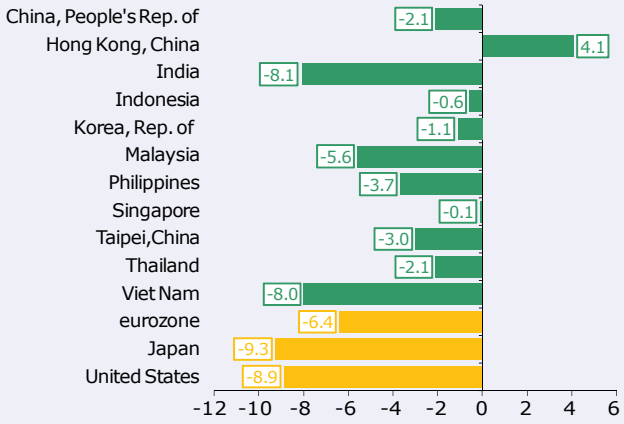


Figure 1.13b: Public Debt[a]—Emerging Asia and G3, 2010 (% of GDP)

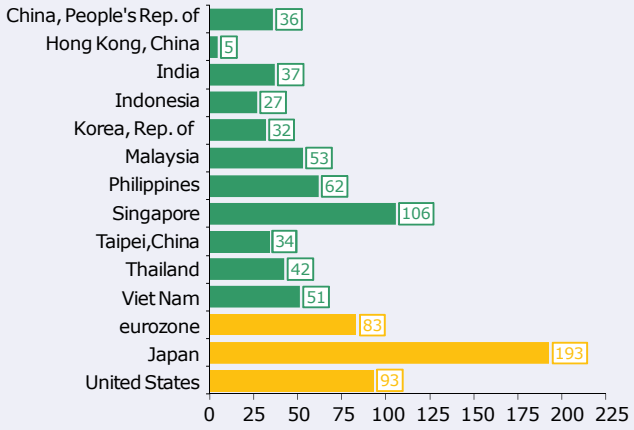


Figure 1.13c: Current Account Balances—Emerging Asia and G3, 2010 (% of GDP)

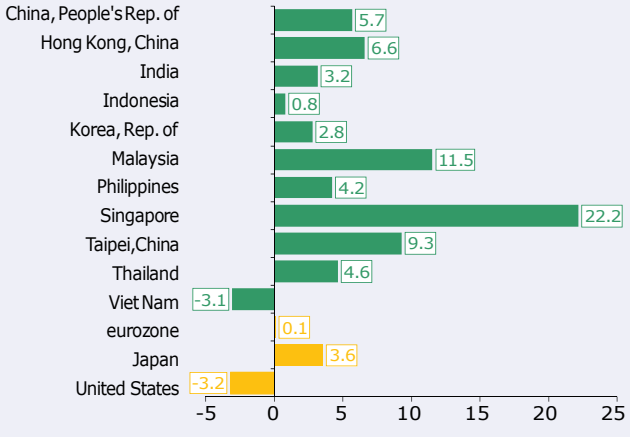
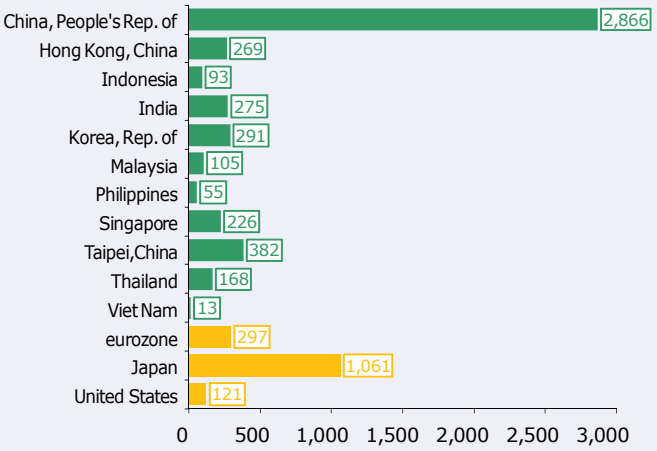


Figure 1.13d: Foreign Reserves[b]—Emerging Asia and G3, 2010 (US$ billion)



GDP = gross domestic product, Q = quarter.

[a] Public debt refers to central government gross debt for the People's Republic of China; government debt outstanding and guaranteed debt for Hong Kong, China; central government public domestic debt for India; central government debt for Indonesia; consolidated central government debt for the Republic of Korea; federal government gross debt for Malaysia; national government debt for the Philippines; government debt for Singapore; central government debt outstanding for Taipei,China; and public sector debt for Thailand and Viet Nam. Figures for the People's Republic of China; Hong Kong, China; and Indonesia are projections. Figure for Viet Nam is an estimate.

[b] Values refer to foreign reserves less gold. Data for Viet Nam as of Q3 2010.

Sources: *Asian Development Outlook 2011,* ADB; CEIC database; International Monetary Fund; Datastream; United States Office of Budget and Management.

However, risks to Asian currencies remain amid heightened market uncertainty which tends to favor major international currencies.

Heightened market uncertainty favors the major international currencies. A series of negative surprises since March 2011 has halted the seeming free-fall of the US dollar. The euro was on a steady upward trend on the back of better-than-expected first quarter growth in the eurozone. The yen, which appreciated strongly through most of 2010, has remained strong to the end of May 2011, despite the negative economic growth in the first quarter. In fact, the yen rose sharply in the wake of the March 2011 earthquake on expectations of repatriation of funds from abroad to help repair the damage wreaked by the natural disaster, estimated at more than US$300 billion by the Government of Japan. The following G7 intervention has seen the yen stabilize at ¥80.8 to the US dollar at the end of May 2011, a slight appreciation from ¥81.2 at the end of 2010. The euro and the yen came off their recent peaks on fears of a worsening Greek debt crisis and slowing global economic growth.

Real effective exchange rates for emerging Asian currencies have stabilized since late 2010 on slowing nominal appreciation, rising inflation, and divergent currency movements of the region's major trading partners.

Reflecting the strong nominal appreciation, emerging Asian currencies generally strengthened in real effective terms in 2010 **(Figure 1.14a-1.14c)**, with the rupiah strengthening the most (by an average of 13.4%), followed by the Indian rupee (11.9%), Korean won (8.8%), and baht (5.7%).[4] However, rising inflation has curbed the pace of real appreciation of emerging Asian currencies since late 2010. Real effective exchange rates for emerging Asian currencies have stabilized; most currencies in the region have depreciated marginally in real effective terms in the year to date. Currency

[4] Average year-on-year growth rate of the real effective exchange rate indices for all the months of 2010.

Figure 1.14.a: REER—PRC and India
(2009 REER = 100)

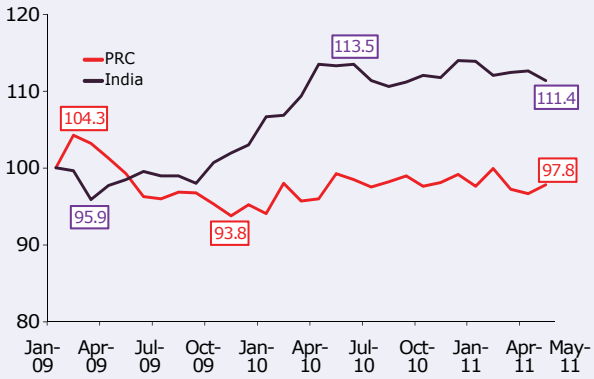


Figure 1.14.b: REER—Indonesia, Malaysia, Philippines, and Thailand (2009 REER = 100)

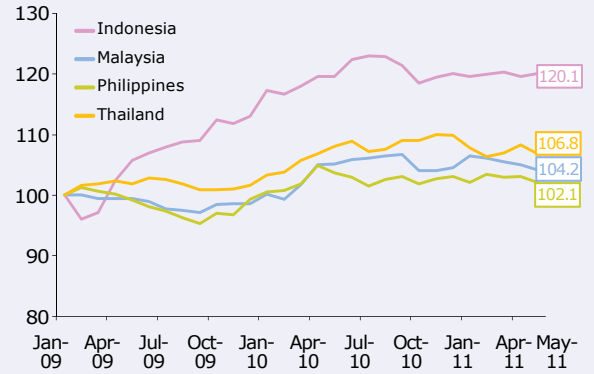
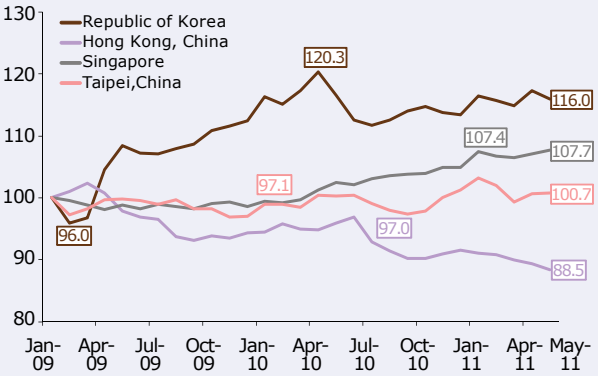


Figure 1.14.c: REER—Hong Kong, China; Republic of Korea; Singapore; and Taipei,China
(2009 REER = 100)



REER = real effective exchange rate; PRC = People's Republic of China
Source: Bank for International Settlements.

volatility has also subsided to the precrisis levels **(Figures 1.15a–1.15c)**. The implied volatility of regional exchange rates has trended steadily downward since the peak reached during May 2010 when fears of a Greek debt default sent a shockwave through emerging market assets and currencies.

Given attractive yields and low volatility, emerging Asian currencies currently offer some of the best risk-adjusted returns.

Emerging Asian currencies provide an attractive investment opportunity. Most Asian currencies would have yielded positive returns between May 2010 and April 2011 **(Figures 1.16a–1.16d)**. The figures show cumulative returns in US dollar terms achieved through rolling a long forward position (at 1-month tenor) in each currency continuously from 2009 through April 2011. The largest gains would have been made by the rupiah and the Indian rupee (yielding returns of 19%). The peso, baht, won, and Singapore dollar also performed strongly, providing handsome returns of 7.5%–9.8%.[5] Further appreciation is likely over the longer term, which will drive future performance.

The overall trend of appreciation is firmly anchored for emerging Asian currencies, despite near-term moderation.

Emerging Asian currencies, supported by strong economic fundamentals and high interest rates, are expected to strengthen further in the longer run. Robust capital flows continue to place upward pressures on exchange rates. With economic recovery secured and interest rates rising fast to combat inflation, real effective exchange rates for emerging Asian currencies are also likely resume their upward trend. Emerging Asian economies have introduced greater currency flexibility in the past few years, however further efforts are necessary to facilitate rebalancing of economies and contain inflationary pressures. The renminbi, which

[5] Average year-on-year growth rate of indices based on 1-month rolling returns for the period January 2010 to April 2011.

Figure 1.15a: Implied Volatility of Exchange Rates—PRC and Japan (%)

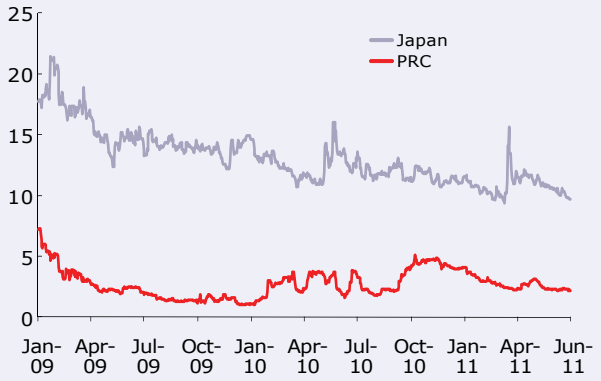


Figure 1.15b: Implied Volatility of Exchange Rates—ASEAN-5 (%)

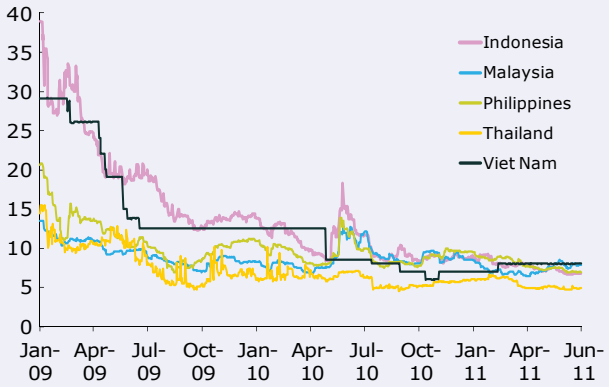
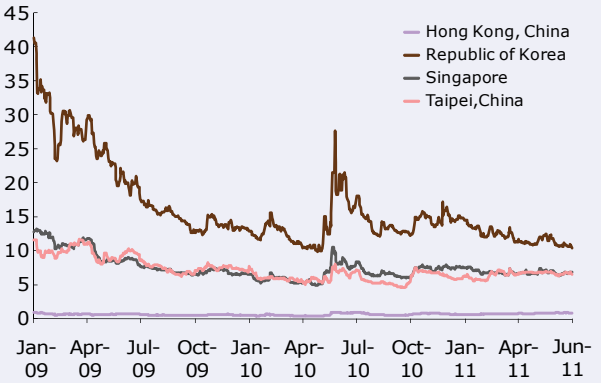


Figure 1.15c: Implied Volatility of Exchange Rates—NIEs (%)



ASEAN = Association of Southeast Asian Nations, PRC = People's Republic of China, NIE = newly industrialized economy.
Note: Data refer to the implied volatility from 3-month at-the-money options on exchange rates.
Source: Bloomberg.

Figure 1.16a: Currency Returns—euro and Japanese yen (January 2009 = 100)

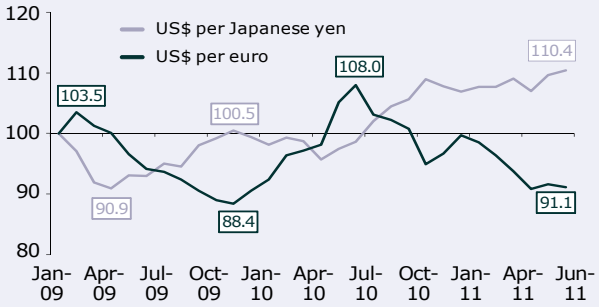


Figure 1.16b: Currency Returns—PRC yuan and Indian rupee (January 2009 = 100)

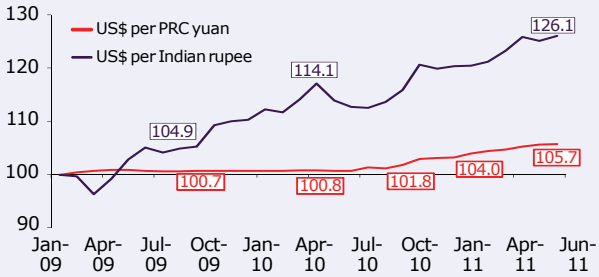


Figure 1.16c: Currency Returns—Philippine peso, Indonesian rupiah, and Thai baht (January 2009 = 100)

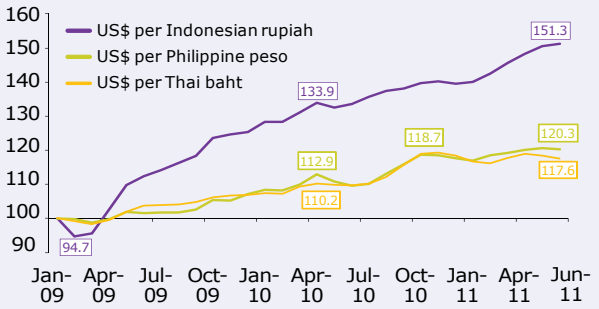
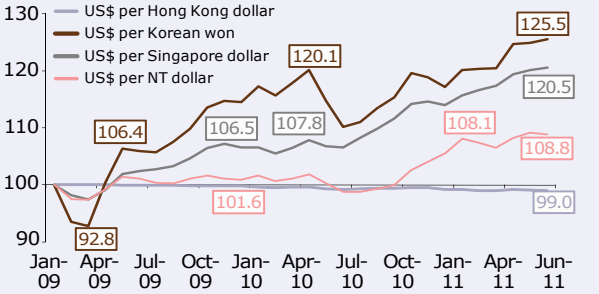


Figure 1.16d: Currency Returns[a]—Hong Kong dollar, Korean won, Singapore dollar, and NT dollar (January 2009 = 100)



PRC = People's Republic of China, US = United States.
[a]NT dollar is the currency of Taipei,China.
Source: ADB Office of Regional Economic Integration using data from Thomson Reuters data.

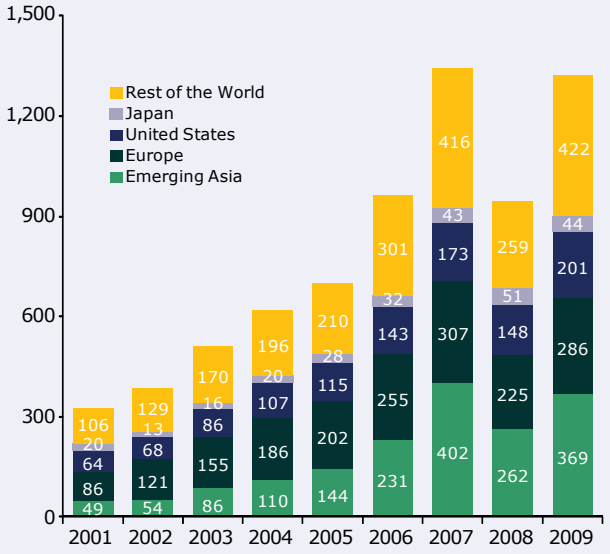
appreciated 3.6% in 2010, is making a gradual advance. The PRC continues to attract the majority of capital flows to emerging Asia. Given the rapid growth, high liquidity, strong capital inflows, and mounting inflationary pressure, allowing greater flexibility in the renminbi is essential to achieving more balanced growth.

Together with increased international capital mobility, the share of international portfolio assets and liabilities held by emerging Asian economies is increasing over time.

Figure 1.17 and 1.18 show the trend of the cross-border portfolio asset holdings[6] of eight emerging Asian economies by region since 2001 in terms of US dollar value **(Figure 1.17)** and percent of GDP **(Figure 1.18)**. The value of emerging Asian economies' foreign portfolio asset holdings surged from US$324.8 billion in 2001 (2.6% of world total foreign portfolio assets) to US$1.3 trillion in 2009 (3.6%). When the value is scaled by GDP, the size of emerging Asia's foreign asset holdings increased from 19.2% of GDP in 2001 to 36.6% in 2009. The three largest investors among these eight emerging Asian economies are Hong Kong, China; the Republic of Korea; and Singapore. Hong Kong, China held international portfolio assets of approximately US$811 billion, or 2.2% of world total international portfolio assets, in 2009; Singapore held US$347 billion and the Republic of Korea held US$102 billion. On average, however, the eight emerging Asian economies held foreign portfolio assets worth US$165 billion in 2009, which is much lower than the US$1.0 trillion average for European economies.

[6] The Coordinated Portfolio Investment Survey (CPIS) of the International Monetary Fund (IMF) reports data on international portfolio asset holdings by providing a breakdown of a country's stock of portfolio investment assets by the issuer's country of residence. First conducted in 1998 with data from 1997, the surveys have been available annually since 2001.

Figure 1.17: Cross-Border Portfolio Asset Holdings—Emerging Asia (US$ billion)

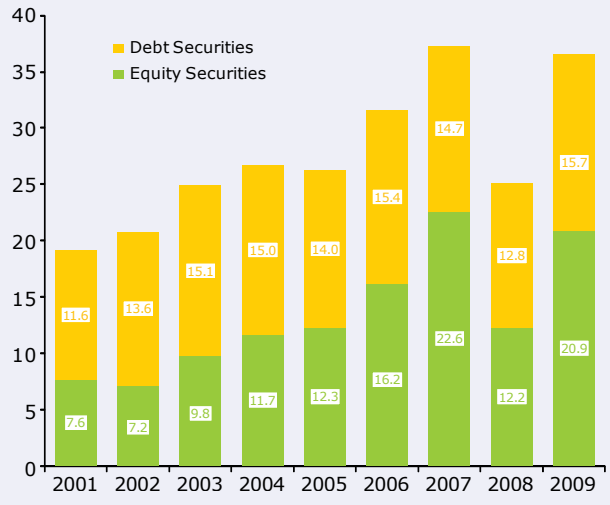


Notes: Emerging Asia includes Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; and Thailand. Europe includes Austria, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and United Kingdom.
Source: *Coordinated Portfolio Investment Survey*, International Monetary Fund.

Emerging Asia's foreign portfolio asset holdings expanded with improved geographic diversification during 2001–2009.

Although advanced economies still account for a major share of emerging Asia's foreign portfolio assets, the share as a percentage of emerging Asia's total foreign assets has dropped significantly over time, pointing to improved diversification of foreign asset holdings. The combined share of the US and Europe in total foreign portfolio assets in eight emerging Asian economies was 36.8% in 2009 compared with 46.2% in 2001. The region's holding of its own financial assets has increased significantly during the same period, rising from 15.0% of the region's total foreign asset holdings in 2001 to 27.9% in 2009. The share of the rest of the world remained relatively stable in terms of investment destination—32.7% in 2001 and 31.9% in 2009.

Figure 1.18: Cross-Border Portfolio Asset Holdings—Emerging Asia (% of GDP)



GDP = gross domestic product.
Note: Emerging Asia includes Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore and Thailand.
Source: *Coordinated Portfolio Investment Survey,* and *World Economic Outlook Database*, International Monetary Fund.

A higher share of regional assets held by regional investors suggests deeper regional financial integration.

Intraregional asset holdings of the eight emerging Asian economies have increased significantly since 2001. Emerging Asia's foreign portfolio assets are increasingly being invested in the region, suggesting an increasing degree of regional financial integration. If Japan is included, however, the picture is different. Japan holds very few Asian assets (2.4% of its total foreign assets in 2009) and invests heavily in the US (32.3% total foreign assets in 2009). Including Japan, Asian economies still hold a sizeable share of foreign assets in the form of US assets. However, only 10.5% of Asian foreign assets were held within the region in 2009, which is actually up from a mere 4.4% in 2001.

Investors in emerging Asia increasingly hold more foreign assets in the form of equities than debt securities.

In terms of asset classification, the foreign portfolio investments of emerging Asian economies are increasingly skewed towards

equities **(Figure 1.19a and 1.19b)**. In 2001, foreign debt securities exceeded foreign equities in emerging Asia's holdings of foreign portfolio assets. Over time, however, emerging Asia's foreign equity investments have increased. The value of emerging Asia's foreign equity holdings was US$754.9 billion in 2009 (57.1% of total emerging Asian foreign portfolio assets) up from US$128.8 billion in 2001 (39.6% of total foreign portfolio assets), while the value of foreign debt securities was US$567.4 billion in 2009, up from US$196.1 billion in 2001.

Emerging Asia's regional investors favor equities over debt securities, reflecting deepening and more integrated equity markets.

Emerging Asia's share of foreign equity holdings within the region rose to 33.3% in 2009, up from 20.0% in 2001. Including Japan, Asian equities held within the region rose from 22.9% in 2001 to 36.4% in 2009. The share of the advanced economies (US and Europe[7]) in emerging Asia's foreign equity holdings fell from 40.7% in 2001 to 24.7% in 2009. Meanwhile, emerging Asian holdings of regional debt securities have increased from 11.6% of total foreign debt securities in 2001 to 20.7% in 2009. Advanced economies (particularly the US and Europe) have maintained a fairly steady share of the region's foreign debt security holdings—from 38.2% of the region's total foreign equity holdings in 2001 to 39.5% in 2009. Demand for safe assets continues to support demand for debt securities of advanced economies.

Figure 1.19a: Foreign Equity Holdings—Emerging Asia (US$ billion)

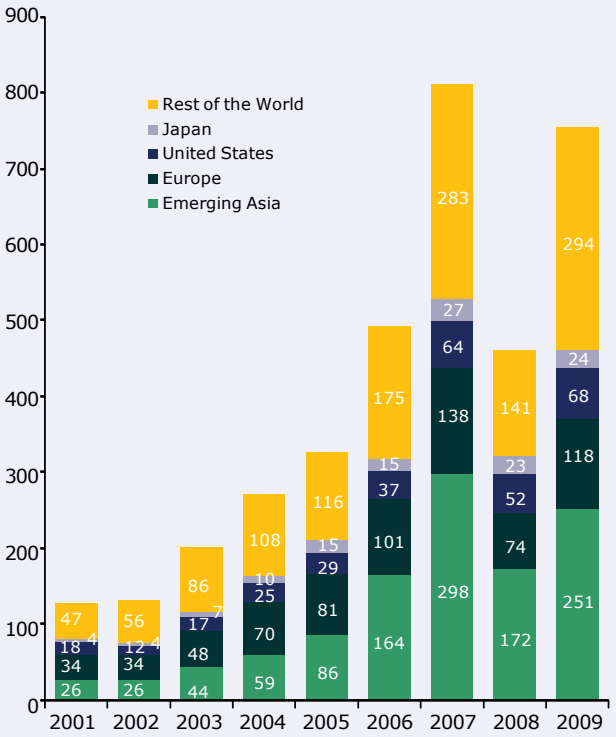
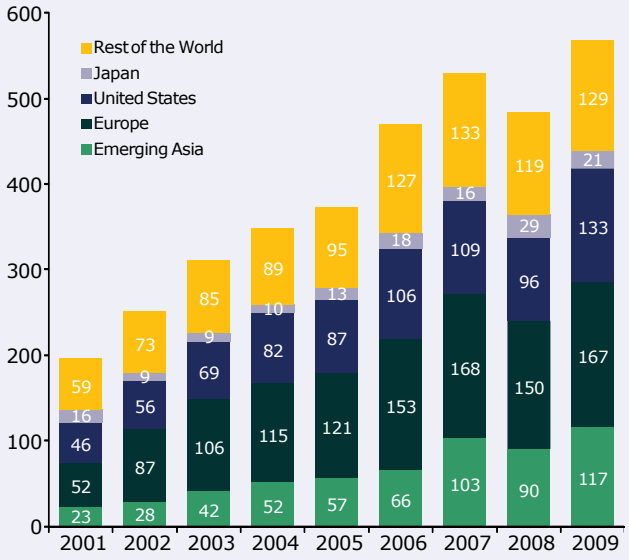


Figure 1.19b: Foreign Debt Securities—Emerging Asia (US$ billion)



Notes: Emerging Asia includes Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; and Thailand. Europe includes Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and United Kingdom.
Source: *Coordinated Portfolio Investment Survey*, International Monetary Fund.

[7] In the context of cross-border and total portfolio investments, values for Europe refer to the sum of values from the following economies: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and United Kingdom.

Despite visible progress, emerging Asia's financial integration in general compares poorly with Europe's.

The sharp increases in emerging Asia's international portfolio asset holdings suggest a greater degree of financial openness and integration—especially in equity markets. However, the pace of financial integration in emerging Asia still lags behind that in Europe. The international portfolio asset holdings of an average emerging Asian economy in 2009 were 77.0% of its GDP, while the comparable figure for an average European country was 149.6%. Moreover, the share of emerging Asia's portfolio assets (both equities and debt securities) in total international portfolio asset holdings of emerging Asian economies in 2009 was much lower (27.9%) than that of European asset holdings of European economies (63.2%).

