



# ASIAN ECONOMIC INTEGRATION MONITOR

APRIL 2014



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# Abbreviations and Acronyms

ABMI	Asian Bond Markets Initiative	IDRM	Integrated Disaster Risk Management
ADB	Asian Development Bank	IIF	International Institute of Finance
ADO	Asian Development Outlook	IMF	International Monetary Fund
AEC	ASEAN Economic Community		
AEIM	Asian Economic Integration Monitor	Lao PDR	Lao People's Democratic Republic
AFTA	ASEAN Free Trade Agreement	LHS	left-hand scale
AMBIF	ASEAN+3 Multi-Currency Bond Issuance Framework	LNG	liquefied natural gas
ARIC	Asia Regional Integration Center	LPI	logistics performance index
ASEAN	Association of Southeast Asian Nations (Brunei Darussalam, Cambodia, Indonesia, the Lao People's Democratic Republic, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Viet Nam)	MBS	mortgage-backed securities
ASEAN+3	ASEAN plus the People's Republic of China, Japan, and the Republic of Korea	NEER	nominal effective exchange rate
ASEAN-4	Indonesia, Malaysia, the Philippines, and Thailand	OECD	Organisation for Economic Co-operation and Development
ASEAN-5	Indonesia, Malaysia, the Philippines, Singapore, and Thailand	OLS	ordinary least squares
		OREI	Office of Regional Economic Integration
BBA	Bipartisan Budget Act	PBR	price-to-book ratio
BI	business interruption	PCRIP	Pacific Catastrophe Risk Insurance Pilot
BIS	Bank for International Settlements	PER	price-earnings ratio
BOJ	Bank of Japan	PNG	Papua New Guinea
BOP	balance of payments	PPP	public private partnerships
		ppts	percentage points
		PRC	People's Republic of China
		QE	quantitative easing
		q-o-q	quarter-on-quarter
CBI	contingent business interruption	RCEP	Regional Comprehensive Economic Partnership
CCRIF	Caribbean Catastrophe Risk Insurance Facility	RCI	regional cooperation and integration
CEPII	Centre d'Etudes Prospectives et d'Informations Internationales	RHS	right-hand scale
CMIM	Chiang Mai Initiative Multilateralization	ROW	rest of the world
CPIS	Coordinated Portfolio Investment Survey		
		saar	seasonally adjusted annualized rate
DMC	developing member country	SAARC	South Asian Association for Regional Cooperation
DRF	disaster risk financing		
		SME	small and medium sized enterprise
ECB	European Central Bank	S&P	Standard and Poor's
ER	exchange rate	SWIFT	Society for Worldwide Interbank Financial Telecommunication
EU	European Union		
		UNCTAD	United Nations Conference on Trade and Development
FDI	foreign direct investment	UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
FFF	Federal Fund Futures		
FTA	free trade agreement	US	United States
FY	fiscal year	US Fed	US Federal Reserve
GDP	gross domestic product	VAR	vector autoregression
GFC	global financial crisis	VIX	volatility index
GLS	generalized least squares		
G3	eurozone, Japan, and the United States		
		WTO	World Trade Organization
HP filter	Hodrick-Prescott filter		
		y-o-y	year-on-year

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# HIGHLIGHTS

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## Regional Economic Update

- The external environment for developing Asia should improve through 2015 with the US, Japan, and eurozone all showing signs that economic recovery is finally gaining traction.
- Even as growth in some of the region's largest economies moderates, developing Asia should see a marginal increase in growth over the next 2 years as improved demand from advanced economies spurs exports and several economies boost investment.
- There are three main downside risks, none of which are new and all have been on policymakers' radar for some time: (i) an economic shock or reversal in any G3 economy could derail the nascent global recovery; (ii) the People's Republic of China (PRC) economy moderates too quickly, affecting the rest of developing Asia; and (iii) volatile capital flows affect financial conditions across the region.
- Global and regional supply chains continue to evolve, affecting the nature and dynamics of foreign direct investment (FDI) and trade integration; this presents an opportunity to further open individual economies and strengthen trade and investment regimes.

## Regional Cooperation and Integration

- Asia's intraregional trade remains strong, if falling marginally from 54.9% in 2012 to 54.1% in 2013; nonetheless, inter-subregional trade between each subregion and the rest of Asia is rising, except for South Asia; Asia's intraregional trade bias also remains strong but is falling slightly—Southeast Asia has high intra-subregional trade bias and strong links with East Asia and South Asia.
- Financial integration across Asia continues to deepen both in terms of quantity and price measures; intraregional bank credit flows—particularly from Japan and Australia to other Asian economies—have emerged as an important source of external financing.
- Despite the sharp decline in global FDI in 2012, inflows to Asia decelerated much more slowly—due to a significant increase in intra-Asian FDI flows, especially from East Asia to ASEAN.

- There are strong trade, finance, investment, and tourism links between the PRC, Japan, and the Republic of Korea, with economic growth among the three becoming more correlated, and the PRC having a greater impact on growth in Japan and the Republic of Korea.
- People traveling within Asia continue to bolster economic and cultural ties, although emerging geopolitical trends may have hurt some tourist flows recently; worker remittances provide households a means to spread risk and mitigate income shocks.
- Deepening economic links imply more significant spillovers and increased contagion during crises; strengthening regional cooperation in surveillance and financial safety nets is imperative.
- As growth moderates in some of the region's largest economies—and with the potential for increased geopolitical tension—it is critical Asia continues to strive toward broader and more effective regional cooperation.

## Theme Chapter: Insuring Against Asia's Natural Catastrophes

- Over the past 20 years, Asia has borne half the estimated global economic cost of natural disasters—about \$53 billion annually; this could potentially wipe out gains from economic growth in many economies.
- The gap between total economic losses and insured losses can be so wide that it may outstrip government's ability to act as insurer of last resort. Regional cooperation along with better and more effective national policies to offer disaster risk financing instruments is therefore critical.
- Key priorities for developing disaster risk financing markets and strengthening financial resilience should include business continuity planning, enhancing technical and institutional capacities, and coordinating various governmental authorities across all levels.

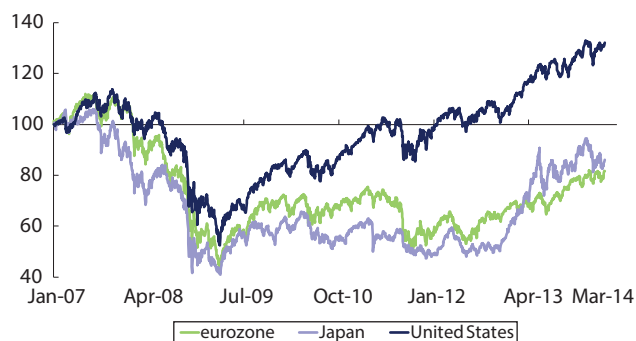
# REGIONAL ECONOMIC UPDATE

## External Economic Environment

**The external environment for developing Asia should improve through 2015 with the US, Japan, and eurozone all showing signs economic recovery is finally gaining traction.**

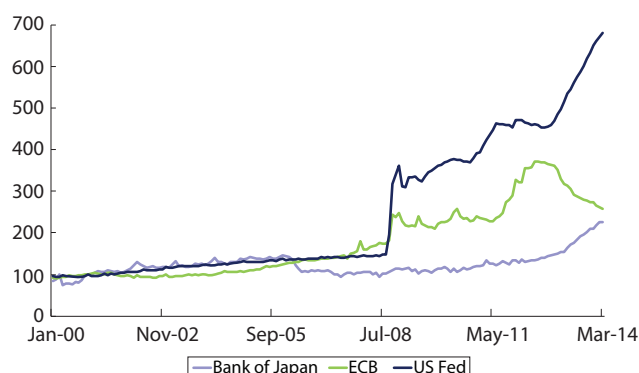
Financial markets in G3 economies remain relatively bullish as the United States (US) recovery matures, investor sentiment improves and financial markets pick up across advanced economies—partly supported by expanding central bank assets in the US and Japan (**Figures 1, 2**).<sup>1</sup> This allows the US Federal Reserve (US Fed) to continue tapering its quantitative easing (QE) program despite market sensitivity to any change in US Fed policy announcements. As increased demand sparked a rise in global trade, the slowdown in manufacturing production reversed (**Figure 3**). On balance, national policies continue to support growth. The US legislature passed a Bipartisan Budget Act (BBA) that, while not providing economic stimulus, boosted confidence merely by the fact it passed. Japan's Diet approved a mini-fiscal stimulus program. And economies in the European Union (EU) began to ease fiscal austerity measures. Consumer confidence indexes in the US and Japan rose to their highest levels since the 2008/09 global financial crisis (**Figure 4**). Unemployment rates in the two economies continue to drop.

**Figure 1: Stock Price Indexes—G3 (1 Jan 2007=100)**



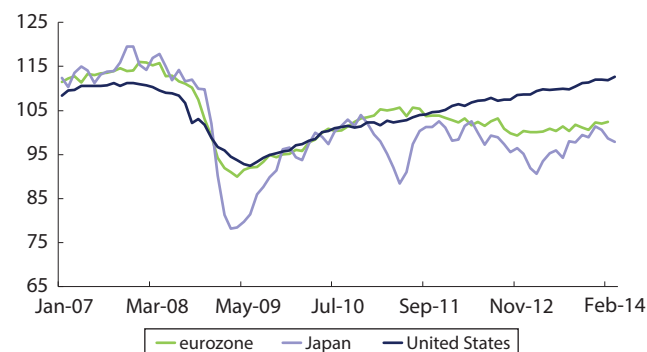
Note: Daily stock price indexes refer to MSCI EMU Index for eurozone, Nikkei 225 Index for Japan, and Dow Jones Industrial Average for the United States. Data as of 31 Mar 2014.  
Source: ADB calculations using data from Bloomberg.

**Figure 2: Central Bank Assets—G3 (2000=100)**



ECB = European Central Bank, US Fed = United States Federal Reserve.  
Source: ADB calculations using data from Bank of Japan, European Central Bank, and US Fed.

**Figure 3: Industrial Production Indexes—G3 (seasonally adjusted, 2010=100)**



Note: Data for Japan based on 3-month moving average. Data for eurozone until Jan 2014.  
Source: ADB calculations using data from CEIC.

**Overall, US economic growth bounced back strongly as 2013 progressed; but policy mistakes, market sensitivity to poorly-communicated US Fed announcements, and mid-term election debates over fiscal policy could be key risks.**

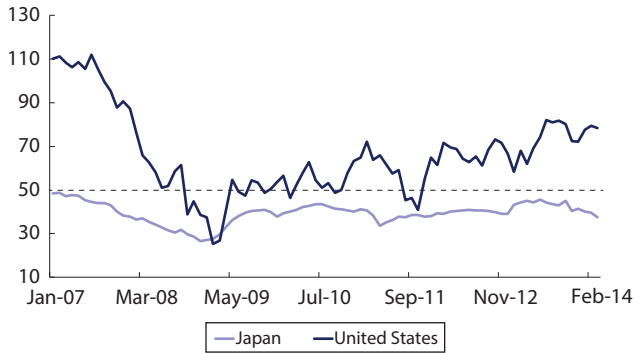
After a weak first half—which ultimately dragged full year growth to 1.9% in 2013 from 2.8% in 2012—the US economy appears to be hitting its stride with growth reaching 4.1% and 2.6% in the last 2 quarters.<sup>2</sup>

<sup>1</sup>G3 economies refer to the eurozone, Japan, and the United States.

<sup>2</sup>quarter-on-quarter seasonally-adjusted annualized rate (q-o-q, saar).

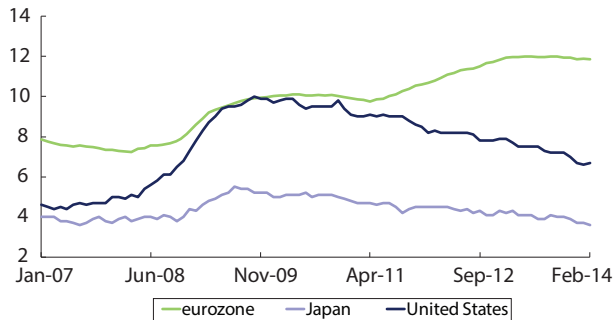


**Figure 4: Consumer Confidence Indexes—Japan and United States**



Note: Japan index from Economic and Social Research Institute; United States index from The Conference Board. A reading below 50 suggests consumer pessimism.  
Source: ADB calculations using data from CEIC and national sources.

**Figure 5: Unemployment Rate—G3**  
(seasonally adjusted, % of labor force)



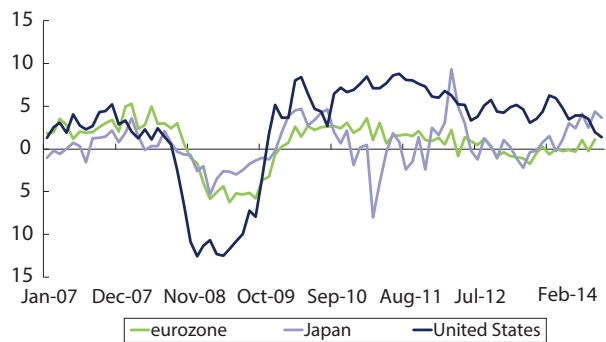
Source: US Bureau of Labor Statistics, European Central Bank, and CEIC.

A steady rise in personal consumption contributed, partly offsetting the impact of the 2-week October government shutdown on public spending. Net exports surged in the fourth quarter as the shale and gas revolution contributed to rising overseas demand. The late December passage of the BBA improved growth prospects, leaving the fiscal political debate to the November 2014 mid-term elections. Together with rising home sales, corporate balance sheets improved and employment opportunities rose—although job gains slowed slightly in December (**Figure 5**). Citing the “growing underlying strength” in the economy, the US Fed has already trimmed its asset purchases by a total of \$30 billion since January to \$55 billion in March. In turn, economic growth is expected to accelerate to 2.8% in 2014 and 3.0% in 2015.

**After 18 months in recession, the eurozone is showing limited economic recovery, hampered by continued deleveraging and uncertainty from unfinished banking sector reform.**

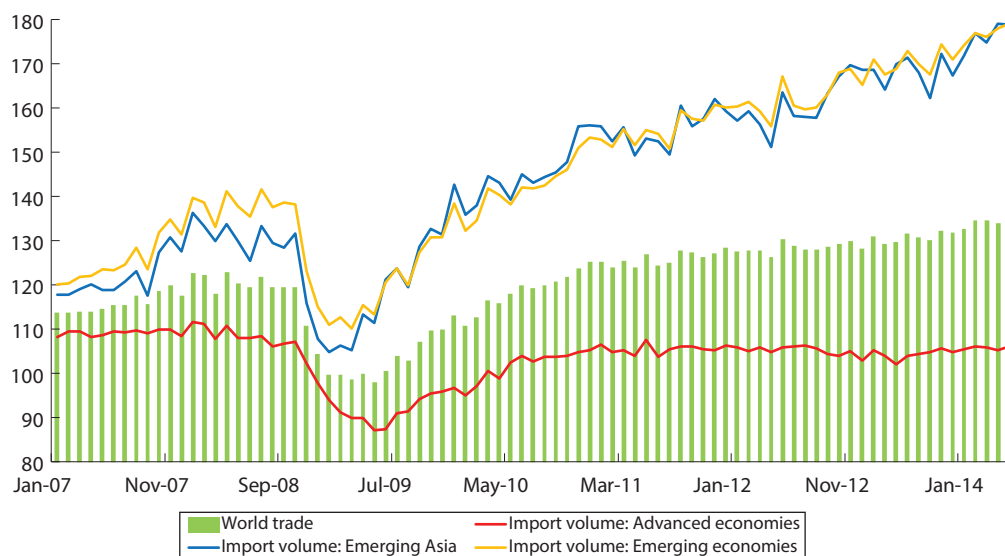
The eurozone economy had its third consecutive quarter of positive growth in the fourth quarter of 2013 (1.1% q-o-q, saar), indicating firmer recovery emerging after 6 quarters of recession. Both external and domestic demand improved, while higher government spending also contributed. Economic growth in the region is now more evenly spread between Europe’s core and periphery economies. Modest growth continued in Germany, France, and Portugal; gross domestic product (GDP) contraction slowed in Greece; and Italy and Spain appear to have edged out of recession. Consumer confidence has risen steadily from October 2012 to March this year. Manufacturing recovered, partly on market optimism that the European Central Bank (ECB) will act as stability anchor for the region. Nonetheless, economic conditions remain fragile as high private sector debt weighs down domestic demand and nonperforming loans rise, particularly in periphery economies. This adds to financial strain on the banking sector. Negligible retail sales growth over the past 15 months and still high unemployment (11.9% in February) weakens prospects (**Figure 6**). GDP growth is expected to rise to 1.4% in 2015 from a 2014 forecast of 1.0%.

**Figure 6: Retail Sales Growth—G3**  
(seasonally adjusted, y-o-y, %)



Note: Data for eurozone until Jan 2014.  
Source: ADB calculations using data from CEIC.

**Figure 7: World Trade and Import Volume** (seasonally adjusted, 2005=100)



Source: *World Trade Monitor*, CPB Netherlands Bureau for Economic Policy Analysis.

**While Japan’s near-term economic conditions remain positive, economic growth will likely consolidate until markets perceive the government’s announced structural reform policies are taking hold and having impact.**

In the year since the government launched its three-pronged economic rejuvenation program (popularly known as “Abenomics”), the yen weakened over 19%, exports grew an average 9.7%, deflation was broken, and Japan’s recession ended. The economy grew 1.5% in 2013—marginally higher than 2012 growth—as demand accelerated in anticipation of the 3% April 2014 rise in sales tax.<sup>3</sup> Consumption and public investments remain the primary contributors to growth. Several leading indicators have reached historic highs. In January, the manufacturing purchasing managers’ index hit its highest level in nearly 8 years. Inflation reached a 5-year high in December. In March this year, consumer confidence returned to levels unseen since the 2008/09 global financial crisis. However, while short-term economic conditions remain positive, economic growth may initially slow from the combined effects of the April tax hike and slowing growth in sectors where deep-seated structural reforms are being implemented. Without these reforms, the fiscal and monetary

components of the government’s comprehensive program will likely fail. Japan’s GDP is forecast to rise 1.3% in 2014 and 2015.

Growth in global trade should continue strengthening, led by rising demand from both advanced and emerging economies (**Figure 7**). World merchandise trade volume has been at an all-time high since October, nearly 10% above its early 2008 peak. Trade volumes have been growing faster in emerging economies for both exports and imports.

Commodity prices eased in step with decelerating growth in the People’s Republic of China (PRC) and improving oil supplies. The S&P Goldman Sachs Commodity Index and other key benchmark indexes fell sharply in 2013, led by precious metals and agricultural prices. Gold futures price was down 28% in its worst year since 1981, while corn had its worst year since 1970. Much of the price drop was due to improved global supply, at least for agricultural commodities and industrial metals like copper and aluminum.

<sup>3</sup>The Japanese consumption tax is a value added tax. In general, a company pays consumption taxes on domestic purchases or importation of goods and/or services (input consumption tax), and collects consumption tax from customers on a sale (output consumption tax).

## Regional Economic Outlook

**Even as growth in some of the region's largest economies moderates, developing Asia should see a marginal increase in growth over the next 2 years as improved demand from advanced economies spurs exports and several economies boost investment.**

Some of the region's largest economies are slowing from the combination of reduced stimulus and feeble growth in domestic demand (**Table 1**). The more open, trade-dependent economies are benefiting from robust global trade. Growth in the PRC has stabilized at a lower, more sustainable level as authorities work to contain excess credit and investment growth while enhancing market-based resource allocation and competition. Economic growth in East, Southeast, and Central Asia will be flat, though some economies may moderate on slower investment and consumption growth. In contrast, economic growth in India is accelerating on stronger net exports and investment, while growth in the Pacific

will strengthen as Papua New Guinea (PNG), its largest economy, begins liquefied natural gas exports in late 2014 and 2015. Overall, economic growth in developing Asia will rise slightly to 6.2% in 2014 and 6.4% in 2015.

**Growth in the PRC will continue to ease slightly through 2015 as authorities work to establish more sustainable economic expansion; this will likely affect other economies in the region through trade and finance.**

The PRC economy grew 7.7% in 2013, the same as in 2012. The government is working to slow investment-driven growth while increasing consumption. Yet investments still accounted for 54.5% of 2013 GDP growth, above the 49% contribution from consumption; while net exports subtracted 3.5% (**Figure 8**). Structural reforms proposed during the "Third Plenum" in November 2013 will likely have a positive impact on private consumption and private investment. However, its impact may be limited by measures to curb local government debt—which has reached nearly \$3 trillion

**Table 1: Regional GDP Growth<sup>1</sup>** (y-o-y, %)

	2009	2010	2011	2012	2013 <sup>8</sup>	Forecast <sup>9</sup>	
						2014	2015
<b>Developing Asia<sup>2</sup></b>	6.1	9.2	7.4	6.1	6.1	6.2	6.4
<b>Central Asia<sup>3</sup></b>	3.2	6.8	6.8	5.6	6.5	6.5	6.5
<b>East Asia<sup>4</sup></b>	6.8	9.8	8.2	6.6	6.7	6.7	6.7
People's Republic of China	9.2	10.4	9.3	7.7	7.7	7.5	7.4
<b>South Asia<sup>5</sup></b>	7.6	8.4	6.4	4.7	4.8	5.3	5.8
India	8.6	9.3	6.7	4.5	4.9	5.5	6.0
<b>Southeast Asia<sup>6</sup></b>	1.4	8.0	4.8	5.7	5.0	5.0	5.4
<b>The Pacific<sup>7</sup></b>	4.3	6.1	8.9	6.1	4.8	5.4	13.3
<b>G3</b>							
eurozone	4.4	2.0	1.6	-0.7	-0.4	1.0	1.4
Japan	-5.5	4.7	-0.5	1.4	1.5	1.3	1.3
United States	-2.8	2.5	1.8	2.8	1.9	2.8	3.0

<sup>1</sup>Aggregates weighted by gross national income levels (Atlas method, current \$) from *World Development Indicators*, World Bank.

<sup>2</sup>Refers to the 45 developing members of the ADB.

<sup>3</sup>Includes Armenia, Azerbaijan, Georgia, Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan, and Uzbekistan.

<sup>4</sup>Includes the People's Republic of China; Hong Kong, China; the Republic of Korea; Mongolia; and Taipei, China.

<sup>5</sup>Includes Afghanistan, Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan, and Sri Lanka. Data for Bangladesh, India, and Pakistan are fiscal year. For India, fiscal year is from April of the specified year through the following March. For Bangladesh and Pakistan, fiscal year is from July the previous year through June of the specified year.

<sup>6</sup>Includes Brunei Darussalam, Cambodia, Indonesia, the Lao People's Democratic Republic, Malaysia, the Philippines, Singapore, Thailand, and Viet Nam. Excludes Myanmar as weights unavailable.