Equity Markets

Equity Markets

Recent Performance and Outlook

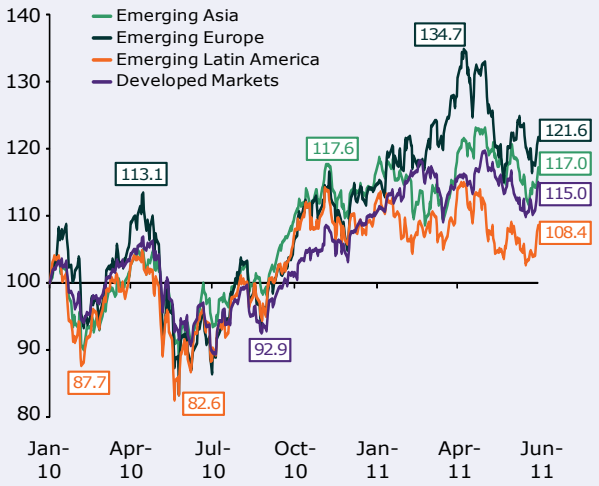
Emerging Asian equities finished 2010 with strong gains on the back of improved economic fundamentals.

Despite a slow start, emerging Asian equities sustained their recovery from the Lehman Brothers collapse for the second year in a row, thanks to improved fundamentals that included resurgence in international trade and domestic demand, steep economic growth rates, and a surge in foreign portfolio inflows. Asia's equity markets reached their lows for 2010 in April when the eurozone debt crisis hit a new level after Greece requested a bailout, but they bounced back strongly when the other eurozone members and the International Monetary Fund (IMF) extended a €110 billion loan to Greece. With the market temporarily positive over the Greek bailout, the rally in emerging Asian equity markets that started in June extended to the end of 2010. The Morgan Stanley Capital International (MSCI) All Country Asia ex-Japan (or Emerging Asia) index[1] ended 2010 with a 16.6% annual gain in dollar terms **(Figure 2.1)**. Including dividends, the emerging Asian markets yielded a 19.9% return in 2010 **(Figure 2.2 and Table 2.1)**. The MSCI All Country World Index, by comparison, returned 10.4% in dollar terms for the same period.

Emerging Asian equities did well on improving liquidity and earnings, outperforming other global equity markets.

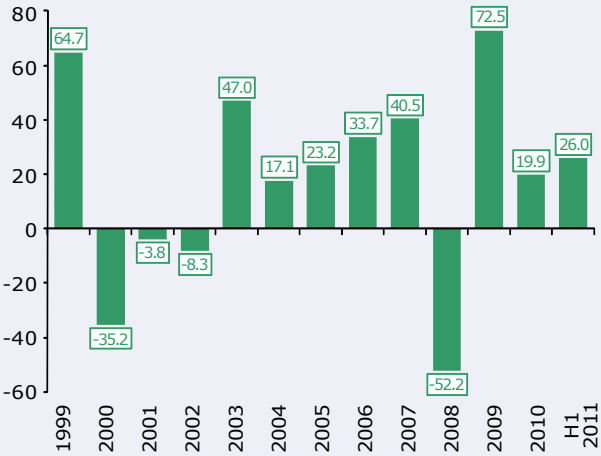
The MSCI Emerging Asia index outperformed other emerging markets as well as developed markets. Supported by attractive growth prospects, swelling foreign inflows, and rising local investor confidence, the region's equities outperformed

Figure 2.1: MSCI Equity Market Indexes
(1 January 2010 = 100)



MSCI = Morgan Stanley Capital International.
Notes: Emerging Asia includes People's Republic of China; Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Taipei,China; and Thailand. Emerging Europe includes Czech Republic, Hungary, Poland, Russian Federation, and Turkey. Emerging Latin America includes Brazil, Chile, Colombia, Mexico, and Peru. Developed markets includes Canada, France, Germany, Italy, Japan, United Kingdom, and United States.
Source: Bloomberg.

Figure 2.2: MSCI Returns Index Growth—Emerging Asia (year-on-year, %)



H1 = first half, MSCI = Morgan Stanley Capital International.
Notes: MSCI Returns Index is valued in US dollars and calculated on a gross basis. It is measured as the price index plus reinvested dividends. Data for Emerging Asia refer to MSCI All Country Asia ex-Japan Index which includes People's Republic of China; Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Taipei,China; and Thailand.
Source: ADB Office of Regional Economic Integration using data from Bloomberg.

[1] The MSCI All Country Asia ex-Japan Index, known less formally as the MSCI Emerging Asia index, is a composite index of national stock market indexes from the People's Republic of China; Hong Kong, China; India; Indonesia; the Republic of Korea; Malaysia; the Philippines; Singapore; Taipei,China; and Thailand.

Table 2.1: MSCI Returns Index Growth (year-on-year, %)

Economy	Average 2004–2008	2009	2010	June 2010	June 2011
Emerging Asia	**12.6**	**72.5**	**19.9**	**22.4**	**26.0**
China, People's Rep. of	24.0	62.6	4.8	11.1	12.7
Hong Kong, China	10.7	60.2	(27.4)	14.3	26.0
India	23.2	102.8	20.9	32.0	8.0
Indonesia	28.3	127.6	34.6	66.9	32.4
Korea, Rep. of	14.3	72.1	27.2	32.3	43.5
Malaysia	11.9	52.1	37.0	33.9	35.3
Philippines	20.0	68.0	35.5	37.2	25.5
Singapore	12.9	74.0	22.2	29.4	25.4
Taipei,China	0.2	80.2	22.7	16.1	37.0
Thailand	3.6	77.3	56.3	35.1	43.4
G3					
eurozone	8.3	32.4	(5.0)	(0.7)	38.5
Japan	2.9	6.4	15.6	0.9	13.2
United States	0.1	27.1	15.4	14.3	31.5

( ) = negative, MSCI = Morgan Stanley Capital International.
Notes: MSCI Returns Index is valued in US dollars and calculated on a gross basis. It is measured as the price index plus reinvested dividends. June 2010 and June 2011 data refer to year-on-year growth. Data for Emerging Asia refer to MSCI All Country Asia ex-Japan Index which includes People's Republic of China; Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Taipei,China; and Thailand.
Source: ADB Office of Regional Economic Integration using data from Bloomberg.

other global markets. Emerging Asia's 2010 real gross domestic product (GDP) growth was 9.2%, the region's best performance since the 10.2% figure in 2007 and well above the 4.5% for Central and Eastern Europe and 6.1% for Latin America and the Caribbean.[2] Asia also attracted large capital flows, backed by rapid growth, strong corporate earnings, and healthy government finances. For the second consecutive year, Association of Southeast Asian Nations (ASEAN) equity markets were the best performers among emerging Asia in 2010. Thailand was the region's top performer with an annual dollar return of 50.8%. The next three top performers were Malaysia, Indonesia, and the Philippines with annual dollar returns in the 30%–32% range **(Table 2.2)**.

[2] GDP figures for Central and Eastern Europe and Latin America and the Caribbean are from the IMF World Economic Outlook Update, June 2011.

The region's equity markets consolidated gains in the first half of 2011 as authorities grappled with rising inflation by raising interest rates and tightening budgets.

At the start of 2011, following the very strong returns, emerging Asian equity markets began consolidating. The impressive price gains in 2010 meant that emerging Asian equities were no longer very attractive in terms of valuation. While overvaluation started to sway investor confidence, a shift in monetary and fiscal policies to fight inflation prompted a sell-off in emerging Asian equity markets toward the end of 2010. Inflation gathered pace across much of the region on rising commodity prices and strengthening domestic demand, necessitating further policy responses and raising the specter of growth slowdown. Against this backdrop, a series of negative events in early 2011—including the natural calamities that hit Japan, the further deterioration in the Greek sovereign debt situation, and the wave of social unrest in the Middle East and north Africa—blunted investors' risk appetite, further adding momentum

Table 2.2: Growth of MSCI Index (end-of-period, %)

Local Currency Terms																
Economy	Q3 2009		Q4 2009		Q1 2010		Q2 2010		Q3 2010		Q4 2010		Q1 2011		Q2 2011	
	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	28.8	7.3	58.9	9.6	54.5	(1.4)	9.0	(5.9)	11.5	9.8	2.6	0.8	7.1	2.9	9.9	(3.5)
Hong Kong, China	21.0	13.7	55.3	3.0	60.3	2.2	11.5	(6.9)	18.4	20.7	20.0	4.4	16.5	(0.7)	22.6	(2.0)
India	33.6	19.5	91.5	4.0	89.0	1.1	26.2	0.5	17.6	11.3	14.7	1.5	7.3	(5.5)	2.6	(3.9)
Indonesia	42.4	29.2	90.3	1.8	89.3	6.5	44.2	2.9	28.2	14.9	25.8	(0.1)	19.5	1.1	23.3	6.2
Korea, Rep. of	18.8	24.3	56.6	1.1	44.6	(0.1)	25.2	(0.3)	10.0	9.2	22.1	12.3	25.8	2.9	27.9	1.4
Malaysia	20.2	12.1	46.2	4.9	48.7	3.1	19.9	(1.0)	20.0	12.1	19.3	4.3	17.8	1.8	22.0	2.5
Philippines	9.6	12.3	55.8	6.6	48.9	1.2	26.9	4.7	37.1	21.3	23.5	(4.0)	15.5	(5.3)	14.3	3.7
Singapore	10.2	14.9	63.0	8.6	67.1	(1.8)	20.6	(1.6)	13.5	8.1	8.1	3.4	7.5	(2.3)	7.0	(2.1)
Taipei,China	23.0	17.3	70.7	7.5	45.6	(4.5)	10.5	(8.3)	5.9	12.5	7.9	9.5	9.1	(3.4)	17.4	(1.3)
Thailand	21.3	16.2	63.0	0.8	85.6	9.2	24.0	(3.1)	30.9	22.7	36.4	5.0	29.6	3.8	31.7	(1.5)
Viet Nam	27.2	29.6	56.8	(14.8)	77.9	0.9	13.1	1.6	(21.8)	(10.4)	(2.0)	6.6	(7.6)	(4.9)	(16.1)	(7.7)
Emerging Asia	**23.3**	**15.5**	**63.1**	**5.5**	**56.5**	**(0.4)**	**16.9**	**(3.7)**	**13.2**	**11.9**	**12.7**	**5.1**	**13.3**	**0.0**	**15.3**	**(2.0)**
US$ Terms																
Economy	Q3 2009		Q4 2009		Q1 2010		Q2 2010		Q3 2010		Q4 2010		Q1 2011		Q2 2011	
	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	29.1	7.3	58.8	9.5	54.3	(1.6)	8.5	(6.2)	11.3	10.1	1.5	(0.1)	7.0	3.7	9.9	(3.6)
Hong Kong, China	21.2	13.7	55.2	3.0	59.9	2.1	11.0	(7.2)	18.2	21.1	20.4	4.9	16.3	(1.4)	22.7	(2.0)
India	30.5	19.0	100.5	7.5	113.6	4.8	30.2	(2.9)	25.8	15.0	18.1	0.9	8.0	(4.2)	6.6	(4.2)
Indonesia	39.0	36.5	120.8	4.7	140.4	10.0	62.4	3.3	38.9	16.7	31.4	(0.9)	24.8	4.5	28.7	6.5
Korea, Rep. of	21.7	34.4	69.4	2.3	76.7	2.8	30.6	(7.6)	13.6	17.0	25.3	12.8	29.8	6.5	41.7	0.8
Malaysia	19.6	13.8	47.8	6.0	66.2	8.2	30.2	(0.3)	34.5	17.6	32.5	4.4	26.9	3.6	30.8	2.8
Philippines	8.9	14.1	60.2	9.3	59.2	3.5	31.8	2.1	48.0	28.1	30.3	(3.8)	20.3	(4.4)	20.9	2.7
Singapore	11.8	18.0	67.3	9.0	81.7	(1.4)	25.1	(1.4)	21.6	14.7	18.6	6.3	19.2	(0.9)	21.6	0.5
Taipei,China	23.1	19.8	75.1	8.1	55.5	(3.8)	12.8	(9.4)	9.0	15.7	17.6	16.6	17.8	(3.6)	31.3	1.0
Thailand	22.9	18.5	70.0	1.0	103.6	12.6	30.4	(3.3)	44.1	30.9	50.8	5.7	38.6	3.5	35.1	(5.7)
Viet Nam	18.3	29.3	48.3	(17.8)	66.0	(2.2)	5.6	1.8	(28.3)	(12.4)	(7.0)	6.6	(15.6)	(11.3)	(22.1)	(6.0)
Emerging Asia	**23.7**	**18.1**	**68.3**	**6.4**	**69.6**	**1.0**	**19.6**	**(5.7)**	**16.9**	**15.4**	**16.6**	**6.2**	**16.9**	**1.2**	**22.9**	**(0.9)**

( ) = negative, MSCI = Morgan Stanley Capital International, q-o-q = quarter-on-quarter, US = United States, y-o-y = year-on-year.
Notes: MSCI Returns Index is valued in US dollars and calculated on a gross basis. It is measured as the price index plus reinvested dividends.
Data for Emerging Asia are based on MSCI All Country Asia ex-Japan Index which includes People's Republic of China; Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Taipei,China; and Thailand. Data for Viet Nam refer to Viet Nam Ho Chi Minh Stock Index.
Source: ADB Office of Regional Economic Integration using data from Bloomberg.

to the investor pullback from emerging Asian markets. Amid worries over the possible disruption of crude oil supplies coming from the Middle East, the world price of oil surged anew to above more than US$100 a barrel in February. The Brent crude oil price steadily increased further to trade above US$120 during April, before sliding below US$110 toward the end of June.

The impact of Japan's earthquake and tsunami on emerging Asian equities was short-lived.

The March 2011 Japanese earthquake sent shockwaves through the region's financial markets. Emerging Asian stocks tumbled in the week that followed the devastating earthquake and nuclear disaster, sending the MSCI Emerging Asia index to its lowest level in 4 weeks. However, the initial impact was short-lived and markets quickly regained their composure by the end of the month as the markets assessed the fallout from the earthquake to be relatively limited and Japan made progress in stabilizing the nuclear situation. By the end of April the MSCI Emerging Asia index had recovered 12% from the March low. At the same time the Japanese Nikkei Stock Average, which had sunk to a 2-year low in the aftermath of the disaster, was up 14.5% from its nadir on the modified growth prospects for the Japanese economy, with reconstruction efforts expected to provide a boost.

The outlook for emerging Asian equities has softened as markets factor in higher profit risks amid greater global economic uncertainty.

Decelerating economic growth on the back of rising inflation and tightening monetary policy have weighed on emerging Asian equities. Investors, expecting growth to slow in emerging Asian economies and seeing relative valuations swing in favor of other global markets, began to rotate funds out of the region's equities and into emerging Europe (mainly Russian Federation) and the developed markets of Germany (with its strong export and growth performance in early 2011), the United Kingdom, and the United States (US). The performance of emerging Asian equities in the year to date[3] has been outpaced by other emerging market rivals. As of 30 June 2011, emerging European markets, led by Russian Federation, had posted a year-to-date gain of 6.2%, followed by developed markets, with almost 4.2%. In contrast, the MSCI index for Emerging Asia rose a mere 0.4% during the same period.

Major indexes across the region were steady entering the second half of 2011 as rising inflation and slowing economic growth tempered investor sentiment.

Asia's blistering economic growth, fuelled in large part by the aggressive fiscal and monetary policies aimed at kick-starting the region's recovery from the crisis, eventually encountered the downside of such policies. Signs of economic overheating in the form of higher inflation emerged in many of the region's rapidly growing economies. The People's Republic of China (PRC) and India, which had led the region in GDP growth, led the shift away from loose monetary policies, raising their benchmark policy rates and bank reserve requirements. As the PRC economy grew 10.3% in 2010 and the headline inflation reached 3.3% in 2010 (up from -0.7% in 2009), the authorities boosted key interest rates four times starting in September, increased bank reserve requirements to a record 21.5% in June 2011, and allowed the renminbi to gain against the US dollar, all in an effort to quell inflationary pressure. Further actions appear necessary, as inflation remained stubbornly above 5.0% in the first half of 2011. In India too, where the economy grew 8.6% but then suffered from an inflation rate of 9.6% in 2010, the Reserve Bank of India raised key rates 10 times in 15 months to 7.5% by June 2011. As a consequence of the sweeping policy changes, the region's stock market indexes delivered much weaker gains, or losses, in the first 6 months of 2011. The PRC Composite Index lost 3.6%; Hong Kong, China's Hang Seng Index fell 2.8%; India's Bombay Stock Exchange 100 index sank 8.2%; Taipei,China's Weighted Index lost

[3] The last date for market data throughout this chapter is 30 June 2011.

3.6%, and the Singapore's Straits Times Index fell 1.7% **(Figure 2.3)**. In 2010, Viet Nam, another country in the regional grouping that experienced high inflation (11.8%), had the worst-performing equity market, losing 10.8% during the same period. Its central bank discount rate rose 100 basis points to 7.0% at the end of 2010.

Emerging Asia's market capitalization jumped 74% in 2010 year-on-year on higher share prices and new listings—the overall ratio to GDP remained virtually unchanged, however.

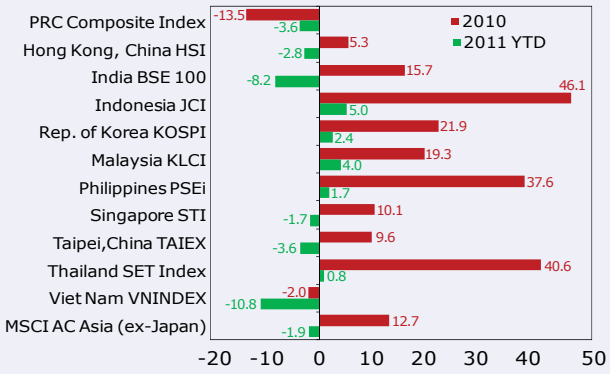
With share prices climbing to 2-year highs, coupled with a rush of new listings and follow-on offerings, emerging Asia's market capitalization rose 19.9% in 2010 to reach US$11.7 trillion, just 4% shy of the pre-crisis level of US$12.20 trillion in 2007 **(Figure 2.4)**. According to the World Federation of Exchanges (WFE, the association of 52 stock exchanges around the world), the market capitalization of new listings, net of delistings, in 2010 totaled US$893 billion, nearly triple the corresponding amount of US$316 billion in 2009.

Despite the sustained recovery in overall market value for the second year in a row, the ratio of market capitalization to GDP for emerging Asian markets remained virtually unchanged at the prior year's 107%, as GDP growth kept pace with the expansion in share prices. Even so, on an individual basis, a number of markets in Asia—including those of Hong Kong, China; Singapore; Taipei,China; and Malaysia—have ratios well above those of developed markets **(Table 2.3)**. With market consolidation, however, the projected ratio of the region's market capitalization to GDP declined to 98% by the end of June 2011. While the region's 2011 GDP is predicted to grow 7.9%, market capitalization expanded only 1.2% in the first 6 months of the year.

Equity deals in emerging Asia rose above US$400 billion in 2010, accounting for 40% of global issuance.

In 2010 the primary market for equity issues across emerging Asia was stimulated by inflows of portfolio investments from abroad. These inflows were due to low yields on fixed-income

Figure 2.3: Change in Stock Price Indexes—Emerging Asia (%)



BSE = Bombay Stock Exchange, HSI = Hang Seng Index, JCI = Jakarta Composite Index, KLCI = Kuala Lumpur Composite Index, KOSPI = Korea Composite Stock Price Index, MSCI AC = Morgan Stanley Capital International All Country, PRC = People's Republic of China, PSEi = Philippine Stock Exchange Composite Index, SET = Stock Exchange of Thailand, TAIEX = [Taipei,China] Capitalization Weighted Stock Index, VNINDEX = Viet Nam Ho Chi Minh Stock Index, YTD = year-to-date.
Notes: 2011 year-to-date change growth as of 30 June 2011. PRC Composite Index is daily stock price indexes of combined Shanghai and Shenzhen composite indexes weighted by their respective market capital.
Source: ADB Office of Regional Economic Integration using data from Bloomberg.

Figure 2.4: Stock Market Capitalization Growth—Emerging Asia (year-on-year, %)

Note: Emerging Asia includes People's Republic of China; Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Taipei,China; Thailand; and Viet Nam.
Source: ADB Office of Regional Economic Integration using data from Bloomberg

Table 2.3: Market Capitalization (at the end of period except peak and trough)

Economy	Jun 2011		2010		2009		2008		2007		Peak	Trough
	US$ billion	% of GDP	US$ billion	% of GDP	US$ billion	% of GDP	US$ billion	% of GDP	US$ billion	% of GDP	US$ billion	% of GDP
Emerging Asia	**11,882.4**	**98.4**	**11,682.0**	**107.6**	**9,745.8**	**107.0**	**5,340.4**	**60.8**	**12,196.8**	**161.5**	**161.5** Dec-07	**57.1** Jul-04
China, People's Rep. of	3,888.1	59.7	3,759.1	63.9	3,302.9	66.2	1,775.6	39.3	4,459.5	127.6	127.6 Dec-07	16.0 Jan-06
Hong Kong, China	2,600.5	1,063.5	2,485.2	1,104.5	2,305.0	1,101.5	1,328.9	617.0	2,653.6	1,281.4	1,437.4 Oct-07	415.2 Apr-04
India	1,533.4	90.0	1,628.9	105.9	1,301.2	102.5	637.3	50.6	1,815.0	157.6	157.6 Dec-07	32.2 Jun-04
Indonesia	371.3	45.1	356.7	50.5	212.1	39.4	95.9	18.8	204.8	47.4	50.5 Dec-10	15.3 Nov-08
Korea, Rep. of	1,144.6	101.6	1,077.9	107.0	822.1	98.8	484.0	52.0	1,103.3	105.2	118.4 Oct-07	41.2 Jul-04
Malaysia	423.1	170.8	406.2	170.7	284.0	147.2	186.3	83.8	324.4	173.5	175.4 Jun-11	78.8 Nov-08
Philippines	159.2	78.5	158.2	83.8	130.1	80.7	85.7	51.4	192.7	133.7	139.2 Oct-07	49.1 May-10
Singapore	566.9	223.4	577.0	259.1	448.3	244.5	248.0	131.0	498.0	280.8	303.6 Oct-07	116.9 Nov-08
Taipei,China	882.2	175.1	919.4	213.5	733.1	194.2	386.7	96.6	701.1	178.3	213.5 Dec-10	92.2 Nov-08
Thailand	278.5	83.8	275.2	86.3	173.7	65.9	99.0	36.3	212.9	86.2	89.2 Dec-07	31.6 Nov-08
Viet Nam	34.6	29.2	38.3	37.0	33.3	35.8	13.0	14.4	31.4	44.1	44.1 Dec-07	11.1 Feb-09
United Kingdom	3,438.0	139.1	3,336.0	148.4	2,989.9	137.0	1,995.7	74.5	4,046.9	143.9	155.6 Dec-06	71.9 Nov-08
Japan	3,775.2	64.8	3,996.8	73.2	3,466.6	68.9	3,264.8	66.9	4,545.9	103.8	120.8 Apr-06	53.4 Feb-09
United States	16,437.7	108.0	15,430.9	105.3	13,740.1	97.3	10,606.3	73.8	17,663.5	125.6	133.7 May-07	61.9 Feb-09

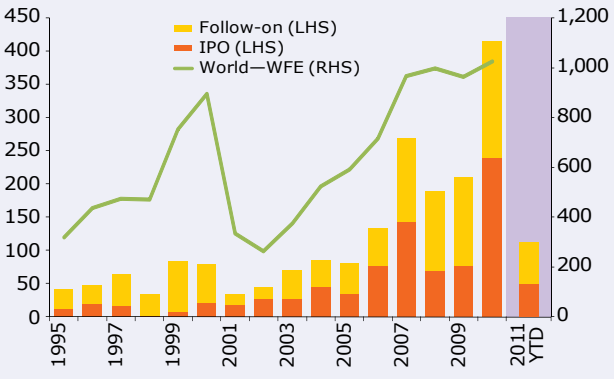
GDP = gross domestic product, US = United States.
Notes: Peaks and troughs were defined over the period January 2004 to June 2011, except for Viet Nam, where they are defined from April 2007 to June 2011. Emerging Asia includes People's Republic of China; Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Taipei,China; Thailand; and Viet Nam.
Sources: Bloomberg and *World Economic Outlook Database,* International Monetary Fund.

securities in developed economies combined with the resurgence in investments on fixed capital fuelled by the recovery in demand for the region's exports. Moderate valuations for equities and sharp improvements in corporate results also helped whet investors' appetite for the new issues. Total issuance of equity shares in emerging Asian markets, inclusive of initial public offerings (IPOs) and follow-on offerings, ballooned to US$415 billion, twice the level of the previous year **(Figures 2.5 and 2.6)**. This also equates to a record 40% of the global total equity issuance for the year. Total equity issuance among WFE member exchanges was US$1.03 trillion in 2010, 6.4% more than the prior year's US$963 billion.

Emerging Asia leads in initial public offerings worldwide in 2010, generating nearly half of global proceeds; it also saw the largest public offering in history.

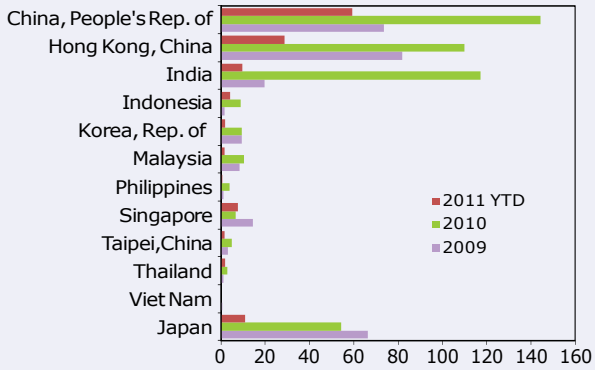
Emerging Asia claimed the global leadership in the IPO market, accounting for 59% of the global IPO volume in 2010 **(Figure 2.7)**. The Hong Kong, China exchange was the most active as a single exchange, raising a total of HK$445 billion (US$57.3 billion) in IPOs during the year. It also created a new record for the world's largest IPO in history: the Agricultural Bank of China debuted in the market by selling US$22.1 billion of new shares to the investing public.[4] India and the PRC raised more via IPOs (US$89.3 billion for India and US$73.5 billion for the PRC) but these amounts represent the sum of more than

Figure 2.5: Equity Issuance—Emerging Asia (US$ billion)



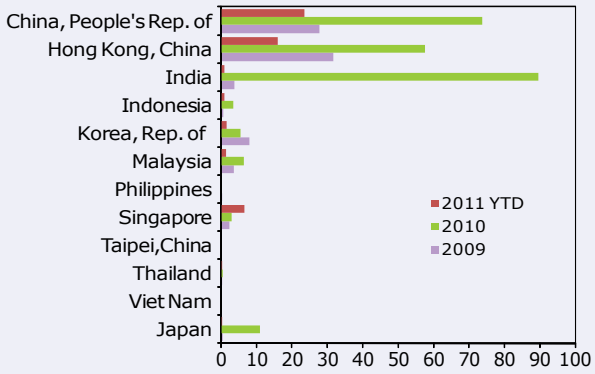
IPO = initial public offering, LHS = left-hand scale, RHS = right-hand scale, WFE = World Federation of Exchanges, YTD = year-to-date.
Notes: Emerging Asia includes People's Republic of China; Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Taipei,China; Thailand; and Viet Nam. 2011 YTD as of 31 May 2011.
Sources: World Federation of Exchanges, Bank of Korea, Monetary Authority of Singapore, Reserve Bank of India, and International Financing Review Asia.

Figure 2.6: Total Equity Issuance (US$ billion)



YTD = year-to-date.
Note: 2011 YTD as of 31 May 2011.
Source: World Federation of Exchanges.

Figure 2.7: Initial Public Offerings (US$ billion)



YTD = year-to-date.
Note: 2011 YTD as of 31 May 2011.
Source: World Federation of Exchanges.

[4] The Agricultural Bank of China—the PRC's largest lender by customers—sold the shares at the IPO price of CNY2.68 per share. The size of the offering surpassed the previous record set by the Industrial and Commercial Bank of China's IPO of $21.9 billion in 2006.

one bourse for each country.[5] The PRC, India, and Hong Kong, China combined accounted for almost 90% of the region's total issuance for the year. The banking sector dominated the flow of new equity deals in 2010. Other major issuers came from the automobiles and components sector, transportation and infrastructure, semiconductors, metals and mining, and other financial services, among others.

Initial public offerings in the region have slowed in the second quarter of 2011 as weaker global economic prospects, the Greek debt crisis, and corporate governance in the People's Republic of China made companies hesitate to go to market.

IPO activity in Asia was robust in the first 5 months of 2011, continuing to claim the global top spot with proceeds of US$50 billion, or 47% of the global volume, compared to US$44 billion or 38% of the volume during the same period in the previous year. In keeping with mounting investor anxiety over the slowing global economy, threats of a debt default by Greece, and the potential financial contagion, the pace of IPOs slowed in the second quarter. Several IPOs were cancelled, delayed, or downsized due to the volatile market conditions. Investors also pulled back, spooked by accounting irregularities and financial scandals involving US-listed PRC firms in recent months. Many of these firms entered the US market via so-called "reverse takeovers," also known as "reverse mergers," where a listed company is taken over by a private company. By June 2011, IPO activities had tapered off. The companies that defied the market pullback by carrying on with their public offers were forced to accept either prices near the lower end of their pricing range or a reduced share float, or both.

[5] India's total consists of IPO funds raised in the Bombay Stock Exchange and National Stock Exchange, while that of the PRC represents the sum of issuances in Shanghai and Shenzhen.

Turnover improved modestly, but the value turnover ratio declined, suggesting reduced market liquidity.

The total value of shares traded in Asia's equity markets improved marginally in 2010, by 4.6% to US$14.04 trillion, with total daily turnover similarly rising nearly 5.0% to US$57.21 billion. Average trading days for the region increased by 1 day to 148 days. Despite these improvements in the gross numbers, liquidity measures for the region's markets apparently declined. The value turnover ratio (a measure of market liquidity that is defined as the ratio of the total value of shares traded to market capitalization) shrank for most markets, with the Republic of Korea experiencing the largest reduction of 37 percentage points to 149%. This was followed by Taipei,China with a turnover ratio of 111%, down 27 percentage points from the previous year. The sole market to post a higher turnover ratio was Thailand **(Table 2.4)**. Trading activity had a slow start in 2011, with anxious investors sidelined by the Greek debt crisis, thus offsetting the trading spurt in the second half of 2010 which was based on improved economic fundamentals.

Market volatility has stabilized from the high levels associated with the global financial crisis.

Volatility, measured by the annualized standard deviation of daily change in stock prices across the region, returned to below its long-run average **(Figures 2.8a–2.8c)**. Except for the mid-year period of relatively heightened perceptions of risk (largely driven by the events surrounding the Greek sovereign debt situation), price volatilities during the year returned to their "normal" levels. The MSCI Emerging Asia index posted an average 10-day volatility of 16.3% in 2010, below the 19.4% average seen during 2000–2009. The same pattern was repeated across the individual markets in the region, with the Republic of Korea's Kospi index returns experiencing a 12-point decline in volatility to 15.0%. Despite the jittery market sentiment over the worsening Greek debt crisis, deteriorating growth prospects for the global

Table 2.4: Equity Turnover (US$ million)

Economy	Average 2004–2008			2009			2010			H1 2011		
	Value	Average Daily Turnover	Value Turnover Ratio	Value	Average Daily Turnover	Value Turnover Ratio	Value	Average Daily Turnover	Value Turnover Ratio	Value	Average Daily Turnover	Value Turnover Ratio
China, People's Rep. of	2,398,518	9,887	133%	7,835,708	32,114	219%	8,063,638	33,321	200%	3,780,699	31,771	185%
Hong Kong, China	1,629,782	4,468	69%	1,501,638	6,031	65%	1,597,491	6,416	59%	825,966	6,826	61%
India	1,027,047	2,894	96%	1,050,036	4,321	80%	1,060,054	4,190	65%	414,447	3,342	28%
Indonesia	109,432	282	58%	94,351	391	44%	129,579	529	36%	71,039	578	35%
Korea, Rep. of	1,432,480	5,367	195%	1,559,040	6,162	187%	1,631,565	6,500	149%	1,022,737	8,383	170%
Malaysia	93,784	366	39%	86,033	344	30%	121,003	488	30%	77,413	635	35%
Philippines	17,090	56	22%	20,802	86	24%	26,804	110	17%	15,236	121	19%
Singapore	259,885	832	62%	245,425	970	51%	288,390	1,144	45%	152,846	1,204	46%
Taipei,China	829,612	3,127	159%	905,131	3,606	138%	907,036	3,614	111%	469,524	3,979	117%
Thailand	115,980	446	84%	126,097	519	71%	218,121	901	79%	118,639	997	85%
eurozone	13,302,436	41,772	200%	6,714,583	26,229	125%	6,839,824	26,944	136%	2,727,915	21,794	84%
Japan	5,887,892	21,923	135%	4,161,946	17,127	126%	4,306,762	17,579	113%	2,307,549	19,071	118%
United States	33,638,937	87,584	142%	17,784,586	70,574	118%	18,923,171	75,092	109%	14,738,465	117,908	165%

H1 = first half.
Notes: Turnover value refers to transaction value for the period. Average daily turnover is the turnover value divided by the number of trading days. Value turnover ratio refers to the ratio of total value trades to market capitalization at year's end. H1 2011 turnover annualized to compute ratio.
Source: ADB Office of Regional Economic Integration using data from World Federation of Exchanges.

Figure 2.8a: Equity Price Volatility[a]—PRC, India, and Emerging Asia (%)

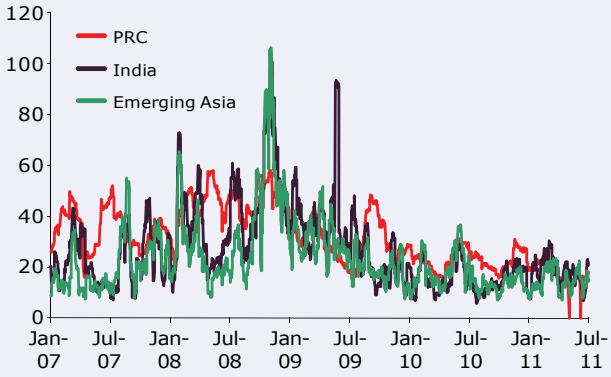


Figure 2.8b: Equity Price Volatility[b]—ASEAN-5 (%)

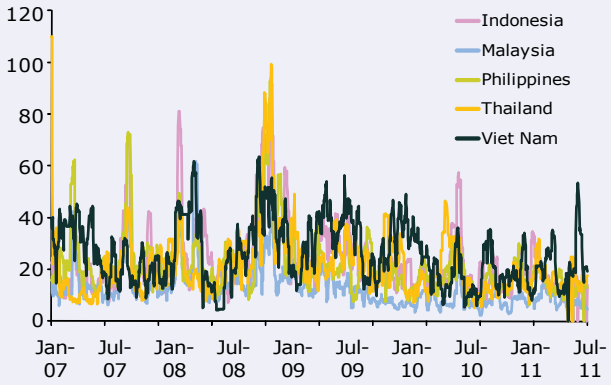
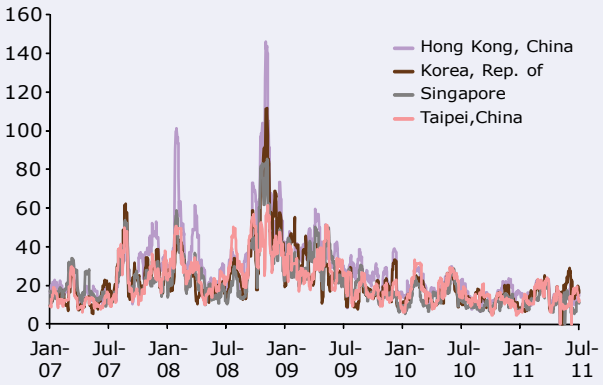


Figure 2.8c: Equity Price Volatility[b]—NIEs (%)



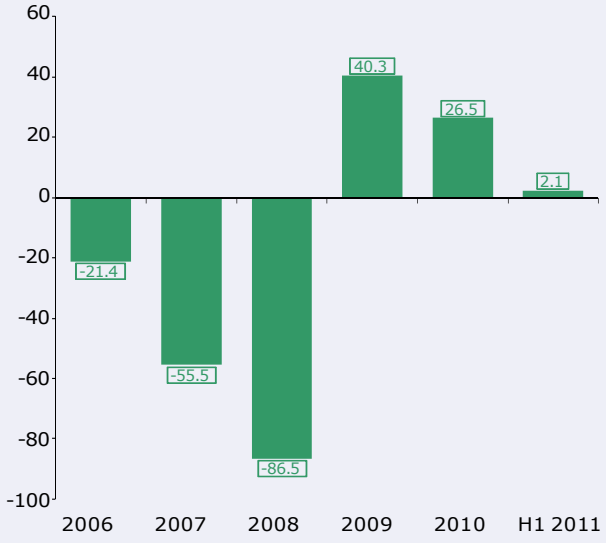
ASEAN = Association of Southeast Asian Nations, PRC = People's Republic of China, MSCI = Morgan Stanley Capital International, NIE = newly industrialized economy.
[a] Equity price volatility refers to 10-day price volatility. Data for the PRC refer to Shanghai Composite Index. Data for Emerging Asia refer to MSCI All Country Asia ex-Japan Index which includes People's Republic of China; Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Taipei,China; and Thailand.
[b] Equity price volatility refers to 10 day-price volatility.
Source: Bloomberg.

economy, and rising interest rates across the region, the volatility measures for Asia remained stable in the first half of 2011. An exception was India's Sensex index, the return volatility of which rose 4.3 percentage points to 20.7% from the prior year's level of 16.4%.

Strong capital flows into emerging Asian markets were sustained into the first months of 2011, but the pace has moderated in the second quarter.

In 2010, foreign investors remitted a net US$26.5 billion into eight emerging Asian equity markets, 34% less than the US$40.3 billion they put in during the previous year **(Figure 2.9 and Table 2.5).** The positive trend continued into the first quarter of 2011 but the pace had moderated, to a net foreign equity portfolio inflow of US$2.1 billion. The inflow to emerging Asian markets continues to be driven by the attraction towards higher growth rates across the region's economies that contrast with weak recoveries in the developed economies.

Figure 2.9: Net Foreign Portfolio Investment in Equities—Emerging Asia excluding Hong Kong, China (US$ billion)



H1 = first half.
Notes: Emerging Asia includes India; Indonesia; Republic of Korea; Malaysia; Philippines; Taipei,China; Thailand; and Viet Nam. Data unavailable for the People's Republic of China and Singapore.
Source: Bloomberg and Bank Negara Malaysia.

Table 2.5: Net Foreign Portfolio Investment in Equities (US$ million)

Economy	2008	2009	2010	H1 2011
India	(12,918)	18,005	29,321	494
Indonesia	1,801	1,384	2,345	2,079
Korea, Rep. of	(36,641)	24,659	19,800	(1,563)
Malaysia	(16,639)	(20,975)	(39,142)	—
Philippines	(1,135)	420	1,232	442
Taipei,China	(16,364)	15,617	9,577	1,012
Thailand	(4,942)	1,137	2,793	(463)
Viet Nam	340	71	617	140
Total	**(86,497)**	**40,316**	**26,543**	**2,140**
Hong Kong, China	56,755	(16,205)	(43,712)	(6,935)
Total with Hong Kong, China	**(29,742)**	**24,111**	**(17,169)**	**(4,795)**
Japan	(66,817)	(6,513)	22,926	37,413
Total with Japan	**(96,560)**	**17,599**	**5,757**	**32,618**

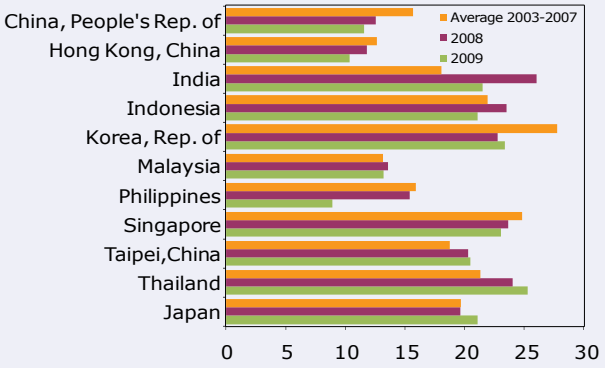
( ) = negative, — = not available, H1 = first half.
Sources: Bloomberg and Bank Negara Malaysia.

With benchmark rates kept near zero and sustained credit spread compression among corporate bonds, the search for yields also pushed investors toward higher-yielding risk assets. However, as the high share prices look increasingly unjustified by the valuations, the flow of investment funds has moderated since late in 2010.

Foreign ownership declined in many emerging Asian equity markets post-crisis.

The latest available data shows that many of Asia's equity markets have experienced a decrease in the foreign ownership of domestic market capitalization **(Figure 2.10)**. Information costs, the degree of economic openness, limited scope for cross-border alliances, restricted free float of listed shares, and the rise in company stock buybacks fuelled by cheap borrowing costs have all constrained the expansion in foreign ownership of stocks listed in emerging Asian markets. Relatively small free floats even for large cap companies can be a problem due to the tendency of founders, their families, and majority shareholders to retain a

Figure 2.10: Total Foreign Holdings of Equity, 2003–2007, 2008, and 2009
(% of total market capitalization)



Source: ADB Office of Regional Economic Integration based on data from Bloomberg and *Coordinated Portfolio Investment Survey*, International Monetary Fund.

large portion of issued shares and thereby avoid any form of dilution for control purposes. For 2009, the average proportion of foreign ownership of domestic equities shrank to less than 18.0% from the prior year's 19.4%. The 5-year average for 2003–2007 was around 19.0%. The Philippines had the lowest percentage of foreign ownership, at 9.0%, down by 6 percentage points from the prior year's 15.0%. The PRC, Malaysia, and Hong Kong, China also had foreign ownership below the region's average. On the other hand, the Republic of Korea and Thailand saw slight increases in foreign ownership stakes.

Impressive price increases in emerging Asian equity markets means valuations are now "fair" to "expensive".

Equity markets across Asia, among the world's best performers for the second year in a row in 2010, have reached a plateau in terms of valuation. By the end of the first quarter of 2011, the MSCI Emerging Asia index had experienced eight consecutive quarterly gains since the first quarter of 2009, apart from a momentary dip in the second quarter of 2010 due to the global worries over the Greek debt crisis. Expansion in domestic economic activity, augmented corporate cash flows, higher and better-quality earnings per share (less extraordinaries and other nonrecurring items), and strengthened balance sheets accompanied this prolonged rebound in share prices. As a result, valuations across the region **(Table 2.6)** suggest that the shares have priced-in most of the region's strong growth potential and reached levels where they are no longer considered bargains.

Current valuations suggest share prices across the region are now aligned with corporate fundamentals—earnings, cash flows, and growth.

MSCI Emerging Asia index's earnings before interest, taxes, depreciation, and amortization (EBITDA)—a proxy measure for gross cash flow—surged 28% to US$89.38 per share in 2010 from a year ago, while earnings per share before extraordinaries grew 51% to US$42. Given the index's 13% ascent in 2010, average valuations actually slipped during the year. The MSCI Emerging Asia index price–earnings ratio (P/E) softened to 13.5 times from the previous year's expensive 17.4 times. Enterprise value (EV), or the sum of the market value of the firm's equity and debt less cash, as a ratio of EBITDA stood at 8.1 times, down from the previous year's 9.2 times. Both measures of relative value have returned to their historical average levels. The same may hold for the MSCI Emerging Asia index's price-to-book value ratio (P/B), which rose to 2.0 times from 1.9 times but just matched the historical average. When growth is factored into the valuation equation, the picture appears to brighten a bit. Using the P/E-to-growth (PEG) ratio,[6] the MSCI Emerging Asia index looks less pricey, standing at 0.3 times in 2010 compared to 0.7 times from the previous year and its historical average of 1.6 times. Further improvements have been made in 2011, with a number of emerging Asian markets—the Philippines, India, Indonesia, and Taipei,China—looking fully valued to expensive by the end of the first half.

[6] Peter Lynch, a well-known investor and fund manager, popularized this valuation metric in his book, (P. Lynch and J. Rothchild. 2001. *One Up on Wall Street: How to Use What You Already Know to Make Money in the Market*. New York: Running Press.), stating "The P/E ratio of any company that's fairly priced will equal its growth rate," implying that a fairly valued company will have a PEG ratio of 1 times.

Table 2.6: Equity Valuation Indicators (end of period)

Economy	Price-to-Earnings Ratio				Price-to-Book Ratio				EV-to-EBITDA Ratio				Earnings per Share (y-o-y growth, %)				PEG Ratio			
	Average 2004–2008	2009	2010	H1 2011	Average 2004–2008	2009	2010	H1 2011	Average 2003–2007	2009	2010	H1 2011	Average 2004–2008	2009	2010	H1 2011	Average 2004–2008	2009	2010	H1 2011
Emerging Asia	**13.8**	**17.4**	**13.5**	**13.0**	**2.0**	**1.9**	**2.0**	**1.8**	**8.6**	**9.2**	**8.1**	**7.5**	**14.7**	**24.1**	**50.7**	**28.9**	**1.6**	**0.7**	**0.3**	**0.5**
China, People's Rep. of	29.4	29.7	22.4	20.2	3.1	3.5	2.0	2.7	6.3	15.1	12.7	11.6	23.4	13.8	27.9	23.1	0.8	2.2	0.8	0.9
Hong Kong, China	14.4	15.8	12.5	11.8	2.1	2.0	1.8	1.7	13.6	9.9	9.0	8.0	13.2	26.3	33.5	19.3	0.4	0.6	0.4	0.6
India	18.4	26.6	18.7	17.1	4.3	3.5	3.5	2.9	14.7	13.9	13.1	11.1	26.7	(29.9)	67.3	7.3	0.8	(0.9)	0.3	2.3
Indonesia	14.7	34.8	20.9	14.1	2.7	2.7	3.4	—	8.5	8.0	9.4	—	26.0	(55.5)	143.5	—	21.5	(0.6)	0.1	—
Korea, Rep. of	12.3	25.0	16.2	13.9	1.4	1.3	1.4	1.3	8.1	12.3	11.2	9.7	126.7	(43.0)	87.3	25.4	(1.1)	(0.6)	0.2	0.5
Malaysia	14.1	22.4	17.4	16.8	1.8	2.2	2.4	2.4	8.6	8.9	9.1	6.7	8.9	(21.3)	54.0	20.7	1.0	(1.1)	0.3	0.8
Philippines	13.0	15.8	13.7	15.2	2.0	2.1	2.5	2.4	7.3	7.9	8.4	8.8	35.6	(0.1)	59.3	(3.4)	2.9	(109.2)	0.2	(4.5)
Singapore	16.0	14.2	10.9	10.5	1.1	1.5	1.7	1.6	7.7	10.9	9.9	10.1	—	10.8	42.4	17.3	—	1.3	0.3	0.6
Taipei,China	16.7	28.9	15.7	15.4	1.7	1.9	1.0	1.8	10.9	17.3	13.0	12.8	1.5	38.6	101.8	11.4	0.4	0.7	0.2	1.3
Thailand	11.3	26.9	15.2	13.3	1.8	1.6	2.1	2.0	7.5	10.0	9.8	9.2	13.9	(55.4)	148.5	22.3	0.3	(0.5)	0.1	0.6
G3																				
eurozone	14.1	19.4	12.1	11.7	2.0	1.4	1.3	1.3	14.5	16.6	13.8	13.0	16.8	(16.2)	59.6	28.6	0.7	(1.2)	0.2	0.4
Japan	20.2		16.6	16.9	1.6	1.1	1.1	1.0	3.8	16.4	10.6	10.2	117.1	(161.0)	—	26.8	6.9	—	—	0.6
United States	17.0	17.9	14.9	15.0	2.7	2.2	2.2	2.2	11.7	10.0	10.1	10.3	3.7	2.6	36.3	10.2	4.3	7.0	0.4	1.5

( ) = negative, — = data not available, EBITDA = earnings before interest, taxes and depreciation, and amortization, EV = enterprise value, H1 = first half, MSCI = Morgan Stanley Capital International, PEG = price-to-earnings ratio to growth ratio, y-o-y = year-on-year.

Notes:

1. 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. Data for Emerging Asia refer to MSCI All Country Asia ex-Japan Index which includes People's Republic of China; Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Taipei,China; and Thailand.

Source: Bloomberg.

Emerging Asian equity market valuations are no longer "cheap," even compared with developed market valuations.

In addition to being historically fully valued, emerging Asian markets also seem expensive relative to the valuations of developed markets. In particular, the Euro Stoxx index, the leading blue-chip index for the eurozone, traded at a lower P/E of 11.7 times, P/B of 1.3 times, and a PEG ratio of 0.4 times as of June 2011. Even Japan, where the Nikkei 225 index has lost almost 7% over the past 2 years, appeared attractive with a PEG ratio of 0.6 times and P/B of 1.0 times.

Market Integration

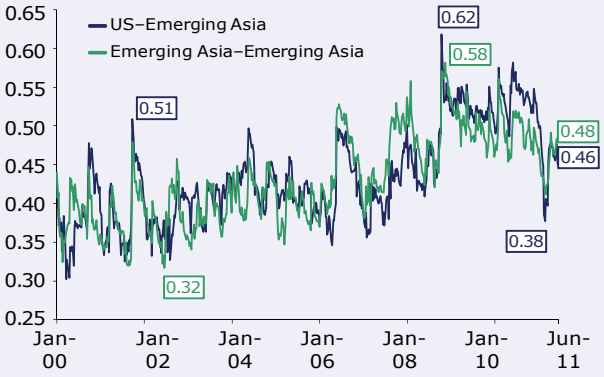
Co-movements among emerging Asian equity markets increased during the global financial crisis and its aftermath, reflected in higher return correlations.

Sudden financial economic upheavals and shocks of global magnitude, such as the recent global financial crisis, tend to be associated with a greater degree of co-movements across global financial markets. Dynamic conditional correlations capture the time-varying characteristics in the co-movements among equity markets. Conditional correlations rose sharply in Q4 2008, reflecting the increased transmission effects during the crisis. From a peak in October 2008, conditional correlations have softened as some normality has returned to the region's equity markets. Conditional correlations as of the first half of 2011 are comparable to the 2008 pre-crisis levels.

Intraregional conditional correlations began exceeding conditional correlations between Asia and US markets around early 2006, with the gap widening in the run up to the September 2008 onset of the global financial crisis.

The growing trend of regional financial integration contributed to an increase in intraregional conditional correlations in the run up to the global financial crisis **(Figure 2.11)**. In fact, the average conditional correlation among emerging Asian markets surpassed that between individual Asian markets and the US market from early in 2006, a trend which strengthened further until the outbreak of the financial crisis. Beginning in mid-2008, the average conditional correlation among emerging Asian equity markets (emerging Asia–emerging Asia) began to move more closely with the average correlation between the US and individual emerging Asian equity markets (US–emerging Asia). After reaching a peak in October 2008, conditional correlations have trended down to pre-crisis levels.

Figure 2.11: Conditional Correlations of Equity Markets—US and Emerging Asia with Emerging Asia



US = United States.
Notes: Emerging Asia includes People's Republic of China; Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Taipei,China; and Thailand. Emerging Asia–emerging Asia correlation refers to the average of all the correlations between any two of the emerging Asian countries listed.
Source: ADB Office of Regional Economic Integration.

Intraregional conditional correlations are higher among newly industrialized economies than ASEAN-4 equity markets.

While the broad trend of conditional correlations is similar, there are noticeable variations in the conditional correlations between different groups of equity markets. Conditional correlations

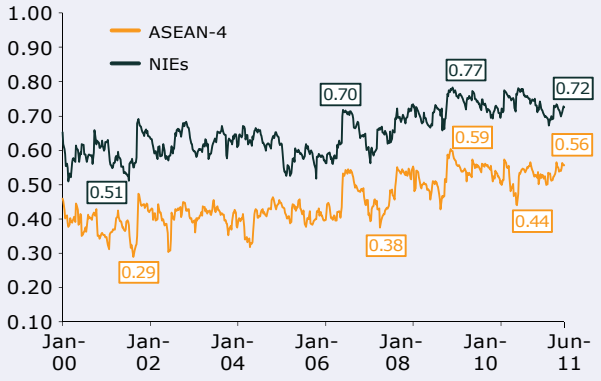
among newly industrialized economies (NIEs) are consistently higher than those among ASEAN-4[7] equity markets, reflecting a relatively greater degree of market integration among NIEs **(Figure 2.12)**. The trend of integration is also broadening beyond ASEAN and NIEs. India shows an increasing conditional correlation with other Asian equity markets, although the level of correlations remains lower than those among the ASEAN-4 countries and NIEs. In fact, conditional correlations suggest India may be more integrated with regional equity markets than are Japan and the US. On the other hand, the PRC equity market's conditional correlation with its neighbors continues to be significantly low **(Figure 2.13)**.

Asia's equity market movements continue to be tightly linked to global financial market developments.

Most regional markets, with the notable exception of the PRC, show strong co-movements with the US market. As a group, the NIEs are tracking US market movements more closely than are the ASEAN-4 group, reflecting the NIEs' relatively greater financial openness and hence higher integration with global financial markets **(Figure 2.14)**. Among the NIEs, Taipei,China's equity market shows the lowest historical conditional correlation with the US, while that of the Republic of Korea shows the biggest increase in conditional correlation over time **(Figure 2.15)**. The conditional correlation of the Republic of Korea with the US now exceeds that of Singapore and Hong Kong, China with the US market. Meanwhile, the conditional correlation between Singapore and the US shows the highest variation. Among the ASEAN-4 countries, Malaysia shows the largest and most persistent upward trend in conditional correlations **(Figure 2.16)**. Meanwhile, the Philippines shows the least volatility in terms of conditional correlation with the US. The levels of conditional correlations both between India and the US and between Japan and the US are similar to the ones observed for the ASEAN-4 group **(Figure 2.17)**. The conditional correlations between India and the US are increasing gradually but with high volatility. The trend of conditional correlations between Japan and the US appears to be relatively stable. The conditional correlation between the PRC and the US is significantly lower than any others.

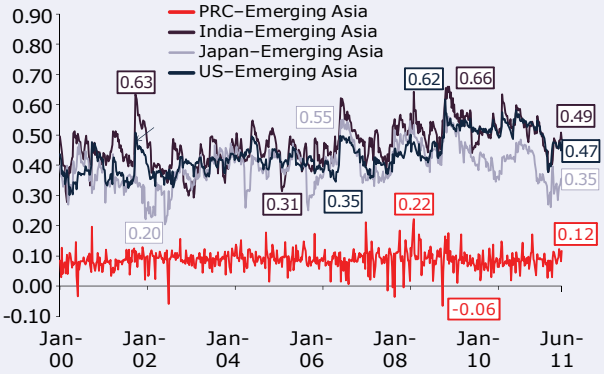
[7] ASEAN-4 consists of the Association of Southeast Asian Nations (ASEAN) countries of Indonesia, Malaysia, Philippines, and Thailand.