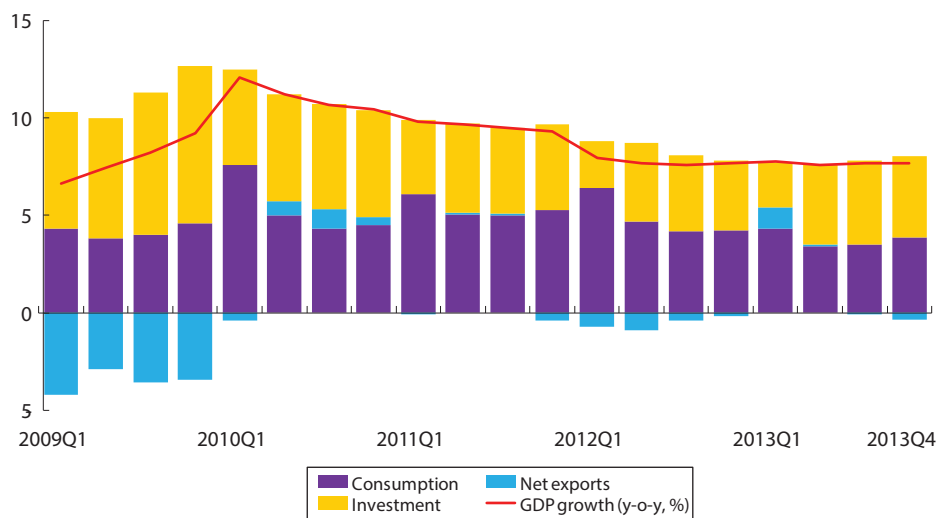
<sup>7</sup>Includes the Cook Islands, Fiji, Kiribati, the Marshall Islands, the Federated States of Micronesia, Palau, Papua New Guinea, Samoa, Solomon Islands, Timor-Leste, Tonga, Tuvalu, and Vanuatu. Excludes Nauru as weights unavailable.

<sup>8</sup>ADB estimates except for the People's Republic of China, India, eurozone, Japan, and the United States which are actual values.

<sup>9</sup>ADB forecasts from *Asian Development Outlook 2014*.

Source: ADB calculations using data from various issues of the *Asian Development Outlook*, ADB; CEIC; and national sources.

**Figure 8: Contributions to GDP Growth—People’s Republic of China** (percentage points, year to date)



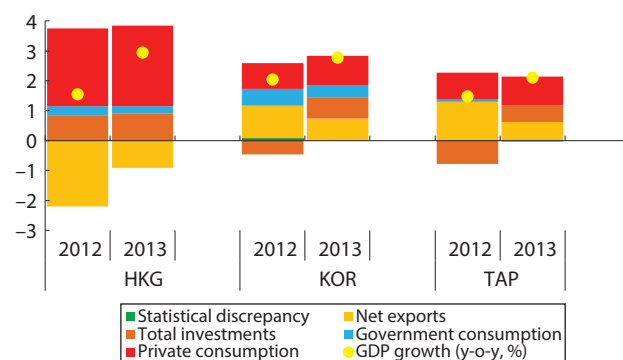
Source: Asian Development Outlook 2014, ADB.

as of June 2013 (or some 35% of GDP)—and shadow banking. The central bank has hinted at deleveraging to rein in credit growth, while public investments are expected to slow somewhat in a move to curtail local government borrowing. The turbulence in the PRC interbank market in June 2013 also left some uncertainty on whether the government can control credit without excessively slowing economic growth. GDP growth is forecast to ease to 7.5% in 2014 and 7.4% in 2015.

**East Asian economies are forecast to post flat growth as improvements in net exports and domestic demand in newly industrialized economies are tempered by moderating growth in the PRC.**

Improvement of net exports in Hong Kong, China and investments in the Republic of Korea and Taipei,China have supported growth recovery in the highly open East Asian economies (Figure 9). GDP growth in Hong Kong, China almost doubled in 2013, benefitting from an increase in trade and robust private consumption, along with improved financial market activity. The next 2 years should see GDP growth improve further to 3.5% and 3.6%. In the Republic of Korea, the surprisingly strong 2013 GDP growth was driven by robust domestic demand spurred by monetary and fiscal stimulus. Growth will rise further to 3.7% and 3.8% in the next 2 years as the global outlook favors exports. However, yen depreciation could dampen the growth outlook, as exports lose competitiveness against Japan, particularly in the many markets they share. In Taipei,China, a strong fourth quarter pushed 2013 GDP growth up to 2.1%

**Figure 9: Contributions to GDP Growth—Hong Kong, China; Republic of Korea; and Taipei,China** (percentage points)



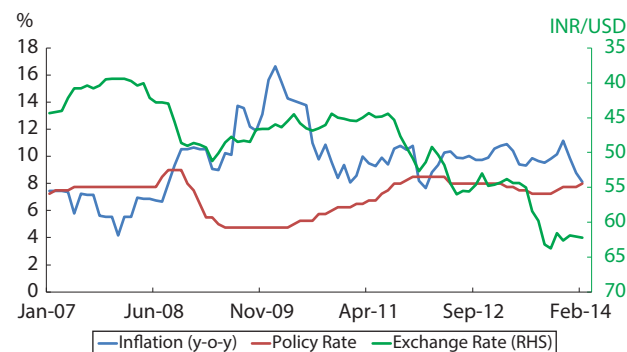
HKG = Hong Kong, China; KOR = Republic of Korea; TAP = Taipei,China. Source: Asian Development Outlook 2014, ADB.

from 1.5% in 2012 as exports rebounded on strong demand from the US and EU; although slowing growth in the PRC tempered some of the gains. GDP growth in Taipei,China is forecast to increase 2.7% in 2014 and 3.2% in 2015. Overall, GDP growth in East Asia, including the PRC, is expected to remain steady at 6.7% for both 2014 and 2015.

**Economic growth in India is forecast to recover after a good monsoon helped agriculture grow strongly; however, weaknesses from rising inflation, tight monetary policy, and fiscal drag remain to cast a shadow on growth.**

As borrowing costs rose, GDP growth eased slightly to 4.7% in the third quarter of fiscal year (FY) 2013

**Figure 10: Inflation, Policy Rate, and Exchange Rate—India**



INR/USD = Indian rupee per dollar, RHS = right-hand scale.  
 Note: Inflation is based on year-on-year growth. Policy rate refers to repurchase rate.  
 Source: CEIC.

(October-December) from 4.8% in the second quarter. However, a good monsoon in 2013 helped food grain production rise 2.4% in FY2013. Growth is expected to rise through 2015 as measures to revive foreign direct investment (FDI) and expedite the approval of stalled infrastructure projects begin to bear fruit. Government actions to address structural impediments to industry and investment will also help as domestic consumption will likely rebound from expected price easing from improved food grains supply. Overall growth for FY2013 (ending in March 2014) is forecast to rise to 4.9% from 4.5% in FY2012, although this remains below the 8.0% average growth from 2009 to 2011. Despite improving growth prospects, several key challenges must be overcome. Since the May 2013 announcement of possible early QE tapering in the US, the rupee depreciated about 10%, which also contributed to a higher 9.9% inflation rate in December (Figure 10). In response, the Reserve Bank of India hiked its policy rate 25 basis points to 8.0% since January 2013. Last year, the government also extended its food-subsidy program—offering rice, wheat, and other food grains at a fraction of market prices to the poor. While expected to soften the inflationary impact on these vulnerable segments, the subsidies have exacerbated the budget deficit. Several important reforms remain to be passed—and they will likely continue to face delays until after the upcoming parliamentary elections in May.

**Growth momentum in Pakistan and Bangladesh will slow while other South Asian economies will see a modest rise.**

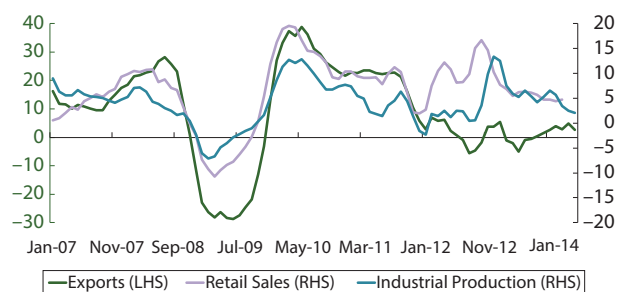
The financial support facilities provided by the International Monetary Fund (IMF) and US government

to Pakistan—and subsequent corrective measures undertaken by the State Bank of Pakistan—calmed restive markets and helped restore stability to the Pakistan rupee. However, foreign exchange reserves remain thin, continuing to pressure the balance of payments over the short term. These vulnerabilities and high inflation will ease FY2014 (ending in June 2014) growth to 3.4% from 3.6% in FY2013. Conditions should improve in FY2015 as vital government reforms begin to gain traction. Bangladesh should see economic growth dip to 5.6% in FY2014 (ending in June) from 6.0% growth in FY2013 on weaker exports, declining overseas worker remittances, and the impact from political events that led to parliamentary elections in January. Nonetheless, with economic fundamentals still sturdy, growth should accelerate again in FY2015. Elsewhere in the region, Sri Lanka’s economy is benefiting from vibrant domestic demand. Led by tourism-fuelled services and rapidly expanding mining and construction, Sri Lanka was estimated to have grown 7.3% in 2013 and is projected to grow 7.5% in 2014 and 2015. Afghanistan, Bhutan, the Maldives, and Nepal are also expecting modest upticks in economic growth in 2014 and 2015 with macroeconomic risks largely at bay and inflation remaining manageable. As a group, South Asia is forecast to grow 5.3% in 2014 and 5.8% in 2015.

**Together, Southeast Asian economies will see growth flatten, with some economies slowing due to weaker domestic demand arising from idiosyncratic domestic shocks.**

The region’s growth moderated to 5.0% in 2013 from 5.7% in 2012 due to weaker domestic demand in some of the largest economies. Growth is expected to remain steady in 2014 before bouncing back in 2015 due to a recovery in exports and investments. In Thailand, private consumption and investment could slow further in response to the continuing political turmoil. Indonesia’s monetary tightening and large current account deficit—mainly due to falling non-oil exports and a ban on mineral exports—could damage the growth outlook even as election spending could spur consumption. In the Philippines, after 2 years of strong growth, GDP growth is expected to slow, while potential power shortages and rising power prices could also tame growth and feed inflation—averaging around 4% since December 2013. Singapore’s GDP growth is expected to slow somewhat due to ongoing domestic economic restructuring to raise labor productivity, but a recovery in exports will push growth in 2015. Meanwhile, Malaysia’s fiscal consolidation may curb domestic demand, even as higher export earnings help GDP growth stay

**Figure 11: Merchandise Export, Retail Sales, and Industrial Production Growth—Southeast Asia (y-o-y, %)**



LHS = left-hand scale, RHS = right-hand scale.

Note: 3-month moving average. Export and industrial production data cover Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Viet Nam. Retail sales data cover the Philippines, Singapore, Thailand, and Viet Nam. Retail sales data until Nov 2013.

Source: ADB calculations using data from CEIC.

near 5% in 2014 and 2015. Leading indicators point to continued softening across Southeast Asia, with industrial production growth declining and exports and retail sales growing modestly in recent months (**Figure 11**). Thus, Southeast Asia's GDP growth is expected to stay flat at 5.0% in 2014, before rising to 5.4% in 2015. Growth in the five largest economies (Indonesia, Malaysia, the Philippines, Singapore, and Thailand) is forecast to remain flat at 5.2% in 2014, rising to 5.6% in 2015.

### The economies of Central Asia are recovering gradually, led by stronger GDP growth in Kazakhstan and Azerbaijan.

Kazakhstan's improved outlook is mainly due to strong growth in services and moderate growth in industry, construction, and agriculture. While Azerbaijan's oil sector is just emerging from recession, public spending—especially infrastructure—contributed to higher growth in non-oil sectors and helped push GDP growth to 5.8% in 2013 from 2.2% in 2012. In contrast, the economic slowdown in the Russian Federation continues to drag growth in Armenia, while falling government spending dampened Georgia's GDP growth. In aggregate, growth in Central Asia is forecast to remain steady at 6.5% in 2014 and 2015.

### Economic growth in the Pacific will strengthen, led by its two largest economies, PNG and Timor-Leste.

Growth across Pacific developing member countries (Pacific DMCs) should accelerate in 2014 and 2015, driven mainly by PNG, which carries a 52% weight in the regional

average. Growth in the Pacific DMCs should rise from 4.8% in 2013 to 5.4% in 2014 and to 13.3% in 2015—a major boost as PNG begins liquefied natural gas (LNG) exports late this year, accelerating in 2015 on its first full year of LNG exports. Growth in PNG and Timor-Leste, the subregion's second largest economy, will also depend on the effectiveness of expansionary government expenditures. Most economies are expected to grow stronger in 2014, mainly driven by fiscal stimulus tied to large infrastructure projects. Reconstruction and rehabilitation should fuel growth in Nauru, Tonga, and Samoa. Getting delayed infrastructure projects off the ground in Kiribati, the Marshall Islands, Tuvalu, and Vanuatu should raise 2014 growth forecasts in these economies. Fiji's growth is set to slow in 2014 but will pick up in 2015. If Fiji's September elections proceed without any major incident, it should improve prospects for increased FDI—an upside risk to the growth forecast.

## Risks to the Outlook and Policy Issues

**There are three main downside risks to the outlook, none of which are new and all have been on policymakers' radar for some time: (i) an economic shock or reversal in any G3 economy could derail the nascent global recovery; (ii) the PRC economy moderates too quickly, affecting the rest of developing Asia; and (iii) volatile capital flows affect financial conditions across the region.**

A jolt to the US or eurozone economy could be triggered by a policy misstep in the US (yet another political impasse, for example), renewed financial stress in Europe (banks or sovereign debt), or cross-border political tensions (economic sanctions). The pace of QE tapering and its impact on global interest rates could shake markets once again—even if the net effects of a gradual QE exit remain positive. In Europe, financial fragmentation, unfinished banking reform, and high levels of public and corporate debt could derail confidence and reignite a crisis. Heightened political tensions over Ukraine, for example, could also stir markets globally. In Japan, market skepticism over the success of deep-seated reforms needed to back the fiscal and monetary stimulus already undertaken could fail to reinvigorate the economy. A slowdown in Japan could affect developing Asia through trade and financial channels. Economies with strong trade links with Japan include Taipei, China; Indonesia; Thailand;

the Philippines; Malaysia; and Viet Nam. Bank lending from Japan could also drop—as of end-September 2013, Japan's outstanding loans to Asia reached \$391.8 billion. FDI outflows from Japan could also slow—in 2012 alone, Japanese firms invested \$235.6 billion in the region.

If the PRC economy moderates too quickly, the rest of developing Asia will be affected, especially those with strong trade links, such as Hong Kong, China; Indonesia; the Republic of Korea; Myanmar; Thailand; and Viet Nam. There could also be direct and indirect effects through the financial channel. The region's equity markets and currencies could weaken as investor confidence falls with slower growth in the PRC.

With QE tapering underway—and orderly for now—market volatility has subsided, although it remains highly sensitive to short-term market sentiment (**Box 1**). Also, the continued US and eurozone recovery is boosting the outlook for Asia's export-oriented economies. And with global equity indexes up since mid-February, there is high probability that potential asset bubbles and financial vulnerabilities are again on the rise. Thus, it is likely markets in the region will remain vulnerable to disruptive events—whether global, regional, or national.

## Box 1: How Tapering Quantitative Easing Affected Selected Asian Economies

When central bank policy rates and interbank rates are zero or near zero, one unconventional monetary policy that can stimulate an economy is quantitative easing (QE). In essence, massive buying of long-term securities pumps new liquidity into the financial system. It also reduces expectations of rising longer-term interest rates, thereby stimulating more loans, investments, and consumption.

The US Federal Reserve (US Fed) has been using QE—buying of mortgage-backed securities (MBS), long-term government securities, and other financial assets—to ease the impact of the 2008/09 global financial crisis and stimulate US economic recovery. QE was done in three stages: QE1, which started end-November 2008, helped stabilize the US economy in the wake of the Lehman Brothers collapse; QE2, which ran from November 2010 through June 2011, was in response to a weak US recovery compounded by the eurozone debt crisis; and QE3, which started in September 2012 with bond purchases eventually reaching \$85 billion per month. Combined, QE expanded the US Fed's balance sheet from \$900 billion before Lehman Brothers collapsed to over \$4 trillion by end-2013. Most believe the three QE programs helped increase portfolio flows and currency appreciation in emerging markets. These large capital inflows triggered fears over possible asset bubbles forming in housing and credit markets.

By early 2013—as the eurozone debt crisis eased, the gradual US recovery strengthened, and the US unemployment rate dropped (see Figure 5)—rumors began that the massive buying of new US bonds by the Fed might slow beginning the second quarter of 2013. On 22 May 2013, then-US Fed Chairman Ben Bernanke hinted at the possibility of an early QE exit—probably starting in September with interest rates rising afterward. This instantly spooked markets. However, when September arrived the US Fed decided to delay tapering due to weak economic data and the fiscal impasse in the US Congress. It took until 18 December 2013 for the US Fed to announce its initial

\$10 billion reduction in purchases, to begin in January 2014. Again, on 29 January, it announced a second \$10 billion reduction from February, with a third announced in March. How did QE tapering affect the region's financial markets?

Average daily changes in market indexes were calculated covering the periods of “tapering fears” (19 May 2013 to 18 September 2013), “tapering postponement” (19 September 2013 to 18 December 2013), and the tapering period beginning 19 December 2013 (**Box figure 1**). The three asset markets (equity, currency, and sovereign bonds) in several economies performed better during the post-18 December 2013 tapering period than the two earlier periods, reinforcing the belief that tapering fears were largely unfounded and led to market overreaction in the periods before actual tapering began.

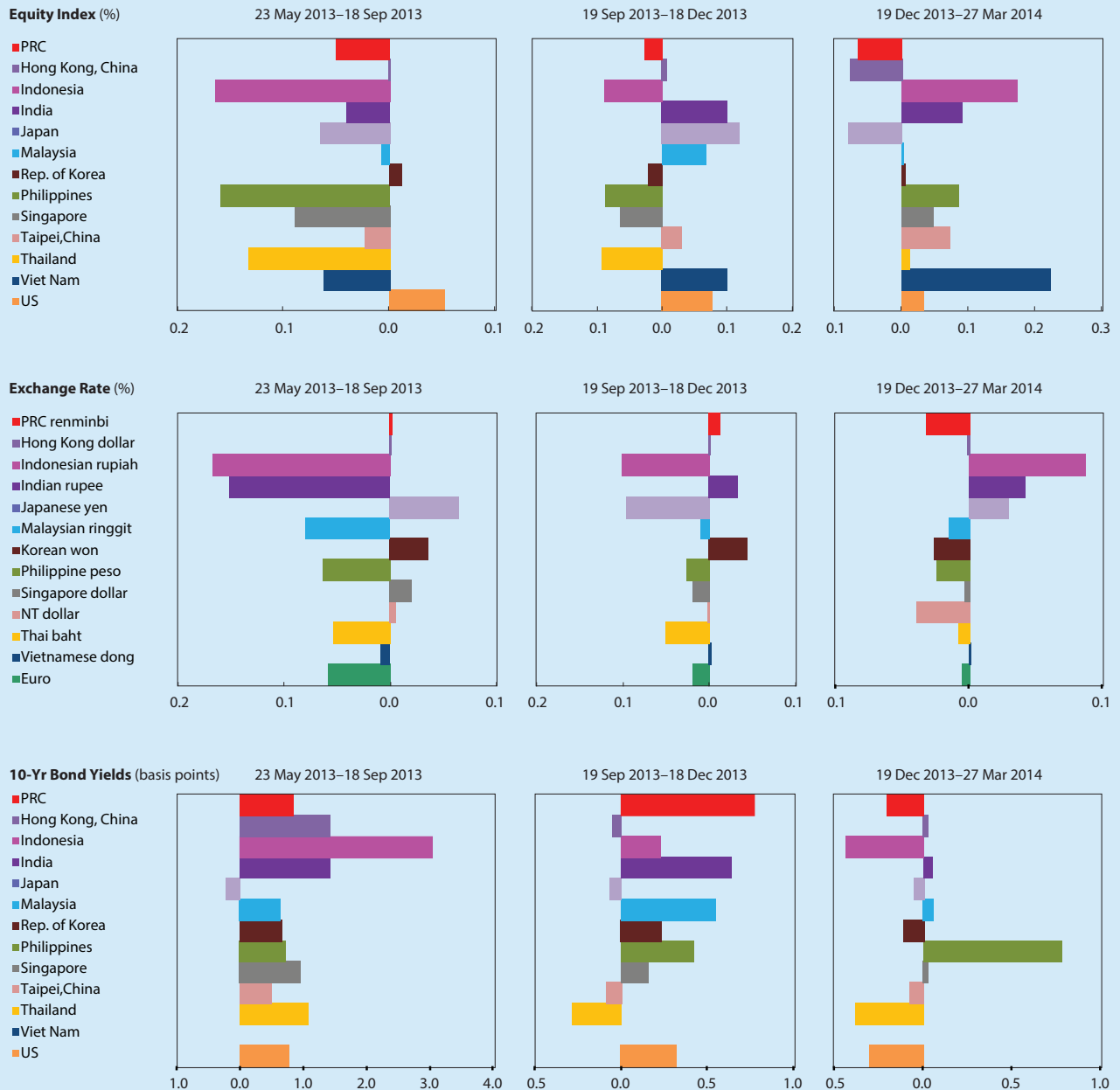
An expectations-driven panel regression was done to understand the effects of QE tapering on (i) the growth of the nominal exchange rate (ER) and nominal effective exchange rate (NEER), (ii) the growth of the S&P Investable Funds Total Return (S&P), and (iii) the change in 10-year country bond yields (**Box table**).<sup>1</sup> Five emerging Asian markets were chosen—India, Indonesia, Malaysia, the Philippines and Thailand—because they were heavily affected by QE and news or decisions concerning QE tapering. The simple model used is based on Robin Koepke's (2013) paper written for the International Institute of Finance (IIF).<sup>2</sup> The key explanatory variable representing QE tapering is the expected US Fed policy rate reflected in the US Federal Fund Futures (FFF)

<sup>1</sup>The S&P Investable Funds is a composite price index per country made up mostly of equities open to foreign investors.

<sup>2</sup>R. Koepke. 2013. Quantifying the Fed's Impact on Capital Flows to EMs. *IIF Research Note*. Washington D.C.: The Institute of International Finance.

# Box 1 continued

**1: Asian Financial Markets—Average Day-on-Day Changes on US QE Tapering News**



PRC = People's Republic of China, QE = quantitative easing, US = United States.