Figure 2.12: Intraregional Correlations of Equity Markets—ASEAN-4 and NIEs



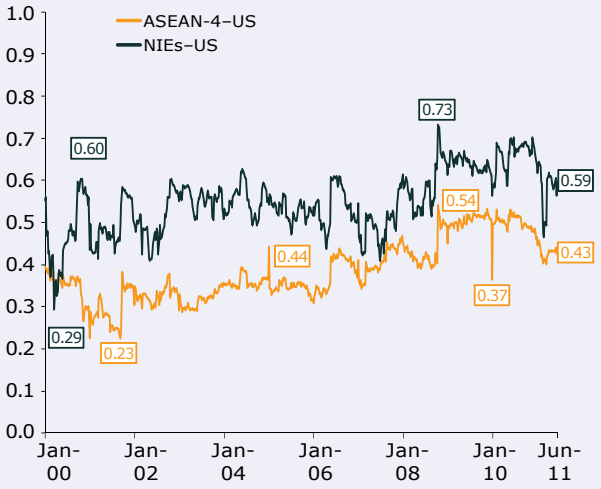
ASEAN = Association of Southeast Asian Nations, NIE = newly industrialized economy.
Note: ASEAN-4 consists of Indonesia, Malaysia, Philippines, and Thailand. NIEs consists of Hong Kong, China; Republic of Korea; Taipei,China; and Singapore.
Source: ADB Office of Regional Economic Integration.

Figure 2.13: Conditional Correlations of Equity Markets—PRC, India, Japan, and US with Emerging Asia



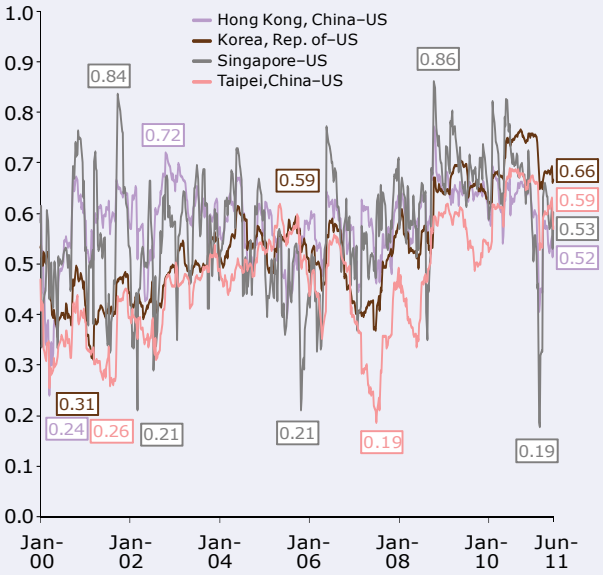
PRC = People's Republic of China, US = United States.
Note: Emerging Asia includes People's Republic of China; Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Taipei,China; and Thailand.
Source: ADB Office of Regional Economic Integration.

Figure 2.14: Conditional Correlations of Equity Markets—ASEAN-4 and NIEs with the United States



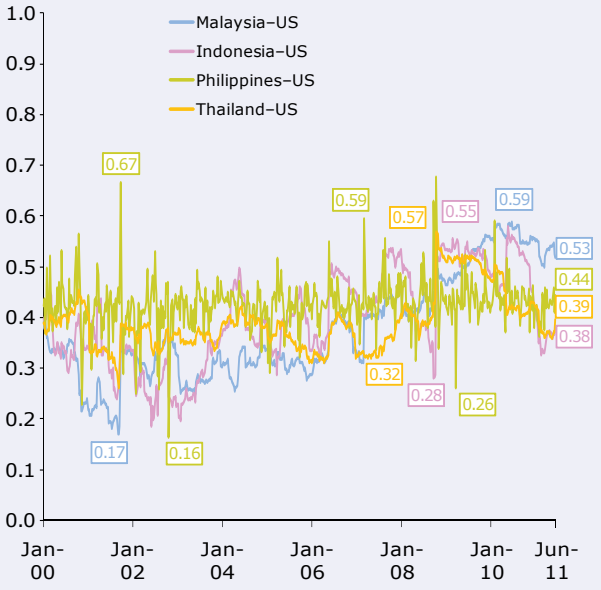
ASEAN = Association of Southeast Asian Nations, NIE = newly industrialized economy, US = United States.
Note: ASEAN-4 consists of Indonesia, Malaysia, Philippines, and Thailand. NIEs consists of Hong Kong, China; Republic of Korea; Singapore; and Taipei,China.
Source: ADB Office of Regional Economic Integration.

Figure 2.15: Conditional Correlations of Equity Markets—NIEs with the United States



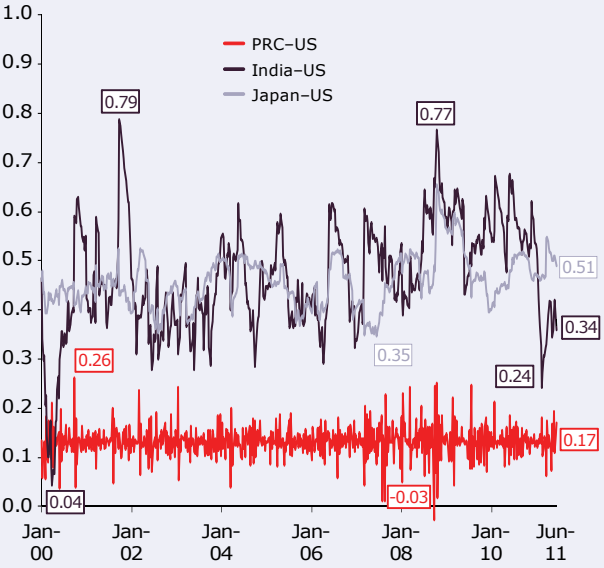
NIE = newly industrialized economy, US = United States.
Note: NIEs consists of Hong Kong, China; Republic of Korea; Singapore and Taipei,China.
Source: ADB Office of Regional Economic Integration.

Figure 2.16: Conditional Correlations of Equity Markets—ASEAN-4 with the United States



ASEAN = Association of Southeast Asian Nations, US = United States.
Note: ASEAN-4 consists of Indonesia, Malaysia, Philippines, and Thailand.
Source: ADB Office of Regional Economic Integration.

Figure 2.17: Conditional Correlations of Equity Markets—PRC, India, and Japan with the United States



PRC = People's Republic of China, US = United States.
Source: ADB Office of Regional Economic Integration.

Furthering regional financial integration should help Asia better reap the benefits of more efficient resource allocation and risk diversification.

The 1997–1998 Asian financial crisis motivated the drive toward regional financial integration in Asia. The rationale behind the drive was based on the region's shared understanding that the absence of deep and liquid regional capital markets together with largely underdeveloped domestic financial systems was one of the major hurdles to channeling the region's savings into its investments. Excessive reliance on external funding seems to expose Asian financial systems to the vagaries of global investors and external financial shocks.

Regional initiatives to enhance financial cooperation and promote integration continue to deepen and strengthen.

Recognizing the fundamental weaknesses behind Asia's own crisis, the region's policy makers made strong commitments to develop more efficient and stable financial systems in the aftermath of the Asian financial crisis of 1997–1998. A number of collective initiatives have been undertaken to strengthen regional financial markets and promote integration. These include regional economic surveillance processes in ASEAN and ASEAN+3,[8] the Chiang Mai Initiative (CMI), the Asian Bond Markets Initiatives, and the Asian Bond Fund Initiative. These initiatives gained strong momentum during the recent crisis, with some visible progress made in the multilateralization of the CMI, the establishment of the ASEAN+3 Macroeconomic Research Office, and the launch of the Credit Guarantee and Investment Facility.[9] In the end, an efficient regional capital market can help Asia better handle the sudden flood of foreign capital by efficiently channeling the excess funds of savers to borrowers. Such a market would have adequate breadth and depth to offer a wide variety of investment products and instruments, cater to a variety of investor types, and provide competitive services.

Stock exchange mergers and alliances can help market integration.

Another channel for financial integration would be direct intervention by policy makers and market players for cross-border alliances of exchanges. The ASEAN Exchanges is one such example. It is a collaboration among four national exchanges: the Philippine Stock Exchange, Singapore Stock Exchange, Bursa Malaysia Berhad, and the Stock Exchange of Thailand. The alliance, launched on 8 April 2011 at the 15th ASEAN Finance Ministers' Meeting in Bali, Indonesia, seeks to "jointly promote the development of ASEAN as an asset class through a collaborative framework with the intent of increasing liquidity to member exchanges."[10] Under the agreement, cross-border trading between these stock exchanges will start in 2012, initiating a common trading space with a market capitalization of more than US$1 trillion. Three other exchanges—the Indonesian Stock Exchange, the Ho Chi Minh Stock Exchange, and the Hanoi Stock Exchange—have already expressed interest in joining.

Policy Implications

The main focus for Asia's policy makers should be containing inflation to help secure long-run growth momentum of their economies.

While a cycle of monetary tightening looks set to shape the market's consolidation in the near term, the upwards trend is likely to resume in the final quarter of this year after Asia's economic policies return to a more neutral stance. Authorities across

[8] ASEAN+3 consists of the 10 ASEAN countries plus the PRC, Japan, and the Republic of Korea.

[9] The Credit Guarantee and Investment Facility (CGIF), a trust fund of the Asian Development Bank (ADB), was established by the governments of the ASEAN+3 countries and ADB as part of the Asian Bond Markets Initiative. The CGIF has been established to promote the economic development and resilience of the financial markets and to prevent disruptions to the international financial order by developing deep and liquid local currency and regional bond markets. The main function of the CGIF is to provide credit enhancement to allow investment-rated issuers to issue local currency bonds in ASEAN+3 countries. Source: http://asianbondsonline.adb.org/features/abmi_cgif/cgif_ceo_cro.pdf

[10] Philippine Stock Exchange memorandum to trading participants, dated 29 May 2011 (TPA - No. 2011-0008).

the region have begun their fight against inflation via fiscal constraint and tighter monetary conditions. The aim is to anchor inflation expectations amid a global rise in food prices, higher crude oil prices partly due to renewed geopolitical uncertainties, and supply chain disruptions from Japan. Although of relatively lesser concern, vigilance is also called for due to the possible Greek debt default and the eurozone financial contagion. Once inflation is under control and policies return to a neutral stance, equity markets are expected to exit their near-term patterns of staying within a limited range and resume their upward trend on the back of strong economic fundamentals.

Capital inflows are expected to regain momentum as the year progresses.

Due to the growth differentials between the emerging Asian economies and their developed counterparts, as well as the difference in their fiscal soundness, capital inflows to Asian economies and markets is likely to pick up again. In fact, the risk–return profile of emerging Asian equities has greatly improved. Steadily robust economic performances, healthy current account positions, elevated levels of international reserves, favorable interest rate differentials, together with strengthening national currencies and improving corporate governance have enhanced the returns on these financial assets. In addition, their riskiness has been reduced by sound fiscal management that has resulted in manageable deficit–GDP ratios, relatively low debt–GDP ratios, and a sturdier financial system as banks shored up their balance sheets. As a result, there has been a discernible secular trend towards extended capital flows into emerging Asian economies, with foreign institutional investors seen to rectify the significant underweighting of emerging market assets in their portfolios. According to the Bank for International Settlements (BIS), emerging Asian assets accounted for only 4.6% of investment portfolios of the G7 countries (consisting of Canada, France, Germany, Italy, Japan, United Kingdom, and United States) at the end of 2009, while emerging market economies, as a whole, took up a 9.0% share.[11]

Capital flows bring both challenges and opportunities, requiring policy vigilance to avoid undue pressure on currencies and prices from sudden, large inflows.

Strong capital flows into Asia, while being a positive sign of the measured integration of emerging Asian markets into the global capital markets, brings challenges as well as benefits and opportunities. Among other things, such integration implies better and more efficient allocation of capital and also conveys diversification benefits such as risk sharing across national boundaries as well as risk reduction. However, the past episodes of financial crisis understandably lead to caution with regard to the contagion risks of integration. Large and volatile capital flows, particularly short-term flows, have also often complicated domestic macroeconomic management and exposed emerging economies to boom and bust cycles. It is important that Asia's policy makers build a sound and comprehensive policy framework to effectively manage the size and type of capital flows to ensure maximum benefits while minimizing adverse consequences.

[11] Cited in "Capital flows to the emerging market economies: a perspective on policy challenges," speech by Jaime Caruana, general manager of the BIS, at the 46th South East Asian Central Banks Governors' Conference, Colombo, Sri Lanka, 24–26 February 2011.

A full menu of policy measures should be considered to guard against sudden capital flow reversals, building an environment that fosters stable and long-term capital inflows.

Effectively managing capital flows requires a comprehensive policy framework, including maintaining a sound macroeconomic environment and ensuring efficient and resilient economic and financial systems through extensive structural reforms.[12] The first priority should be given to keeping a stable macroeconomic environment underpinned by transparent policy frameworks aimed at price stability and sustainable fiscal positions. Building more flexibility into the exchange rate can help mitigate external shocks. Capital flows should not be a one-way street—regional investors should be allowed to diversify their investment portfolios into broader international assets. Flexible exchange rates can also support the policies to open up and further develop capital markets. As a last resort, some specific and temporary capital control measures may be considered within the comprehensive policy framework for effective capital management. Ultimately, developing a resilient finance sector that is supported by deep and liquid domestic capital markets is a key to promoting efficient allocation of financial resources and hence allowing better handling of capital inflows.

[12] See ADB. 2010. Managing Capital Flows: Issues and Policy Challenges for Emerging Asia. *Asia Capital Markets Monitor*. Manila.

Bond Markets

Bond Markets

Driven by strong growth in 2010, emerging Asia's dynamic local currency bond markets continue to increase their global market share.

Emerging Asia's share of the world's local currency (LCY) bond market rose nearly fourfold during 1996–2010, increasing from 2.4% to 9.3% **(Table 3.1)**. LCY bonds from emerging Asia continued to be the most rapidly growing segment of the global LCY bond market in 2010, reflecting the robust recovery under way in most emerging Asian economies. Despite this recovery, there remain key policy challenges for the region's authorities to address—such as resurgent inflationary pressures and the large inflows of "hot money" into emerging Asian LCY bond markets—if the recovery momentum is to be sustained.

The fastest-growing LCY bond market in Asia since 1996 has been the People's Republic of China (PRC). Negligible in size in 1996, the PRC market has expanded rapidly to account for 4.7% of the global market in 2010, comprising almost half of emerging Asia's global share. At the same time, the share of the six largest markets of the Association of Southeast Asian Nations (ASEAN) countries—Indonesia, Malaysia, Philippines, Singapore, Thailand, and Viet Nam—have approximately doubled over the last 15 years.

The Republic of Korea's LCY bond market has expanded from 1.1% of the global total in 1996 to 1.8% in 2010. Most of this expansion in recent years has been generated by growth in corporate bonds, with the trend continuing into 2011. For example, Korean bonds issued by privately owned nonbank corporations grew 22.9% year-on-year (y-o-y) in 2010 and 21.1% y-o-y in the first quarter (Q1) of 2011.

Table 3.1: Domestic Debt Securities

Economies	1996		2010	
	LCY Bonds Outstanding (US$ billion)	% of World Total	LCY Bonds Outstanding (US$ billion)	% of World Total
United States	10,926	42.9	25,349	38.7
Japan	4,456	17.5	11,723	17.9
France	1,261	4.9	3,170	4.8
Germany	1,888	7.4	2,616	4.0
United Kingdom	678	2.7	1,647	2.5
Emerging Asia of which:	612	2.4	6,062	9.3
China, People's Rep. of	62	0.2	3,052	4.7
Korea, Rep. of	283	1.1	1,149	1.8
India	81	0.3	853	1.3
ASEAN-6 of which:	149	0.6	845	1.3
Indonesia	7	0.0	106	0.2
Malaysia	71	0.3	247	0.4
Philippines	28	0.1	73	0.1
Singapore	25	0.1	179	0.3
Thailand	19	0.1	225	0.3
Viet Nam	–	–	15	0.0
Brazil	299	1.2	1,338	2.0
Russian Federation	43	0.2	67	0.1
South Africa	82	0.3	189	0.3
Turkey	27	0.1	230	0.4

– = data not available, ASEAN = Association of Southeast Asian Nations, PRC = People's Republic of China, LCY = local currency.
Notes:
1.Emerging Asia includes People's Republic of China; Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Thailand; and Viet Nam.
2. ASEAN-6 consists of Indonesia, Malaysia, Philippines, Singapore, Thailand, and Viet Nam.
Sources: Bank for International Settlements and ADB *AsianBondsOnline*.

Developed economies' shares of the global bond market have remained relatively stable since 1996.

The share of the world market for LCY debt securities issued by most European countries has been relatively stable since 1996. At the end of 2010, France's share of the world market for debt securities had fallen slightly to 4.8% from 4.9% in 1996, and the United Kingdom's share had fallen to 2.5% from 2.7% in 1996. Germany's share of the world debt securities market, however, had almost halved, from 7.4% in 1996 to 4.0% at the end of 2010. The share of the United States (US) had fallen by about 4 percentage points, to 38.7% at the end of 2010, while Japan's share rose slightly to 17.9% since 1996. Among emerging markets, Brazil's share of the world market for debt securities has almost doubled since 1996 to reach 2.0% at the end of 2010, while Russian Federation's share remains negligible at 0.1%.

Recent Performance and Outlook

The year-on-year growth of Asia's major bond markets—and the region as a whole—were robust in 2009 and 2010, before easing somewhat in early 2011.

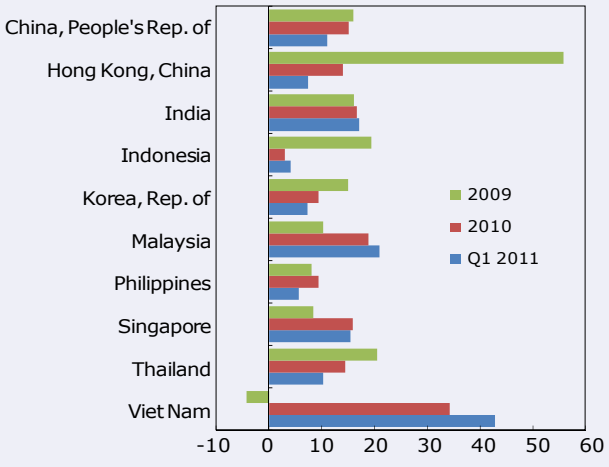
The size of the emerging Asian LCY bond market grew 14.0% in 2010, rising to US$6.1 trillion at the end of the year, up from US$5.1 trillion at the end of 2009. Yet, by the end of Q1 2011, the market had grown only slightly, to US$6.2 trillion **(Table 3.2)**.

Recent growth trends for emerging Asia's individual bond markets are summarized in **Figure 3.1**, which displays a number of contrasts within the region. For example, the bond markets of the PRC; Hong Kong, China; Republic of Korea; and Thailand experienced a significant decline in their y-o-y growth rates in Q1 2011 compared with their much more robust growth rates in 2009 and 2010. The bond markets of Viet Nam and Malaysia, however, experienced a significant rise in their y-o-y growth rates during early 2011 compared with 2009 and 2010. Meanwhile, the Singapore LCY bond market grew 15.4% y-o-y in Q1 2011, down slightly from the 15.9% growth for 2010 as a whole, but still well above the 8.4% growth in 2009.

Emerging Asia's smaller local currency bond markets, however, have had mixed growth trends in recent years.

With only US$16.0 billion of total bonds outstanding, Viet Nam's LCY bond market grew 42.8% y-o-y in Q1 2011 after expanding 34.2% in 2010, making it the fastest-growing bond market in Asia since the end of 2009. Malaysia was the second fastest growing market in emerging Asia in Q1 2011, expanding 20.9% y-o-y in the quarter, mainly due to 30.1% growth in the government bond sector. India was the third fastest growing, expanding 17.1% y-o-y in Q1 2011, up slightly from annual growth rates of 16.6% in 2010 and 16.1% in 2009. India's Q1 2011 growth was well balanced between the government bond sector, which grew 16.5% y-o-y, and the corporate bond sector, which grew 19.2%. By way of contrast, Singapore's 15.4% y-o-y growth rate in Q1 2011 was driven mainly by 31.1% growth in the corporate bond sector.

Figure 3.1: Growth of Local Currency Bond Markets in 2009, 2010, and Q1 2011 (year-on-year, %)



Q = quarter
Sources: ADB *AsianBondsOnline* and Bloomberg.

Table 3.2: Size and Composition of Local Currency Bond Markets—Emerging Asia

Item	2009		2010		Q1 2011		Growth Rate, LCY-base (%)				Growth Rate, US$-base (%)			
	Amount (US$ billion)	% share	Amount (US$ billion)	% share	Amount (US$ billion)	% share	2009 y-o-y	2010 y-o-y	Q1 2011		2009 y-o-y	2010 y-o-y	Q1 2011	
									q-o-q	y-o-y			q-o-q	y-o-y
China, People's Republic of	2,567	100.0	3,052	100.0	3,066	100.0	16.0	15.1	(0.4)	11.1	16.0	18.9	0.5	15.8
Government	2,113	82.3	2,408	78.9	2,370	77.3	8.0	10.3	(2.5)	5.4	8.0	14.0	(1.6)	9.9
Corporate	454	17.7	644	21.1	696	22.7	77.5	37.2	7.1	35.9	77.5	41.8	8.1	41.7
Hong Kong, China	144	100.0	164	100.0	166	100.0	55.8	14.0	1.6	7.4	55.8	13.7	1.6	7.2
Government	70	48.3	87	53.2	88	52.7	242.2	25.5	0.6	9.2	242.1	25.2	0.5	9.0
Corporate	74	51.7	77	46.8	79	47.3	3.3	3.2	2.8	5.5	3.2	2.9	2.7	5.3
India	702	100.0	853	100.0	865	100.0	16.1	16.6	1.2	17.1	21.7	21.4	1.4	18.0
Government	567	80.8	679	79.6	686	79.3	15.7	15.0	0.7	16.5	21.3	19.7	1.0	17.4
Corporate	135	19.2	174	20.4	179	20.7	17.8	23.5	2.8	19.2	23.6	28.6	3.1	20.1
Indonesia	99	100.0	106	100.0	118	100.0	19.4	3.0	7.2	4.1	41.2	7.6	10.7	8.8
Government	89	90.5	94	88.0	104	88.2	19.2	0.2	7.4	1.3	41.0	4.7	10.9	5.9
Corporate	9	9.5	13	12.0	14	11.8	21.2	29.8	5.5	31.4	43.3	35.7	9.0	37.3
Korea, Republic of	1,016	100.0	1,149	100.0	1,211	100.0	15.0	9.4	2.7	7.3	24.4	13.1	5.4	10.7
Government	444	43.7	492	42.8	524	43.3	11.4	7.2	3.8	3.7	20.5	10.8	6.5	7.0
Corporate	572	56.3	657	57.2	687	56.7	18.0	11.1	1.9	10.2	27.6	14.8	4.6	13.7
Malaysia	185	100.0	247	100.0	259	100.0	10.3	18.9	3.7	20.9	11.6	33.0	5.0	30.4
Government	101	54.6	145	59.0	156	60.2	10.9	28.5	5.8	30.1	12.2	43.7	7.1	40.4
Corporate	84	45.4	101	41.0	103	39.8	9.6	7.4	0.7	9.2	10.9	20.1	2.0	17.8
Philippines	63	100.0	73	100.0	73	100.0	8.1	9.4	(0.7)	5.7	11.3	15.3	0.4	10.1
Government	55	87.9	64	88.4	64	87.1	3.1	10.1	(2.1)	4.5	6.2	16.0	(1.1)	8.9
Corporate	8	12.1	8	11.6	9	12.9	66.5	4.8	10.7	14.4	71.4	10.5	11.9	19.2
Singapore	141	100.0	179	100.0	191	100.0	8.4	15.9	4.8	15.4	10.4	26.9	6.7	28.1
Government	88	62.5	103	57.7	106	55.5	18.3	7.0	0.8	5.3	20.4	17.1	2.6	16.9
Corporate	53	37.5	76	42.3	85	44.5	(4.8)	30.9	10.3	31.1	(3.0)	43.3	12.3	45.6
Thailand	177	100.0	225	100.0	225	100.0	20.5	14.4	0.9	10.3	25.5	27.0	0.2	17.8
Government	141	79.8	183	81.4	181	80.4	21.0	16.7	(0.4)	10.3	26.0	29.6	(1.1)	17.8
Corporate	36	20.2	42	18.6	44	19.6	18.8	5.3	6.7	10.2	23.7	16.9	5.9	17.7
Viet Nam	12	100.0	15	100.0	16	100.0	(4.2)	34.2	8.9	42.8	(9.4)	27.2	1.6	30.4
Government	11	90.6	14	90.1	14	91.0	(9.5)	33.5	10.1	44.4	(14.4)	26.5	2.7	31.8
Corporate	1	9.4	2	9.9	1	9.0	116.9	41.4	(2.0)	28.8	105.2	34.0	(8.5)	17.6
Emerging Asia	**5,107**	**100.0**	**6,062**	**100.0**	**6,190**	**100.0**	**16.2**	**14.0**	**1.0**	**11.3**	**19.5**	**18.7**	**2.1**	**15.6**
Government	3,680	72.1	4,269	70.4	4,292	69.3	11.8	11.4	(0.4)	7.8	14.4	16.0	0.5	11.9
Corporate	1,427	27.9	1,793	29.6	1,898	30.7	29.1	20.6	4.4	20.1	35.1	25.6	5.9	24.7
Japan	9,620	100.0	11,723	100.0	11,513	100.0	3.6	6.3	0.6	5.0	1.0	21.9	(1.8)	18.1
Government	8,656	90.0	10,609	90.5	10,425	90.6	3.7	6.9	0.7	5.4	1.1	22.6	(1.7)	18.5
Corporate	964	10.0	1,114	9.5	1,087	9.4	2.7	0.7	0.1	1.1	0.1	15.5	(2.3)	13.7

( ) = negative, LCY = local currency, Q = quarter, q-o-q = quarter-on-quarter, US = United States, y-o-y = year-on-year.
Notes:
1. For Singapore, corporate bonds outstanding quarterly figues are based on ADB *AsianBondsOnline* estimates.
2. Corporate bonds include issues by financial institutions.
3. Bloomberg end-of-period local currency—US$ rates are used.
4. For local currency-base, total emerging Asia growth figures are based on end-March 2011 currency exchange rates and do not include currency effects.
5. Emerging Asia includes People's Republic of China; Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Thailand; and Viet Nam.
Sources: People's Republic of China: *ChinaBond*; Hong Kong, China: Hong Kong Monetary Authority; India: Bloomberg; Indonesia: Bank Indonesia and Indonesia Stock Exchange; Japan: Japan Securities Dealers Association; Republic of Korea: Bank of Korea and EDAILY BondWeb; Malaysia: Bank Negara Malaysia; Philippines: Bureau of the Treasury and Bloomberg; Singapore: Monetary Authority of Singapore, Singapore Government Securities, and Bloomberg; Thailand: Bank of Thailand; and Viet Nam: Bloomberg.

The LCY bond markets of Indonesia, Republic of Korea, and the Philippines recorded y-o-y growth rates of 10.0% or less in 2010 and Q1 2011, reflecting a combination of improved fiscal performance and, in the cases of Indonesia and the Philippines, a large amount of US dollar-denominated bond issuance. Additionally, the Philippines made two very successful global peso bond issues, one worth US$1.00 billion (September 2010) and one worth US$1.25 billion (January 2011). These global bonds are denominated in pesos but clearable in US dollars.

The size of Asia's local currency bond market as a share of GDP has remained steady at 55%–58% in recent years, while the size of individual market shares range from 15.4% of GDP in Indonesia to 111.4% in the Republic of Korea.

As a percentage of the region's gross domestic product (GDP), the bond market of emerging Asia has ranged between 55% and 58% in recent years. The value of the region's government bond sector fell to 38.4% of GDP at the end of Q1 2011 from 39.9% at the end of 2010, while the corporate bond sector rose to 17.0% at the end of Q1 2011 compared with 16.8% at the end of 2010 **(Table 3.3)**. The single largest bond market measured as a percentage of GDP is that of the Republic of Korea, which equaled 111.4% of the country's GDP at the end of Q1 2011. The bond markets of Viet Nam and Indonesia were the region's smallest as a percentage of GDP at the end of Q1 2011—15.8% for Viet Nam and 15.4% for Indonesia.

Growth in Asia's corporate bond markets continues to outpace government bond market growth.

The growth driver of emerging Asia's LCY bond market has been the corporate bond market, which registered y-o-y growth rates of 20.0% or more in 2009, 2010, and Q1 2011, compared with the government bond market that has been expanding more modestly at 12.0% or less during this period.

Table 3.3: Size and Composition of Local Currency Bond Markets—Emerging Asia (% of GDP)

Item	2009	2010	Q1 2011
China, People's Republic of	51.4	50.7	48.7
Government	42.3	40.0	37.6
Corporate	9.1	10.7	11.1
Hong Kong, China	68.8	73.0	72.7
Government	33.3	38.8	38.3
Corporate	35.6	34.2	34.4
India	56.3	54.4	52.8
Government	45.4	43.3	41.8
Corporate	10.8	11.1	10.9
Indonesia	16.6	14.9	15.4
Government	15.0	13.1	13.6
Corporate	1.6	1.8	1.8
Korea, Republic of	111.1	110.3	111.4
Government	48.5	47.3	48.2
Corporate	62.5	63.1	63.2
Malaysia	93.4	98.6	99.6
Government	51.0	58.2	60.0
Corporate	42.4	40.4	39.7
Philippines	36.3	35.4	34.4
Government	31.9	31.3	30.0
Corporate	4.4	4.1	4.4
Singapore	74.2	75.5	77.1
Government	46.4	43.6	42.7
Corporate	27.8	31.9	34.3
Thailand	65.3	66.8	66.2
Government	52.1	54.4	53.2
Corporate	13.2	12.4	13.0
Viet Nam	13.4	15.1	15.8
Government	12.1	13.6	14.4
Corporate	1.3	1.5	1.4
Emerging Asia	**57.5**	**56.6**	**55.4**
Government	41.4	39.9	38.4
Corporate	16.1	16.8	17.0
Japan	190.0	198.4	201.2
Government	171.0	179.6	182.2
Corporate	19.0	18.8	19.0

GDP = gross domestic product, Q = quarter.
Notes:
1. Emerging Asia includes People's Republic of China; Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Thailand; and Viet Nam.
2. Data for gross domestic product are from CEIC except for India (Bloomberg).
Sources: People's Republic of China: ChinaBond; Hong Kong, China: Hong Kong Monetary Authority; India: Bloomberg; Indonesia: Bank Indonesia and Indonesia Stock Exchange; Japan: Japan Securities Dealers Association; Republic of Korea: Bank of Korea and EDAILY BondWeb; Malaysia: Bank Negara Malaysia; Philippines: Bureau of the Treasury and Bloomberg; Singapore: Monetary Authority of Singapore, Singapore Government Securities, and Bloomberg; Thailand: Bank of Thailand; and Viet Nam: Bloomberg.

The most interesting structural development in the regional corporate bond market in Q1 2011 was the displacement of the Republic of Korea (US$687 billion in total bonds outstanding at the end of Q1 2011) by the PRC (US$696 billion) as the region's largest corporate bond market. India was the region's third-largest corporate bond market at the end of Q1 2011 with total bonds outstanding of US$179 billion, followed by Malaysia (US$103 billion) and Singapore (US$85 billion).

Corporate bond markets with the most consistent year-on-year growth in 2009, 2010, and the first quarter of 2011 are the People's Republic of China, India, Indonesia, Republic of Korea, and Viet Nam.

The growth rate of the PRC corporate bond market slowed to 35.9% y-o-y in Q1 2011, from 77.5% in 2009, as growth in the issuance of medium-term notes slowed from well above 100% y-o-y and as other sectors of the PRC's large and diverse corporate bond market have matured. The issuance of private placements has been an important factor supporting growth in the Indian corporate bond market. In addition, issuance of corporate bonds in Singapore accelerated in 2010 on the back of the recovery from the 2008–2009 global financial crisis, with investments concentrated in real estate, finance, and infrastructure. The y-o-y growth of the smaller Indonesian corporate bond market (US$14 billion) has steadily accelerated from 21.2% in 2009 to 31.4% in Q1 2011. The smallest corporate bond market in the region, Viet Nam (US$1 billion), grew by an impressive 28.8% y-o-y in Q1 2011. The stock of nonbank private corporate bonds in the Republic of Korea grew 21.1% y-o-y in Q1 2011, compared with growth of 8.9% for public sector companies and a decline of 1.4% in bonds issued by banks.

Issuance

Local currency bond issuance across emerging Asia fell nearly 12% in the first quarter of 2011, led by a decline in government sector issuance as economic stimulus in response to the 2008/09 global financial crisis continues to wind down.

Declining issuance levels in 2010 and 2011 would at first seem to contradict the rapid growth rates of bonds outstanding in emerging Asian markets. For some markets, declining issuance levels simply reflect sharp fluctuations in very short-dated bonds and bills issued by governments and central banks. For example, the 9.3% y-o-y decline in issuance by treasuries and other government institutions in 2010 followed a 55.7% increase in 2009 at a time when governments were still actively implementing economic stimulus programs **(Table 3.4)**. Central bank issuance suddenly declined 27.9% y-o-y in Q1 2011, reflecting a cessation of issuance by many central banks following large increases in issuance in 2009 and 2010 for purposes of sterilizing capital inflows.

The sharp 20.4% y-o-y reduction in corporate bond issuance in India and the 27.4% y-o-y drop in corporate issuance in Singapore in Q1 2011 reflect major declines from the extraordinarily large amounts of corporate bond issuance in both of these markets in Q1 2010. Most individual corporate bond markets still recorded significant positive levels of issuance in Q1 2011. For example, Q1 2011 corporate issuance staged a remarkable recovery in some markets, resulting in large y-o-y increases of corporate issuance in the PRC (19.4%), Indonesia (45.5%), Malaysia (43.9%), and Thailand (90.0%). Thus, corporate issuance for the emerging Asia corporate bond market as a whole grew 11.4% y-o-y in Q1 2011.

Table 3.4: Local Currency-Denominated Bond Issuance (Gross)

Item	Q1 2011 Issuance (US$ billion)	Growth Rate (year-on-year, %)			Item	Q1 2011 Issuance (US$ billion)	Growth Rate (year-on-year, %)		
		2009	2010	Q1 2011			2009	2010	Q1 2011
China, People's Republic of	258	22.3	10.0	(26.0)	**Philippines**	4	24.2	9.0	(41.3)
Government	185	10.8	14.9	(35.7)	Government	4	15.0	27.4	(41.1)
Central Bank	51	(7.5)	17.3	(76.4)	Central Bank	0	–	–	–
Treasury and Other Govt.	134	54.5	11.4	90.8	Treasury and Other Govt.	4	15.0	27.4	(41.1)
Corporate	73	93.9	(7.6)	19.4	Corporate	0	103.1	(80.7)	(52.8)
Hong Kong, China	343	279.4	48.0	(0.8)	**Singapore**	47	26.6	17.3	18.6
Government	337	308.2	50.3	(1.0)	Government	44	32.6	12.2	23.8
Central Bank	336	307.7	50.1	(0.9)	Central Bank	0	–	–	–
Treasury and Other Govt.	0	–	236.4	(41.7)	Treasury and Other Govt.	44	32.6	12.2	23.8
Corporate	7	40.3	(7.8)	10.0	Corporate	3	(35.3)	128.0	(27.4)
India	50	67.7	(38.9)	1.0	**Thailand**	119	(3.4)	5.1	38.6
Government	40	75.4	(45.9)	8.1	Government	106	(1.1)	5.7	34.2
Central Bank	0	–	–	–	Central Bank	103	(8.9)	12.1	49.7
Treasury and Other Govt.	40	87.8	(45.9)	8.1	Treasury and Other Govt.	3	92.9	(30.1)	(70.9)
Corporate	10	26.3	13.2	(20.4)	Corporate	13	(22.2)	(1.6)	90.0
Indonesia	17	(16.3)	(18.8)	(79.8)	**Viet Nam**	2	(53.3)	207.4	55.9
Government	16	(16.8)	(19.6)	(80.7)	Government	2	(65.4)	294.9	67.1
Central Bank	10	(18.0)	(22.8)	(87.5)	Central Bank	0	(91.4)	(100.0)	–
Treasury and Other Govt	6	11.9	38.0	15.0	Treasury and Other Govt.	2	(56.3)	322.1	67.1
Corporate	1	40.3	32.5	45.5	Corporate	0	163.2	1.2	(87.8)
Korea, Republic of	136	67.2	(15.0)	(20.2)	**Emerging Asia**	**1,019**	**39.5**	**5.7**	**(11.9)**
Government	69	106.8	(30.2)	(34.3)	Government	841	39.6	6.5	(15.6)
Central Bank	44	148.0	(33.9)	(42.9)	Central Bank	572	32.4	14.8	(27.9)
Treasury and Other Govt.	25	35.6	(18.6)	(11.3)	Treasury and Other Govt.	269	55.7	(9.3)	32.4
Corporate	67	25.6	11.5	2.3	Corporate	179	39.0	2.0	11.4
Malaysia	42	(8.6)	13.4	88.4	**Japan**	550	13.9	11.1	(10.7)
Government	37	(7.7)	23.4	97.9	Government	509	15.7	13.5	(12.1)
Central Bank	27	(23.0)	54.6	133.7	Central Bank	0	–	–	–
Treasury and Other Govt.	9	42.9	(32.0)	36.4	Treasury and Other Govt.	509	15.7	13.5	(12.1)
Corporate	6	(11.0)	(14.4)	43.9	Corporate	42	(0.2)	(11.1)	11.5

( ) = negative, — = data not available, CB = Central Bank, Govt. = government, Q = quarter.
Notes:
1.Corporate bonds include issues by financial institutions.
2.Growth rates are calculated from local currency base and do not include currency effects.
3.Total emerging Asia growth figures are based on end-March 2011 currency exchange rates and do not include currency effects.
4. Emerging Asia includes People's Republic of China; Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Thailand; and Viet Nam.
Sources: People's Republic of China: *ChinaBond*; Hong Kong, China: Hong Kong Monetary Authority; India: Bloomberg; Indonesia: Bank Indonesia and Indonesia Stock Exchange; Japan: Japan Securities Dealers Association; Republic of Korea: Bank of Korea and EDAILY BondWeb; Malaysia: Bank Negara Malaysia; Philippines: Bureau of the Treasury and Bloomberg; Singapore: Monetary Authority of Singapore, Singapore Government Securities, and Bloomberg; Thailand: Bank of Thailand; and Viet Nam: Bloomberg.

On a quarterly basis, government bond issuance declined steadily in 2010, while new corporate issues generally increased.

A number of patterns in emerging Asian bond market issuance over the last 3 years are visible in **Figures 3.2a and 3.2b**. Figure 3.2a provides a quarterly series for treasury and other government and central bank issuance over the last 3 years. Central bank issuance recovered in Q1 2011 from very low levels in Q4 2010, but was still down significantly from Q1 2010. Issuance by government entities other than central banks has been relatively stable in recent quarters but is typically only about one-half that of central banks in a given quarter. On the other hand, Figure 3.2b shows that corporate issuance has generally been rising in most quarters over the last 2 years.

Based on turnover ratios, treasury bonds of the Republic of Korea and Singapore remained emerging Asia's most liquid debt instruments in 2010.

The most liquid treasury bonds (or their functional equivalent) in Asia have been those of the Republic of Korea and Singapore **(Figure 3.3)**, as evidenced by higher turnover ratios. Liquidity in these markets reflects aggressive consolidation of the number of government bonds outstanding, new issues in large sizes, and frequent re-openings of the key benchmark bonds. In the case of the Philippines, increased liquidity is the result of a very successful debt exchange offer in December 2010.

Declining government bond issuance across Asia in 2010 reflects reduced budget deficits.

Hong Kong, China registered a substantial surplus in 2010, Indonesia reduced its budget deficit to 0.6% of GDP, and Singapore's budget remained in its customary near balance **(Figure 3.4)**. The budget deficits of the PRC and Thailand were both reduced to 2.1% of GDP, while the Republic of Korea's deficit was reduced to 2.3%. The Philippines budget deficit in 2010 was equal to 3.7% of GDP. The three outliers for budget deficits in 2010 were India, with a deficit equivalent to 8.1% of GDP, followed by Malaysia and Viet Nam, both of which had deficits equal to 5.6% of GDP. The rapid growth of the government bond markets in these three countries has been driven in large part by the financing requirements of budget deficits that remain large.

Figure 3.2a: Government Bond Issuance—Emerging Asia (US$ billion)

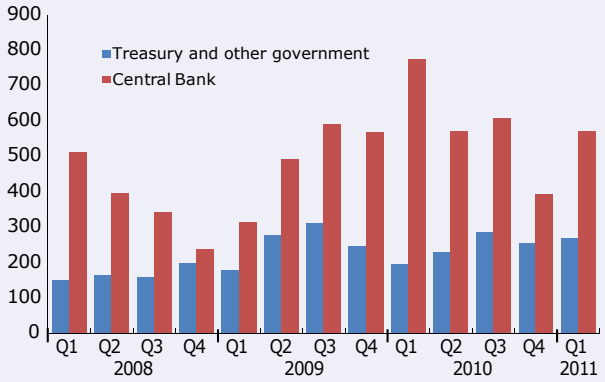
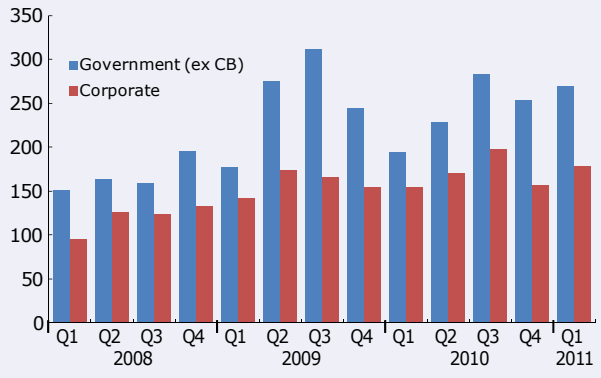
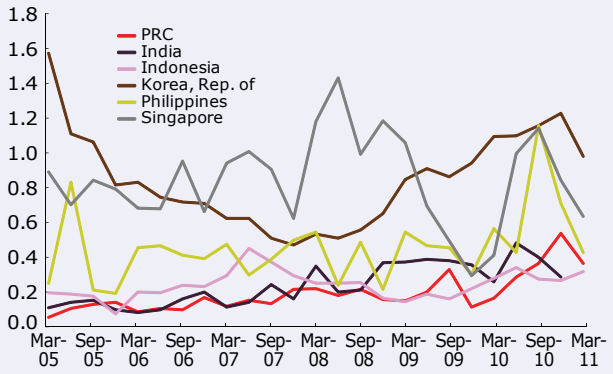


Figure 3.2b: Government (excluding Central Bank) and Corporate Bond Issuance—Emerging Asia (US$ billion)



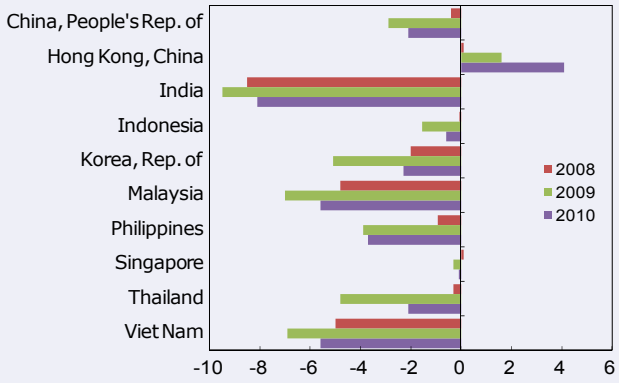
CB = Central Bank, Q = quarter.
Note: Data include local currency bond issuance of the People's Republic of China; Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Thailand; and Viet Nam.
Sources: ADB *AsianBondsOnline* and Bloomberg.

Figure 3.3: Quarterly Treasury Bond Turnover Ratio (%)



PRC = People's Republic of China.
Note: Data for India are up to December 2010 only.
Sources: ADB *AsianBondsOnline* and Bloomberg.

Figure 3.4: Fiscal Balance (% of GDP)



ADB = Asian Development Bank, GDP = gross domestic product.
Note: Data for all markets are official figures released by national authorities except for 2010 Hong Kong, China figure (based on 2010–2011 budget estimates).
Sources: People's Republic of China: Ministry of Finance and CEIC; Hong Kong, China: budget.gov.hk; India: ADB *Asian Development Outlook*; Indonesia: Indonesia Debt Management Office; Republic of Korea: ADB *Asian Development Outlook*; Malaysia: Bank Negara Malaysia and Ministry of Finance; Philippines: Bangko Sentral ng Pilipinas and Bureau of the Treasury; Singapore: Singapore Ministry of Finance; Thailand: Bank of Thailand; and Viet Nam: Viet Nam Ministry of Finance.

Government Bond Yield Curves

Benchmark yield curves in emerging Asia have flattened since the end of 2009, driven mainly by policy rate hikes in response to rising inflationary pressures, even as the US yield curve steepened.

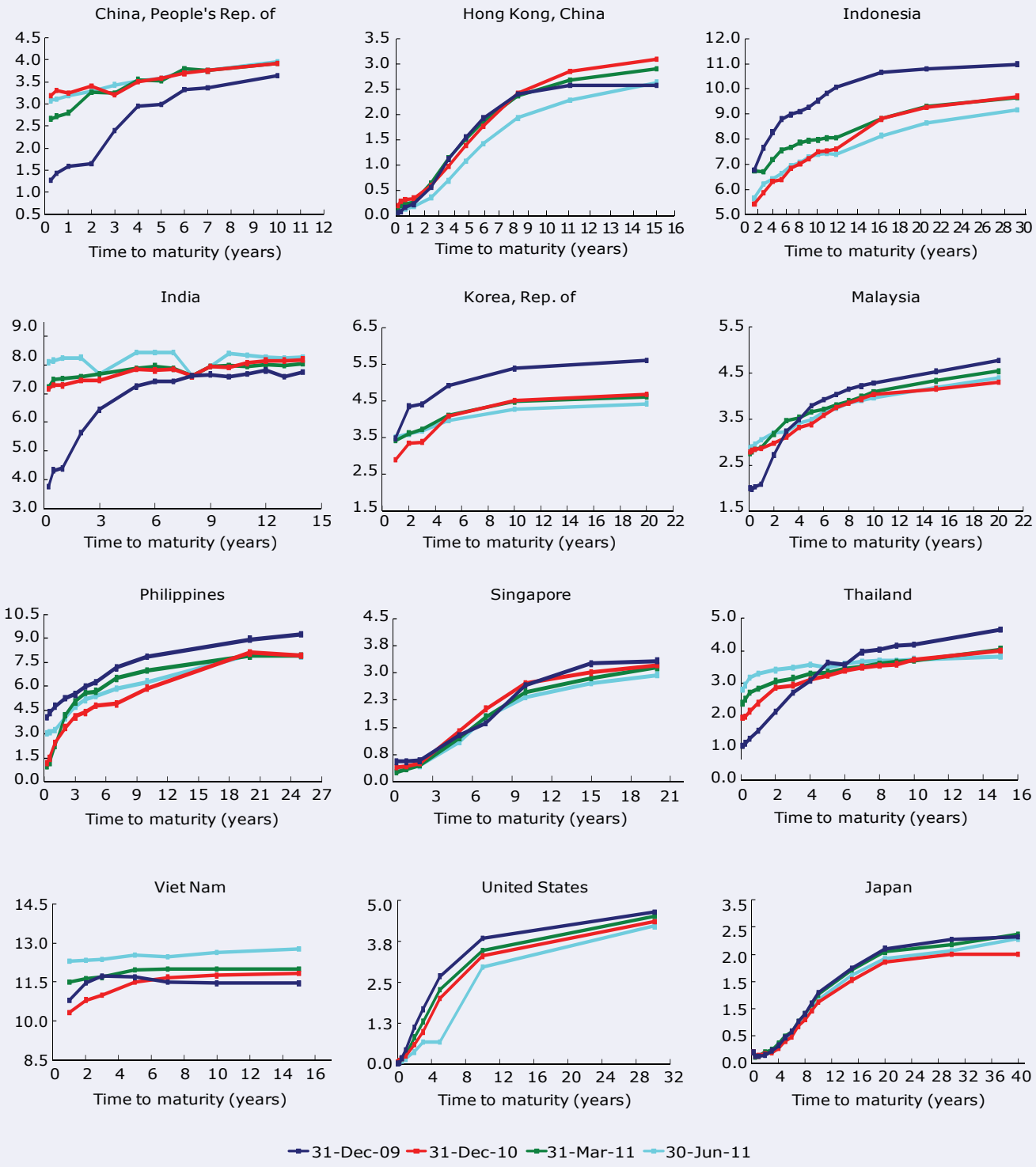
The most interesting feature of government bond yield curves in emerging Asia from the end of 2009 through 30 June 2011 has been the overall flattening trend, which has been accompanied by a sharp downward shift of the entire yield curve in Indonesia, the Republic of Korea, and the Philippines. In Malaysia and Thailand, the curve has shifted sharply downward since the end of 2009 for maturities of 5 years or more. The downward movement of emerging Asian government bond curves resembles developments in the US government bond curve over the same period, except that the US curve has sharply steepened since the end of 2009 for maturities of between 4 and 10 years **(Figure 3.5)**.

In the PRC and India, the government bond yield curve has shifted upward since the end of 2009, with the largest upward movement taking place between the belly and the short end of the curve in both cases. Especially in India, the short end rose sharply and the yield curve flattened substantially between the end of 2009 and the end of 2010. In Viet Nam, however, the curve steepened between the end of 2009 and the end of 2010, with yields falling on bonds with maturities of 5 years or less and rising from the belly through the end of the curve. In most markets the flattening trend has been driven by a sharp rise in policy interest rates as central banks and monetary authorities have raised rates to counter renewed inflationary pressures that have accompanied the region's recovery from the 2008–2009 global financial crisis.

Since the end of 2010, short-term yields have risen further in the People's Republic of China, India, Republic of Korea, Malaysia, Thailand, and Viet Nam.

Yields on Indian bonds with maturities of 2 years or less rose 72 basis points (bps) to 97 bps between the end of 2010 and 30 June 2011. Over the same period, yields on Indian bonds with 5–7 year maturities rose 50–58 bps, while maturities

Figure 3.5: Benchmark Yield Curves—Local Currency Bonds (%)



Source: Bloomberg.

of 10 years or more rose 14–41 bps. In Thailand, maturities of 1 year or less rose 94–119 bps between the end of 2010 and 30 June, while yields for maturities of 2 years rose 83 bps and yields for maturities of 3 years rose 79 bps. Yields for maturities of more than 3 years also rose during this period but by much smaller amounts, resulting in an overall flattening of the Thai yield curve. In Malaysia, yields for bonds with maturities of 1 year rose 16 bps and with maturities of 2 years rose 22 bps between the end of 2010 and 30 June 2011. Yields on bonds with maturities of 7 years through the end of the curve fell between 3 bps and 11 bps. Yields in the Republic of Korea rose 67 bps for maturities of 1 year, 33 bps for maturities of 2 years, and 38 bps for maturities of 3 years between the end of 2010 and 30 June 2011. Yields fell 7–27 bps along the rest of the Republic of Korea's government bond curve. Yields on PRC bonds with tenors of 1 year or less rose 17–29 bps between the end of 2010 and the end of June 2011, while yields on 7-year and 10-year bonds fell by 2 bps. Between the end of December 2010 and the end of June 2011, government bond yields in Viet Nam rose for all maturities. Due to accelerating inflation, the government bond benchmark yield for the 1-year tenor rose to 12.57% by the end of June, higher by 224 bps than at the end of December 2010. Yields for 2-year maturities rose by 163 bps and for 3-year maturities by 146 bps. Meanwhile, the increase in yields at the belly to the longer end of the curve was less, ranging between 52 bps and 97 bps.

Yield curves for Indonesia; Hong Kong, China; Philippines; and Singapore have exhibited a range of behaviors in 2011.

The flattening of the yield curve for the Philippines reflects a sharp rise in yields for maturities of 1 year or less during the second quarter of 2011, which followed a small decline between the end of 2010 and 31 March. For maturities of 3–10 years, an initial rise in yields of 93–160 bps was moderated by a small decline in yield by the end of June. On the other hand, yields for 25-year maturities rose 10 bps between the end of 2010 and 30 June 2011.

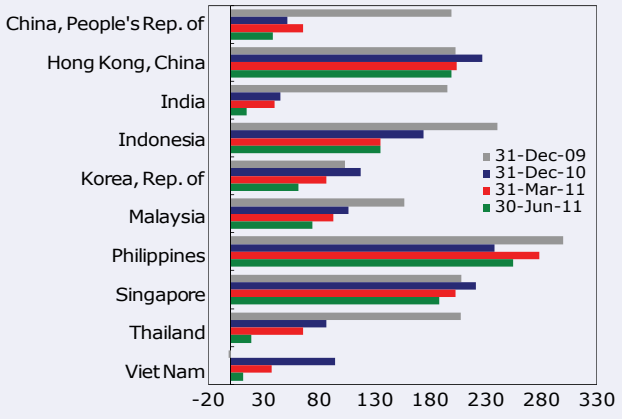
Yields on most Indonesian bonds rose sharply in Q1 2011 before declining between 31 March and 30 June. For maturities of 9 years or less, the decline by the end of June was much less than the rise in yields in Q1 2011, resulting in a moderate rise in yields for these maturities between the end of 2010 and 30 June 2011. Yields at the long end of the curve saw major declines over the same period.

Finally, the yield curves for Singapore and Hong Kong, China have flattened since the end of 2010 on the back of a progressive decline in yields at the long end of both curves. Yields at the short end of the Singapore and Hong Kong, China curves have declined only slightly since the end of 2010. However, yields in the belly of the Hong Kong, China curve fell dramatically in the second quarter of 2011.

Yield spreads between 2-year and 10-year maturities fell dramatically in most Asian markets in 2010.

The decline in yield spreads between 2-year and 10-year maturities in 2010 continued into 2011 for most Asian markets **(Figure 3.6)**. The only exception to this trend is the Philippines where

Figure 3.6: 10-Year and 2-Year Government Bond Yield Spreads—Emerging Asia (basis points)



Source: Bloomberg.

yield spreads widened in the same period. The yield spreads between 2-year and 10-year maturities in India and Viet Nam were negligible as of 30 June, reflecting the rapid rise in their respective short-term interest rates over the past year.

Authorities in Asia are raising policy rates in response to inflationary pressures that have been building steadily over 2010.