Note: 22 May—US Federal Reserve (US Fed) first QE tapering announcement; 18 Sep—Postponement of US Fed QE tapering; 18 Dec—US Fed begins QE tapering. Equity indexes used are Shanghai Stock Exchange Composite Index for the PRC; Hang Seng Index for Hong Kong, China; Jakarta Composite Index for Indonesia; Bombay Stock Exchange 100 for India; Nikkei 225 for Japan; Kuala Lumpur Composite Index for Malaysia; Korea Stock Exchange KOSPI Index for the Republic of Korea; Philippine Stock Exchange Index for the Philippines; Strait Times Index for Singapore; TWSE is the stock exchange index for Taipei, China; Stock Exchange of Thailand Index for Thailand; Viet Nam Ho Chi Minh Stock Index for Viet Nam; and S&P 500 for US.

Source: ADB calculations using data from Bloomberg and CEIC.



### Panel Data Regression Using Five Asian Economies

Variables	PCER <sub>t</sub>	PCNEER <sub>t</sub>	PCS&P <sub>t</sub>	PCBondY <sub>t</sub>	
DepVar <sub>t-1</sub>	0.35***	0.37***	-0.12**	-0.09	0.01
ΔExp_FFF <sub>t</sub>	-1.93***	-1.02***	-3.52**	-1.82	38.14***
Risk <sub>t</sub>	-7.38***	-4.64***	-27.61***	-25.03***	36.09**
ΔExp_FFF <sub>t</sub> *taper1	-1.16	-3.68***		-14.87***	
IPgrowth_PRC <sub>t-1</sub>	0.05	0.06*	0.26*	0.27*	-1.12
Indonesia	0.01	0.01	0.72	0.71	-4.48
Malaysia	0.43	0.42*	1.3	1.26	-2.49
Philippines	0.41	0.41*	2.10*	2.04*	-10.49*
Thailand	0.38	0.41	1.85	1.8	-2.79
Constant	-1.25***	-1.22***	-4.01**	-4.00**	20.40*
Adj R-Square	0.38	0.33	0.23	0.25	0.09
F-test	***	***	***	***	***

\*\*\*significant at 1%, \*\*significant at 5%, \*significant at 10%.

Notes:

1. Period from Jan 2010 to Dec 2013.
2. PCER<sub>t</sub> is the percentage change in the nominal exchange rate from month t-1 to month t. A positive change means appreciation.
3. PCNEER<sub>t</sub> is the percentage change in the nominal effective exchange rate from month t-1 to month t. A positive change means appreciation.
4. While the coefficient estimates for the lag of PCER and PCNEER are positive, they are less than one and could reflect persistent effects of exchange rate movements in the past; particularly since the lag is just 1 month.
5. PCS&P<sub>t</sub> is the percentage change in the S&P Investable Funds Total Return, which is mainly a composite price index for equities that are open to foreign investors (from month t-1 to month t) in each economy.
6. PCBondY<sub>t</sub> is the percentage change in the country bond yield from month t-1 to month t.
7. DepVar<sub>t-1</sub> is the value of the dependent variable lagged one period (month).
8. ΔExp\_FFF<sub>t</sub> is the change from month t-1 to month t of 100 minus the US Federal Funds Futures contract price (Dec 2015 maturity). 10-year Eurodollars contract (Q4 2015 maturity) used for data prior to Dec 2012.
9. Risk<sub>t</sub> is the global risk measured by the change in the BBB-rated US corporate bonds spread over the US 10-year treasury rate for month t.
10. Taper1 is dummy variable for fears for Jun–Sep 2013.
11. IPgrowth\_PRC<sub>t-1</sub> is the y-o-y growth of industrial production of the People's Republic of China, lagged one period.
12. Indonesia, Malaysia, the Philippines, Thailand are dummies for the countries. The default country is India.

contract maturing by end-December 2015.<sup>3</sup> The other key variable is “perceived global risk”, as measured by the changes in the spread of BBB-rated US corporate bonds over the US 10-year treasury rate.<sup>4</sup> The growth of industrial production in the People's Republic of China (PRC)—lagged one period—was also included in the regression. Country dummies were

used in the fixed-effect panel regressions. The model assumes there is a stronger slope coefficient for the key variable of expected FFF rate during the period from 23 May 2013 to 18 September 2013 (ΔExp\_FFF<sub>t</sub>\*taper1). Because the regressions use monthly data, the dummy ‘taper1’ would include the months of June 2013 to September 2013.<sup>5</sup>

<sup>3</sup>The expected US Fed policy rate is computed as 100 minus the average daily US Fed Funds Futures Contract price for the delivery month—for example, a 6.5% rate equals a 93.50 contract price. It acts as a forecast of the average monthly level of the Fed funds rate. It is postulated that if QE is expected to continue as is, there would be low expected future interest rates, and investors will have a stronger risk appetite to invest in emerging market portfolios. On the other hand, if QE is expected to be “tapered” by significant amounts, there would be significantly higher future interest rates, and investors will reduce their risk appetite to invest in emerging market portfolios.

<sup>4</sup>A BBB-rated corporation refers to a corporate entity seen to have adequate capacity to fulfill its financial obligations. This capacity, however, can be weakened during adverse economic conditions. Thus the spread between this and the rate of the least risky bond—the US 10-year treasury note—is seen as a measure of the perceived risk to a medium investment-grade firm.

There were several key results. First is the significant role played by expected increases in the US Fed interest rate (as reflected by the FFF contract maturing December 2015). The stronger the US Fed's QE tapering or higher expected Federal Funds rate, *ceteris paribus* (all other variables constant), (i) the less foreign capital inflows would be invested in emerging market equities, (ii) the more Asian currencies would depreciate, and (iii) the more domestic bond yields would rise.

<sup>5</sup>A change in the dummy from May 2013 to September 2013 showed almost the same results as the regressions presented in Box table.

## Box 1 continued

Countering this is the impact of the global risk variable—measured by the interest rate spread between BBB-rated US corporate bonds and US 10-year treasuries—incorporating risks embodied mainly in the US economy, and secondarily in the economy of the European Union (EU). This variable is even more significant in affecting foreign capital inflows to equities as well as currencies. It also has a significant effect on domestic bond yields, but less than the expected Fed Funds rate. Thus, the lower the global risk perception due to global economic recovery, *ceteris paribus*, the more foreign inflows will go to emerging markets, Asian currencies will appreciate, and sovereign bond yields will fall.

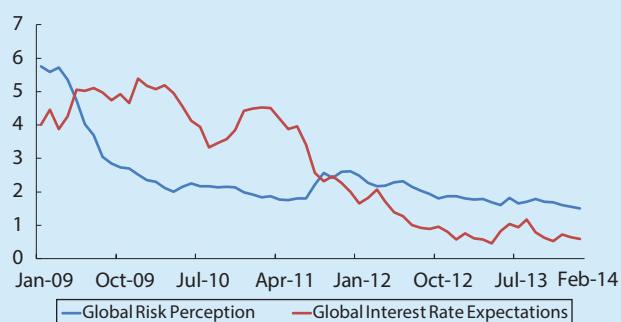
Furthermore, the regressions show that the S&P index of stocks open to foreign investors and the nominal effective exchange rate were hurt more by the tapering fears from end-May to mid-September 2013, as shown by the highly significant negative coefficient of  $\Delta \text{Exp\_FFF}_t^* \text{taper}_1$ , than the definitive announcement that tapering would begin.<sup>6</sup> It is clear the mid-2013 market jitters were heightened by the uncertainty and lack of information on the size of tapering and future US Fed interest rate policy. This was aggravated by Bernanke's statements that tapering might start reducing new asset purchases by \$20 billion in September 2013 and end QE completely by mid-2014. Interest rates may then rise afterward.

Markets felt the impending US Fed tapering and increase in interest rates were too soon and too fast.

In contrast, the 18 December 2013 and 29 January 2014 announcements of actual tapering (coming 3 and 4 months after the time when tapering was supposed to have begun—based on Bernanke's earlier testimony) were very clear. Only \$10 billion of monthly asset purchases would be reduced each month and interest rates would remain at their current low levels until the unemployment rate drops below 6.5%.

<sup>6</sup>The nominal effective exchange rate can measure currency movements vis-à-vis the US, EU, and Japan—the economies' top trading partners.

**2: Global Interest Rate Expectations versus Global Risk Perception (%)**



Notes: Global interest rate expectations is proxied by the 30-day US Federal Funds Futures Contract (a 3-year contract maturing on Dec 2015); data on Eurodollar Futures Contract is used prior to Dec 2012. Global risk perception is proxied by the BBB-rated US corporate bond yields spread over US 10-year Treasury.

Source: ADB calculations using data from Bloomberg.

In the regressions, the lagged industrial production growth rate in the PRC also figured significantly at the 10% level for the nominal effective exchange rate and the S&P composite stock price index.

Recent financial volatility could be explained by the interplay of the FFF and global risk variables (**Box figure 2**). Both FFF and global risks declined from the second half of 2012 to April 2013—a period when portfolio inflows to emerging markets also became strong and, in many cases, contributed to currency appreciation. In the end-May to mid-September 2013 period, FFF is rising significantly from a downward trend (due to QE), while global risks remained stable or did not decline. Note that FFF declined in September with the tapering postponement to approximately where it was before the jitters began. The evidence of market overreaction to US Fed tapering jitters in May to September 2013 can therefore be seen in (i) the steeper negative slope coefficient for the FFF variable revealed by the regressions on the nominal effective exchange rate and

## As US quantitative easing is further reduced, policy normalization offers both opportunities and challenges for regional cooperation and integration in developing Asia; last year's market turbulence exhibited contagion, for example, through capital flows and an exchange rate channel.

The start of policy normalization in key economies should help create more balanced global growth, with advanced economies increasing their contribution

just as emerging economies see growth moderate somewhat. This new equilibrium will see a more “normal” setting of macroeconomic levers. However, as these levers are adjusted, financial markets will adjust accordingly, leading to greater near-term volatility. This presents some clear challenges to the region's policymakers: (i) correct existing national economic and financial imbalances; (ii) pursue broader and deeper structural reforms to raise productivity; (iii) promote financial market stability; and (iv) engender more sustainable economic growth. However, as expanding

the price index of stocks open to foreign investors, and (ii) the temporary spike in the FFF variable during the period.

The model predicts that an improving global economy—especially if it is quite strong and permanent—will most likely prevent a repeat of the panic during the first tapering fear period of 23 May 2013 to 18 September 2013, as most economies will benefit with the increase in world trade and the strengthening of global financial markets. This is especially true as the risk perception variable exerts a stronger (with higher significance level) effect on the PCS&P and PCNEER variables.

On the other hand, it appears there was herd mentality driving capital inflows (to QE itself) and outflows (tapering fears). Strong capital outflows, significant currency depreciation, and increases in bond yields hit economies with strong macro fundamentals—such as Malaysia, the Philippines, and Thailand—during the tapering fears from May to September 2013. Economies with weaker macroeconomic fundamentals—such as India and Indonesia—barely coped with the outflows from May to September 2013. They suffered temporary mini-crises with unusually sharp currency depreciation, alarmingly strong increases in bond yields, huge capital outflows, and reserve losses. Jacking up interest rates and imposing capital controls proved ineffective. They were saved when the tapering was postponed. When actually announced in December, there was some brief market turbulence; but that ended a week after the late-January 2014 announcement was made.

The latest announcement on 19 March 2014 changed the rules again, as new US Fed chair Janet Yellen dropped the 6.5% unemployment threshold, hinted at an end to QE by the fall of 2014, and hinted at a sooner-than-expected increase in interest rates 6 months later—in the spring of 2015 instead of June 2015 as markets expected. Thus, market volatility occurred right after the announcement. But the fears seemed to have died down in succeeding days even amid the Ukraine-Russia geopolitical crisis and the fear of a major slowdown in the PRC.

QE tapering is inevitable once the US and other major economies recover sufficiently. Emerging markets must readjust after the exaggerated inflows and currency appreciation that came as a result of QE. It is clear that a strong

recovery in advanced economies will be good for Asia's export-oriented economies. And Japan's continuing QE may help tame any rise in global interest rates.

However, financial markets remain highly sensitive to any news of future interest rate increases, and any hints that this would happen sooner and faster will again bring exaggerated fears and rumblings in the markets, with possible irrational panic and herd mentality. Thus, regional cooperation initiatives must be ready in case market overreaction reappears as Fed tapering brings QE to an end and leads to a rise in global interest rates. At the height of the US Fed tapering fears, cooperation in the region did actually occur (at least bilaterally). The PRC, at the peak of tapering fears in early September 2013, called on Asian economies to create more currency swap deals to facilitate capital flows. At around the same time, India and Japan decided to increase their currency swap arrangement from \$15 billion to \$50 billion. Indonesia and the Republic of Korea agreed to a \$10 billion currency swap arrangement on March 2014 to protect Indonesia from global shocks, such as another strong US Fed tapering of QE. More coherent and multilateral regional cooperation and initiatives will enhance the protection of economies vulnerable to global external shocks and sharp capital outflows. Equally important to offset market overreaction, economies with weaker macroeconomic fundamentals must commit to implement clear and meaningful structural reforms as soon as possible.

The market turmoil associated with last year's US Fed tapering episode flashed warning signals to economies with weak macroeconomic fundamentals—like large current account or fiscal deficits, unsustainable debt, and high inflation. India and Indonesia took the necessary initial steps toward structural reform after being hit hard by the first tapering fears. This also explains why they were less affected when tapering was actually announced in December 2013 and January 2014.

regional trade and finance strengthen links between economies, policy tightening from any large economy could hurt the rest of the region, especially if several economies tighten rapidly. Thus there is an urgent need to further strengthen regional economic surveillance and policy dialogue to better manage the risks and costs of integration.

**Global and regional supply chains continue to evolve, affecting the nature and dynamics of FDI and trade integration; this presents an opportunity to further open individual economies and strengthen trade and investment regimes.**

Widening unemployment gaps between advanced and Asian economies, changing demographics, and rising wages in key economies in developing Asia could all affect regional competitiveness. Asia must build on the

success of its trade liberalization by removing non-tariff barriers and promoting trade facilitation—such as deregulating and harmonizing standards. Recent and continuing negotiations on a Regional Comprehensive Economic Partnership (RCEP), for example, require sufficient political commitment for the initiative to succeed.

**The recent bout of regional financial market volatility highlights the critical link between finance and macroeconomic stability; the financial sector must be strengthened to ensure it contributes to—rather than detracts from—more sustainable and inclusive economic growth.**

The effects of last year’s financial market turmoil on India, Indonesia, and other developing economies underscore the need to strengthen and further reform financial markets. Asia has the opportunity to reinforce growth prospects by working on “hard” infrastructure investment and structural “software” reform. Easing supply-side bottlenecks to cut the costs of doing business, encourage investment, and spur growth would help—as would deepening and broadening financial markets to provide a solid financial base for economic expansion.

**As Asia becomes more integrated regionally and globally, policymakers should strengthen financial integration through national and regional policies that buttress financial market stability.**

Since the 1997/98 Asian financial crisis, Asia has shown growing resilience to financial market volatility. Over time, its economies have pursued more flexible exchange rates, maintained higher foreign exchange reserves, and kept healthier current account balances.

They have also improved financial regulations and more optimally restructured external liabilities. Recently, however, there has been increasing exposure to short-term external debt, which can lead to heightened vulnerabilities. Banks are also highly leveraged. Corporate and bank balance sheets—while healthy—could become stressed if borrowing costs rise to more normal levels. Thus, a key priority for the region is to develop a system-wide macroprudential supervisory framework that can avoid the build-up of systemic risk in the region. Asia would also benefit from strengthening regional financial safety nets through bilateral and multilateral swap agreements to counter regional contagion. For instance, measures to strengthen the current \$240 billion ASEAN+3 Chiang Mai Initiative Multilateralization (CMIM) will bolster regional financial stability.

**Closer consultation and more effective policy dialogue can ensure better policy coordination when responding to global and regional economic shocks.**

Close and effective dialogue among the region’s policymakers ensures information and knowledge sharing on common challenges, helps policy coordination when responding to global and regional economic shocks, and institutionalizes the ability to tackle tough issues as they arise in a collegial fashion.

National structural reforms—to boost productivity, reduce inequalities, and mitigate vulnerabilities—build the backbone for stronger regional cooperation and integration (RCI). But the reverse is true as well—RCI, CMIM, regional agreements (free trade agreements and negotiations for the RCEP), and initiatives (such as the ASEAN+3 Bond Market Initiative [ABMI]) can work to reinforce and facilitate the adoption of the more difficult national reforms.

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# REGIONAL COOPERATION AND INTEGRATION

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## Introduction

As in previous issues, the *Asian Economic Integration Monitor (AEIM) April 2014* describes and analyzes recent trends in the cross-border flow of goods (trade), financial assets, and people across Asia, as well as macroeconomic interdependence in the region. In recent years, progress has been mixed: intraregional trade shares fell slightly in January–August 2013, but flows of foreign direct investment (FDI) continue to rise along with debt holdings in 2012. Equity investments are up after declining in recent years, with migration down slightly and intraregional tourist flows moderating. As economic links strengthen, Asia's economies are becoming more dependent on each other.

Trade integration has shown several interesting trends. In all five subregions—Central Asia, East Asia, South Asia, Southeast Asia, and the Pacific and Oceania—intra-subregional trade has dropped somewhat. But inter-subregional trade between each subregion and the rest of Asia is rising, with South Asia the exception due to India's slower growth (**Table 2**). Integration within Central Asia, and the Pacific and Oceania remains limited, yet their integration with the rest of Asia is strong, particularly in the Pacific and Oceania. More and better transport links are key to further integration, along with efforts to promote trade and labor mobility. The combined share of intra- and inter-subregional trade in South Asia and East Asia has dropped. It suggests that trade with economies outside Asia is gaining in importance, particularly when the recovery in the United States (US) and Europe—Asia's main market for final goods—is back on track.

Another important trend is deepening, more efficient production networks—seen through a shift in export origin. For example, rising demand from Southeast Asia has led Japanese firms to export their products from factories outside Japan—including those located in Southeast Asia. This is why Japan's share of trade in Southeast Asia has been declining. It helps show the dynamics of value chains within Asia's production network.

Financial integration can be seen through the continued rise in cross-border bond holdings, a recovery in intraregional equity flows after a persistent fall since the start of global financial crisis, and accelerated FDI within the region (**Figure 12**). Cross-market dispersion of equity

returns narrowed as did bond yields—except in East Asia (which is more affected by the global bond market). To reduce overreliance on banks for long-term infrastructure investment, Asia's local currency bond markets has been growing steadily.<sup>4</sup> Cooperation on regulatory standardization and market harmonization significantly helped increase cross-border flows, which reached 15% for bonds and 25% for equities in 2012.

Despite the sharp drop in global FDI, flows from the People's Republic of China (PRC), Japan, and the Republic of Korea to Southeast Asia has increased. Investor strategies to deal with rising production costs in East Asia, growing production networks, progress toward an ASEAN Economic Community (AEC), and emerging geopolitical trends are all contributing factors. And FDI flows within Southeast Asia are rising, as FDI follows increased trade. While European banks remain a dominant external credit source in terms of outstanding loans, Japanese banks (along with Australian banks) are lending more. Also, bank credit flows from Japan and Australia are less volatile than those from Europe, benefiting Asian economies.

Migration reflects economic and socio-cultural ties. While Asia's migration flows remain steady, tighter regulations in host economies have eased flows slightly. Rising incomes in source economies may also be a factor. For some, remittances back home offer a mechanism to spread risks and mitigate income shocks. Tourism is another important income source. And while intraregional tourism remains high, it has fallen slightly as flows between the PRC and Japan decline.

Given these integration trends, it is not surprising that the degree of macroeconomic interdependence in Asia remains strong and continues to deepen. The PRC's increasing role is behind much of this, but it is not always symmetric.<sup>5</sup>

The process continues to be market-driven and institution-lite. Yet, the importance of bilateral and regional institutions for cooperation remains. While high intraregional trade may reflect economic specialization,

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<sup>4</sup>Total outstanding bond market size at end-2013 for nine Emerging East Asian economies (the PRC; Hong Kong, China; Indonesia; the Republic of Korea; Malaysia; the Philippines; Singapore; Thailand; and Viet Nam) reached \$7.4 trillion—or 57% of gross domestic product (GDP), a 12% increase from 2012. And this was despite the market turbulence during mid-2013.

<sup>5</sup>See section of macroeconomic interdependence in this and previous issues of *AEIM*.

**Table 2: Progress in Regional Integration**

Subregions	Production Networks and Trade				Capital Markets				Macroeconomic Links		Migration			
	Intra-subregional FDI (%)	Intra-subregional Trade (%)		Intra-subregional Equity Holdings (%)	Intra-subregional Bond Holdings (%)		Intra-subregional Output Correlations		Intra-subregional Tourism (%)	Migrant to Population Ratio (%)				
		2012	2013		2012	2013					2012	2013		
ASEAN+3 <sup>1</sup>	41.77	▼	45.88	▼	22.14	▲	8.72	▲	0.58	▲	80.67	▼	0.61	▲
Central Asia	–		6.31	▼	0.18	▲	–		0.28	▲	31.46	▲	1.26	▼
East Asia	54.67	▲	33.61	▼	17.53	▲	5.53	▲	0.63	▲	70.05	▼	0.29	▲
South Asia	–		4.25	▼	0.11	▲	0.64	▼	0.24	▲	12.07	▲	0.63	▼
Southeast Asia	17.35	▲	24.49	▼	9.20	▲	11.29	▲	0.52	▲	70.05	▲	1.04	▲
The Pacific and Oceania	1.61	▼	6.98	▼	6.30	▲	1.41	▼	0.13	▲	20.57	▼	2.64	▲
Subregions	Inter-subregional FDI (%)	Inter-subregional Trade (%)		Inter-subregional Equity Holdings (%)	Inter-subregional Bond Holdings (%)		Inter-subregional Output Correlations		Inter-subregional Tourism (%)	Migrant to Population Ratio (%)				
	2012	2013	2012	2013	2012	2013	2012	2013	2012	2013				
ASEAN+3 <sup>1</sup>	23.76	▲	10.03	▲	4.67	▲	6.68	▲	0.35	▲	4.87	▲	0.13	▲
Central Asia	–		30.94	▲	12.67	▲	12.76	▲	0.30	▲	3.62	▼	0.08	▲
East Asia	5.73	▼	18.04	▲	4.35	▲	7.16	▲	0.40	▲	13.45	▲	0.13	▲
South Asia	22.77	▲	29.06	▼	16.95	▼	24.94	▲	0.31	▲	36.26	▲	0.12	▲
Southeast Asia	57.88	▲	43.63	▲	32.48	▼	24.32	▼	0.39	▲	22.60	▼	0.45	▲
The Pacific and Oceania	32.38	▲	62.44	▲	11.03	▼	4.49	▲	0.21	▲	43.02	▲	0.39	▲
TOTAL	FDI (%)	Trade (%)		Equity Holdings (%)	Bond Holdings (%)		Output Correlations		Tourism (%)	Migrant to Population Ratio (%)				
	2012	2012	2013	2012	2012	2013	2012	2013	2012	2013				
Asia <sup>2</sup>	58.05	▲	54.08	▼	25.24	▲	14.80	▲	0.33	▲	78.72	▼	0.77	▲
ASEAN+3 <sup>1</sup>	65.53	▲	55.91	▼	26.81	▲	15.39	▲	0.43	▲	85.54	▼	0.74	▲
Central Asia	–		37.25	▲	12.85	▲	12.76	▲	0.30	▲	35.08	▼	1.34	▼
East Asia	60.40	▼	51.64	▼	21.88	▲	12.69	▲	0.44	▲	83.50	▼	0.43	▲
South Asia	22.77	▲	33.31	▼	17.06	▼	25.58	▼	0.30	▲	48.32	▲	0.75	▼
Southeast Asia	75.23	▲	68.13	▲	41.68	▲	35.61	▲	0.42	▲	92.65	▼	1.49	▲
The Pacific and Oceania	33.99	▼	69.42	▲	17.34	▲	5.90	▼	0.19	▲	63.59	▲	3.02	▲

▲ = increase from previous period; ▼ = decrease from previous period; – = data unavailable.

Note: Data calculated for Asia unless otherwise noted.

<sup>1</sup>Includes ASEAN (Brunei Darussalam, Cambodia, Indonesia, the Lao People's Democratic Republic, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Viet Nam) plus the People's Republic of China; Hong Kong, China; Japan; and the Republic of Korea.

<sup>2</sup>Total Asia equals total intra-Asia (using intraregional data).

**FDI**—includes ASEAN; Australia; the People's Republic of China; Hong Kong, China; India; Japan; the Republic of Korea; New Zealand; and Pakistan. Data for Australia and New Zealand start from 2001.

**Trade**—national data unavailable for Bhutan, Kiribati, Nauru, Palau, Timor-Leste, and Tuvalu; no data available on the Cook Islands, the Marshall Islands, and the Federated States of Micronesia. Jan–Aug 2013 compared with full year 2012.

**Equity holdings**—based on investments from Australia; Hong Kong, China; India; Indonesia; Japan; Kazakhstan; the Republic of Korea; Malaysia; New Zealand; Pakistan; the Philippines; Singapore; Thailand; and Vanuatu. Data unavailable for Azerbaijan, Bhutan, the Federated States of Micronesia, Palau, Samoa, Tonga, Turkmenistan, and Tuvalu. Data start from 2001.

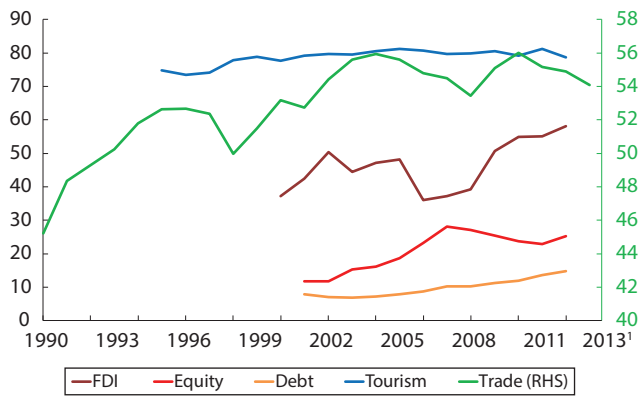
**Bond holdings**—based on investments from Australia; Hong Kong, China; India; Indonesia; Japan; Kazakhstan; the Republic of Korea; Malaysia; New Zealand; Pakistan; the Philippines; Singapore; Thailand; and Vanuatu. Data unavailable for Azerbaijan, Bhutan, the Federated States of Micronesia, Palau, Samoa, Tonga, Turkmenistan, and Tuvalu. Data start from 2001.

**Output correlations**—based on simple averages of 3-year rolling bilateral correlations of annual growth rates (difference of natural logarithms) of detrended gross domestic product series (2005 base year). Data unavailable for Afghanistan, the Cook Islands, the Marshall Islands, the Federated States of Micronesia, Myanmar, Nauru, Palau, Timor-Leste, and Tuvalu. 2008–2012 average compared with 2000–2007 average.

**Migrant to population ratio**—share of migrant stock to population in 2013 (compared with 2010).

Source: ADB calculations using data from ASEAN Secretariat; *Asia Regional Integration Center*, ADB; CEIC; *Coordinated Portfolio Investment Survey*, International Monetary Fund; *Direction of Trade Statistics*, International Monetary Fund; Organisation for Economic Co-operation and Development; *Trends in International Migrant Stock*, Department of Economic and Social Affairs, United Nations; United Nations Conference on Trade and Development; World Tourism Organization; and *World Economic Outlook Database October 2013*, International Monetary Fund.

**Figure 12: Regional Integration Indicators—Asia**  
(intra-regional as % of total)



FDI = foreign direct investment, RHS = right-hand scale.

Notes:

<sup>1</sup>Jan–Aug 2013 data for Trade.

**FDI**—includes ASEAN (Brunei Darussalam, Cambodia, Indonesia, the Lao People's Democratic Republic, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Viet Nam); Australia; the People's Republic of China; Hong Kong, China; India; Japan; the Republic of Korea; New Zealand; and Pakistan. Data for Australia and New Zealand start from 2001.

**Trade**—national data unavailable for Bhutan, Kiribati, Nauru, Palau, Timor-Leste, and Tuvalu; no data available on the Cook Islands, the Marshall Islands, and the Federated States of Micronesia.

**Equity holdings**—based on investments from Australia; Hong Kong, China; India; Indonesia; Japan; Kazakhstan; the Republic of Korea; Malaysia; New Zealand; Pakistan; the Philippines; Singapore; Thailand; and Vanuatu. Data unavailable for Azerbaijan, Bhutan, the Federated States of Micronesia, Palau, Samoa, Tonga, Turkmenistan, and Tuvalu. Data start from 2001.

**Bond holdings**—based on investments from Australia; Hong Kong, China; India; Indonesia; Japan; Kazakhstan; the Republic of Korea; Malaysia; New Zealand; Pakistan; the Philippines; Singapore; Thailand; and Vanuatu. Data unavailable for Azerbaijan, Bhutan, the Federated States of Micronesia, Palau, Samoa, Tonga, Turkmenistan, and Tuvalu. Data start from 2001.

Source: ADB calculations using data from ASEAN Secretariat; *Asia Regional Integration Center*, ADB; CEIC; *Coordinated Portfolio Investment Survey*, International Monetary Fund; *Direction of Trade Statistics*, International Monetary Fund; Organisation for Economic Co-operation and Development; United Nations Conference on Trade and Development; and World Tourism Organization.

strong production networks, and falling demand from advanced economies, free trade agreements (FTAs) also contribute. Regional initiatives to harmonize regulations, cooperation on trade facilitation, and trade finance boost intraregional trade as well.

Still limited in scope, financial cooperation in East and Southeast Asia has expanded and gradually deepened. The Asian Bond Markets Initiative (ABMI) and Asian equity exchange cooperation are notable examples of easing cross-border flows across the region.<sup>6</sup> The proposed ASEAN+3 Multi-Currency Bond Issuance Framework (AMBIF) to support local currency bond markets is the most recent example.

<sup>6</sup>Cooperation among stock exchanges in ASEAN, as well as between ASEAN and the PRC, Japan, and the Republic of Korea has been growing. Collaboration between two rivals, for example—the Singapore Exchange Limited (SGX) and Hong Kong Exchanges & Clearing Limited (HKEx)—will not only strengthen Hong Kong, China as a hub for renminbi and Singapore as a foreign exchange hub, but it will also serve as a gateway for the futures market across all of Asia.

Financial cooperation has another important virtue. To the extent increased integration also means increased contagion during crises, regional cooperation on economic surveillance and in providing financial safety nets is imperative. The ASEAN+3 Economic Review and Policy Dialogue process provides the enabling environment to operationalize the Chiang Mai Initiative Multilateralization (CMIM) framework.<sup>7</sup> Supplementing the CMIM, bilateral swap agreements have also been a useful line of defense.<sup>8</sup> In South Asia, Finance Ministers from the South Asian Association for Regional Cooperation (SAARC) are developing a regional surveillance mechanism similar to that in ASEAN+3. In May 2013, the Reserve Bank of India established a SAARC swap arrangement of \$2 billion to provide short-term liquidity support and strengthen regional economic and financial ties.

Regional cooperation in tourism, such as the ASEAN Tourism Strategic Plan of 2011–2015, also promotes connectivity through tourism heritage sites, tourism portals, and eco-tourism projects. Emerging geopolitical trends may have hurt some tourist flows recently, but it merely underlines the need for greater regional cooperation.

A theme chapter in this issue is devoted to regional cooperation in disaster management. Asia is the most vulnerable region to natural disasters. In fact, direct physical losses from disasters outpaced economic growth in recent years. Costs have increased from 0.4% of GDP in 1991–2010 to 0.6% the last 3 years. Strengthening a regional pooling mechanism to build financial resilience against disasters is imperative. Indeed, ASEAN+3 has cited disaster risk insurance as an important area for further financial cooperation.<sup>9</sup> More still needs to be done, and building a regional mechanism to facilitate access to international reinsurance and capital markets can also be explored.<sup>10</sup>

<sup>7</sup>CMIM facilities could provide a significant complement to domestic macroprudential policies and safety nets when market pressure intensifies, as was the case during a market turmoil following last year's market turmoil.

<sup>8</sup>Swap facilities were originally created to facilitate trade finance by allowing signatories to use swap lines to promote trade settlement in local currencies (including renminbi), reducing foreign exchange risk and transaction costs. To date, 12 Asian central banks have signed bilateral swap agreements with the People's Bank of China, accounting for roughly 65% of the PRC's total swap amount.

<sup>9</sup>See the Joint Statement of the 16th ASEAN+3 Finance Ministers and Central Bank Governors' Meeting, 3 May 2013, Delhi, India.

<sup>10</sup>ADB supports the capacity development for integrated risk management in Indonesia, the Philippines, and Viet Nam, where potential disaster risk financing products such as insurance, sovereign disaster liquidity insurance, standby emergency credit, a catastrophe bond program, or a combination of these are explored and piloted. In 2013, ADB also established the Integrated Disaster Risk Management (IDRM) Fund supported by the Government of Canada to assist the development of regional IDRM solutions in line with the disaster risk management priorities of developing economies in Southeast Asia.

## Updates on Trade Integration

Is trade in Asia truly integrated? The best way to ascertain this is by examining trade status and trends from a subregional perspective. The status of trade integration (high or low) and its trend (increasing or decreasing) primarily depends on the size of the region. Subregional analysis is useful because the level of integration over a wider area is dominated by the “large” subregions—such as East Asia, which includes the PRC and Japan—overshadowing the integration trends in subregions that deviate from the overall Asian performance, such as South Asia. Trade links between subregions (inter-subregional trade) is also important.

The level of integration depends on how one selects integration indicators. The most widely used is intraregional trade share—a region’s share of total regional trade. While trade shares (including intraregional trade shares) have been used as a general measure of integration, it does not work for trend analysis or cross-regional comparisons because shares are higher if a large economy is included in a regional or subregional group. To overcome this “weight” problem, calculating trade bias is better. A region’s bias toward itself is called intraregional trade intensity. The share and bias/intensity can be computed based on several formulas:<sup>11</sup>

$$\begin{aligned} \text{Region } i\text{'s intraregional trade share} &= T_{ii} / T_i \\ \text{Region } i\text{'s intraregional trade intensity} &= (T_{ii} / T_i) / (T_i / T_w) \\ \text{Region } i\text{'s trade bias toward region } j &= (T_{ij} / T_i) / (T_j / T_w) \end{aligned}$$

where

$T_{ii}$  = exports of region  $i$  to region  $i$  plus imports of region  $i$  from region  $i$

$T_{ij}$  = exports of region  $i$  to region  $j$  plus exports of region  $j$  to region  $i$  plus imports of region  $i$  from region  $j$  plus imports of region  $j$  from region  $i$

$T_i$  = total exports of region  $i$  to the world plus total imports of region  $i$  from the world

$T_j$  = total exports of region  $j$  to the world plus total imports of region  $j$  from the world

$T_w$  = total world exports plus imports

<sup>11</sup>For details, see ADB. 2013. *Asian Economic Integration Monitor October 2013*. Manila, page 15.

## Regional and Subregional Trade Integration

**Asia’s intraregional trade share increased from 45.2% in 1990 to 54.9% in 2012. Asia’s trade shares vary significantly across subregions and by individual economy.**

Asia’s intraregional trade has grown significantly and has remained above 50% since the start of 2000 (see Figure 12). While the intraregional trade share in Asia reached 54.9% in 2012, the trade share of each subregion with Asia varies—35.8% for Central Asia; 52.9% for East Asia; 33.5% for South Asia; 67.9% for Southeast Asia; and 68.4% for the Pacific and Oceania (**Figure 13**).<sup>12</sup>

The trends by subregion vary as well. Central Asia expanded rapidly (16.3% in 2000 to 35.8% in 2012), East Asia stayed virtually the same (52.3% to 52.9%) South Asia grew somewhat (29.6% to 33.5%), while Southeast Asia increased (60.9% to 67.9%) along with the Pacific and Oceania (56.8% to 68.4%).

For individual economies, the share of an economy’s total trade with Asia to its total trade with the world was above 80.0% in Brunei Darussalam (89.4%), the Lao PDR (87.9%), Myanmar (93.8%), Nepal (90.0%), Solomon Islands (85.6%), and Tonga (86.2%). In contrast, this share was below 40.0% in Armenia (17.1%), Azerbaijan (25.7%), Georgia (30.8%), Kazakhstan (30.2%), and India (30.8%). It is interesting that trade with Asia is quite high in several Central Asian economies such as the Kyrgyz Republic (68.5%), which implies that the Central Asia is heterogenous in terms of direction of trade.<sup>13</sup>

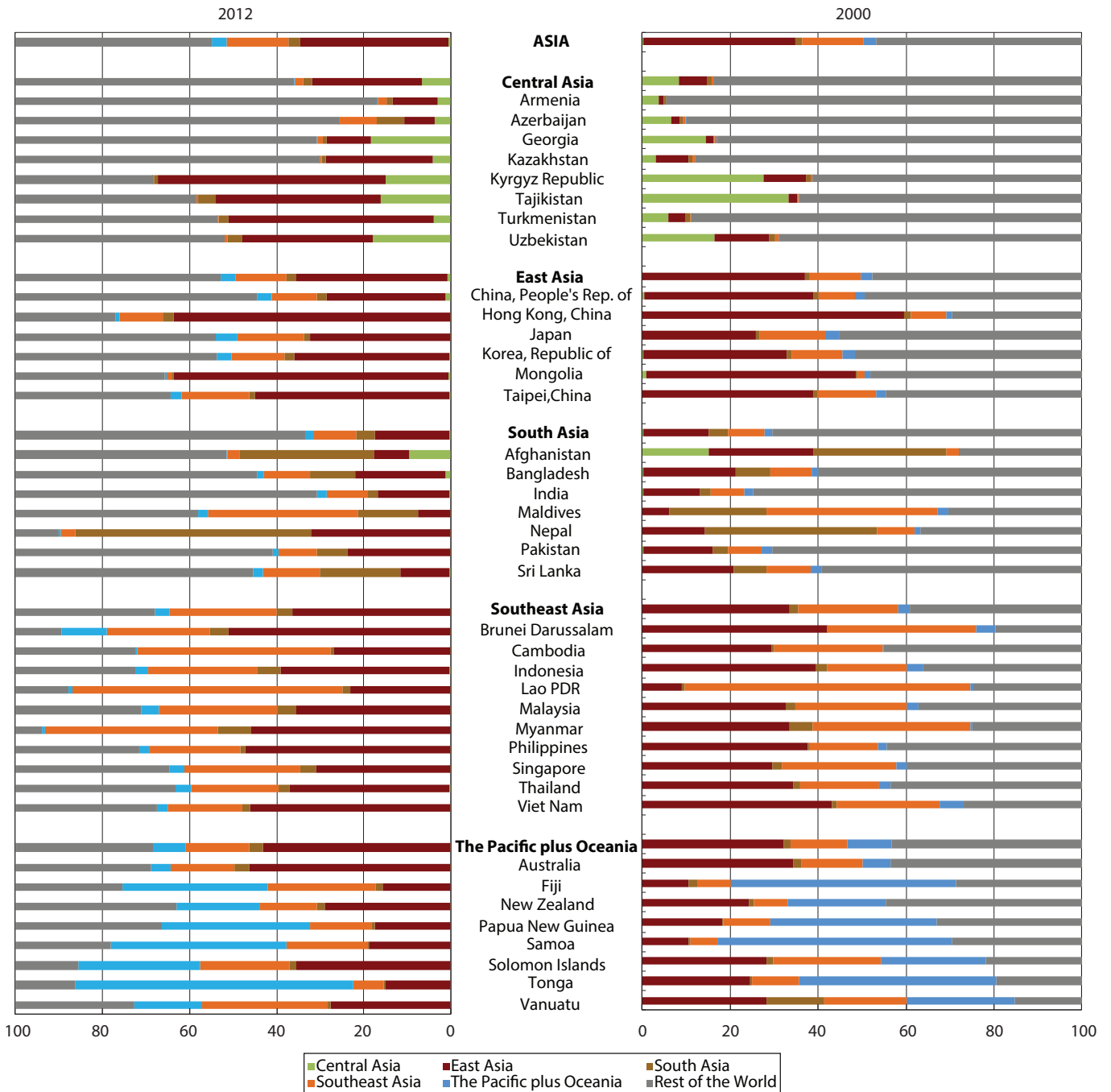
Intra-subregional trade shares vary significantly—with Central Asia small and dropping (8.3% in 2000 to 6.7% in 2012), East Asia high and falling (36.8% to 34.9%), South Asia small and slightly down (4.4% to 4.3%); Southeast Asia high and rising (22.8% to 24.6%); and the Pacific and Oceania small and dropping (10.1% to 7.5%) (see Figure 13). The reason for the wide variations is that the weight of these subregions in world trade also varies significantly—the smaller a subregion is, the lower the intra-subregional share is. As a result, share analysis is limited and does not work for making cross-subregional comparisons. Thus, the fact that East Asia has higher intra-subregional share than Southeast Asia does not mean that the East Asian trade is better connected than ASEAN’s, for example.

<sup>12</sup>Not to be confused with a subregion’s share in that subregion’s total trade or intra-subregional share. Asia’s share in each subregion’s total trade is comparable across subregions, unlike intra-subregional trade share.

<sup>13</sup>See page 21 for further analysis of Central Asian trade.



**Figure 13: Regional Trade Share<sup>1</sup> (%)**



Lao PDR = Lao People's Democratic Republic.

<sup>1</sup>Trade share refers to the percentage of trade with a region to total trade of the economy or region.

Source: ADB calculations using data from *Direction of Trade Statistics*, International Monetary Fund.

## Box 2: Japan's Trade Deficit: Comparing Price and Quantity

Many say Japan's trade has changed dramatically, especially after the 2011 earthquake and tsunami. It recorded its largest trade deficit ever in 2013. Are these changes serious and structural?

Most of what one reads is about trade based in US dollar terms. But the yen has fluctuated significantly against the US dollar since the monetary "arrow" of Abenomics was introduced early last year. For example, in US dollar terms Japan's 2013 imports declined from 2012 (**Box table 1**).

But to analyze trade, quantity is critical. With export and import prices available, decomposing values into price and quantity factors helps. Japan's Ministry of Finance publishes an index that contains value, price, and quantity (**Box figure**).<sup>1</sup> Direction of trade is also important (**Box table 2**).

The change in the quantity of imports between 2012 and 2013 was actually quite marginal.<sup>2</sup> The low price elasticity of imports implies that any changes would be structural. Japan's volume of trade is no longer seriously affected by foreign exchange rates as many companies established production bases in Asia to overcome the damage from earlier yen appreciations—and many products consumed in Japan are produced across Asia, not in Japan itself. So it is the import price increase caused by depreciation that contributes to the increase in import values.<sup>3</sup> So historically high import values should not be a surprise.

So more critical perhaps is exports. Despite the weak yen, export volumes declined in 2013.<sup>4,5</sup> The direction of trade offers some clues as to why. Export volumes to the People's Republic of China (PRC) are down. Political tensions have apparently affected exports to the PRC, which plays an important role in Japanese production networks. Japan's export volumes to the European Union (EU) continue to drop rapidly, due to Europe's slow economic recovery. Also, Japan's trade through its corporations do not necessarily appear as Japanese exports—production bases in Asia directly export products (say, automobiles) to non-Japanese markets (say the United States [US]).

In sum, because Japan had established a system relatively resilient to changes in foreign exchange rates, import trade volumes showed only nominal shifts. Its export performance

<sup>1</sup>The term used is "unit value". In constructing the index, the Ministry of Finance first computes the unit value index and then the quantum index is computed by dividing the value index by the price index.

<sup>2</sup>Moreover, the import volume was higher during the second half of 2013 (109.0) than the first half (101.9).

<sup>3</sup>Export/import unit prices are not only reflected by the change in exchange rate, but are also affected by other factors such as change in US dollar-denominated commodity prices such as oil.

<sup>4</sup>The high share of imported intermediate input (raw materials, etc.) in Japan's export production makes difficult for Japanese industries to increase price competitiveness. In fact, export prices increased in 2013 by 11%, which is almost the same as the import price increase (14%).

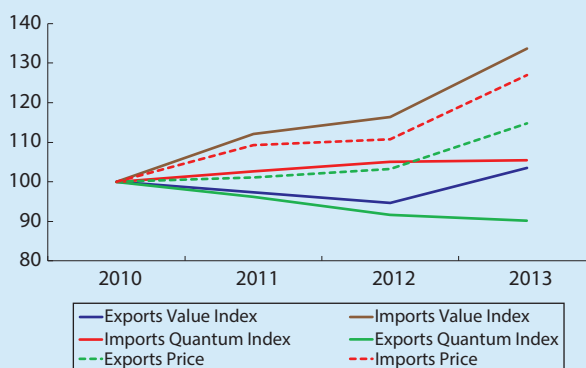
<sup>5</sup>There is no large difference between the first half of 2013 (88.7) and the second half of the year (91.7).

1: Japan's Trade—2013

	Japanese yen		US Dollar	
	Value (billion)	Change (y-o-y, %)	Value (billion)	Change (y-o-y, %)
Export	69,774	9.5	720.0	-10.2
Import	81,243	14.9	838.3	-5.7
Balance	-11,468	65.2	-118.3	35.6

Source: ADB calculations using data from *Trade Statistics of Japan*, Ministry of Finance.

Value, Quantum, and Price of Trade—Japan



Source: *Trade Statistics of Japan*, Ministry of Finance.

2: Export and Import Quantum Index—2013 (2010=100)

	World	Asia	of which		US	EU
			PRC	Southeast Asia		
Export	90.2	87	79.4	94.9	105.9	79.7
	(-1.5)	(-1.6)	(-2.7)	(-4.3)	(-2.4)	(-6.8)
Import	105.4	103.3	104.2	100.7	99.1	121.1
	-0.4	(-1.0)	-0.5	(-2.1)	(-2.1)	-5.1

PRC = People's Republic of China.