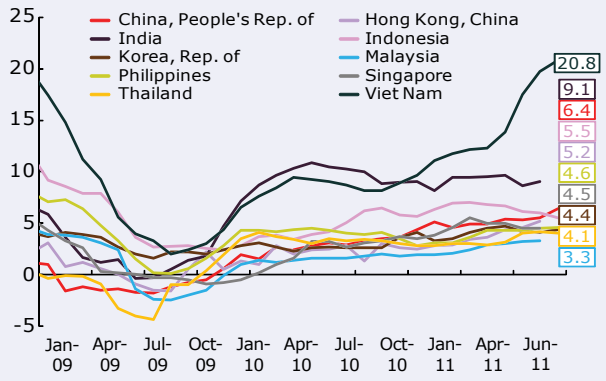
The most striking example of inflation in the region is in Viet Nam where prices rose almost 21% y-o-y in June, with no clear indication of a coming reversal. Consumer price inflation levels were also high in India (9.1% in May) and in Indonesia (5.5% in June), although these rates have come down slightly from even higher levels in 2010 **(Figure 3.7)**. With the exception of Hong Kong, China, all of the region's authorities have responded to increasing inflationary pressures by raising policy rates over the last year **(Figure 3.8)**. The region's highest policy rates as of 11 July 2011 were in Viet Nam (9.0%), India (7.5%), Indonesia (6.8%), and the PRC (6.6%). In addition to the decision of the Reserve Bank of India in June to raise by 25 bps each the repurchase (repo) rate to 7.5% and the reserve repo rate to 6.5%, the policy rate in the Philippines was raised to 4.5% in May and in the Republic of Korea it was raised to 3.3% in June. Malaysia's policy rate had gradually been raised to 3.0% over the last year while on 13 July, the Bank of Thailand raised its 1-day repurchase rate by 25 basis points to 3.3%.

Credit spreads for high-grade corporate bonds have generally tightened across emerging Asia in 2011.

Credit spreads on high-grade corporate bonds—the difference between yields on government bonds and AAA-rated corporate bonds—generally tightened in most markets between the end of 2010 and 31 May 2011 **(Figure 3.9)**. The notable exception to this trend was the PRC, where high-grade credit spreads on 31 May were above levels from both the end of 2010 and 31 March, reflecting the corporate governance and accounting scandals in recent months. In India, high-grade credit spreads rose between the end of 2010 and 31 March before falling back below end-2010 levels by 31 May.

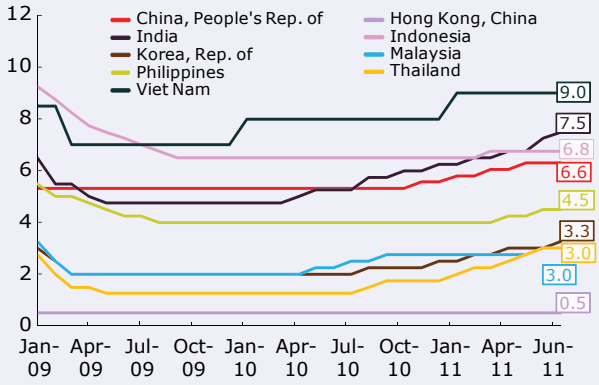
Credit spreads for lower-rated investment-grade corporate bonds—the difference between yields on AAA-rated and BBB-rated bonds in most markets—have also tightened in most markets in

Figure 3.7: Headline Inflation—Emerging Asia
(year-on-year, %)



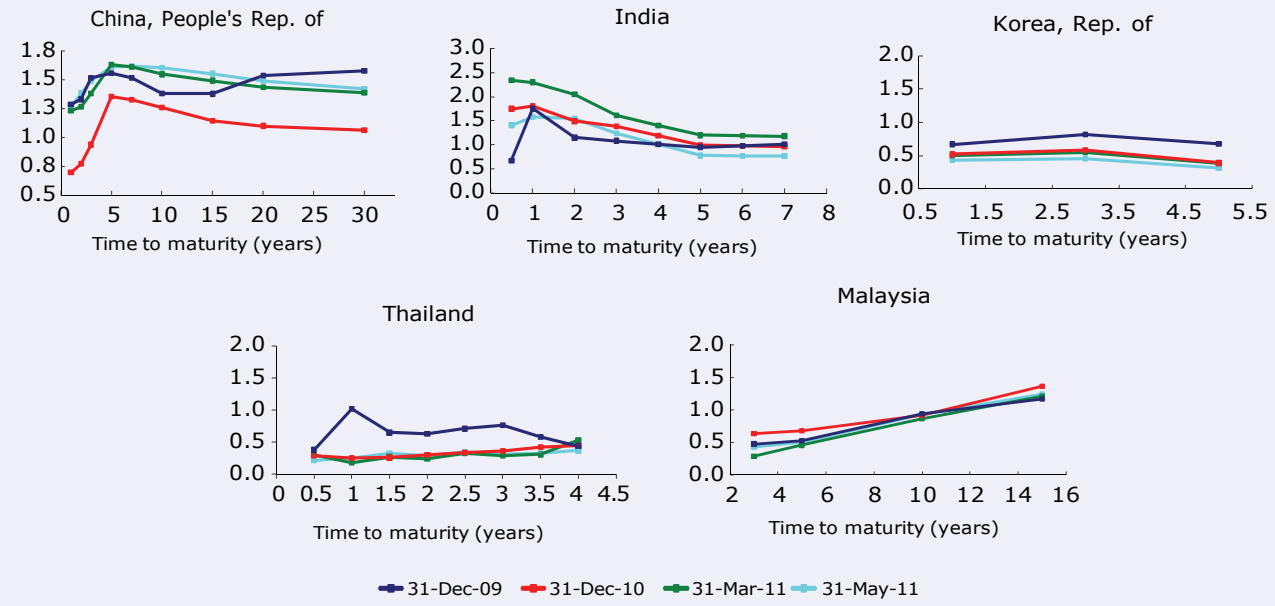
Note: Data refer to June 2011 figures except for Hong Kong, China; Malaysia; Singapore; and India (as of May 2011).
Source: Bloomberg.

Figure 3.8: Policy Rates—Emerging Asia
(% per annum)



Note: Data refer to June 2011.
Source: Bloomberg except for Viet Nam (State Bank of Viet Nam).

Figure 3.9: Credit Spreads—Local Currency Corporate Bonds Rated AAA vs. Government Bonds (%)



Notes:
1. Credit spreads are obtained by subtracting government yields from corporate indicative yields.
2. For Thailand, yields are until 30 April 2011.
Sources: People's Republic of China: *ChinaBond*; India: Fixed Income Money Market and Derivatives Association of India; Republic of Korea: *KoreaBondWeb*; Malaysia: Bank Negara Malaysia; and Thailand: ThaiBMA.

2011 **(Figure 3.10)**. The two exceptions to this trend are the PRC and Thailand. Spreads on these lower-rated investment-grade corporate bonds in the PRC widened along the entire curve between the end of 2010 and 31 March, before tightening from the short end to the belly of the curve in April and May. Spreads on lower-rated investment-grade Thai corporate bonds with maturities of 2–3 years widened between the end of 2010 and 30 April, while spreads for most other maturities were largely unchanged over this same period.

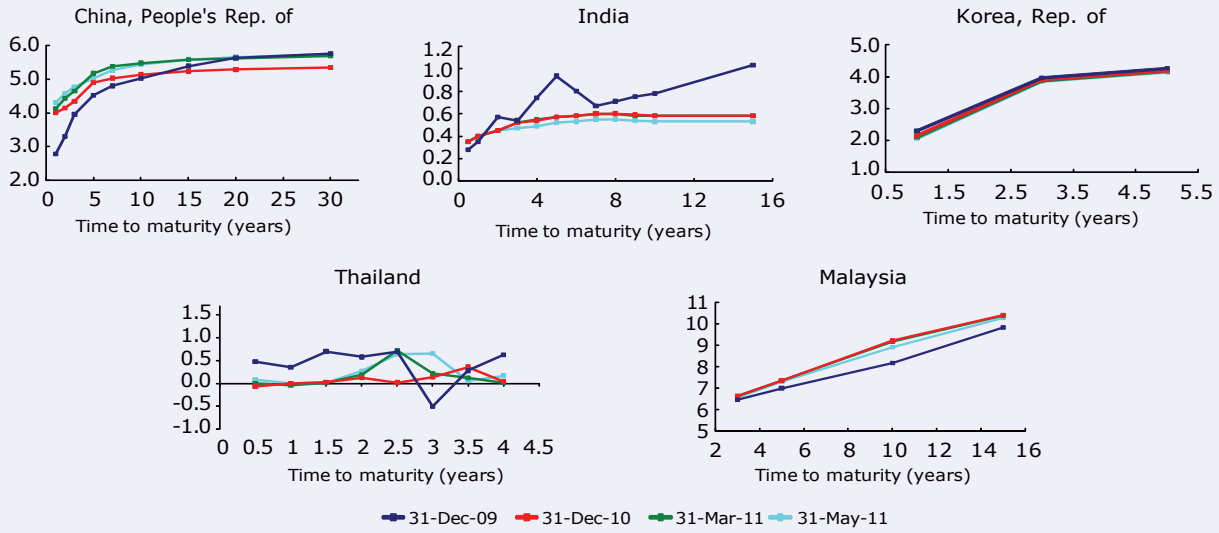
Year-to-date returns for emerging Asia's bond markets through the end of May suggest that returns for full-year 2011 may equal 2010's robust results.

The Asian Bond Fund's Pan Asia Bond Index rose 10.2% in 2010, following a 5.0% increase in 2009 **(Table 3.5)**. The 2011 year-to-date (YTD) return for the index as of 31 May reached 4.3%, suggesting that the index might match its robust 2010 performance this year. Indonesia remains the most strongly performing market in the index in 2011, as it was in 2010. The Indonesian unhedged YTD return in 2011 is 10.8%, compared with a return of 23.7% in full-year 2010. The next best performing market in 2011 has been the Republic of Korea, with a YTD return of 7.4%, compared with 10.6% in 2010. Next comes Singapore with a YTD return of 6.6%, compared with 11.3% in 2010.

The bond markets of Malaysia, the Philippines, and Thailand, however, are performing less well in 2011 than in 2010. The YTD return for Malaysia is 3.6%, compared with 15.6% for full-year 2010, and the YTD return for the Philippines is 2.4%, compared with 19.7% in 2010. Thailand's YTD return is 0.5%, compared with 15.4% in 2010.

The Asian Bond Fund's Pan-Asian Bond Index two weakest performers in 2010—the PRC and Hong

Figure 3.10: Credit Spreads—Lower Rated Local Currency Corporate Bonds vs. AAA (%)



Notes:
1. For the People's Republic of China, credit spreads are obtained by subtracting corporate indicative yields rated as AAA from corporate indicative yields rated as BBB. For Malaysia, credit spreads are obtained by subtracting corporate indicative yields rated as AAA from corporate indicative yields rated as BBB. For the Republic of Korea, credit spreads are obtained by subtracting corporate indicative yields rated as AAA from corporate indicative yields rated as BBB+.
2. For Thailand, credit spreads are obtained by subtracting corporate indicative yields rated as AAA from corporate indicative yields rated as A. Yields are until 30 April 2011.
Sources: People's Republic of China: ChinaBond; Republic of Korea: KoreaBondWeb; Malaysia: Bank Negara Malaysia; and Thailand: ThaiBMA.

Table 3.5: iBoxx Asia Bond Fund Index Family Returns

Market	Modified Duration (years)	2009 Returns (%)		2010 Returns (%)		Q1 2011 Returns (%)		2011 YTD Returns (%)	
		LCY Total Return Index	US$ Unhedged Total Return Index	LCY Total Return Index	US$ Unhedged Total Return Index	LCY Total Return Index	US$ Unhedged Total Return Index	LCY Total Return Index	US$ Unhedged Total Return Index
China, People's Republic of	5.8	(0.6)	(0.7)	1.6	5.1	0.4	1.0	1.4	3.1
Hong Kong, China	3.9	(0.8)	(0.8)	2.0	1.8	0.7	0.6	2.1	2.0
Indonesia	5.8	20.2	35.6	19.3	23.7	0.7	4.0	5.5	10.8
Korea, Republic of	4.0	1.9	9.7	8.0	10.6	0.8	4.2	2.4	7.4
Malaysia	4.4	0.5	1.6	5.2	15.6	0.4	2.3	1.3	3.6
Philippines	5.1	9.0	11.8	14.3	19.7	(1.3)	(0.4)	1.3	2.4
Singapore	5.6	0.5	3.1	2.5	11.3	1.7	3.4	2.7	6.6
Thailand	4.8	(3.5)	0.7	5.4	15.4	0.5	0.1	1.0	0.5
Pan Asia	4.9	n.a.	5.0	n.a.	10.2	n.a.	1.9	n.a.	4.3
HSBC ALBI	7.7	n.a.	6.1	n.a.	11.5	n.a.	2.3	n.a.	4.7
US Govt. 1–10 years	3.9	n.a.	(1.4)	n.a.	5.3	n.a.	(0.1)	n.a.	2.4

( ) = negative, ALBI = Asian Local Bond Index, Govt. = government, LCY = local currency, n.a. = not applicable, Q = quarter, US = United States, YTD = year-to-date.
Notes:
1. The Asian Bond Fund (ABF) indexes contain only government debt and government-guaranteed debt obligations.
2. Market bond indices are from iBoxx Index Family. Returns for 2011 are year-to-date as of 31 May 2011.
3. Annual returns are computed for each year using natural logarithm of end-of-year index value/beginning year index value.
4. Duration as of 31 May 2011.
Sources: ADB *AsianBondsOnline* and Bloomberg.

Kong, China—have shown modest improvements in 2011. The YTD performance of the PRC is 3.1%, compared with 5.1% in 2010, while the YTD performance of Hong Kong, China in 2011 is 2.0%, compared with 1.8% for all of 2010. If these trends continue for the rest of 2011, the Pan-Asian Bond Index could broadly match its overall performance in 2010.

Policy Implications

Broadening the investor base and improving bond market liquidity remain key policy challenges for the region's authorities.

The results of the annual AsianBondsOnline Bond Market Liquidity Survey released in Q4 2010 once again identified greater investor diversity as the most important need in nearly every market in the region. The survey results also revealed that banks and nonbank financial institutions remained the largest holders of government and quasi-government bonds in 2010. Banks and nonbank financial institutions generally hold bonds to serve the needs of retail customers and to manage the liquidity of their own balance sheets, and thus focus either on short-dated bills or bonds with 3–5 year maturities issued by governments and central banks.

Consolidating the number of bonds outstanding in each market through bond exchanges and re-issuing existing bonds to improve liquidity helps to attract a wider range of investors, as does extending maturity profiles. Examples of positive steps being taken in Asia include the Government of Singapore limiting its bond issues to only 19, the ongoing consolidation of benchmark bond sizes in the Republic of Korea while smaller illiquid issues are allowed to mature, and the large and hugely successful peso bond market debt exchange executed by the Government of the Philippines in December 2010 as well as the more recent bond exchange executed in early July.

Expansion and diversification of local currency corporate bond market issuers and investors would better balance bond market growth across the region.

The size of individual LCY bond markets in the region remains small compared with equity markets, and state-owned enterprises remain the dominant players in many local bond markets. Issuance is often led by banks and government-owned housing corporations, while the high-yield sector remains weak and underdeveloped. Over the last year, however, private sector issuance from a more diverse set of companies and industries has increased in several of the more rapidly growing corporate bond markets such as India, Indonesia, Republic of Korea, and Singapore. Over the last year, new-found interest in LCY corporate bond market names among investment fund managers, many of whom are based in Singapore, has also been a positive development.

Strengthened transparency and disclosure in emerging Asia, as well as harmonized credit rating standards, can improve investor confidence in local currency bond markets.

The latest AsianBondsOnline survey of market participants identified the difficulty investors face in understanding credit risks in other emerging Asian markets as an important factor inhibiting cross-border investment. A recent International Monetary Fund paper emphasized the importance of developing a central securities depository among the five largest LCY bond markets in ASEAN—Indonesia, Malaysia, Philippines, Singapore, and Thailand—as an important first step forward. Finally, tightening securities regulation, strengthening disclosure, harmonizing credit rating standards, and streamlining registration procedures for securities offerings can also contribute to improving investor confidence in emerging Asia's LCY bond markets.

Financial Integration and Capital Flow Volatility in Emerging Asia:

Issues and Policies

Financial Integration and Capital Flow Volatility in Emerging Asia: Issues and Policies[1]

Introduction

The ebb and flow of capital to emerging Asia during the 2008/09 global financial crisis reignited the debate over the costs and benefits of financial openness and liberalization.

In theory, freer capital mobility enhances welfare—it promotes more efficient allocation of financial resources. Yet large and volatile capital flows are risks and present challenges to emerging market economies. For example, large short-term capital flows have historically disrupted domestic monetary policy, destabilizing financial systems and economic growth.

Financial integration and contagion are two sides of the same coin: while a virtuous cycle in good times, greater integration also reduces the defense against negative shocks.

Financial crises underline the risks of financial integration. For emerging Asia,[2] the 2008–2009 global financial crisis once again exposed the vulnerability of its financial markets to worldwide turmoil. Although crisis spillovers were relatively limited (the region had little direct exposure to United States [US] subprime mortgages or other "toxic" assets), continuing finance sector development in Asia suggests the next crisis could be more damaging. Thus, a reassessment is called for in evaluating the next steps for emerging Asia's financial integration.

Given the potential costs of crisis contagion from integration, a new financial architecture must minimize risks and maximize net benefits of free capital flows.

Effectively managing capital flows has resurfaced as a major policy concern for much of emerging Asia since the global financial crisis. Understanding the forces behind capital flow volatility is essential when designing a policy framework that can effectively manage capital flow volatility and its disruptive potential. The composition of capital flows significantly affects financial volatility.[3] Empirical evidence also suggests that short-term capital flows, e.g., from bank lending and portfolio investments, tend to be more volatile than long-term flows, such as foreign direct investment (FDI). However, very little is known about the factors driving different types of capital flows to emerging Asia and how they affect volatility.

This section attempts to answer the following three questions:

(i) For emerging Asia, how do different types of capital flows affect capital flow volatility?

(ii) How integrated is emerging Asia financially, and what does this mean for financial spillovers and contagion?

(iii) What have we learned from the most recent crisis and how do we maximize the net benefits of financial integration?

[1] This section was prepared by Cyn-Young Park drawing on C.-Y. Park and J.W. Lee (2011), and R. Mercado and C.-Y. Park (2011).

[2] Emerging Asia includes the People's Republic of China; Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Taipei,China; Thailand; and Viet Nam.

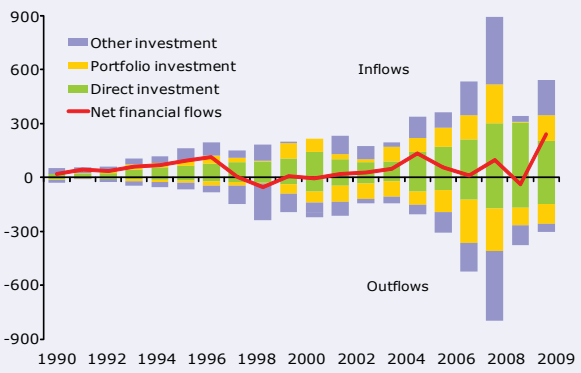
[3] Wei and Wu (2001), Ju and Wei (2006), Levchenko and Mauro (2007), and Tong and Wei (2009) find that the economy is more vulnerable to a financial crisis if the composition of capital flows is skewed toward short-term flows that are more likely to be reversed than FDI in times of financial stress.

Composition of Capital Flows and Capital Flow Volatility

The wave of financial deregulation and capital account liberalization since the 1990s has led to a surge in capital flows to emerging market economies.

Emerging Asia has been at the forefront of this trend, attracting more than 50% of total financial flows to emerging market economies on average since 2000. Although many Asian economies still maintain (or have recently adopted) some controls on cross-border capital flows, capital accounts now appear fairly open, as suggested by the high (and increasing) amount of financial flows in and out of emerging Asia's market economies **(Figure 4.1)**.

Figure 4.1: Financial Account Flows—Emerging Asia (US$ billion)



Notes: Emerging Asia includes People's Republic of China; Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Taipei,China; Thailand; and Viet Nam. Data for Hong Kong, China start in 1998, and for Viet Nam in 1996. Other investment includes financial derivatives.
Source: *International Financial Statistics* and *World Economic Outlook Database*, International Monetary Fund.

Emerging Asia's strong growth prospects have attracted a sizeable share of capital flows to emerging markets worldwide.

Emerging Asia has been a major destination of international capital flows **(Figures 4.2a–4.2c)**. It accounts for more than half the total FDI in emerging market economies. Portfolio investments also increased sharply in Asia during the 2000s,

Figure 4.2a: Foreign Direct Investment Inflows—Emerging Markets

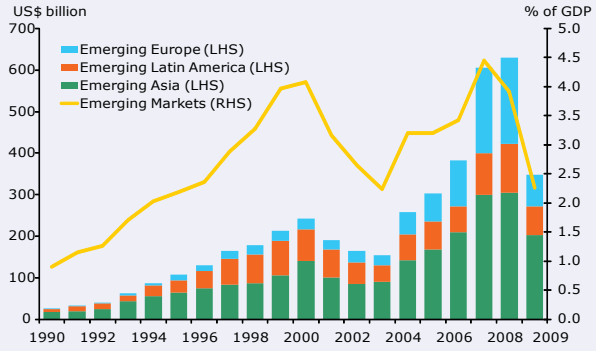


Figure 4.2b: Foreign Portfolio Investment Inflows—Emerging Markets

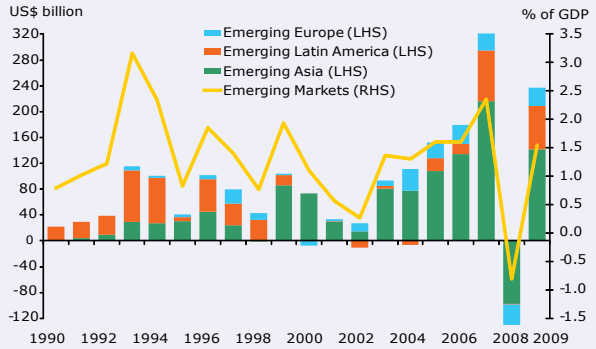
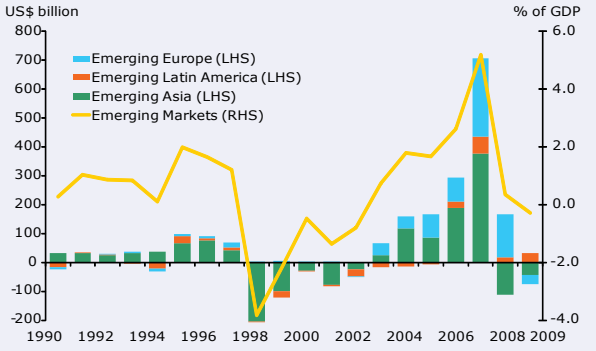


Figure 4.2c: Other Investment Inflows—Emerging Markets



GDP = gross domestic product, LHS = left-hand scale, RHS = right-hand scale.
Notes: Emerging markets refers to emerging economies from Asia, Europe, and Latin America. They include emerging Asia (People's Republic of China; Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Taipei,China; Thailand; and Viet Nam), emerging Europe (Belarus, Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Moldova, Poland, Romania, Russian Federation, Slovak Republic, and Ukraine), and emerging Latin America (Argentina, Brazil, Chile, Colombia, Dominican Republic, Ecuador, Guatemala, Mexico, Peru, Venezuela). Foreign portfolio investment refers to liabilities; other investment includes financial derivative liabilities.
Source: *International Financial Statistics* and *World Economic Outlook Database*, International Monetary Fund.

taking up the majority—79%—of total portfolio investments to emerging market economies. Although emerging Asia has reduced its reliance on "other investment" (which includes financial derivatives) flows since the 1997–1998 Asian financial crisis (reflecting tighter prudential oversight on cross-border banking flows), it continues to attract a significant share of other investment flows to emerging markets.

The regional picture masks significant country-specific differences.

The geographic distribution of financial flows in FDI, portfolio investments, and other investment flows in emerging Asia shows wide differences between economies **(Figures 4.3a–4.3c)**. The People's Republic of China (PRC) has received most FDI—44% of the 2003–2007 total. Newly industrialized economies (NIEs)[4] also attract a substantial share of FDI. ASEAN-5's share of FDI lags, although there was a slight increase in the mid-2000s.[5] The emergence of India as an FDI destination has been apparent in recent years, where portfolio investment inflows substantially increased during 2003–2007, averaging 2.1% of regional gross domestic product (GDP) during the period, compared with just 1.2% during 1995–2002. Given their market openness and increasing role as globalized financial centers, the NIEs dominate portfolio investment flows both in and out of Asia. They also accounted for the majority of other investment flows in both directions, for much the same reasons.

The composition of capital flows to emerging Asia remains a major concern, despite a trend toward more stable, longer-term investments over the past decade.

Capital flows to emerging Asia in the past decade have become more stable and been of longer term. FDI accounted for 58.5% of total capital flows to

Figure 4.3a: Foreign Direct Investment Inflows—Emerging Asia

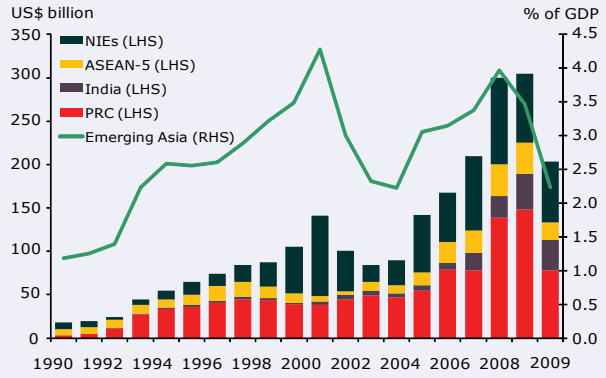


Figure 4.3b: Foreign Portfolio Investment Inflows—Emerging Asia

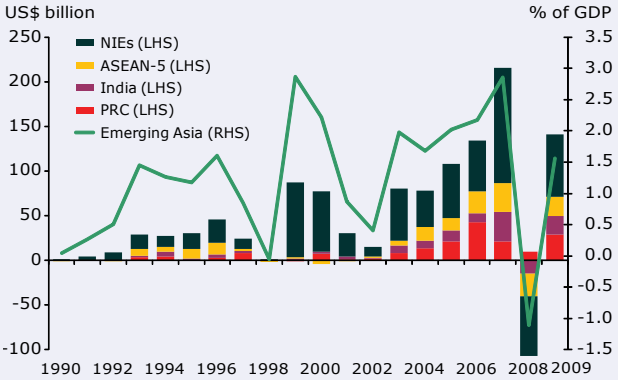
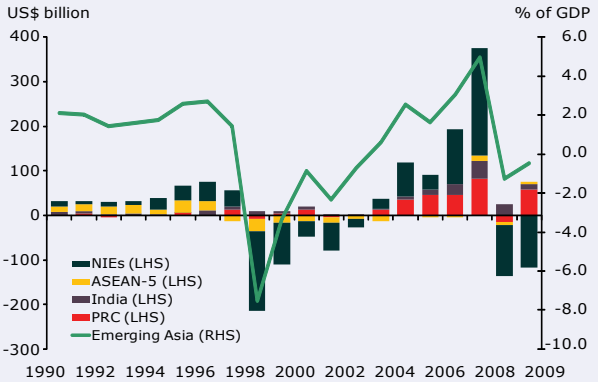


Figure 4.3c: Other Investment Inflows—Emerging Asia



ASEAN = Association of Southeast Asian Nations, PRC = People's Republic of China, GDP = gross domestic product, LHS = left-hand scale, NIE = newly industrialized economy, RHS = right-hand scale.
Notes: Emerging Asia includes People's Republic of China; Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Taipei,China; Thailand; and Viet Nam. ASEAN-5 consists of Indonesia, Malaysia, Philippines, Thailand, and Viet Nam. NIEs consists of Hong Kong, China; Republic of Korea; Singapore; and Taipei,China. Foreign portfolio investment refers to liabilities; other investment includes financial derivative liabilities.
Source: *International Financial Statistics* and *World Economic Outlook Database*, International Monetary Fund.