Note: Values in parenthesis are year-on-year growth.

Source: ADB calculation using data from *Trade Statistics of Japan*, Ministry of Finance.

depended on demand from its trading partners, dominated by economic rather than political factors. However, given the sharp yen depreciation, the question remains whether changes in trade volumes are structural, which could trigger a reorganization of production networks. Thus, it is increasingly important to monitor first, how a weaker yen affects trade between corporations—which is significantly structural as corporations try to optimize production; and second, how Japanese corporations develop their PRC+1 policies to mitigate the overreliance on the PRC as production or trading partner—again given that this is the first time in modern times the yen has faced rapid depreciation.<sup>6</sup>

<sup>6</sup>The yen depreciated around 22% between 2012 and 2013. Before this, the largest depreciation was in 1995–1996 (15%), with the second largest between 2000 and 2001 (13%).

## Asia's trade bias—a better measure for understanding the level of trade linkages—declined between 2000 and 2012, even as trade shares increased.

The trade bias of Asia as a whole, the five subregions, and individual Asian economies, toward all of Asia and each of its subregions can be calculated (**Table 3**). Asia's regional bias toward itself (Asia's intraregional bias) declined from 2.0 in 2000 to 1.6 in 2012. Unlike in the case of intraregional trade shares, bias analysis suggests that the level of integration is declining, though it is still high (above 1.0). This is not necessarily bad as declining intraregional bias implies Asia is integrating with other parts of the world economy.

## Trade bias toward Asia is declining, except for Central Asia.

At the subregional level, Central and South Asia's trade bias toward Asia as a whole remains very low (both around 1), which contrasts with their growth in trade shares—and shows that the subregions are not yet well connected with the rest of Asia. The bias toward Asia is 1.6 for East Asia and 2.1 for both Southeast Asia and the Pacific and Oceania. This order of magnitude—high in Southeast Asia and the Pacific and Oceania; mid-level in East Asia; and low in South Asia and Central Asia—is the same as the trade share results due to the mathematical relationship between share and bias indicators.

In terms of trend, Central Asia saw a significant increase (0.6 in 2000 to 1.1 in 2012), though the absolute level remains low. However, in all subregions except Central Asia, the Asian bias has declined since 2000. The decline is large for East Asia (2.0 to 1.6), but small in South Asia (1.1 to 1.0), Southeast Asia (2.3 to 2.1); and stayed the same in the Pacific and Oceania (2.1 to 2.1). Thus, the main contributor of declining intraregional bias is the decline in East Asia's bias, meaning its trade is becoming more outward-oriented. Overall, Asia's share in subregional total trade remained steady or slightly increased in all subregions except Central Asia. This means that except for non-Central Asia, Asia's share increased slightly as bias declined while the region's weight in total world trade increased. The bottom line remains the same—Asia's trade share to East Asia stayed almost unchanged (52.2% in 2000 and 52.9% in 2012), but bias declined (2.0 to 1.6); Asia's trade share to South Asia and Southeast Asia slightly increased, but bias fell slightly (1.1 to 1.0 in South Asia in 2012; 2.3 to 2.1 in Southeast Asia).

Country trade bias toward Asia shows that those within the same subregion tend to have similar regional bias (see Table 3). In Southeast Asia, for example, the highest is Brunei Darussalam (2.7) with the lowest Thailand (1.9). Economies in East Asia and the Pacific and Oceania also have similar trade biases, while each subregion appears to have a different bias toward other subregions (see below). However, the situation is very different for Central Asia and South Asia. The economy with the highest Asian bias in Central Asia is the Kyrgyz Republic (2.1), with the lowest Armenia (0.5). This means that the trade structures of Central Asian economies are quite heterogeneous given the difference in geographical contiguity—particularly with East Asia (see below). Likewise, the regional bias of economies within South Asia is also heterogeneous: While India's bias toward Asia is low (0.9), other South Asian economies' bias toward Asia is high (at least higher than 1; sometimes higher than 2). This is because they trade heavily with India.

## Unlike other subregions, Southeast Asia holds high levels of intra-subregional trade bias.

It is remarkable that Southeast Asia's intra-subregional bias is very high and has stayed almost the same as in 2000 (3.7 in 2000 to 3.6 in 2012). This implies that ASEAN policies to integrate intra-ASEAN trade—such as ASEAN Free Trade Agreement (AFTA)—has been at least partially successful.

For East Asia, intra-subregional bias declined (2.0 to 1.6). The fact that the intra-regional bias of Asia as a whole and the intra-subregional bias of East Asia are the same in both years implies Asia's intra-regional bias is dominated by East Asia.

In South Asia, the decline in intra-subregional bias is substantial (4.0 in 2000 to 1.6 in 2012), but this simply reflects that India's trade is more globalized—as a result, the tie between India and the rest of South Asia grew relatively weak.<sup>14</sup> For South Asia excluding India, trade bias among themselves rose (5.8 to 7.7) and their links outside South Asia grew weaker.<sup>15</sup> Thus, small South Asian economies' over-dependence on India is slowly changing. But this also means that these economies

<sup>14</sup>India's bias towards the rest of South Asia declined from 6.6 in 2000 to 4.7 in 2012. The rest of South Asia's bias toward India declined from 8.0 to 4.7.

<sup>15</sup>The bias of South Asia excluding India outside slightly declined from 0.9 in 2000 to 0.89 in 2012. The bias of the rest of the world toward South Asia, excluding India, declined from 0.90 to 0.88 in 2012.

**Table 3: Regional Bias of Asian Trade<sup>1</sup>**

Economies	2012						2000					
	Asia	Central Asia	East Asia	South Asia	Southeast Asia	The Pacific plus Oceania	Asia	Central Asia	East Asia	South Asia	Southeast Asia	The Pacific plus Oceania
<b>Asia</b>	<b>1.6</b>	<b>1.0</b>	<b>1.6</b>	<b>1.0</b>	<b>2.1</b>	<b>2.1</b>	<b>2.0</b>	<b>0.7</b>	<b>1.9</b>	<b>1.3</b>	<b>2.3</b>	<b>2.2</b>
<b>Central Asia</b>	<b>1.1</b>	<b>11.3</b>	<b>1.2</b>	<b>0.9</b>	<b>0.3</b>	<b>0.1</b>	<b>0.6</b>	<b>34.6</b>	<b>0.4</b>	<b>0.9</b>	<b>0.1</b>	<b>0.0</b>
Armenia	0.5	5.1	0.5	0.6	0.3	0.2	0.2	16.9	0.1	0.5	0.0	0.0
Azerbaijan	0.8	6.2	0.3	2.5	1.2	0.1	0.4	29.2	0.1	0.6	0.1	0.2
Georgia	0.9	29.8	0.5	0.4	0.1	0.2	0.6	63.7	0.1	0.2	0.1	0.1
Kazakhstan	0.9	6.9	1.2	0.3	0.1	0.1	0.5	14.0	0.4	0.9	0.1	0.0
Kyrgyz Republic	2.1	24.3	2.5	0.4	0.0	0.0	1.5	121.6	0.5	0.9	0.1	0.0
Tajikistan	1.8	26.2	1.8	1.7	0.0	0.0	1.3	146.3	0.1	0.2	0.0	0.0
Turkmenistan	1.6	6.4	2.2	1.0	0.0	0.0	0.4	25.6	0.2	1.1	0.0	0.0
Uzbekistan	1.6	29.0	1.4	1.4	0.1	0.0	1.2	72.6	0.7	1.1	0.1	0.0
<b>East Asia</b>	<b>1.6</b>	<b>1.1</b>	<b>1.6</b>	<b>0.8</b>	<b>1.7</b>	<b>2.0</b>	<b>2.0</b>	<b>0.5</b>	<b>2.0</b>	<b>1.0</b>	<b>1.9</b>	<b>1.9</b>
PRC	1.4	2.0	1.3	1.0	1.5	2.1	1.9	1.7	2.1	1.1	1.3	1.6
Hong Kong, China	2.3	0.0	3.0	1.0	1.4	0.6	2.6	0.0	3.3	1.3	1.3	1.0
Japan	1.6	0.2	1.5	0.5	2.2	3.0	1.7	0.2	1.4	0.8	2.4	2.5
Korea, Rep. of	1.6	0.6	1.7	0.9	1.8	2.1	1.8	0.7	1.8	1.2	1.9	2.3
Mongolia	2.0	0.9	3.0	0.2	0.2	0.3	1.9	3.6	2.7	0.3	0.3	1.0
Taipei, China	2.0	0.4	2.1	0.6	2.2	1.6	2.1	0.1	2.2	0.8	2.2	1.6
<b>South Asia</b>	<b>1.0</b>	<b>0.6</b>	<b>0.8</b>	<b>1.6</b>	<b>1.4</b>	<b>1.3</b>	<b>1.1</b>	<b>0.9</b>	<b>0.8</b>	<b>4.0</b>	<b>1.3</b>	<b>1.5</b>
Afghanistan	1.6	15.7	0.4	12.5	0.4	0.1	2.7	66.4	1.3	27.7	0.5	0.0
Bangladesh	1.4	2.1	1.0	4.3	1.5	1.1	1.5	0.9	1.2	7.3	1.5	1.1
India	0.9	0.4	0.8	0.9	1.4	1.4	0.9	0.6	0.7	2.3	1.2	1.4
Maldives	1.8	0.0	0.4	5.6	5.0	1.5	2.6	–	0.3	20.5	6.3	1.9
Nepal	2.7	0.0	1.5	21.9	0.5	0.3	2.4	–	0.8	36.0	1.4	1.1
Pakistan	1.2	0.2	1.1	2.9	1.3	0.9	1.1	0.8	0.9	3.3	1.2	1.8
Sri Lanka	1.4	0.4	0.5	7.5	1.9	1.4	1.5	–	1.2	6.8	1.6	1.8
<b>Southeast Asia</b>	<b>2.1</b>	<b>0.2</b>	<b>1.7</b>	<b>1.4</b>	<b>3.6</b>	<b>2.1</b>	<b>2.3</b>	<b>0.1</b>	<b>1.9</b>	<b>1.7</b>	<b>3.7</b>	<b>2.1</b>
Brunei Darussalam	2.7	0.0	2.4	1.7	3.4	6.5	3.0	0.0	2.3	0.2	5.5	3.3
Cambodia	2.2	0.0	1.3	0.3	6.5	0.2	2.1	0.0	1.6	0.4	4.0	0.3
Indonesia	2.2	0.6	1.8	2.1	3.6	1.9	2.4	0.1	2.2	2.3	2.9	3.0
Lao PDR	2.7	0.0	1.1	0.7	9.0	0.6	2.8	0.0	0.5	0.6	10.5	0.5
Malaysia	2.2	0.1	1.7	1.7	4.0	2.5	2.4	0.0	1.8	1.8	4.1	2.1
Myanmar	2.9	–	2.1	3.1	5.8	0.3	2.8	–	1.9	4.8	5.8	0.5
Philippines	2.2	0.0	2.2	0.4	3.1	1.3	2.1	0.0	2.1	0.4	2.5	1.5
Singapore	2.0	0.0	1.4	1.5	3.9	2.2	2.3	0.0	1.7	2.0	4.2	1.8
Thailand	1.9	0.5	1.7	1.0	2.9	2.3	2.1	0.2	1.9	1.4	2.9	1.9
Viet Nam	2.1	0.0	2.2	0.8	2.5	1.6	2.7	0.4	2.4	0.9	3.8	4.3
<b>The Pacific plus Oceania</b>	<b>2.1</b>	<b>0.1</b>	<b>2.0</b>	<b>1.3</b>	<b>2.1</b>	<b>4.3</b>	<b>2.1</b>	<b>0.0</b>	<b>1.8</b>	<b>1.4</b>	<b>2.1</b>	<b>7.7</b>
Australia	2.1	0.1	2.2	1.4	2.1	2.8	2.1	0.0	1.9	1.6	2.3	5.0
Fiji	2.3	–	0.7	0.6	3.6	20.7	2.7	–	0.6	1.9	1.2	39.9
New Zealand	1.9	0.2	1.3	0.8	1.9	11.8	2.1	0.1	1.4	1.0	1.3	17.3
Papua New Guinea	2.0	–	0.8	0.3	2.1	21.1	2.5	–	1.0	0.2	1.7	29.6
Samoa	2.4	–	0.9	0.1	2.7	24.9	2.6	–	0.6	0.4	1.0	41.8
Solomon Islands	2.6	–	1.7	0.6	3.0	17.3	2.9	–	1.6	1.4	4.0	18.7
Tonga	2.6	–	0.7	0.2	1.0	39.5	3.0	–	1.4	0.3	1.8	35.0
Vanuatu	2.2	–	1.3	0.3	4.2	9.8	3.2	–	1.6	12.2	3.0	19.2

– = unavailable, PRC = People's Republic of China, Lao PDR = Lao People's Democratic Republic.

<sup>1</sup>Trade bias is the ratio of a trading partner's share to a country/region's total trade and the share of world trade with the same trading partner. It is equal to  $(t_{ij}/T_{ij}) / (t_{iw}/T_{ww})$  where  $t_{ij}$  is the dollar value of total trade of country/region  $i$  with country/region  $j$ ,  $T_{ij}$  is the dollar value of the total trade of country/region  $i$  with the world,  $t_{iw}$  is the dollar value of world trade with country/region  $i$ , and  $T_{ww}$  is the dollar value of world trade. An index of more than one indicates that trade flow between countries/regions is larger than expected given their importance in world trade. Zero indicates value less than 0.1

Source: ADB calculations using data from *Direction of Trade Statistics*, International Monetary Fund (IMF).

are becoming isolated from India and from the rest of the world.

Intra-subregional bias is high but declining in Central Asia (34.6 in 2000 to 11.3 in 2012), meaning the subregion is not well connected to the rest of world, but is quickly improving. Its bias toward Asia is neutral (bias around 1) despite the subregion's extremely high intra-subregional bias, indicating the subregion is not well connected with the rest of Asia.<sup>16</sup>

Intra-subregional bias is also high but declining in the Pacific and Oceania (7.7 in 2000 to 4.3 in 2012). But it is important to note that trade here is dominated by trade with Australia and, to a lesser degree, New Zealand. The level and trend of intra-subregional bias came from Australia's slightly weakening trade ties with the rest of the subregion.<sup>17</sup> Thus, small Pacific Island countries appear less dependent on Australia for trade. Excluding Australia, intraregional bias becomes as high as 8.3 (in 2012). The Pacific intra-subregional bias (excluding Australia and New Zealand) rose as high as 31.4 in 2012.

The trend of intra-subregional share and bias vary where subregional trade weight is rising in world trade (compare Figure 13, Table 3). When the weight of a subregion's trade increases, the decline in bias becomes larger than its share. For example, intra-subregional share of South Asia and Central Asia declined only slightly, but the decline in bias of the two subregions is large. In the case of Southeast Asia, intra-subregional share increased, but its bias declined. The trend of share and bias are almost identical for East Asia and the Pacific and Oceania (because their weight in world trade has stayed almost the same).

## Inter-subregional Trade Linkages

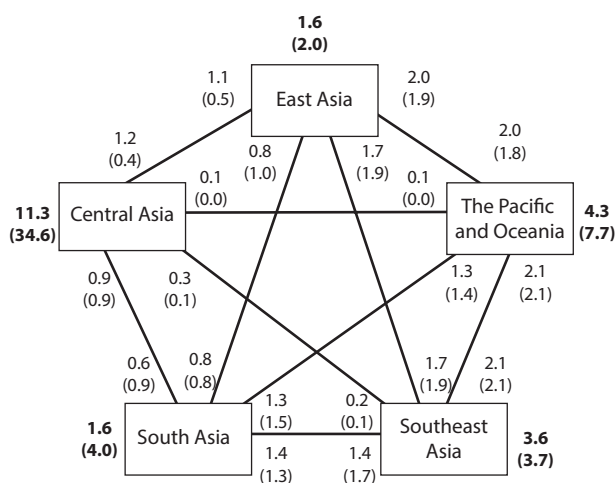
Trade links between each subregion can be mapped (Figure 14). For example, Central Asia's trade bias toward East Asia is 1.2, while East Asia's trade bias toward Central Asia is 1.1. Central Asia's intra-subregional bias is 11.3.

Trade bias between two subregions tends to be symmetric. If one region has a large or small bias

<sup>16</sup>A subregion's bias toward the entire region is the weighted average of the subregion's bias toward other subregions and the subregion's bias toward itself (intra-subregional bias).

<sup>17</sup>Australia's bias toward the rest of the Pacific and Oceania declined from 25.0 in 2000 to 17.0 in 2012. The rest of the Pacific and Oceania's bias toward Australia declined from 23.1 in 2000 to 15.4 in 2012.

**Figure 14: Inter-subregional Trade Connectivity Diagram**  
(2000 and 2012)



Note: Numbers indicate trade bias in 2012 and 2000 (in parenthesis). Values in boldface are intra-subregional trade bias indexes, while values along the lines are inter-subregional trade bias indexes. Trade bias is the ratio of a trading partner's share to a country/region's total trade and the share of world trade with the same trading partner. Trade bias equals  $(t_{ij}/T_i)/(t_{ij}/T_{world})$  where  $t_{ij}$  is the dollar value of total trade of country/region  $i$  with country/region  $j$ ,  $T_i$  is the dollar value of the total trade of country/region  $i$  with the world,  $t_{ij}$  is the dollar value of world trade with country/region  $j$ , and  $T_{world}$  is the dollar value of world trade. An index of more than one indicates that trade flow between countries/regions is larger than expected given their importance in world trade. A value of 0.0 indicates a value less than 0.05 but higher than 0.0001.

Source: ADB calculations using data from *Direction of Trade Statistics*, International Monetary Fund.

toward another region, the reverse tends to be the same because barriers to trade—(both natural barriers (geographical) or policy-related (trade procedures)—make trade between the two unfavorable compared with trade to the rest of the world (which tends to be equal). For example, Central Asia's bias toward Southeast Asia is low (0.3), as is the reverse (0.2). The only exception is the bias between Central Asia (0.9) and South Asia (0.6).

### The linkage between East Asia and South Asia is low, while Southeast Asia is well connected with East Asia and South Asia.

Trade relationships between the three major subregions (East, Southeast, and South Asia) are worth closer examination. The linkage between East and Southeast Asia is particularly high—at 1.7 in 2012, below the 1.9 in 2000. Thus, East Asia's bias toward Southeast Asia is higher than its bias toward East itself (1.6). The linkage between Southeast Asia and South Asia is also high (1.4 in 2012), almost the same as the intra-subregional bias of South Asia (1.6 in 2012). Here, the bias toward each other increased from 2000 (1.3). The linkage of East Asia to South Asia is not only weak but is also becoming weaker

(0.8 in 2012). In 2000, East Asia's bias toward South Asia was as high as 1.<sup>18</sup>

## Central Asia and the Pacific are isolated from other parts of Asia.

Landlocked, Central Asia is a relatively isolated subregion.<sup>19</sup> It has low bias toward South Asia, Southeast Asia, and the Pacific and Oceania (a negative bias is lower than 1). Its linkage with East Asia is relatively high (though just higher than 1). But there is heterogeneity of economies that belong to this group in terms of trade bias. The three Caucasus economies (Armenia, Azerbaijan, and Georgia) have a regional bias below 0.5 toward East Asia—and this affects their low bias toward Asia as a whole. In contrast, Central Asian economies such as Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan, and Uzbekistan have a high bias toward East Asia and Asia as a whole because of their geographical proximity to and increasing trade with the PRC.

Careful interpretation is needed for the Pacific and Oceania's linkage with others, because the group is significantly affected by Australia. In fact, the subregion's bias toward East Asia is 2, almost the same as Australia—while all others in the subregion have low bias toward East Asia (many below 1). Australia has a strong bias toward East Asia and Southeast Asia. The Pacific DMCs have significantly high bias toward Australia and, to a lesser degree, Southeast Asia, while the majority has negative bias toward East Asia and South Asia. Though the level remains low (negative bias), the tie between the subregion excluding Australia and the world outside the subregion is growing gradually.<sup>20</sup>

## Updates on Financial Integration

### Financial integration across Asia continues to deepen in both quantity and price measures.

Financial integration can be measured by quantity indicators such as the amount of Asian financial assets

<sup>18</sup>South Asia's bias toward East Asia was 0.8 in 2000.

<sup>19</sup>Only Europe has relatively strong trade links with Central Asia.

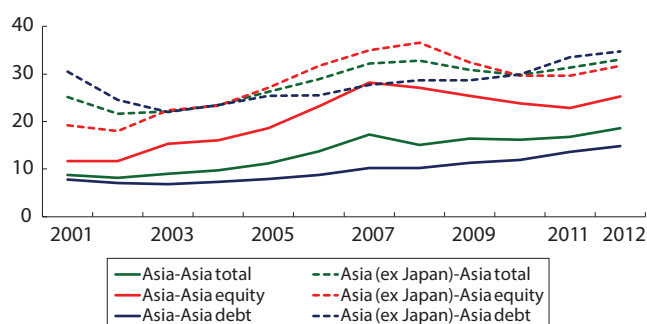
<sup>20</sup>The bias of the Pacific and Oceania excluding Australia toward outside the subregion increased slightly from 0.75 in 2000 to 0.78 in 2012. The bias of the world excluding the Pacific and Oceania toward the subregion excluding Australia also slightly increased from 0.72 in 2000 to 0.74 in 2012.

that are held by Asian investors. While Asian investors continue to prefer investing in their own markets (“home bias”) or outside the region (“global bias”), intraregional holdings of equity and debt securities continued to rise in 2012, as global risk aversion waned and the region's growth differential with advanced economies attracted more investors. In particular, intra-Asian bond holdings rose from 13.6% in 2011 to 14.8% in 2012. Excluding Japan (which tends to hold a large share of US assets), intra-Asian bond holdings is even higher at 31.6% in 2012. During the same period, intra-Asian equity holdings also rose from 22.8% to 25.2% (**Figure 15**).

Financial integration can also be gauged through the extent of cross-border FDI and bank credit flows. Despite decelerating FDI to Asia, the share of intraregional FDI in the region has risen; particularly to Southeast Asian economies. In 2012, FDI to Asia fell 7.6% to \$416 billion. Despite this drop, the share of Asia's intraregional FDI increased to 58.1% in 2012 from 55.1% in 2011. New Zealand and Southeast Asian economies emerged as the top destinations of FDI from Asia; while the PRC, Japan, the Republic of Korea and some big Southeast Asian economies are major sources of FDI outflows. A strong positive correlation between FDI and trade flows in the region has also been noted (**Box 3**).

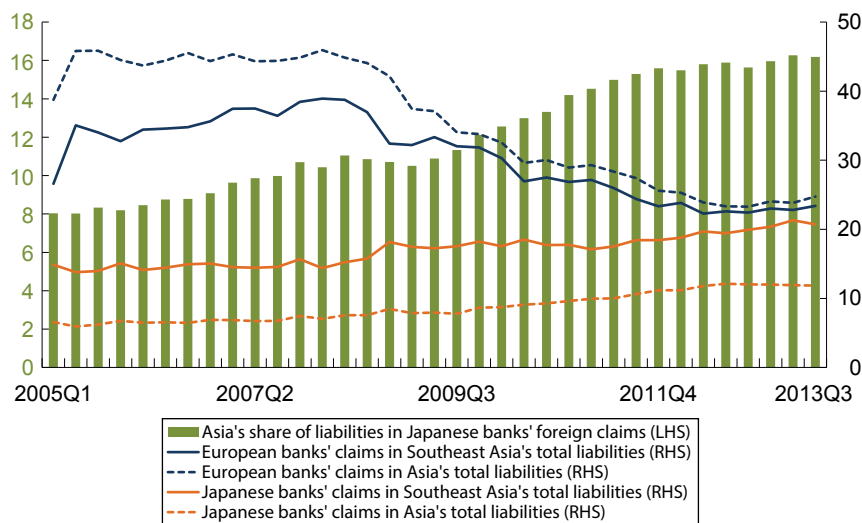
Japanese bank lending to the region continues to increase, supporting regional production networks, particularly in Southeast Asia. In the year to third quarter of 2013, the share of Japanese bank claims in Asia's total liabilities to foreign banks was broadly stable at 11.8%.

**Figure 15: Cross-Border Portfolio Holdings—Asia (% share)**



Notes: Data refer to the reporter economy's cross-border holdings of portfolio securities issued by the partner economy as a share of the reporter economy's total cross-border portfolio securities holdings. The data does not include reporting economy's holdings of securities issued by domestic issuers. Legend convention XX-YY refers to XX=reporter economy and YY=partner economy. Reporting economies under Asia includes Hong Kong, China; India; Indonesia; Japan; Kazakhstan; the Republic of Korea; Malaysia; Pakistan; the Philippines; Singapore; Thailand; and Vanuatu. Partner economies under Asia include all ADB member economies. Source: ADB calculations using data from *Coordinated Portfolio Investment Survey*, International Monetary Fund.

**Figure 16: Japanese and European Banks' Foreign Claims in Asia** (% share out of total claims)<sup>2</sup>



LHS = left-hand scale, RHS = right-hand scale.

<sup>1</sup>European banks (excluding UK banks) based on Bank for International Settlements' (BIS) definition.

<sup>2</sup>Total foreign claims of banks reporting to BIS.

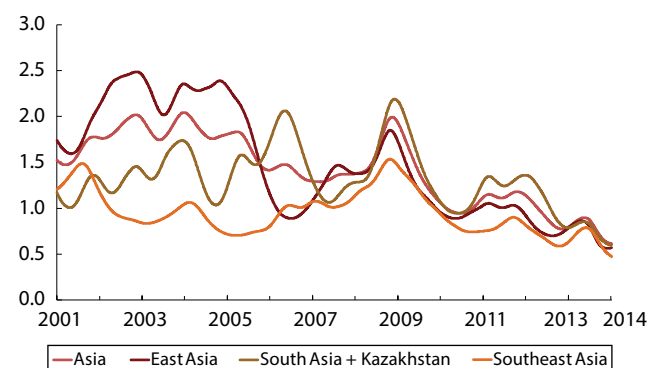
Source: ADB calculations using data from BIS (Table 9D). Data accessed on 2 April 2014.

However, the share of Japanese bank claims in Southeast Asia's total liabilities to foreign banks continued to increase to 20.7% in the third quarter of 2013 from 19.4% a year ago (**Figure 16**). Generally speaking, Japanese bank lending to the region supports Japan's increasing role in Asia's regional production networks. Over the years, Japanese firms have expanded their production bases in the region. And with future expansion plans in the smaller Southeast Asian economies (such as Viet Nam and the Lao PDR), Japan's crossborder lending to offshore Japanese affiliates is expected to increase. More importantly, it is evident that Japanese bank credit flows to Asia is also more stable compared with those from Australia, Europe, and the US; and Australia's bank lending is also increasing (**Box 4**).

### Asian equity markets moved more synchronously during the year as markets calmed after the turmoil over QE tapering in the US.

The extent of integration in Asian financial markets can also be measured through price indicators such as the co-movements of financial asset returns—specifically by cross-market dispersion of daily stock-index returns and of 10-year bond yields. Last year, there was greater dispersion in daily equity returns due to the (i) expected US QE tapering, (ii) slowdown of the PRC, and

**Figure 17: Cross-Market Dispersion of Equity Returns** (%)



Note: Cross-market standard deviation of daily stock market returns, de-trended using Hodrick-Prescott filter. Asia includes East Asia, South Asia plus Kazakhstan, and Southeast Asia. East Asia includes the People's Republic of China; Hong Kong, China; Japan; the Republic of Korea; Mongolia; and Taipei, China. South Asia includes Bangladesh, India, Pakistan, and Sri Lanka. Southeast Asia includes Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Viet Nam. Data until 31 Mar 2014.

Source: ADB calculations using data from Bloomberg.

(iii) political tension in the Middle East.<sup>21</sup> However, since the beginning of 2014, cross-market dispersion among Asian equity returns narrowed, reaching its lowest since 2001 (**Figure 17**). While common global factors might have driven the trend, financial integration has certainly played a role in the narrowing cross-market dispersion of equity returns. Most markets posted gains early

<sup>21</sup>ADB. 2013. *Asian Economic Integration Monitor* October 2013. Manila. p. 17–23.

## Box 3: Foreign Direct Investment to Asia

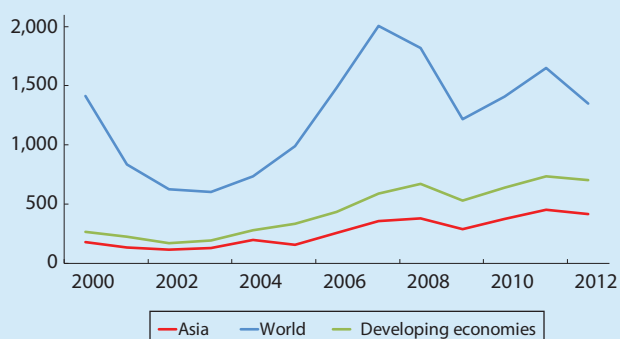
**Despite the sharp decline in global foreign direct investment in 2012, inflows to Asia slowed only marginally due to increasing Asian investments to ASEAN.**

While global foreign direct investment (FDI) fell over 18% in 2012—to \$1.35 trillion—inflows to Asia remained more resilient, falling 7.6% to \$416 billion (**Box figure 1**). In general, investors remained skeptical of advanced economies and continued to be attracted by Asia's positive growth outlook. FDI flows to Asia account for about a third of global FDI. Interestingly, cumulative FDI to Asia totaled \$2,257.7 billion from 2006 to 2012, or double the \$1,161.3 billion during the 2000–2006 period. In 2012, half the FDI went to the more dynamic East Asia economies, while over a quarter went to ASEAN economies, with one-sixth to Oceania.

Normally, the largest FDI heads toward big economies such as the People's Republic of China (PRC); Hong Kong, China; Australia; Singapore; India; and Indonesia. However, when it comes to growth, some smaller economies such as Cambodia and the Philippines do well, consistent with their recent economic promise. Since 2000, FDI to South Asia remained very small (about 6%) compared with total inflows to Asia. Worse, FDI to several South Asian economies—India, Sri Lanka, and Bangladesh—fell by double-digits in 2012.

Despite the overall drop in FDI to the region in 2012, Asia's intraregional share of new FDI increased modestly—to 58% (**Box figure 2**). In terms of degree of regional bias by economy, it is clear that a larger proportion of FDI going to Cambodia, the PRC, Indonesia, the Republic of Korea, the Lao People's Democratic Republic (Lao PDR), Malaysia, Myanmar, New Zealand, Thailand, and Viet Nam originates within

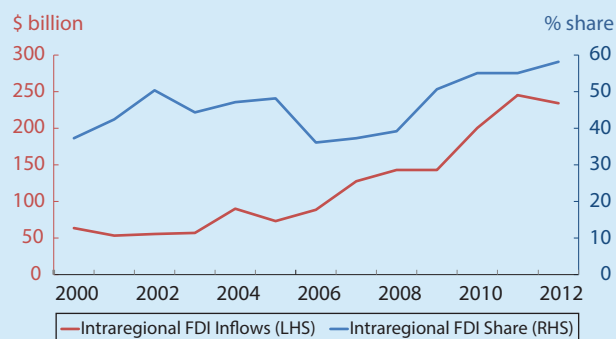
**1: FDI Inflows—Asia, Developing economies, and World**  
(\$ billion)



Note: Asia refers to the 48 ADB member economies. Developing economies are as defined from the United Nations Conference on Trade and Development (UNCTAD) database.

Source: ADB calculations using data from UNCTAD.

**2: Intraregional FDI Inflows—Asia**



FDI = foreign direct investment, LHS = left-hand scale, RHS = right-hand scale. Note: Asia includes ASEAN; Australia; the People's Republic of China; Hong Kong, China; India; Japan; the Republic of Korea; New Zealand; and Pakistan. Data for Australia and New Zealand start from 2001. Missing 2012 data were estimated using actual value from previous period.

Source: ADB calculations using data from ASEAN Secretariat, CEIC, Organisation for Economic Co-operation and Development, and United Nations Conference on Trade and Development.

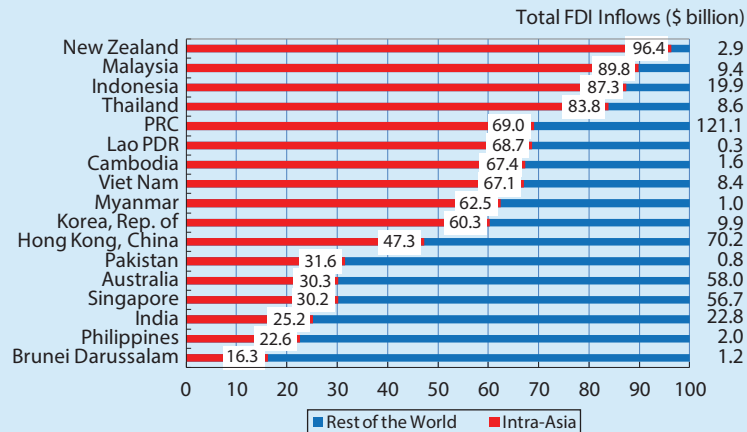
Asia—their intraregional FDI shares range from 60% to 93%. In contrast, FDI inflows to Australia; Brunei Darussalam; Hong Kong, China; India; Pakistan; the Philippines; and Singapore are mostly from outside the region (**Box figure 3**).

**FDI flows to ASEAN more than doubled over the past 3 years, apparently in support of ASEAN's increased exports to other Asian economies; the same holds true for FDI going to the PRC, Japan, and the Republic of Korea.**

In the last 5 years, ASEAN received over \$400 billion in FDI—of which \$271 billion came from within Asia (\$68 billion of this was intra-ASEAN). FDI to ASEAN economies appears somewhat associated with their exports. For instance, examining the share of FDI to ASEAN or “+3” economies (the PRC, Japan, and the Republic of Korea) from their key partners; and the share of export outflows from ASEAN or “+3” economies to the same set of partners shows that an increase (or decrease) in the share of FDI from a partner is often linked to an increase (or decrease) in export share to that partner (with the correlation coefficient for these pairs of flows at about 0.4) (**Box figures 4, 5**). In particular, the strong FDI coming from the PRC and the Republic of Korea to ASEAN coincided with strong export flows from ASEAN to the PRC and the Republic of Korea. Similarly, intra-ASEAN FDI has also increased along with intra-ASEAN trade. There are also increasing FDI heading from larger ASEAN economies into the “+3” economies—also associated with increasing exports from the “+3” to ASEAN. One can better see the link between FDI and trade by plotting the



### 3: FDI Inflows—Asia (% of total, 2012)

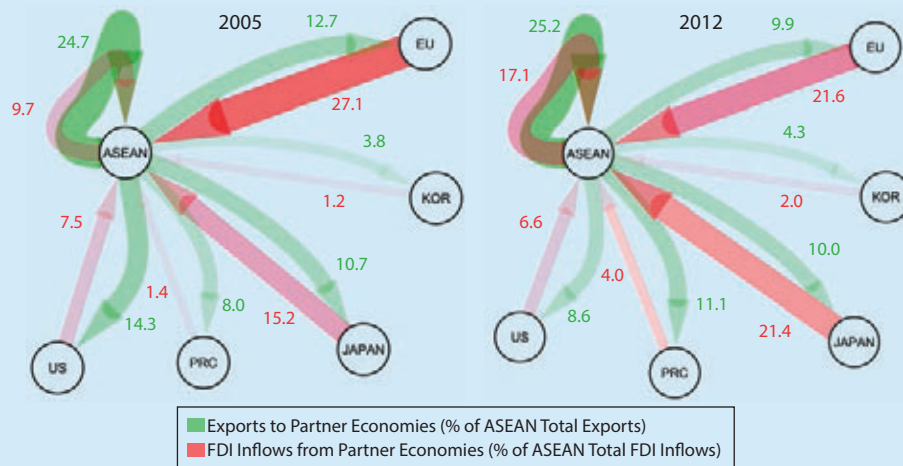


FDI = foreign direct investments; PRC = People's Republic of China; Lao PDR = Lao People's Democratic Republic.

Notes: 2011 data for Brunei Darussalam and the Lao PDR; 2009 data for Myanmar.

Source: ADB calculations using data from ASEAN Secretariat, CEIC, Organisation for Economic Co-operation and Development, and United Nations Conference on Trade and Development.

### 4: Exports and FDI Share—ASEAN (% of total)



PRC = People's Republic of China, EU = European Union, FDI = foreign direct investment, KOR = Republic of Korea, US = United States.

Rendered in Cytoscape 3.0.2

Source: ADB calculations using data from ASEAN Secretariat; CEIC; *Direction of Trade Statistics*, International Monetary Fund; and Organisation for Economic Co-operation and Development.

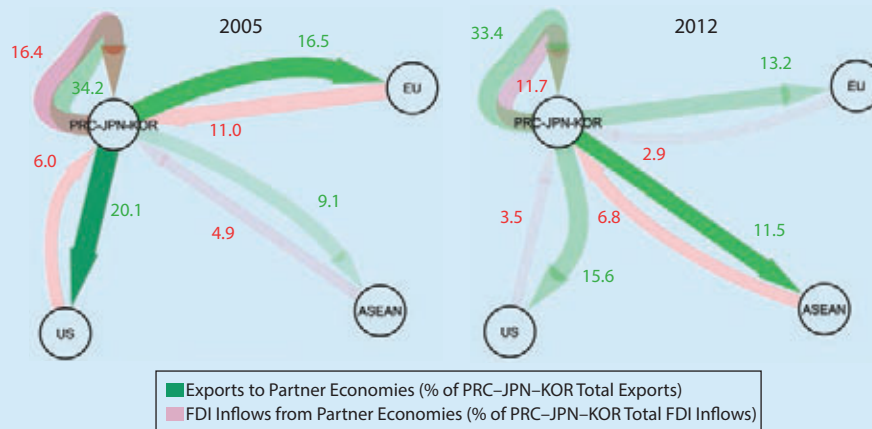
log of FDI inflows with the log of trade flows; and FDI inflows as a percent of GDP with share of trade flows as a percent of GDP (Box figure 6, 7). It is clear that there is a strong positive correlation between FDI and trade—although the strength of the correlation weakens as a share to GDP.

Theoretically, the link between trade and FDI is easy to explain. For instance, under the factor proportion hypothesis,

the strong feedback relationship between trade and FDI stems from how firms tend to send capital overseas to take advantage of factor endowment and price differentials across economies—also the primary driver of trade. Similarly, under intra-industry trade theory, the interdependence between trade and FDI is a result of intra-firm vertical integration in terms of trade, outsourcing, and investment.

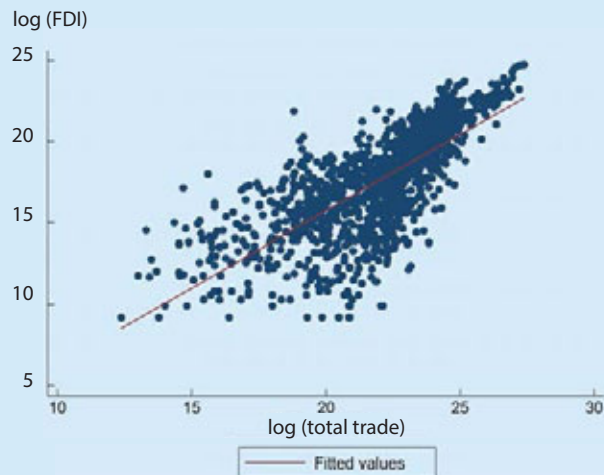
## Box 3 continued

**5: Exports and FDI Share—PRC, Japan, and Republic of Korea (% of total)**



PRC = People's Republic of China, EU = European Union, FDI = foreign direct investment, JPN = Japan, KOR = Republic of Korea, US = United States. Rendered in Cytoscape 3.0.2  
 Source: ADB calculations using data from ASEAN Secretariat; CEIC; *Direction of Trade Statistics*, International Monetary Fund; and Organisation for Economic Co-operation and Development.

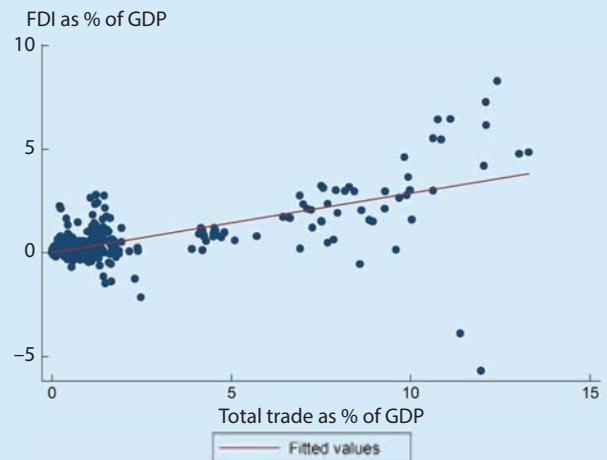
**6: Scatter Plot of the log of FDI with the log of Total Trade—ASEAN**



FDI = foreign direct investment.  
 Note: Total trade refers to the sum of exports and imports.  
 Source: ASEAN Secretariat, CEIC, Organisation for Economic Co-operation and Development, United Nations Commodity Trade Databases, United Nations Conference on Trade and Development, and national sources.

To test this interdependence hypothesis, a simple gravity model of FDI inflows to ASEAN was estimated using a fixed effect pooled regression model. In the model, bilateral FDI flows were estimated as a function of the reporter and partner country's nominal GDP and GDP per capita; a physical distance variable; bilateral trade flow; a time-varying free

**7: Scatter Plot of FDI as % of GDP with Total Trade as % of GDP—ASEAN**



FDI = foreign direct investment.  
 Note: FDI inflows and total trade are computed as a percentage of nominal GDP. Total trade refers to the sum of exports and imports.  
 Source: ASEAN Secretariat, CEIC, Organisation for Economic Co-operation and Development, United Nations Commodity Trade Databases, United Nations Conference on Trade and Development, and national sources.

trade agreement (FTA) dummy; and the lag of the FDI flows. To control for other economic conditions that may affect FDI inflows, other indicators such as the current account to GDP ratio and annual policy rates were also included. Fixed-effect dummies were also included to proxy for omitted variables at the country level. More importantly, two alternative

### Pooled Regression of FDI on Trade

Independent Variables	Dependent Variables	
	Log of FDI inflows	FDI inflows (as % of GDP)
Log of GDP per capita (partner)	0.12	-0.001
Log of nominal GDP (partner)	0.37***	0.001*
Log of total trade	0.50***	
Share of total trade to GDP (recipient)		0.02*
Log of Distance	-0.35**	-0.002
Log of FDI lag 1 period	0.50***	
FDI inflows (as % of GDP, lag 1 period)		0.61***
Log of current account (% of GDP)	-0.11	-0.003
Log of policy rates (%)	-0.41	-0.005
FTA Dummy	0.03	0.002
Brunei Darussalam	-	-
Cambodia	-	-
India	-	-
Indonesia	-0.26	-0.004
Lao PDR	-	-
Malaysia	-0.49	-0.006
Myanmar	-	-
Pakistan	-	-
Philippines	-0.70**	-0.009**
Singapore	-	-
Thailand	-0.71	-0.01
Viet Nam	0.06	-0.006
Constant	-2.76	0.02
Number of observations	341	341
Adjusted R-squared	0.8092	0.5012
F-stat	123.81***	12.12***

\*\*\* indicates significance at 1%; \*\* indicates significance at 5%; \* indicates significance at 10%.

Notes:

1. Country names are used as fixed effect dummies with Bangladesh as the base country.
2. Due to missing observations which tend to retain extreme values, the data were truncated by dropping 5% of the observations based on the upper and lower bound of FDI growth rates.
3. The smaller sample size in logged FDI model is due to omitted negative FDI flows (i.e. log transformation permits only positive values). To make the results comparable, we restricted the sample in the shares model such that the included FDI values (including the lags) are positive.

Source: ADB calculations using data from UN Commodity Trade Database for the trade data; *World Economic Outlook October 2013*, International Monetary Fund for the GDP variables; United Nations Conference on Trade and Development, ASEAN Secretariat, Organisation for Economic Co-operation and Development, and CEIC for the FDI variable; and CEPII and University of Macalester for distance variable.

specifications for FDI and trade flows were used: (i) the log of level specification; and (ii) a percent of GDP specification (Box table).<sup>1</sup>

This simple modelling exercise yielded several interesting results. First, it confirmed the interdependence between the flow of FDI and trade at the 1% significance level. Using FDI inflows as dependent variable, the coefficients show that a 10% increase in total trade will increase FDI inflows by 5%. Using FDI as percent of GDP, a 10% increase in trade share will increase FDI share by 0.2%. The second result appears more reasonable given that the log-level specification could be overestimating the effects—as both FDI and trade variables grow with economic size (non-stationary).<sup>2</sup> The estimated gravity coefficients are also intuitive. Physical distance—a proxy for the cost of acquiring information—acts as a barrier or deterrent to accessing FDI from other countries, although this effect is not seen when FDI as a percent of GDP is used. Previous period FDI also significantly increases current FDI levels by 0.5 (for log-level specification) to 0.6 (for FDI as a share of GDP). This suggests that FDI inflows are quite persistent. Moreover, the size and income level of the source economy is a more significant determinant of FDI inflows to the region than the size and income level of the destination economy.