[4] The NIEs consists of Hong Kong, China; Republic of Korea; Singapore; and Taipei,China.

[5] ASEAN-5 consists of the five Association of Southeast Asian Nations (ASEAN) countries of Indonesia, Malaysia, Philippines, Thailand, and Viet Nam.

emerging Asia in the 2000s, up from 50.6% in the 1990s. The shift toward FDI as a share of total capital flows to emerging Asia appeared after 1997–1998, reflecting the lessons learned from the Asian financial crisis. However, emerging Asia continues to attract a much larger share of short-term flows than other developing regions. For example, excluding the PRC, emerging Asia's share of total FDI flows to emerging markets actually declined from 13.0% in the 1990s to 10.4% in the 2000s.

Different types of capital exhibit different patterns of volatility.

Volatility can be measured by the coefficient of variation[6] for different types of capital flows (over GDP) to emerging Asian economies. **Table 4.1** shows the results for 1980–2009 in three different subperiods. Capital flow volatility in emerging Asia was highest during 1990–1999, given the effects of the 1997–1998 crisis. The crisis let loose the risk of a sudden stop in, and a sharp reversal of, capital flow—in particular short-term flows. Other investment flows are the most volatile capital flows; portfolio flows are the second most volatile, with FDI the most stable, which is consistent with earlier studies.

[6] The coefficient of variation is a normalized measure of volatility independent of different units or means of the variables.

Short-term capital flows show the greatest volatility for several groups of Asian economies.

Measuring the trend of capital flow volatility during 1980–2009, it is clear that short-term capital flows tend to be most volatile **(Figures 4.4a–4.4c)**. For emerging Asia, FDI volatility has been consistently lower than both portfolio and other investment flows. Until the mid-1990s, portfolio and other investment flows showed similar levels of volatility. Since then, the volatility of other investment flows has started to marginally exceed that of portfolio flows. The volatility of short-term flows—particularly other investment flows—increased sharply during the 1997–1998 and 2008–2009 crises. Similar patterns occurred for Association of Southeast Asian Nations (ASEAN) economies and the NIEs. Interestingly, the volatility of other investment flows—which declined gradually from their 1997–1998 crisis peak—has increased since the early 2000s in ASEAN economies, showing the highest volatility among different types of capital during the recent global crisis. For the NIEs, the volatility of portfolio investments was highest during the recent crisis, although other investments also rose during the period.

Table 4.1: Coefficient of Variation of Capital Inflows

Type of capital	1980–1989	1990–1999	2000–2009	1980–2009
Full sample, emerging markets				
Total capital	13.4	1.8	1.6	3.1
Foreign direct investment	2.1	1.2	1.2	1.5
Foreign portfolio investment	5.4	3.1	3.5	3.8
Other investment	39.3	6.1	3.9	10.1
Emerging Asia				
Total capital	1.2	2.5	2.0	2.0
Foreign direct investment	1.7	1.2	1.3	1.5
Foreign portfolio investment	2.9	4.1	3.1	3.7
Other investment	1.3	15.4	7.9	5.3

Notes:
1. Values refer to coefficient of variation of capital inflows (over gross domestic product) measured by dividing the standard deviation by the mean.
2. Emerging markets include economies from emerging Asia (Bangladesh; People's Republic of China; Georgia; Hong Kong, China; India; Indonesia; Kazakhstan; Republic of Korea; Malaysia; Pakistan; Papua New Guinea; Philippines; Singapore; Sri Lanka; Taipei,China; Thailand; and Viet Nam), emerging Europe (Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Russian Federation, Slovak Republic, Slovenia, Turkey, and Ukraine), emerging Latin America (Argentina, Brazil, Chile, Colombia, Dominican Republic, Ecuador, Mexico, Panama, Peru, Uruguay, and Venezuela), and other emerging economies (Botswana, Ghana, Ivory Coast, Israel, Jordan, Kenya, Nigeria, Oman, Saudi Arabia and South Africa).
Source: ADB Office of Regional Economic Integration using data from *International Financial Statistics* and *World Economic Outlook Database*, International Monetary Fund.

Figure 4.4a: Volatilities of Investment Inflows—Emerging Asia (% of GDP)

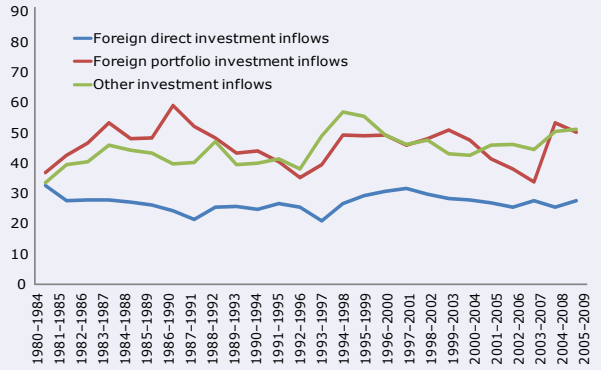


Figure 4.4b: Volatilities of Investment Inflows—ASEAN-5 (% of GDP)

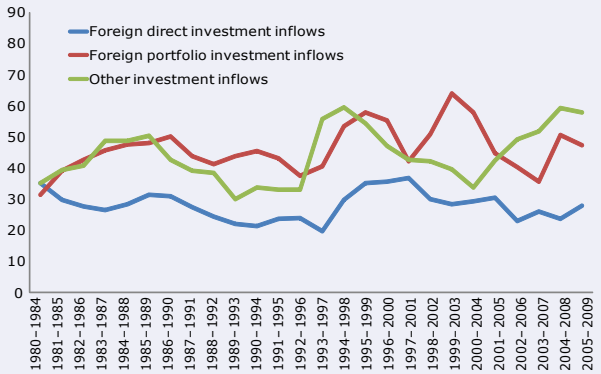
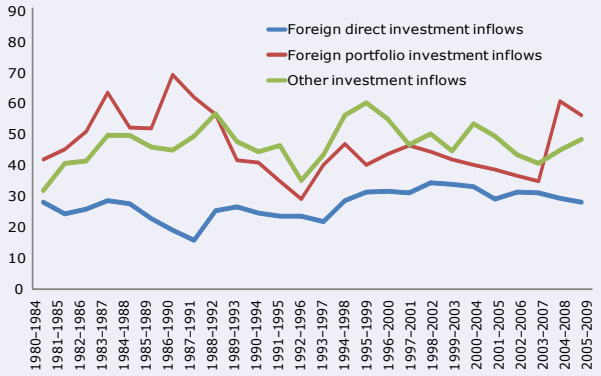


Figure 4.4c: Volatilities of Investment Inflows—NIEs (% of GDP)



ASEAN = Association of Southeast Asian Nations, GDP = gross domestic product, NIE = newly industrialized economy.
Notes: Emerging Asia includes People's Republic of China; Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Taipei,China; Thailand; and Viet Nam. ASEAN-5 consists of Indonesia, Malaysia, Philippines, Thailand, and Viet Nam. NIEs consists of Hong Kong, China; Republic of Korea; Singapore; and Taipei,China.
Source: H.-H. Lee and C.-Y. Park (2011).

The maturity structure of debt financing also has important implications for capital flow volatility.

Similarly, when measuring the volatility of net flows of short- and long-term foreign debt, short-term debt appears more volatile, as expected **(Figures 4.5a and 4.5b)**. For emerging Asia, however, the volatility of long-term debt has steadily increased over time, reaching nearly the same level as that of short-term debt since 2005. ASEAN economies show a similar pattern, although the volatility of long-term debt remains below that of short-term debt, except for during the recent crisis period.

Determinants of capital flows should be clearly understood when considering financial liberalization or the introduction of capital controls.

The relative importance of "push" and "pull" factors in driving international capital flows is a source of heated debate. If the size and volatility of capital flows are determined by push factors (external conditions such as a decline in interest rates in advanced economies or recessions), emerging market economies may find it difficult to regulate capital inflows individually. However, if capital flows depend largely on pull factors (domestic conditions that attract capital for economic growth), then adopting appropriate policies may help influence the size, type, and volatility of capital flows. Unfortunately, empirical evidence to date is largely mixed, leaving the debate unresolved despite the important policy implications regarding financial liberalization and capital controls.

Figure 4.5a: Volatilities of Foreign Debt—Emerging Asia (% of GDP)

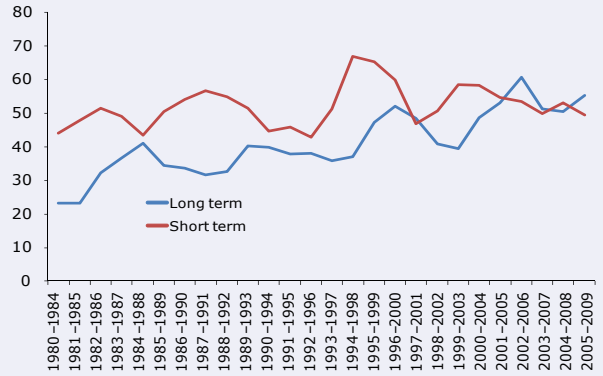
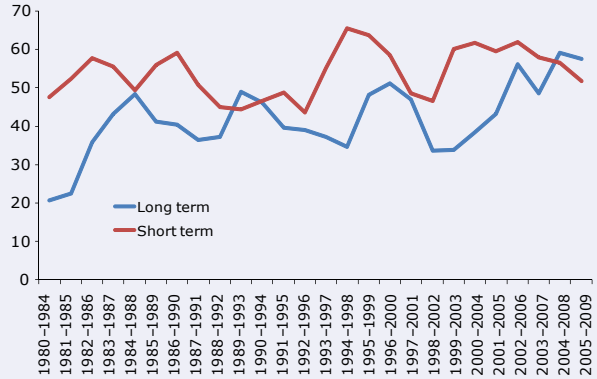


Figure 4.5b: Volatilities of Foreign Debt—ASEAN-5 (% of GDP)



ASEAN = Association of Southeast Asian Nations, GDP = gross domestic product.
Notes: Emerging Asia includes People's Republic of China; Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Taipei,China; Thailand; and Viet Nam. ASEAN-5 consists of Indonesia, Malaysia, Philippines, Thailand, and Viet Nam.
Source: H.-H. Lee and C.-Y. Park (2011).

For emerging Asia, various pull factors—such as sound macroeconomic management and institutional strength—seem to play an important role in attracting capital flows.

Estimates for a panel dataset suggest that institutional quality as well as traditional pull factors play an important role in determining the size and volatility of various types of capital flows **(Box 4.1)**. The findings suggest that sound macroeconomic management and institutional strength are key in attracting capital flows that are more stable. Capital flows—both in and out of Asia—have consistently increased, partially due to the pace of financial globalization and the attractiveness of the region's potential growth. To maintain investor confidence, sound macroeconomic management is crucial. Despite visible improvement in macroeconomic and financial policy management in Asia, the effects of the global crisis were a strong reminder that further work is needed to bolster the region's financial resilience. Of particular importance is governance, as institutional quality is paramount. Equal access to information, accountability, political stability, the absence of violence, government effectiveness, regulatory quality, rule of law, and control over corruption are all critical for attracting the right kind of investment capital—i.e., stable and long term.

Financial Integration and the Contagion Risk

If financial markets are fully integrated, assets with similar risk characteristics should be priced similarly.

Greater financial integration brings closer co-movement of prices. A substantial body of literature documents time-varying correlations among international stock returns, with evidence indicating an increase in correlations across international stock markets at times of stress and market downturns.[7] Past crises also stand as testimony to the risk of this financial contagion.

[7] See King and Wadhwani (1990), Longin and Solnik (1995), Karolyi and Stulz (1996), and Forbes and Rigobon (2002).

Box 4.1: What drives capital flows and volatility?

Understanding what drives capital flows is essential to designing an effective policy framework to manage volatile capital flows and their disruptive potential. This box aims to identify factors that explain the size and volatility of various types of capital flows to developing Asia.

An econometric model used to identify these factors[a] is as follows:

$$CF_{ij} = \beta_0 + \beta_1 PGDP_{ij} + \beta_2 INF_{ij} + \beta_3 TRADE_{ij} + \beta_4 STOCK_{ij} + \beta_5 KAOPEN_{ij} + \beta_6 INTEREST_{ij} + \beta_7 GGDP_j + \beta_8 GSP_j + \beta_9 GBM_j + \beta_{10} INSTITUTION_{ij} + \beta_{11} RFOREX_{ij}$$

For the analysis, annual data on capital inflows was collected from the International Monetary Fund's International Financial Statistics (IFS) for 17 developing Asian economies.[b]

Tables B 4.1a and B 4.1b show the determinants of—or what drives—the size and volatility of capital flows to developing Asia.

The results show that various "pull" factors—or economic conditions and policies of destination economies—seem to play an important role in attracting capital flows. Per capita income growth, trade openness, and change in stock market capitalization increase the overall size of capital inflows. For foreign direct investment (FDI), per capita income growth and trade openness increase the size of inflows, while institutional quality and volatility of real exchange rates decrease the size. For "other investment" inflows, per capita income growth and an increase in stock market capitalization are significant and positive determinants. Trade openness again increases volatility in all types of capital inflows. Change in stock market capitalization reduces the volatility of all but FDI inflows. Institutional quality lowers the size and volatility of FDI inflows to developing Asia. Growth in global liquidity—a "push" factor—also has a significant and negative effect on the volatility of FDI inflows.

The findings generally confirm that "pull" factors are important for developing Asia. Per capita income growth, trade openness, and change in stock market capitalization appear to have a significant impact on the size of capital flows for various types. Significant factors driving volatility include trade and financial openness and change in stock market capitalization. Better institutional quality is important in attracting larger and more stable capital inflows. Institutional quality matters especially for FDI flows. Interestingly, the volatility of real exchange rates reduces the size and increases the volatility of capital flows to developing Asia.

[a] CF_{ij} denotes the size or volatility of each type of capital inflow—total, foreign direct, portfolio, and other investments as percentage of gross domestic product (GDP) for economy i at year j; $PGDP_{ij}$ is the annual per capita income growth of economy i at year j; INF_{ij} refers to domestic inflation of economy i at year j; $TRADE_{ij}$ denotes trade openness of economy i at year j; $STOCK_{ij}$ refers to change in stock market capitalization over GDP of economy i at year j; $KAOPEN_{ij}$ is the financial openness of economy i at year j; $INTEREST_{ij}$ is the interest rate differential between domestic and United States interest rates of economy i at year j; $GGDP_i$ represents annual global GDP growth expectation at year j; GSPi refers to global stock price growth at year j; GBM_i denotes global liquidity growth at year j; $INSTITUTION_{ij}$ is the institutional quality index for economy i at year j; and $RFOREX_{ij}$ is the volatility of real exchange rate for economy i at year j.

[b] Bangladesh; People's Republic of China; Georgia; Hong Kong, China; India; Indonesia; Kazakhstan; Republic of Korea; Malaysia; Pakistan; Papua New Guinea; Philippines; Singapore; Sri Lanka; Taipei,China; Thailand; and Viet Nam.

Table B 4.1a: Determinants of the Size of Capital Inflows—Emerging Asia (1980–2009)

Variables	Total Inflows		FDI Inflows		FPI Inflows		Other Investment Inflows	
	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE
Per capita income growth	1.058	0.354*	0.470	0.107*	0.010	0.111	0.577	0.336***
Domestic inflation	0.671	0.438	0.106	0.132	(0.004)	0.138	0.568	0.416
Trade openness	0.066	0.015*	0.055	0.005*	0.004	0.005	0.008	0.014
Change in stock market capital	0.093	0.027*	(0.010)	0.008	0.012	0.008	0.092	0.026*
Financial openness	0.384	0.920	0.437	0.277	0.269	0.289	(0.322)	0.874
Interest rate differential	(0.279)	0.366	0.090	0.110	(0.035)	0.115	(0.334)	0.348
Global growth expectation	1.035	1.176	0.185	0.354	0.006	0.370	0.843	1.117
Global stock price growth	0.115	0.092	(0.011)	0.028	0.012	0.029	0.114	0.087
Global broad money growth	0.019	0.038	(0.009)	0.011	(0.015)	0.012	0.044	0.036
Institutional quality	0.532	1.693	(0.994)	0.510***	0.805	0.532	0.721	1.607
Volatility of real exchange rate	(0.003)	0.005	(0.003)	0.001**	(0.001)	0.002	0.001	0.005
Constant	(13.116)	5.337	(5.242)	1.608	1.130	1.678	(9.004)	5.068
Instrument rank		25		25		25		25
J-statistics		18.136		27.871		23.252		20.029

( ) = negative, FDI = foreign direct investment, FPI = foreign portfolio investment, SE = standard error.
Notes:
1. Emerging Asia includes Bangladesh; People's Republic of China; Georgia; Hong Kong, China; India; Indonesia; Kazakhstan; Republic of Korea; Malaysia; Pakistan; Papua New Guinea; Philippines; Singapore; Sri Lanka; Taipei,China; Thailand; and Viet Nam.
2. FPI refers to liabilities. Other investment inflows include financial derivative liabilities.
3. * denotes significance at 1%, ** denotes significance at 5%, and *** denotes significance at 10% confidence level.
Source: ADB Office of Regional Economic Integration.

Table B 4.1b: Determinants of the Volatility of Capital Inflows—Emerging Asia (1980–2009)

Variables	Total Inflows		FDI Inflows		FPI Inflows		Other Investment Inflows	
	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE
Per capita income growth	(0.069)	0.220	0.057	0.042	(0.058)	0.084	(0.018)	0.143
Domestic inflation	(0.041)	0.269	(0.018)	0.052	(0.071)	0.102	(0.083)	0.175
Trade openness	0.072	0.010*	0.018	0.002*	0.018	0.004*	0.052	0.006*
Change in stock market capital	(0.071)	0.017*	0.009	0.003*	(0.018)	0.006*	(0.050)	0.011*
Financial openness	0.559	0.580	0.226	0.111*	0.248	0.221	0.071	0.377
Interest rate differential	0.146	0.226	0.024	0.043	0.047	0.086	0.167	0.147
Global growth expectation	0.018	0.764	(0.226)	0.147	(0.230)	0.291	0.015	0.497
Global stock price growth	(0.020)	0.058	(0.004)	0.011	(0.016)	0.022	0.002	0.037
Global broad money growth	(0.017)	0.024	(0.010)	0.005**	(0.015)	0.009	(0.003)	0.016
Institutional quality	0.323	1.086	(0.601)	0.209*	0.282	0.413	0.588	0.707
Volatility of real exchange rate	(0.001)	0.003	0.000	0.001	0.000	0.001	0.000	0.002
Constant	(1.911)	3.502	0.241	0.672	1.462	1.332	(1.759)	2.279
Instrument rank		25		25		25		25
J-statistics		16.464		27.390		23.948		16.160

( ) = negative, FDI = foreign direct investment, FPI = foreign portfolio investment, SE = standard error.
Notes:
1. Emerging Asia includes Bangladesh; People's Republic of China; Georgia; Hong Kong, China; India; Indonesia; Kazakhstan; Republic of Korea; Malaysia; Pakistan; Papua New Guinea; Philippines; Singapore; Sri Lanka; Taipei,China; Thailand; and Viet Nam.
2. FPI refers to liabilities. Other investment inflows include financial derivative liabilities.
3. * denotes significance at 1%, ** denotes significance at 5%, and *** denotes significance at 10% confidence level.
Source: ADB Office of Regional Economic Integration.

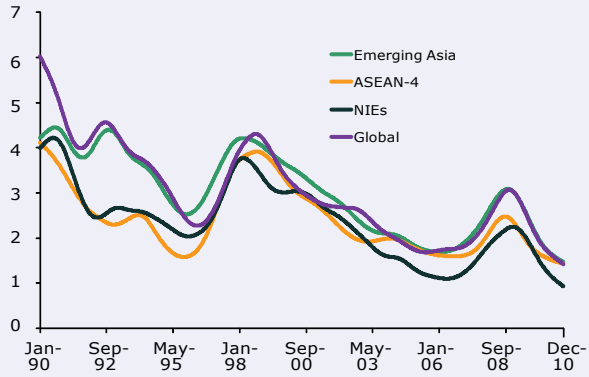
Correlations among emerging Asian equity markets have increased, suggesting greater regional market integration.

Simple averages of cross-country stock return[8] correlations among groups of regional and global economies over four different time periods show that correlations among emerging Asian equity markets have increased **(Table 4.2)**. This suggests that there is increased regional integration of emerging Asian equity markets. The PRC market is by far the least correlated with other markets in the sample, yet its correlations with both regional and global markets have nonetheless increased significantly during 2006–2010. Intraregional correlations have also increased, as have the correlations of regional markets with Japan. More open economies—such as the Republic of Korea, Singapore, and Hong Kong, China—showed greater stock market correlations with the United States (US) and European markets during 1996–2005 than with other regional equity markets. The cross-market dispersions of weekly equity returns have become smaller over time for various subgroups of regional economies, also suggesting increasing regional market integration **(Figure 4.6)**.

The degree and pace of bond market integration in Asia lags behind stock market integration.

Correlations of Asian local currency bond returns have also increased over the past decade, albeit from very low levels **(Table 4.3)**. However, the progress of regional bond market integration has been limited, with the exception of the relatively more open and developed bond markets of the Republic of Korea, Singapore, and Hong Kong, China. But the noticeably higher bond market correlations of Singapore and Hong Kong, China with the US bond market may reflect the fact that these economies have in effect anchored their currencies to the US dollar and therefore import US monetary policy. The PRC, India, and Philippines markets are least correlated with other markets in the sample. The cross-market dispersions of weekly returns for Asian bond markets show much weaker evidence of integration than exists in the region's stock markets **(Figure 4.7)**.

Figure 4.6: Cross-Market Convergence of Weekly Equity Returns (%)



ASEAN = Association of Southeast Asian Nations, NIE = newly industrialized economy.
Notes: Values were smoothened using Hodrick-Prescot filter method. Stock price index for each country is in local currency value. Emerging Asia includes People's Republic of China; Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Taipei,China; and Thailand. ASEAN-4 consists of Indonesia, Malaysia, Philippines, and Thailand. NIEs consists of Hong Kong, China; Republic of Korea; Singapore; and Taipei,China. Global includes 25 advanced and emerging economies including those from Asia.
Source: ADB Office of Regional Economic Integration using data from Bloomberg. Accessed January 2011.

Greater financial integration can also mean increased spillovers from global shocks that impact returns or volatilities of Asia's equity and bond markets.

If emerging Asia's local equity and bond markets are fully integrated with global markets (and there is no specific country disturbance), then returns should react to news or information common to all markets. Accordingly, the extent of financial integration of individual equity and bond markets in emerging Asia with other markets within and outside the region can be examined in terms of market reaction to regional and global shocks.

[8] For stock market returns, the weekly log differences of benchmark stock price indexes are used to generate continuously compounded weekly total returns from January 1993 to December 2010. Bond returns, estimated by the weekly log differences of total return indexes, are also continuously compounded, covering the period from January 2001 to December 2010. Using weekly—as opposed to daily—data helps avoid the potential problem of nonsynchronous data.

Table 4.2: Average Simple Correlation of Stock Price Index Weekly Returns

Economies	Emerging Asia				ASEAN-4				NIEs				United States				Europe			
	1993–1995	1996–2000	2001–2005	2006–2010	1993–1995	1996–2000	2001–2005	2006–2010	1993–1995	1996–2000	2001–2005	2006–2010	1993–1995	1996–2000	2001–2005	2006–2010	1993–1995	1996–2000	2001–2005	2006–2010
China, People's Rep.	0.05	0.04	0.08	0.35	0.06	0.03	0.09	0.33	0.03	0.05	0.06	0.36	0.02	(0.09)	0.06	0.24	0.04	(0.06)	(0.01)	0.33
Hong Kong, China	0.31	0.36	0.38	0.68	0.46	0.40	0.28	0.66	0.30	0.47	0.58	0.78	0.30	0.44	0.52	0.58	0.51	0.56	0.59	0.71
India	0.08	0.13	0.35	0.61	0.05	0.12	0.32	0.62	0.08	0.17	0.42	0.66	(0.01)	0.11	0.24	0.53	0.06	0.11	0.29	0.68
Indonesia	0.33	0.30	0.27	0.65	0.49	0.45	0.37	0.68	0.31	0.31	0.23	0.70	0.24	0.19	0.11	0.43	0.26	0.25	0.19	0.57
Korea, Rep. of	0.13	0.27	0.38	0.63	0.15	0.31	0.31	0.65	0.11	0.33	0.58	0.72	0.02	0.26	0.39	0.42	(0.02)	0.33	0.55	0.59
Malaysia	0.36	0.32	0.33	0.63	0.47	0.42	0.35	0.66	0.43	0.36	0.38	0.66	0.19	0.22	0.26	0.42	0.31	0.23	0.21	0.61
Philippines	0.26	0.34	0.27	0.56	0.43	0.45	0.32	0.63	0.27	0.39	0.28	0.56	0.10	0.30	0.17	0.39	0.21	0.32	0.15	0.56
Singapore	0.38	0.39	0.42	0.68	0.59	0.50	0.41	0.69	0.33	0.44	0.55	0.76	0.21	0.41	0.43	0.61	0.44	0.43	0.51	0.74
Taipei,China	0.15	0.23	0.33	0.59	0.18	0.25	0.28	0.58	0.19	0.29	0.50	0.69	0.02	0.25	0.39	0.42	0.19	0.29	0.47	0.57
Thailand	0.34	0.35	0.35	0.60	0.51	0.46	0.36	0.64	0.37	0.40	0.39	0.65	0.21	0.31	0.25	0.46	0.31	0.37	0.30	0.58
Emerging Asia	**0.24**	**0.27**	**0.32**	**0.60**	**0.32**	**0.33**	**0.30**	**0.61**	**0.24**	**0.31**	**0.38**	**0.65**	**0.13**	**0.24**	**0.28**	**0.45**	**0.23**	**0.28**	**0.32**	**0.59**
ASEAN-4	0.32	0.33	0.30	0.61	0.43	0.45	0.35	0.66	0.34	0.36	0.32	0.64	0.18	0.26	0.20	0.42	0.27	0.29	0.21	0.58
NIEs	0.24	0.31	0.38	0.65	0.34	0.36	0.32	0.64	0.23	0.38	0.55	0.74	0.14	0.34	0.43	0.51	0.28	0.40	0.53	0.65
United States	0.13	0.24	0.28	0.45	0.18	0.26	0.20	0.42	0.14	0.34	0.43	0.51	1.00	1.00	1.00	1.00	0.54	0.65	0.76	0.81
Japan	0.08	0.25	0.33	0.62	0.05	0.25	0.24	0.61	0.12	0.33	0.47	0.71	0.20	0.37	0.36	0.60	0.24	0.40	0.51	0.72
Europe	0.23	0.28	0.32	0.59	0.27	0.29	0.21	0.58	0.28	0.40	0.53	0.65	0.54	0.65	0.76	0.81	1.00	1.00	1.00	1.00

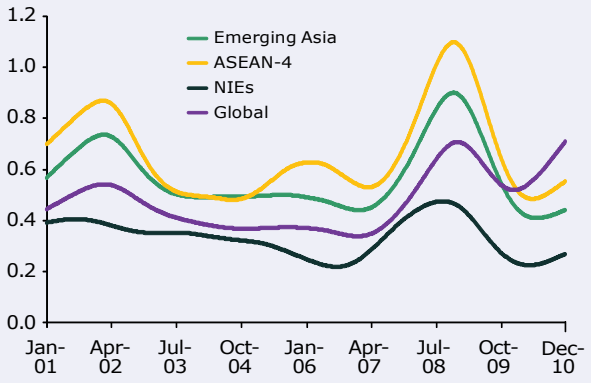
( ) = negative, ASEAN = Association of Southeast Asian Nations, NIE = newly industrialized economy.
Notes:
1. Values refer to the average pair-wise correlations. Stock price index for each country is in local currency value. Weekly returns are computed as the natural log difference of a stock price index for Wednesday closing price to the previous week's Wednesday closing value.
2. Emerging Asia includes People's Republic of China; Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Taipei,China; and Thailand.
3. ASEAN-4 consists of Indonesia, Malaysia, Philippines, and Thailand.
4. NIEs consists of Hong Kong, China; Republic of Korea; Singapore; and Taipei,China.
5. Data for Europe refer to Morgan Stanley Capital International (MSCI) Europe index which includes 16 countries in the European Union.
Source: ADB Office of Regional Economic Integration using data from Bloomberg.