Using FDI shares to GDP as dependent variables also yield the same results, with trade shares showing interdependence with FDI share to GDP at the 10% level of significance. The distance variables, however, become insignificant. None of the control variables, including the free trade agreement (FTA) dummy, are significant. Beta coefficients to compare the various determinants of FDI inflows were also derived. Based on the beta coefficients, previous period FDI is the most important determinant of FDI inflows. This is followed by total trade and nominal GDP variables of the source economy. Meanwhile, distance affects FDI inflows the least. Using FDI shares, previous period FDI shares have the largest effect, followed by trade shares. It is interesting that the size and income of the destination economy did not appear significant—although this could be due to its correlation with trade flows. Only the fixed effect for the Philippines is significant (but negative), which suggests there is something else that makes it less attractive to FDI.

<sup>1</sup>In the final estimates, the GDP and GDP per capita of the home economy were excluded as coefficients were insignificant and it appears that, *ceteris paribus*, FDI inflows to the reporting country are more dependent on the partner's GDP. Lagged values were also used previously but were dropped due to insignificant coefficients or inconsistent estimates.

<sup>2</sup>This is the reason why an alternative specification based on FDI inflows and trade flows as percent of GDP was also used.

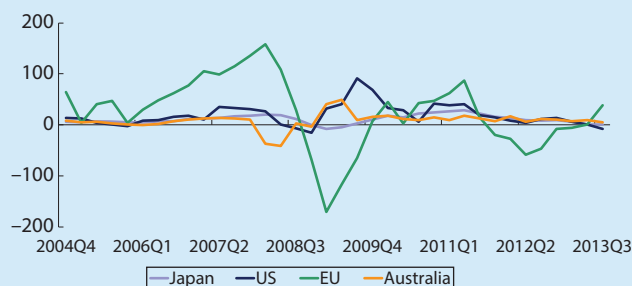
## Box 4: Australian and Japanese Bank Credit Flows to Asia: Rising and More Stable

Intraregional bank lending—particularly from Japan and Australia to other Asian economies—has emerged as a new source of external financing in Asia. As European banks deleveraged and cut Asian exposure after the global and eurozone financial crises, Japanese and Australian banks increased lending to the region (**Box figure 1**). Quarterly bank credit flows from Europe fell, while Australia and Japan lending picked up after the global financial crisis, reaching on average close to \$14 billion from Japan and \$11 billion from Australia—though both declined somewhat after 2012. Quantitative easing by the United States (US) Federal Reserve also encouraged US banks to lend more to Asia, with bank credit flows to Asia up to \$90 billion during the third quarter of 2009. In 2013 (until September), European Union (EU) bank credit flows to Asia rebounded strongly, indicating improved financial conditions there.

Before the global financial crisis, EU bank credit flows to Asia averaged \$73 billion a quarter, well above the \$11 billion from Japan and \$0.7 billion from Australia. The pattern changed dramatically after the 2008/09 global financial crisis. Average quarterly EU bank credit flows fell to \$7 billion during 2009–2013 due to deleveraging, while Japanese flows rose to \$14 billion and Australian flows to \$11 billion. US bank credit flows also increased from \$14 billion to \$25 billion per quarter after the global financial crisis (**Box figure 2**). At the same time, average quarterly bank credit flows from Australia and Japan combined totaled \$25 billion, marginally above those from the US and much higher than the EU.

From 2004 to 2013, bank credit flows from Japan were much less volatile than those from Australia, the EU, and the US (**Box table**). European flows gyrated before and after

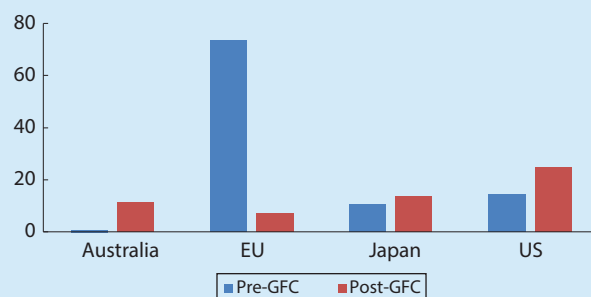
**1: Bank Credit Flows to Asia—Australia, EU, Japan, and US** (\$ billion)



EU = European Union (27 members), US = United States.  
 Note: Data refers to the 4-quarter moving average of bank credit flows. Flows are calculated as the quarter-on-quarter difference in outstanding claims.  
 Source: ADB calculations using data from Table 9B (Consolidated foreign claims of reporting banks-immediate borrower basis), Bank for International Settlements.

the 2008/09 global financial crisis, while those from Japan remained relatively steady. Both measures of volatility—standard deviation and coefficient of variation—suggest that EU flows were the most volatile and flows from Japan were the most stable. US flows were also more stable than those from the EU. More stable external financing benefit Asian economies, contributing to economic growth and resulting in less financial volatility.

**2: Average Quarterly Bank Credit Flows to Asia—Australia, EU, Japan, and US** (\$ billion)



EU = European Union (27 members), US = United States, GFC = global financial crisis.  
 Note: Data refers to the average quarterly flows as defined in Box figure 1. Pre-GFC coverage is from 2004Q4 to 2008Q2. Post-GFC coverage is from 2009Q3 to 2013Q3.  
 Source: ADB calculations using data from Table 9B (Consolidated foreign claims of reporting banks-immediate borrower basis), Bank for International Settlements.

**Volatility of Bank Credit Flows to Asia—Australia, EU, Japan, and US (2004–2013)**

Indicator	Australia	EU	Japan	US
Standard Deviation (\$ billion)	15.2	69.1	8.6	21.4
Average (\$ billion)	8.1	24.7	10.9	19.0
Coefficients of Variation	1.9	2.8	0.8	1.1

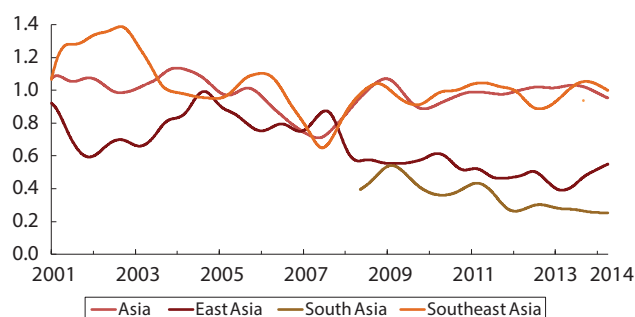
EU = European Union (27 members), US = United States.  
 Note: Flows are calculated as 4-quarter moving average of the difference in the outstanding claims by end of the quarter.  
 Source: ADB calculations using data from Table 9B (Consolidated foreign claims of reporting banks-immediate borrower basis), Bank for International Settlements.

in the year on healthy corporate earnings, improved market sentiment, and higher foreign capital inflows. In East Asia, equity markets are more subdued—given concerns over slowing growth prospects in the PRC and the early success of structural reform in Japan. In Southeast Asia, while a number of domestic risk factors worried investors, the stronger US recovery provided a lead for equity markets. South Asian markets also continue to converge with major markets in India and Pakistan enjoying bullish runs—given increased market confidence on India’s national elections.

**Dispersion in Asian bond yields also contracted slightly in recent months even as efforts to promote local bonds stepped up; bond yields in Southeast Asia were less convergent compared with the rest of the region.**

Last year, the coefficient of variation for 10-year bond yield spreads had increased due to the massive selloff by foreign investors which affected economies with weaker macroeconomic fundamentals more.<sup>22</sup> However, in early 2014, the dispersion of bond yields in Asia decreased marginally (Figure 18). For instance, after a significant increase, the coefficient of variation of bond yield spreads for Southeast Asian economies has slightly moderated. Given quite open bond markets, different domestic factors, and widely dissimilar asset risk classes, bond yields in ASEAN could continue to be divergent. It is likely Indonesia’s improving current

**Figure 18: Coefficient of Variation of 10-Year Bond Yield Spreads**



Note: Coefficient of variation of 10-year government bond yield spreads over benchmark United States Treasuries, detrended using Hodrick-Prescott filter. Asia includes East Asia, South Asia, and Southeast Asia. East Asia includes the People’s Republic of China; Hong Kong, China; Japan; the Republic of Korea; and Taipei, China. South Asia includes India, Pakistan, and Sri Lanka. Southeast Asia includes Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Viet Nam. Data until 31 Mar 2014. Source: ADB calculations using data from Bloomberg.

account might lead to lower bond spreads, while easing growth prospects in the Philippines could attract less capital flows, pushing its yields to move above last year’s level. The coefficient of variation of bond yields in South Asia remains relatively stable (albeit slightly declining). In contrast, the coefficient of variation of 10-year bond yield spreads on East Asian bonds has increased, yet remained lower than that in Southeast Asia.

**The use of the renminbi for international transactions within and outside Asia has been growing rapidly—through offshore bond issuances, trade settlement, and a widening array of currency swap arrangements.**

Renminbi bond issuances outside the PRC and Hong Kong, China have grown rapidly. As of December 2013, cumulative issuance was close to the total issued by Hong Kong, China-based companies. The renminbi is also increasingly used in trade settlement and trade finance. According to the Society for Worldwide Interbank Financial Telecommunication (SWIFT), the renminbi’s share of world currency payments more than tripled—to 1.1% in December 2013 from 0.3% in October 2011. In trade finance, it is the second most used currency for letters of credit and collection (as of November 2013, the renminbi had an 8.7% market share, according to SWIFT).

In the third quarter of 2013, renminbi use within Asia (excluding the PRC and Hong Kong, China) has grown 109%.<sup>23</sup> Central banks in Asia have also been looking to the renminbi to diversify holdings and reduce risk. To date, 12 Asian central banks—of a total of 23 banks, including those from Europe—have bilateral swap agreements with the PRC. Asian central banks account for about 65% of PRC’s total swap amount, which currently totals CNY2.6 trillion. Indonesia is the most recent Asian economy to renew its swap agreement with the PRC (October 2013). Singapore renewed its swap agreement in March 2013.

<sup>22</sup>Generally speaking, the coefficient of variation for 10-year bond yields in the region is large, reflecting the varied risk classes of Asian bonds.

<sup>23</sup>Still, this is smaller compared to renminbi use in Europe, where its use in payments rose 163% y-o-y in the third quarter of 2013.

## Macroeconomic Interdependence between the PRC, Japan, and the Republic of Korea

The PRC, Japan, and the Republic of Korea are important to the global economy. They are the second, third, and fifteenth largest economies in the world, respectively. Their combined nominal GDP at market exchange rates is some 20% of the world total (**Table 4**). This is about the same as their combined share in world population, though they trade less than their economic weights. As world exporting powers, they have accumulated large amounts of foreign exchange reserves, 46.4% of the world total. Through sophisticated and extensive production networks and supply chains, they are closely linked to each other, and to other economies—particularly those in East and Southeast Asia. Understanding how they connect is important, as is their macroeconomic interdependence.

### Economic links between the PRC, Japan, and the Republic of Korea

Trade links between the three economies have deepened during the past 20 years, and their relative strength has also shifted somewhat.

While Japan and the Republic of Korea are the PRC's first and second largest import suppliers, the PRC is Japan's biggest trading partner, and the PRC and Japan are the Republic of Korea's two largest trading partners (**Table 5**). In recent years, PRC exports to Japan and the Republic of Korea topped 3% of its GDP, after peaking

at 5.9% in 2005. While the share of PRC exports to the Republic of Korea has been steady over the past decade, the share of PRC exports to Japan has fallen, partly due to the sluggish performance of the Japanese economy, as well as the PRC diversifying its trade globally. Japan's exports to the other two have grown significantly over the past two decades, and now account for about 4% of its GDP—even as Japan's exports to the PRC, after growing rapidly in the 2000s, slowed in 2012. As junior partner, the Republic of Korea's exports to the PRC and Japan are far more important to its economy—close to 17% of the Republic of Korea's GDP—with the PRC growing more important than Japan over the past 10 years.

While a significant portion of trade between the three economies is in intermediate goods, domestic value-added (as embodied in their exports to each other)

**Table 5: Trade Links—PRC, Japan, and Republic of Korea** (% of GDP)

	1990	2000	2010	2012
<b>Exports of PRC to:</b>				
Japan	2.7	4.0	2.3	2.1
Korea, Rep. of	0.1	1.0	1.2	1.0
World	19.4	27.0	28.7	25.9
<b>Exports of Japan to:</b>				
PRC	0.2	0.8	3.0	2.7
Korea, Rep. of	0.6	0.7	1.2	1.1
World	9.6	10.5	14.3	14.0
<b>Exports of Rep. of Korea to:</b>				
PRC	0.0	3.9	12.6	13.3
Japan	4.5	3.8	2.8	3.5
World	23.7	32.5	46.5	49.7

PRC = People's Republic of China.

Note: Exports are computed as the average of the reporters' exports and its corresponding partners' imports. Values are expressed as percentage of exporter's GDP. GDP used is in current \$ values.

Source: ADB calculations using data from *Direction of Trade Statistics* and *World Economic Outlook October 2013*, International Monetary Fund.

**Table 4: Selected Indicators—PRC, Japan, and Republic of Korea<sup>1</sup> (2013)**

	Population <sup>2</sup> (million)		Nominal GDP (\$ billion)		Exports (\$ billion)		Imports (\$ billion)		Foreign Reserves less gold (\$ billion)	
PRC	1,351	(19.2%)	8,939	(12.4%)	1,430	(11.9%)	1,273	(10.4%)	3,840	(32.9%)
Japan	128	(1.8%)	5,007	(6.9%)	474	(4.0%)	546	(4.4%)	1,237	(10.6%)
Korea, Rep. of	50	(0.7%)	1,198	(1.7%)	369	(3.1%)	341	(2.8%)	342	(2.9%)
Combined	1,529	(21.7%)	15,144	(21.2%)	2,273	(18.9%)	2,160	(17.6%)	5,419	(46.4%)

PRC = People's Republic of China.

<sup>1</sup>Percentage share to world total in parentheses. Foreign reserves and nominal GDP in market exchange rates. Exports and imports cover the period Jan–Aug 2013.

<sup>2</sup>Population data covers 2012 only as 2013 data is unavailable.

Source: ADB calculations using data from *Direction of Trade Statistics* and *Currency Composition of Official Foreign Exchange Reserves*, International Monetary Fund (IMF); and *World Development Indicators*, World Bank.

has been rising fast (**Table 6**). As the PRC economy is increasingly driven by domestic demand and is diversifying export destinations, value-added embodied in its exports to Japan fell from 2.9% in 1995 to 1.4% of GDP in 2009, while the PRC's total domestic value-added in its exports remained steady. As a share of the PRC's total exports, domestic value-added in PRC exports to the Republic of Korea stayed relatively stable. Yet, by comparing the shares of exports and domestic value-added, PRC exports to Japan contain more added value than those to the Republic of Korea. Domestic value-added in Japan's exports to the Republic of Korea from 1995 to 2009 remained steady at about 0.5% of GDP. But the value-added in Japan's exports to the PRC doubled in about 10 years—to 1.4% of GDP in 2009. Domestic value-added in the Republic of Korea's exports to the PRC increased from 1.4% of GDP in 1995 to 4.2% in 2009

**Table 6: Trade Links: Value Added** (% of GDP)

	1995	2000	2005	2009
<b>PRC</b>				
Japan	2.9	2.9	2.5	1.4
Korea, Rep. of	0.5	0.6	0.7	0.5
Total	16.3	18.1	21.9	16.6
<b>Japan</b>				
PRC	0.4	0.7	1.3	1.4
Korea, Rep. of	0.5	0.5	0.6	0.5
Total	8.0	9.3	11.7	10.2
<b>Korea, Rep. of</b>				
PRC	1.4	2.6	3.1	4.2
Japan	3.9	3.6	2.3	2.0
Total	20.8	24.8	23.3	28.1

PRC = People's Republic of China.

Note: Data refers to domestic value added embodied in foreign final demand.

Source: OECD-WTO Trade in Value (TiVA) Database May 2013.

as the Republic of Korea's exports to the PRC expanded rapidly. However, the value-added in the Republic of Korea's exports to Japan fell nearly half—to 2.0% of GDP in 2009, despite a steady ratio of exports to GDP. This suggests a fast rising share of intermediate goods in the Republic of Korea's exports to Japan.

This section shows clearly that exports (and domestic value-added of exports) of Japan and the Republic of Korea have become more dependent on the PRC. PRC exports—and the value-added of its exports—shifted toward other economies, with the share of value-added in its exports to Japan falling over the past decade, while those of the Republic of Korea remained stable. Exports and value-added of exports of Japan to the Republic of Korea were low but stable in the past two decades, while those of the Republic of Korea to Japan fell over the same period. Compared with trade links to the PRC, it appears that trade links between the Republic of Korea and Japan are also waning.

**Financial links between the three—while still weaker than trade—are strengthening rapidly, with capital flowing largely from Japan to the PRC and the Republic of Korea.**

FDI has been the traditional channel for financial flows, but portfolio flows and other investment has increased recently. The PRC attracts significant FDI worldwide. And this includes FDI from Japan and the Republic of Korea. In 2005, about 16% of FDI going to the PRC (\$11.7 billion) came from Japan and the Republic of Korea—though the share fell to 8.6% (\$10.4 billion) in 2012 (**Table 7**).

**Table 7: Financial Links: Foreign Direct Investments—PRC, Japan, and Republic of Korea<sup>1</sup>** (\$ million)

	2001		2005		2012	
<b>PRC inflows from:</b>						
Japan	2,916	(7.2%)	6,530	(9.0%)	7,352	(6.1%)
Korea, Rep. of	1,490	(3.7%)	5,168	(7.1%)	3,038	(2.5%)
World	40,715		72,406		121,073	
<b>Japan inflows from:</b>						
PRC	5	(0.0%)	12	(0.4%)	71	(4.1%)
Korea, Rep. of	49	(0.2%)	29	(1.0%)	558	(32.2%)
World	28,982		2,778		1,732	
<b>Rep. of Korea inflows from:</b>						
PRC	58	(0.7%)	2	(0.0%)	246	(2.2%)
Japan	996	(11.5%)	1,469	(24.2%)	4,123	(37.1%)
World	8,643		6,066		11,117	

PRC = People's Republic of China.

<sup>1</sup>Values in parentheses are inflows of foreign direct investments (FDI) as percentage share to reporter economy's FDI inflows from the world. PRC data refers to FDI utilized.

Source: ADB calculations using data from CEIC and Organisation for Economic Co-operation and Development.

Japan attracted much less FDI in recent years, much coming from the Republic of Korea (32.2% of the 2012 total). Japan continues to be one of the largest investors in the Republic of Korea, accounting for 37.1% of the total. The PRC has also increased its investment in Japan and the Republic of Korea recently. For 2012, official data indicate Japan invested \$17.4 billion (or 14.3% of its total FDI) in the PRC (11%) and the Republic of Korea (3.3%), and held accumulated stock of \$118.5 billion—out of some \$1 trillion of its total outward direct investment (Table 8). However, the share of Japan's direct investment in the PRC has been falling since 2010.

While portfolio and banking flows among the three—particularly from Japan to the PRC and the Republic of Korea—rose steadily in dollar amounts, their shares

of total flows have fallen as flows to other economies expanded faster (Table 9). Data on portfolio flows, though incomplete, show Japan's portfolio investments in the PRC and the Republic of Korea increased substantially—from \$7.5 billion in 2001 to about \$34.6 billion in 2012. During the same period, the Republic of Korea invested about \$12 billion in PRC and Japanese securities, up from \$333 million in 2001, with most of the increase going to the PRC. Japanese banks more than doubled their lending to the PRC and the Republic of Korea—from \$43.5 billion in 1996 (more than 10% of its total lending overseas) to \$112.4 billion in 2012, though its share fell to 3.5% of the total (see Table 8).

**Table 8: Japan's Outward FDI and Bank Claims<sup>1</sup> (\$ million)**

	1996	2000	2005	2012
<b>FDI Flows</b>				
PRC	2,324 (9.9%)	937 (3.0%)	6,589 (14.4%)	13,485 (11.0%)
Korea, Rep. of	403 (1.7%)	1,082 (3.4%)	1,784 (3.9%)	4,007 (3.3%)
Total	23,426	31,557	45,781	122,551
<b>FDI Stocks</b>				
PRC	8,097 (3.1%)	8,699 (3.1%)	24,553 (6.4%)	92,967 (9.0%)
Korea, Rep. of	3,464 (1.3%)	4,192 (1.5%)	8,217 (2.1%)	25,526 (2.5%)
Total	258,609	278,445	386,585	1,037,698
<b>Bank Claims (outstanding)</b>				
PRC	17,800 (4.3%)	11,314 (1.0%)	18,698 (1.1%)	62,377 (1.9%)
Korea, Rep. of	25,722 (6.2%)	11,000 (0.9%)	16,308 (1.0%)	50,075 (1.6%)
Total	411,743	1,165,110	1,652,897	3,223,447

FDI = foreign direct investments, PRC = People's Republic of China.

<sup>1</sup>Values in parentheses are in percentage of total.

Source: ADB calculations using data from Table 9B (consolidated foreign bank claims of reporting banks—immediate borrower basis). Bank for International Settlements and Haver Analytics.

**Table 9: Financial Links: Portfolio Flows—PRC, Japan, and Republic of Korea<sup>1</sup> (\$ million)**

	2001	2005	2012
<b>PRC inflows from:</b>			
Japan	1,669 (8.2%)	4,074 (3.5%)	10,423 (1.6%)
Korea, Rep. of	157 (0.8%)	101 (0.1%)	6,651 (1.0%)
World	20,417	116,213	644,169
<b>Japan inflows from:</b>			
PRC	—	—	—
Korea, Rep. of	176 (0.03%)	1,463 (0.1%)	5,440 (0.4%)
World	540,800	1,295,878	1,430,816
<b>Rep. of Korea inflows from:</b>			
PRC	—	—	—
Japan	5,835 (7.5%)	7,456 (3.0%)	24,228 (5.1%)
World	77,340	250,776	471,965

— = unavailable, PRC = People's Republic of China.

<sup>1</sup>Values in parentheses are portfolio inflows percentage share to reporter economy's portfolio inflows from the world.

Source: ADB calculations using data from *Coordinated Portfolio Investment Survey*, International Monetary Fund.



**Table 10: Tourist Arrivals—PRC, Japan, and Republic of Korea<sup>1</sup>** (In thousands)

	1995		2005		2010		2013	
<b>PRC from</b>								
Japan	1,305	(2.8%)	3,390	(2.8%)	3,722	(2.8%)	2,878	(2.2%)
Korea, Rep. of	529	(1.1%)	3,545	(2.9%)	4,085	(3.1%)	3,969	(3.1%)
World	46,113		120,259		133,762		129,078	
<b>Japan from</b>								
PRC	221	(6.7%)	653	(9.8%)	1,413	(16.4%)	1,314	(12.7%)
Korea, Rep. of	874	(26.4%)	1,747	(26.2%)	2,440	(28.3%)	2,456	(23.7%)
World	3,315		6,675		8,610		10,364	
<b>Rep. of Korea from</b>								
PRC	178	(5.2%)	710	(12.4%)	1,875	(21.3%)	4,327	(35.5%)
Japan	1,667	(48.8%)	2,440	(42.6%)	3,023	(34.4%)	2,748	(22.6%)
World	3,416		5,730		8,798		12,176	

PRC = People's Republic of China.