Table 4.3: Average Simple Correlation of Government Bond Weekly Returns

Economies	Emerging Asia		ASEAN-4		NIEs		Global	
	2001–2005	2006–2010	2001–2005	2006–2010	2001–2005	2006–2010	2001–2005	2006–2010
China, People's Rep.	0.05	0.12	0.04	0.06	0.04	0.16	0.05	0.05
Hong Kong, China	0.16	0.22	0.08	0.16	0.37	0.34	0.61	0.44
India	0.01	0.19	(0.02)	0.20	0.01	0.16	(0.05)	0.10
Indonesia	(0.03)	0.09	(0.03)	0.29	(0.05)	(0.02)	(0.03)	0.20
Korea, Rep. of	0.11	0.20	0.05	0.22	0.28	0.13	0.31	0.18
Malaysia	0.07	0.22	0.06	0.22	0.14	0.24	0.14	0.21
Philippines	0.04	0.08	0.01	0.15	0.05	0.05	0.03	0.07
Singapore	0.19	0.21	0.14	0.18	0.38	0.31	0.47	0.33
Taipei,China	0.14	0.10	0.05	0.02	0.22	0.18	0.24	0.16
Thailand	0.11	0.28	0.08	0.24	0.18	0.31	0.18	0.29
Emerging Asia	**0.09**	**0.17**	**0.05**	**0.17**	**0.15**	**0.18**	**0.19**	**0.21**
ASEAN-4	0.05	0.17	0.03	0.22	0.08	0.14	0.08	0.17
NIEs	0.15	0.18	0.08	0.14	0.33	0.25	0.38	0.29
Global	0.19	0.21	0.08	0.17	0.38	0.29	1.00	1.00

( ) = negative, ASEAN = Association of Southeast Asian Nations, NIE = newly industrialized economy.
Notes:
1. Weekly returns are computed as the week-on-week difference of the natural log values of HSBC Asian Local Bond Index (ALBI). The HSBC ALBI tracks the total return performance of a bond portfolio which consists of local-currency-denominated government bonds in Asia ex-Japan. Data refer to government bonds. Global bond returns refers to Citigroup World Government Bond Index in local currency.
2. Emerging Asia includes People's Republic of China; Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Taipei,China; and Thailand.
3. ASEAN-4 consists of Indonesia, Malaysia, Philippines, and Thailand.
4. NIEs consists of Hong Kong, China; Republic of Korea; Singapore; and Taipei,China.
Source: ADB Office of Regional Economic Integration using data from Bloomberg.

Figure 4.7: Cross-Market Convergence of Weekly Government Bond Returns (%)



ASEAN = Association of Southeast Asian Nations, NIE = newly industrialized economy.
Notes: Values were computed as the standard deviation of individual country weekly returns, smoothened using Hodrick-Prescot filter method. Data for emerging Asia refer to HSBC Asian Local Bond Index (ALBI) which tracks the total return performance of a bond portfolio consisting of local-currency-denominated government bonds. Emerging Asia includes People's Republic of China; Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Taipei,China; and Thailand. ASEAN-4 consists of Indonesia, Malaysia, Philippines, and Thailand. NIEs consists of Hong Kong, China; Republic of Korea; Singapore; and Taipei,China. Global includes 20 advanced economies and 10 emerging Asian economies. Data for advanced economies refer to Citigroup government bond index total returns in local currency.
Source: ADB Office of Regional Economic Integration using data from Bloomberg. Accessed January 2011.

If a local stock or bond market is integrated globally (or regionally), its sensitivity to a global (or regional) shock will increase.

An unexpected component of individual stock or bond market returns can be decomposed into a purely local shock (an intercept, or $\alpha_{c,t}$), a reaction to regional shock (proxied by an unexpected component of regional market returns) or $\beta_{c,t}^{EA}\varepsilon_{EA,t'}$ and a reaction to global shock (proxied by an unexpected component of the global market returns) or $\beta_{c,t}^{G}\varepsilon_{G,t}$. If the individual equity or bond market is fully integrated globally and there is no country- or region-specific disturbance, an unexpected component of the returns of any individual market should react exclusively to common global news or information and, therefore, be reflected in an unexpected component of the global market returns **(Box 4.2)**.

Empirical evidence indicates strong global spillovers on emerging Asian stock markets, with an increase in regional effects during crises.

The region's stock markets' α and βs (the unweighted average of $\alpha_{c,t}$, $\beta^{EA}_{c,t}$, and $\beta^{G}_{c,t}$) from individual stock markets can be calculated **(Figure 4.8)**. The figure shows higher α than β fairly consistently during the sample period, suggesting greater global rather than regional influence on local stock markets. Interestingly, the sensitivity of emerging Asia's stock markets to a regional shock rose sharply during both the 1997–1998 and 2008–2009 crises. This could be due to the fact that during periods of market turbulence, global investors with heightened risk aversion become more sensitive to emerging market risk, which is potentially shared by the region's economies.

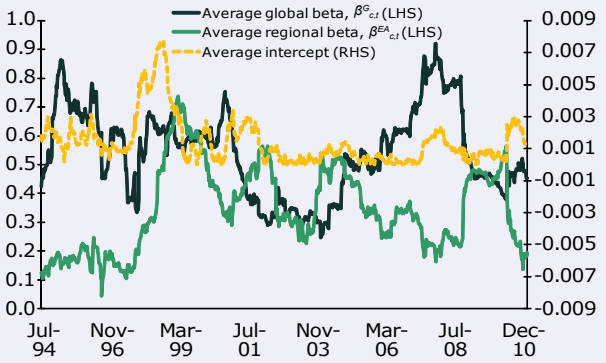
Global factors explain a large part of emerging Asian equity market volatility, suggesting the region's stock markets are well integrated globally.

In most emerging Asian markets, global shocks are the cause of domestic equity market volatility **(Figure 4.9)**. Equity markets in Hong Kong, China; Singapore; and, more modestly, the Republic of Korea are more sensitive to volatility spillovers from global markets than Asia's other markets. The region's influence, though still smaller than the global influence, is relatively strong among ASEAN stock markets, particularly in Indonesia, Malaysia, Philippines, and Thailand. The PRC is the exception, where the impact of regional shocks outweighs global shocks. Overall, the evidence supports the contention that Asia's stock markets are integrated more globally than regionally.

Evidence shows little integration between Asia's local currency bond markets.

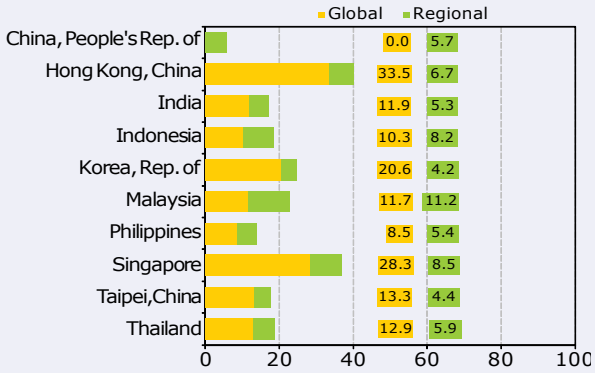
The average α and β values for Asia's bond markets from estimated individual $\alpha_{c,t}$ and $\beta_{c,t}$ for local government bond returns can be calculated **(Figure 4.10)**. Local currency bond returns are considered globally integrated if the average $\alpha_{c,t}$ and $\beta^{EA}_{c,t}$ values are close to zero, and $\beta^{G}_{c,t}$ is close to 1. The relatively low $\beta^{G}_{c,t}$ suggests there is no clear sign of global integration for Asian local currency government bond returns during 2001–2010. The average α also remains very low, suggesting the generally limited influence of purely local news in explaining bond returns that are similar to stock

Figure 4.8: Global and Regional Spillover Intensity of Equity Markets—Emerging Asia



$\beta^{EA}_{c,t}$ = country-specific sensitivity to a regional shock, $\beta^{G}_{c,t}$ = country-specific sensitivity to a global shock, LHS = left-hand scale, RHS = right-hand scale.
Note: Emerging Asia includes People's Republic of China; Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Taipei,China; and Thailand.
Source: ADB Office of Regional Economic Integration.

Figure 4.9: Share of Variance in Local Equity Returns Explained by Global and Regional Shocks, 1994–2010 (%)



Note: Variance share shows the proportion of total domestic equity return volatility caused by either regional or global shocks.
Source: ADB Office of Regional Economic Integration.

Box 4.2: Trying to measure financial spillovers

Financial crises spawn much research on how financial shocks are transmitted from one market to another. As financial links tighten as markets liberalize and integrate, return correlations and volatility spillovers tend to increase. Thus, as global and regional financial integration increases, so does emerging Asia's stock and bond markets' vulnerability to abrupt reversals in market confidence. This can happen as a result of external shocks and associated spillover effects. This box focuses on the reactions of individual stock and bond markets in emerging Asia to regional and global shocks. It also examines the volatility of spillovers from global and regional markets to individual markets in emerging Asia.

An econometric model is created to measure, or estimate, the effect.

Drawing on the work of Lee and Park (2009)[a] and Park and Lee (2011),[b] a shock or an "unexpected component" of the returns on individual equity or bond markets, $\varepsilon_{c,t}$, can be split into a purely local shock ($\alpha_{c,t}$), a reaction to regional news ($\beta^{EA}_{c,t}\varepsilon_{EA,t}$), and a reaction to global news ($\beta^{G}_{c,t}\varepsilon_{G,t}$):

$$(1) \quad \varepsilon_{c,t} = \alpha_{c,t} + \beta^{EA}_{c,t}\varepsilon_{EA,t} + \beta^{G}_{c,t}\varepsilon_{G,t}$$

where $\beta^{EA}_{c,t}$ represents the country-specific sensitivity, or "beta," to a regional market shock and $\beta^{G}_{c,t}$ represents the country-specific sensitivity, or "beta," to a global market shock.

The "unexpected component" of an individual market return, $\varepsilon_{c,t}$, can be obtained by the "error terms" from an equation looking back or "regressing," individual market returns on a constant, and on previous returns.[c] The error terms from this regression will be the unexpected component of the returns, or innovation. The unexpected component is then decomposed, or divided, into its three parts.

One assumes that an innovation in local returns that is not explained by a common regional or global factor is entirely due to local news. If the individual equity or bond market is fully integrated globally—and there is no national or regional disturbance—all innovation will be global. Simply put, the effect of a shock on individual market returns is a response to common global news. Therefore, it will show up as an unexpected component of global market returns. Assuming complete global integration, α and $\beta^{EA}_{c,t}$ are close to zero, and $\beta^{G}_{c,t}$ is close to 1.

To investigate development of country-specific market sensitivity over time, time-varying betas of individual markets were calculated for 1994–2010. The time-varying betas are derived by using the above regression equation over an 18-month (78 weeks) rolling window. Subsequently, the data window is moved 1 week ahead and the equation is re-estimated until the last observation is reached.

"Variance ratios"—or the proportion of total domestic equity or bond market volatility caused by either regional or global shocks—are also calculated to estimate the extent to which individual market volatility reacts to regional and global shocks. The conditional variances, $\sigma^2_{c,t}$, are estimated by the GARCH (1,1) model for the unexpected components of individual stock or bond market returns, $\sigma^2_{EA,t}$ for regional market returns, and $\sigma^2_{G\,t}$ for global market returns. For each market, two variance ratios are estimated. First is the regional variance ratio:

$$(2) \quad VR^{G}_{c,t} = \frac{(\beta^{G}_{c,t})^2 \sigma^2_{G,t}}{\sigma^2_{c,t}}$$

[a] J.-W. Lee and C.-Y. Park. 2009. Global Financial Turmoil: Impact and Challenges for Asia's Financial Systems. Asian Economic Papers. 8 (1). pp. 9-40.

[b] C.-Y. Park and J.-W. Lee. 2011. Financial Integration in Emerging Asia: Challenges and Prospects. Working Paper Series on Regional Economic Integration No. 79. Manila: Asian Development Bank.

[c] The conditional variance of the error terms is assumed to follow a standard asymmetric generalized autoregressive conditional heteroskedasticity (GARCH) (1,1) process.

and second, the global variance ratio:

$$VR^{EA}_{c,t} = \frac{(\beta^{EA}_{c,t})^2 \sigma^2_{EA,t}}{\sigma^2_{c,t}} \quad (3)$$

The variance ratios assume that local shocks are correlated with neither regional nor global market returns, and that regional and global shocks are uncorrelated. The sum of the two variance ratios will be close to 1 if $\beta^{EA}_{c,t}$ is close to zero and $\beta^{G}_{c,t}$ is close to 1, and when the volatilities of individual, regional, and global market returns are of a similar magnitude.

Specification problems

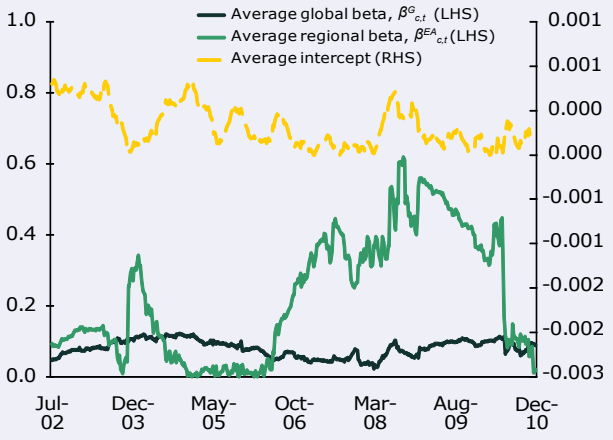
This econometric methodology is subject to major specification problems—or how robust the estimates are to its assumptions. First, the simplicity of the model is largely drawn from the very strong assumption that changes in equity and bond returns are driven only by local, regional, and global news. In reality, of course, many other factors—often fundamental economic and policy changes—will influence asset prices and thus returns. The absence of a proper structural model to capture causality, interdependence, and spillovers among these variables remains a major weakness. The omission of such factors may lead to an overestimation of what matters in these limited, perhaps simplistic, equations.

The empirical results will also depend on the selection of the most appropriate benchmark equity and bond returns. Global indexes are potentially good proxies for global markets, but the question remains whether and to what extent such indexes really capture global factors.

The strong assumption of perfect market integration is unrealistic—common factors cannot fully explain changes in local equity and bond returns. Earlier financial studies and research show evidence of partial segmentation or time-varying integration. It is thus unlikely that reactions to local and global news can be completely separated and uncorrelated.

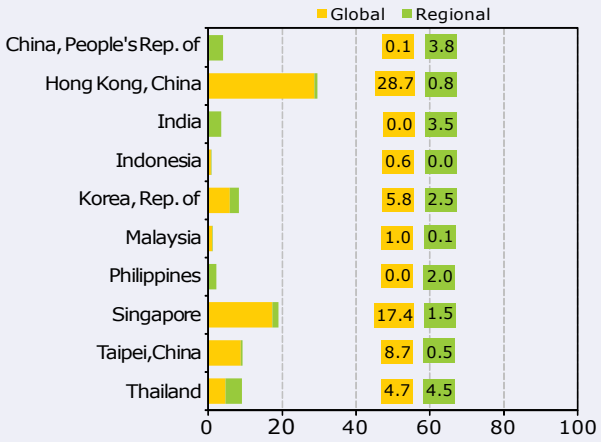
Finally, there are many elements to financial market integration. Thus, it makes it difficult for any single measure to provide a comprehensive assessment of market integration. The methodology applied in this box is just one among many indicators—and is unlikely to give a definitive picture of market integration. Given the significant specification problems and technical difficulties, the empirical results are merely illustrative of how markets react to, and the spillover effects from, news elsewhere.

Figure 4.10: Global and Regional Spillover Intensity of Bond Returns—Emerging Asia



$\beta^{EA}_{c,t}$ = country-specific sensitivity to a regional shock, $\beta^{G}_{c,t}$ = country-specific sensitivity to a global shock, LHS = left-hand scale, RHS = right-hand scale.
Note: Emerging Asia includes People's Republic of China; Hong Kong, China; India; Indonesia; Republic of Korea; Malaysia; Philippines; Singapore; Taipei,China; and Thailand.
Source: ADB Office of Regional Economic Integration.

Figure 4.11: Share of Variance in Local Bond Returns Explained by Global and Regional Shocks, 2001–2010 (%)



Note: Variance share shows the proportion of total domestic bond return volatility caused by either regional or global shocks.
Source: ADB Office of Regional Economic Integration.

returns. Still, $\beta^{EA}_{c,t}$ has increased significantly since the mid-2000s.

It appears that neither global nor regional shocks influence Asian local currency bond market volatility.

Neither global nor regional volatility has a sizeable impact on the total volatility of Asian local currency bond returns **(Figure 4.11)**. The notable exceptions are Singapore and Hong Kong, China, where volatilities are significantly influenced by global events—given their advanced financial openness and tight monetary links to the US. Bond markets in the Republic of Korea and Taipei,China also show a modest degree of global integration. Again, these empirical results suggest that Asian local currency bond market volatility is largely independent of regional or global influence.

The degree of financial integration can help determine potential financial spillovers or contagion—the evidence shows that Asia's equity markets are more vulnerable during times of financial turmoil.

Findings from both correlations and spillover intensities suggest that Asia's equity markets are increasingly integrated both regionally and globally, while local currency bond markets remain more isolated from external market events. For the region's equity markets, regional and global shocks have greater impact during times of market distress. The sensitivity to regional shocks increases sharply during crises, perhaps reflecting increased risk aversion of international investors to emerging markets and concerns over the possibility of financial contagion.

Conclusions and Policy Implications

Understanding the degree and dynamics of financial integration in emerging Asia is important for shaping national policies, not only for economic growth and development but also for financial stability.

The degree of regional and global financial market integration is an increasingly important issue for Asia's policy makers. It implies the potential benefits of consumption-smoothing and risk sharing across borders, and is also important when assessing the potential costs of financial contagion. As Asia's financial markets further integrate—both within and beyond regional boundaries—cross-border transmission of shocks and the risk of financial contagion also increase. Empirical results also suggest that the risk of financial contagion is higher during crises.

Emerging Asia's equity markets—particularly those tightly linked to global markets—are vulnerable to abrupt swings in global investor sentiment, potentially increasing capital flow volatility.

Consistent with earlier studies on Asian financial integration, global news remains an important driver for Asian equity market returns and volatilities. It appears the degree of intraregional integration, though increasing, continues to lag behind the region's global integration. Correlations between Asia's equity markets and with global markets have increased substantially over time. However, the extent to which an individual market reacts to a regional shock remains more limited than its sensitivity to a global shock.

In contrast, Asia's local currency bond markets remain largely fragmented; while protecting markets from external shocks, the fragmentation hinders provision of adequate market liquidity.

In many emerging Asian economies, local currency bond markets are much smaller than domestic equity markets. Given their relative underdevelopment, these bond markets also remain fragmented. Their limited degree of integration may actually help the region during market turmoil, as they remain largely unaffected by external shocks, either regional or global. However, Asia's underdeveloped local currency bond markets fail to provide an effective alternative funding source for companies. In emerging Asia—where financial systems have traditionally been dominated by banks—the financial infrastructure and legal framework for debt markets have been slow to develop. Auditing and accounting standards remain below par in many emerging market economies, with low levels of transparency and weak governance further hampering the development of local currency bond markets.

Maximizing the net benefits of financial openness and integration is a key policy challenge for emerging markets.

Rapid financial liberalization must be accompanied by measures to ensure effective use of foreign capital. In principle, capital flows can bring many benefits to an economy. For example, higher inflows can increase investment, reduce the cost of capital, and transfer technology, which can contribute to raising the long-term growth of an economy. However, empirical evidence on the benefits of free capital flows has been patchy. In reality, costs associated with unbridled capital flows are often huge. Many previous crisis episodes follow a period of massive capital inflows, inflating property and stock market bubbles. Further, capital inflows have been volatile and procyclical. Emerging market economies tend to experience capital outflows precisely when they most need capital. There are several essential preconditions for financial liberalization that can render capital

flows beneficial to an economy. These include sound macroeconomic policies and frameworks, a high level of financial development, and effective institutions and good governance.

Emerging Asia should continue strengthening its macroeconomic management and macroprudential supervision to attract stable and long-term capital flows.

To maintain investor confidence, sound macroeconomic management and effective prudential supervision are vital. The primacy of pull factors as determinants of capital flows and volatility also underpins the importance of domestic macroeconomic management and sound fiscal and external positions. Most emerging Asian economies today are better prepared to manage asset price bubbles and capital inflows—thanks to the reforms and restructuring following the 1997–1998 Asian financial crisis. Nonetheless, the recent global financial crisis demonstrated that the risk assessment and management capabilities of Asia's financial systems remain insufficient and require further reform. One of the reform priorities is to develop a systemwide macroprudential supervisory framework to prevent a buildup of systemic risk. Where necessary, measures to harness volatile capital flows need to be considered as part of a comprehensive macroprudential supervisory framework. These measures may include minimizing the inflows of speculative capital and promoting longer term and more stable flows to meet the region's investment needs.

Despite visible improvement in the depth and breadth of emerging Asia's capital markets, major vulnerabilities persist, suggesting more effort is needed to improve market resilience.

The 1997–1998 Asian financial crisis ignited significant capital market development and regional integration. The rationale came from a shared understanding that vibrant capital markets and better developed domestic financial systems were essential for channeling Asia's huge savings into productive investments. Despite the progress made, there remains a full agenda to foster deeper and more liquid domestic capital markets, including broadening the investor base; encouraging development of more diverse and innovative local financial products; improving legal, regulatory, and institutional frameworks; upgrading governance and transparency; and establishing market infrastructure and institutions that are more sound.

In particular, developing vibrant local currency bond markets is essential to promoting efficient allocation of Asia's vast financial resources.

The development of local currency bond markets has the potential to mitigate the global shortage of sound and liquid financial assets, lessen the probability that currency depreciation will morph into a full-blown financial crisis, reduce the massive inflows into US debt securities, and, hence, begin to unwind global imbalances.

The 1997/98 and 2008/09 crises higlight Asia's vulnerability to financial instability arising from rapid financial globalization, large and unfettered short-term capital flows, exchange rate volatility, and the lack of crisis control mechanisms.

National mechanisms to stem the spread of financial panic proved largely inadequate, ineffective, and inefficient given massive deleveraging in advanced economies, tight international liquidity, and recession. Large and at times volatile capital flows seem to have motivated emerging market economies to further accumulate reserves, thereby exacerbating global imbalances. Exchange rate flexibility helps smooth the edges, as holding vast reserves has its own costs. Emerging Asia's policy makers could work together on three major areas to secure monetary and financial stability: (i) strengthening regional economic surveillance; (ii) strengthening regional institutions for crisis prevention and management; and (iii) deepening

regional capital markets, particularly through local currency bond market development. The recent establishment of the ASEAN+3 Macroeconomic Research Office in support of the Chiang Mai Initiative Multilateralization reserve pooling arrangement is a vital step forward.[9] There may also be merit in exchange rate policy dialogue, particularly within East Asia, as efforts accelerate to deepen and broaden regional trade and investment.

Asia must take greater responsibility in the ongoing process of reforming the global financial architecture by actively participating in all levels of governance.

The absence of an effective global mechanism to manage the international monetary system exposed serious problems during the global financial crisis. Swap agreements with developed and financially strong emerging economies, regional reserve pooling, and access to funding from international financial institutions offer several options in managing short- to medium-term debt and financial flows. However, Asia would clearly benefit from strong regional and subregional mechanisms to support regional financing arrangements, policy coordination, mutual surveillance, and monitoring. These can all eventually become a part of the global financial architecture. To help achieve this, Asia needs to take greater responsibility in correcting global macroeconomic and structural imbalances, while playing a proactive role in ensuring macroeconomic and financial stability globally.

[9] ASEAN+3 consists of the ASEAN member countries (Brunei Darussalam, Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Viet Nam) plus the PRC, Japan, and the Republic of Korea.

References

Forbes, K. and R. Rigobon. 2002. No Contagion, Only Interdependence: Measuring Stock Market Co-movements. *Journal of Finance* 57 (5):2,223–61.

Ju, J. and S.-J. Wei. 2006. A Solution to Two Paradoxes of International Capital Flows. NBER Working Paper No. 12668. Cambridge MA: National Bureau of Economic Research (NBER).

Karolyi, G. A. and R. Stulz. 1996. Why Do Markets Move Together? An Investigation of US-Japan Stock Returns Co-movements. *Journal of Finance* 51 (3):951–86.

King, M. and S. Wadhwani. 1990. Transmission of Volatility between Stock Markets. *Review of Financial Studies*. 3 (1):5–33.

Lee, H.-H. and C.-Y. Park. 2011. Global and Regional Contagion Impact on Volatility of Capital Flows into Emerging Countries. Background paper for the Asian Development Bank Asia Capital Markets Monitor, August 2011 issue.

Levchenko, A. and P. Mauro. 2007. Do Some Forms of Financial Flows Help Protect from Sudden Stops? IMF Working Paper no. 06/202. Washington, DC: International Monetary Fund (IMF).

Longin, F. and B. Solnik. 1995. Is the Correlation in International Equity Returns Constant: 1960–1990? *Journal of International Money and Finance* 14:3–23.

Mercado, R. and C.-Y. Park. 2011. What Drives Different Types of Capital Flows and their Volatilities in Developing Asia? Paper for the Joint Conference of International Economics Journal and Korea University Institute of Economic Research, March 2011. Working Paper Series on Regional Economic Integration No.84. Manila: Asian Development Bank.

Park, C.-Y. and J.-W. Lee. 2011. Financial Integration in Emerging Asia: Challenges and Prospects. Working Paper Series on Regional Economic Integration No.79. Manila: Asian Development Bank.

Tong, H. and S.-J. Wei. 2009. The Composition Matters: Capital Inflows and Liquidity Crunch during a Global Economic Crisis. NBER Working Paper No. 15207. Cambridge MA: NBER.

Wei, S.-J. and W. Wu. 2001. Negative Alchemy? Corruption, Composition of Capital Flows, and Currency Crises. NBER Working Paper No. 8187. Cambridge MA: NBER.

Asia Capital Markets Monitor, August 2011

The two-speed global economy continues to favor emerging Asian markets. After an early year correction, the region's markets are poised to gain on sound fundamentals. The *Asia Capital Markets Monitor* reviews emerging Asia's stock, bond, and currency markets and assesses their outlook, risks, and policy implications. This issue includes a special section on financial integration and capital flow volatility in emerging Asia: issues and policies.

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Asian Development Bank
6 ADB Avenue, Mandaluyong City
1550 Metro Manila, Philippines
www.adb.org
ISBN 978-92-9092-377-0
Publication Stock No. RPT113834

Printed on recycled paper.

Printed in the Philippines