<sup>1</sup>Values in parentheses are percentage of each reporting economy's total arrivals from the world.

Source: ADB calculations using data from CEIC and *Data on Outbound Tourism*, World Tourism Organization.

## More people have been travelling between the PRC, Japan, and the Republic of Korea due to geographical and cultural proximity.

In 2013, Japan attracted more tourists from the Republic of Korea than from the PRC—2.5 million versus 1.3 million, even though the PRC economy is seven times the Republic of Korea's and has a population 26 times as large (**Table 10**). While Japan's population is more than double the Republic of Korea's, since 2005 more tourists from the Republic of Korea has visited the PRC. Combined, tourists from Japan and the Republic of Korea going to the PRC rose from 3.9% of total visitors in 1995 to 5.3% in 2013. More PRC tourists visited the Republic of Korea than those visiting Japan, with the number of tourists going to the Republic of Korea above the number visiting Japan since the mid-2000s. Bucking the trend, tourism between Japan and the PRC has fallen over the past few years. Yet, Japan may have hosted more foreign workers from the PRC. According to official statistics, the number of foreign workers in 2011 was about 686,000 in Japan and 600,000 in the Republic of Korea, and it is possible a significant portion came from the PRC.<sup>24</sup>

## Business cycle co-movements between the PRC, Japan, and the Republic of Korea

International trade links generate both demand and supply spillovers across economies, which can increase the degree of business cycle co-movement. A positive shock to demand in one economy would increase demand for imports, thus boosting demand in other economies. Similarly, a positive shock to supply would lower prices of goods produced in one economy, which would transmit to other economies via cheaper imports. However, increased trade links may lead to increased specialization. And if industry-specific shocks are more important in driving business cycles, then business cycles in different regions could diverge.<sup>25</sup> Yet if common shocks dominate those industry-specific shocks, they would lead to a higher degree of business cycle co-movement.<sup>26</sup> Moreover, production networks amplify industry-specific shocks across economies linked by production networks. So they turn industry-specific shocks into common ones, resulting in business cycle synchronization. Similarly, international financial links can transmit shocks across economies as investors' risk perception affects financial markets and capital flows.

<sup>24</sup>Japan Institute for Labor Policy and Training. 2013. *Databook of International Labor Statistics 2013*. <http://www.jil.go.jp/english/estatis/databook/index.htm>

<sup>25</sup>P. Krugman. 1993. Lessons of Massachusetts for EMU. In F. Torres and F. Giavazzi, eds. *Adjustment and Growth in the European Monetary Union*. Cambridge: Cambridge University Press.

<sup>26</sup>J. Frankel and A. Rose. 1998. The Endogeneity of the Optimum Currency Area Criteria. *Economic Journal*. 108. pp. 1009–1025.

**GDP growth rates of the three economies were moderately correlated with each other over the past two decades, possibly due to increasingly close linkages; the growth correlation between the PRC and Japan and between the PRC and the Republic of Korea has risen over time.**

From 1993 to 2013, while GDP growth rates in Japan and the Republic of Korea were more correlated than with the PRC, the correlation coefficient between Japan and the Republic of Korea is not statistically different from those between the PRC and Japan or the PRC and the Republic of Korea (Table 11). However, the growth correlation between the PRC and the other two rose from statistically insignificant from zero in the 10 years from 1993 to 2003 to significantly positive during the second decade. Specifically, the Republic of Korea’s growth became more correlated with the PRC’s, with the correlation coefficient between the two rising significantly—from 0.26 in the first decade to 0.67 in the second. While also rising, the correlation coefficients between Japan and the Republic of Korea during the two decades were not statistically different from one another.

**Economic growth in the three East Asian economies is strongly linked with growth in the US.**

Among the three, Japan has the strongest correlation with US growth, with the PRC insignificantly correlated—PRC correlation coefficients for the entire sample period

and two sub-periods are not statistically different from zero. However, both Japan and the Republic of Korea have become more correlated with the US from the first to second decade—correlation coefficients rose to 0.83 and 0.62, respectively. It appears that the global financial crisis, which originated in the US, drove synchronization between business cycles in the US, Japan, and the Republic of Korea, but not with the PRC.

**Vector autoregression (VAR) analysis confirms that shocks to PRC growth would have significant impact on growth in Japan and the Republic of Korea.**

An unrestricted VAR with four lags includes quarterly GDP growth rates of the three economies and the US over the entire 1993–2013 sample period. Impulse responses of the VAR show that a shock to PRC growth would affect GDP growth in Japan and the Republic of Korea significantly after one quarter with the effects lasting two to three quarters. The shocks to growth in Japan and the Republic of Korea, however, would not affect PRC growth significantly (Figure 19). Nor would shocks to Japan and the Republic of Korea affect each other. The results are consistent with the trade link analysis (including both gross exports and the value-added embodied in exports), as value-added is a part of GDP. As a major economic partner to the three, a US shock would affect growth in all three, with the impact on Japan’s growth lasting four quarters; that on the PRC and the Republic of Korea is only significant in the second quarter.

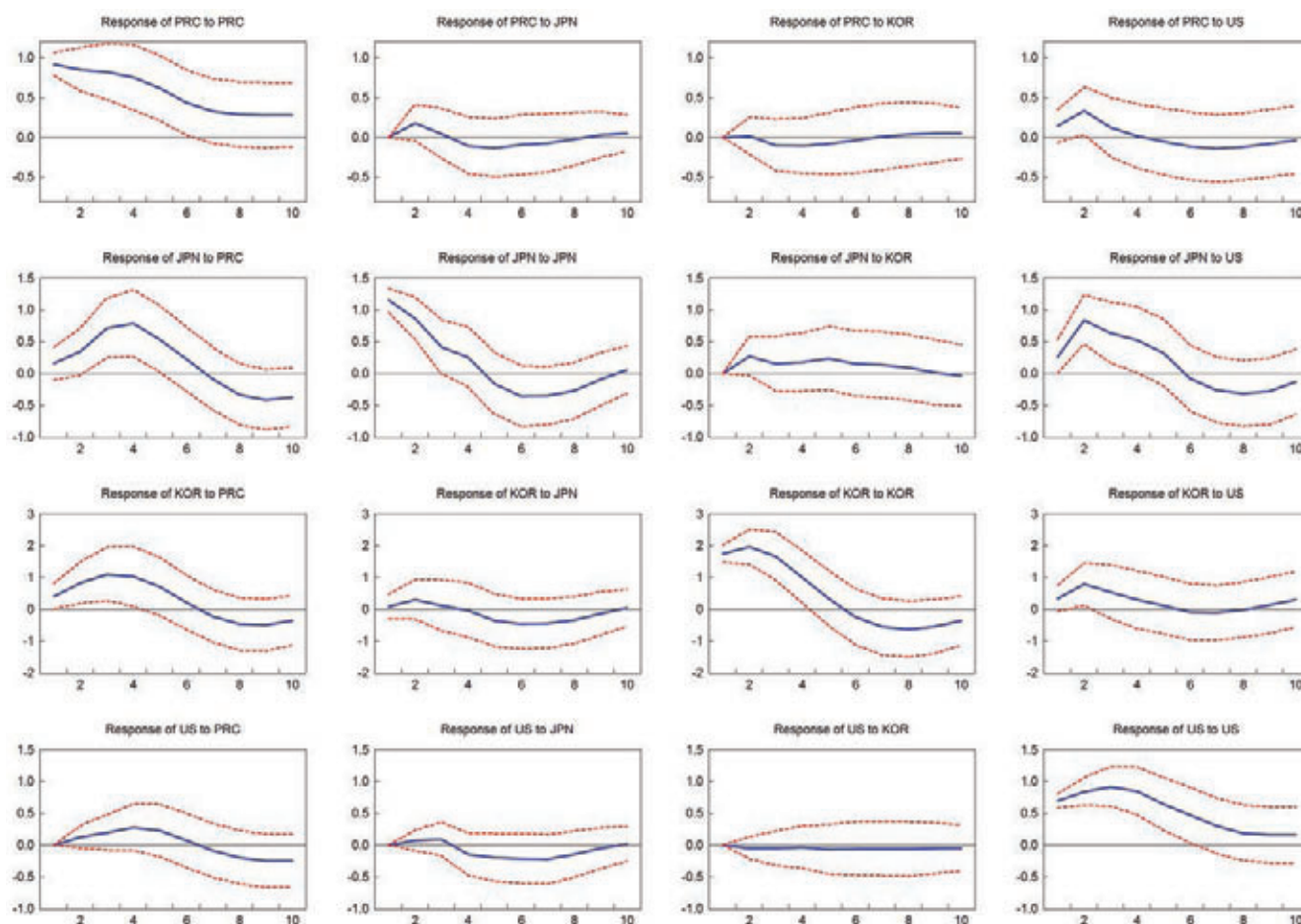
**Table 11: Correlation Coefficients: GDP Growth Rates**

	1993Q1–2013Q4	1993Q1–2003Q1	2003Q2–2013Q4
PRC–Japan	0.32 [0.11,0.5]	0.18 [-0.13,0.47]	0.41 [0.13,0.64]
PRC–Korea, Rep. of	0.34 [0.13,0.51]	0.26 [-0.05,0.52]	0.67* [0.46,0.81]
Japan–Korea, Rep. of	0.52 [0.34,0.66]	0.54 [0.28,0.73]	0.79 [0.64,0.88]
PRC–US	0.08 [-0.13,0.29]	-0.09 [-0.38,0.23]	0.27 [-0.04,0.53]
Japan–US	0.56 [0.39,0.69]	0.02 [-0.29,0.33]	0.83* [0.7,0.9]
Korea, Rep. of–US	0.36 [0.16,0.53]	0.03 [-0.28,0.34]	0.62* [0.39,0.77]

\* indicates that the statistic is significantly higher than 1993Q1–2003Q1.  
 Note: Figures reflect pairwise correlations. 95% confidence intervals are reported in square brackets. Japan data only up to 2013Q3.  
 Source: ADB calculations using data from Haver Analytics.

**Figure 19: VAR Analysis: Impulse Responses to a Shock from One Economy** (percentage points)

Response to Cholesky One S.D. Innovations  $\pm 2$  S.E.



PRC = People's Republic of China; JPN = Japan; KOR = Republic of Korea; US = United States; VAR = vector autoregression.

Notes: Impulse response functions calculated based on the estimated VAR model. Cholesky ordering is as follows: US, PRC, JPN, KOR.

Source: ADB calculations using data from Haver Analytics.

Variance decomposition of the VAR indicates that US growth can explain about 30% of variance in Japan's growth, but very little in the variation in the PRC or the Republic of Korea (**Table 12**). In contrast, PRC growth explains over 20% of the variance of both Japan and the Republic of Korea's growth, while growth of Japan and the Republic of Korea explains little in the variation of PRC's growth, and in each other's. The VAR results clearly suggest that while the three economies are closely linked to the US, PRC growth has a significant explanatory power in the variation of growth of both Japan and the Republic of Korea. VAR analysis for the two sub-sample periods yields similar results. Comparing the second half of the sample period with the first half, the responses of growth of Japan and the Republic of Korea to a shock in PRC growth lasts longer and PRC growth can explain more variations in the growth of Japan and

the Republic of Korea. In other words, the effect of a shock to PRC growth has grown large over time. The impact of US growth has also become more significant on Japan's growth during the second decade, but not on the PRC and in the Republic of Korea.

In sum, the PRC, Japan, and the Republic of Korea have built close economic links between themselves over the past two decades. This is not only because of their proximity, but also due to their production networks and supply chains—and in part with Japanese investments in the PRC and the Republic of Korea. Close trade and financial links have also brought about a high degree of macroeconomic interdependence and business cycle co-movement. With the PRC economy growing larger and driven by idiosyncratic shocks, economic growth in Japan and the Republic of Korea is increasingly

**Table 12: VAR Analysis: Share of Growth Variance Due to Each Economy (%)**

Quarterly Average	PRC	Japan	Korea, Rep. of	US
<b>PRC</b>				
Q1–Q5	93.2	1.3	0.4	5.1
Q6–Q10	92.3	2.0	0.8	4.9
<b>Japan</b>				
Q1–Q5	14.8	60.2	2.1	22.9
Q6–Q10	27.9	41.3	3.6	27.2
<b>Korea, Rep. of</b>				
Q1–Q5	15.1	0.9	77.1	6.9
Q6–Q10	23.0	3.9	66.3	6.8
<b>US</b>				
Q1–Q5	2.7	0.9	0.2	96.2
Q6–Q10	6.3	4.4	0.5	88.8

PRC = People’s Republic of China ; US = United States; VAR = vector autoregression.

Note: Based on estimated VAR model. Cholesky ordering is as follows: US, the PRC, Japan, and the Republic of Korea.

Source: ADB calculations using data from Haver Analytics.

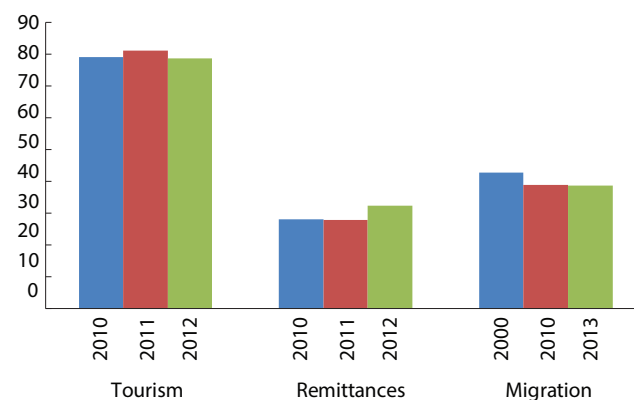
correlated to the PRC. And the effect on growth in Japan and the Republic of Korea of a shock in PRC growth is becoming significant and long-lasting.

## Updates on Labor Mobility and Remittances

**More Asians are migrating and travelling around the region, strengthening economic and cultural ties; while remittances provide households a means to spread risk and mitigate income shocks.**

Early estimates for 2013 suggest the number of Asian migrants living within the region increased from 29.6 million in 2010 to 30.8 million; although the share of Asian intraregional migration remained broadly stable since 2010 at around 39% (Figure 20). During the period, South Asia had the highest intraregional migration share (over 40%), followed by Southeast Asia (30.2%) and East Asia (21.7%) (Figure 21). While Southeast Asia’s intraregional migration share increased modestly, those in most other subregions remained

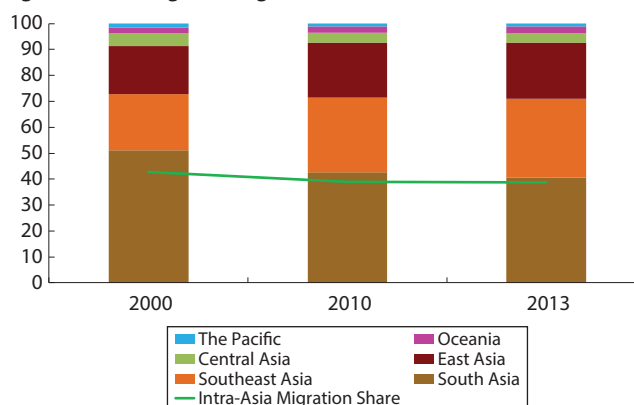
**Figure 20: Labor Mobility and Remittances Intraregional Shares—Asia (% of total)**



Notes: Tourism share = Asian tourists to Asia/Asian tourists to world; Remittance share = Asia’s remittance from world; Migration share = Asian migrants to Asia/Asian migrants to world.

Source: ADB calculations using *Data on Outbound Tourism*, World Tourism Organization; *Bilateral Remittance Estimates using Migrant Stocks, Host Country Incomes, and Origin Country Incomes*, World Bank; and *Trends in International Migrant Stock*, Department of Economic and Social Affairs, United Nations.

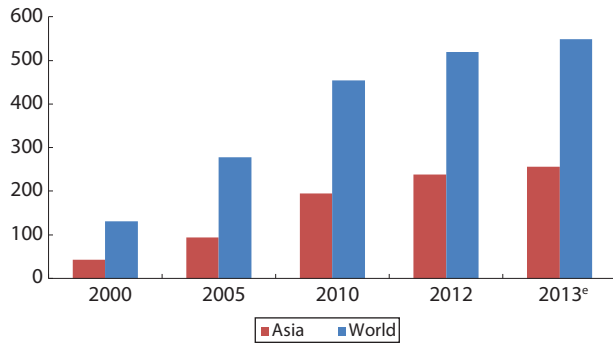
**Figure 21: Intraregional Migration Share—Asia (% of total)**



Source: ADB calculations using data from *Trends in International Migrant Stock: Migrants by Destination and Origin*, Department of Economic and Social Affairs, United Nations.

relatively flat, with South Asia’s share declining. This flat or downward migration trend may reflect tightening migration policies—after the global financial crisis—in most host economies; while the fall in share for South Asia may reflect India’s weaker growth. Generally, wide disparities in income and employment opportunities remain the primary driver for migration; with middle- and high-income economies (Malaysia, Thailand, and Singapore, for example) hosting workers from low- and lower-middle-income economies (such as Bangladesh, Cambodia, the Lao PDR, and Myanmar). Recently, the flow of overseas workers has weakened somewhat due to stricter immigration policies in several host economies and expanding income opportunities in labor surplus economies.

**Figure 22: Total Remittance Inflows—Asia and World (\$ billion)**



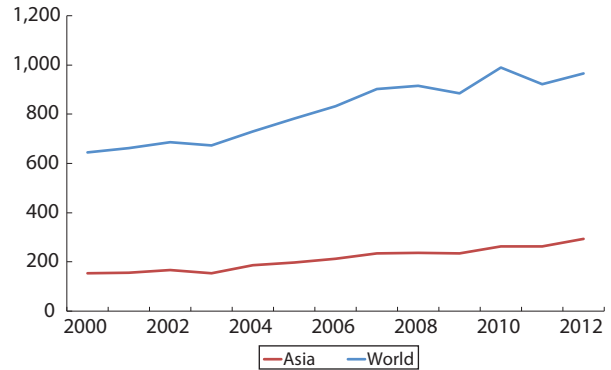
e = estimate.

Source: ADB calculations using data from *Annual Remittances Data*, World Bank.

Along with the rise in Asian migration, income remittances grew 7.4% to over \$256 billion in 2013 (**Figure 22**). Remittances to Asia account for 46.7% of global remittance inflows. Its growth rate nearly matches the 7.5% for all developing economies and exceeds the world's 5.8% expansion. South Asia accounted for over 44% of total remittance inflows to Asia, followed by East Asia (28%) and Southeast Asia (21%). In value, the top five remittance recipients were India, the PRC, the Philippines, Bangladesh, and Pakistan. As a proportion of total reserves, the top five recipients were Tajikistan, Pakistan, Armenia, Bangladesh, and Nepal. The share of intraregional remittance inflows rose from 27.9% in 2011 to 32.4% in 2012, closing the gap between intraregional migration share and intraregional remittance share. The increase in intraregional remittances could come partly from the fact that migrants in East Asia, Southeast Asia, and Oceania—whose shares have gone up—remit larger amounts of labor income back home.

As global economic conditions improve, growth in Asia's outbound tourism has grown 12.3% to 294 million in 2012 (**Figure 23**). This is the third straight year Asian tourism flows had strong growth, since falling 1.6% in Asia and 3.0% globally in 2009. Despite this growth, the share of intraregional tourist arrivals in Asia moderated to 78.7% in 2012 from 81.3% in 2011. Recent data suggest this drop is partly explained by slowing tourism flows between the PRC and Japan. In 2013, the number of PRC tourists visiting Japan fell 7.9% in contrast to double digit growth in 2012. Similarly, the growth of Japanese tourists visiting the PRC plummeted over 18% beyond the previous year's 3.8% drop. Interestingly, there is no marked deceleration in tourist flows between the PRC and the Republic of Korea.

**Figure 23: Outbound Tourism—Asia and World (million)**



Source: ADB calculations using *Data on Outbound Tourism*, World Tourism Organization.

### It appears that migration and remittance inflows spread risk and act as a co-insurance strategy for poor households and family groups.

One study sees labor migration partly as a household response to absolute poverty.<sup>27</sup> The general proposition is that labor moves from low-income to high-income economies—referred to as labor mobility from South to North—to earn higher income that can be sent back home. A slight variation of this theory is that migration or remittance inflows act as a mechanism for households to cope with relative deprivation.<sup>28</sup> In 2013, after the devastation brought by Typhoon Haiyan in the Philippines, a large proportion of male household members moved to nearby cities and provinces to earn income to send back to their families. This anecdotal evidence seems to suggest that a key motivation for migration—whether domestic or international—is to provide for family affected by income shocks or lifecycle risks.<sup>29</sup> In this sense, migration and remittances spread risk and act as social insurance to help secure additional income and accumulate small capital for investment.<sup>30</sup>

<sup>27</sup>K. Hampshire. 2002. Fulani on the Move: Seasonal Economic Migration in the Sahel as a Social Process. *The Journal of Development Studies*. 38(5). pp.15–36.

<sup>28</sup>O. Stark, E. J. Taylor, and S. Yitzhaki. 1988. Migration, Remittances and Inequality: A Sensitivity Analysis Using the Extended Gini Index. *Journal of Development Economics*. 28(3). pp. 309–322.; M. Quinn. 2006. Relative Deprivation, Wage Differentials and Mexican Migration. *Review of Development Economics*.10(1). pp. 135–153.

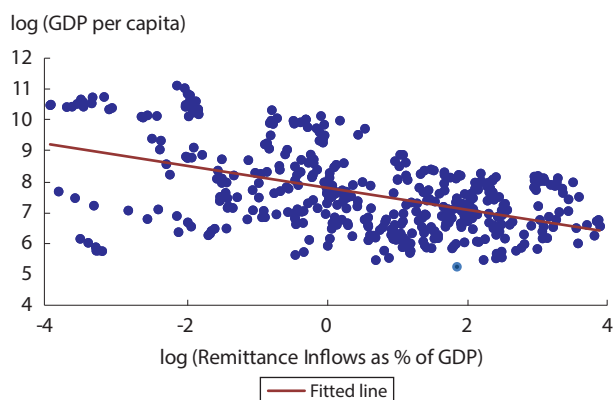
<sup>29</sup>H. de Haas. 2007. Remittances, Migration and Social Development: A Conceptual Review of the Literature Social Policy and Development. *Programme Paper Number 34*. Geneva: United Nations Research Institute for Social Development.

<sup>30</sup>Also, pull factors such as better career prospects, higher wages and lifestyle choices are likely to be strong reasons for migration.

**Cross-section analysis of remittance data shows that remittance inflows are negatively correlated with income levels and are a more stable source of financial flows compared with FDI, bank lending, or portfolio inflows.**

It appears there is a strong negative relationship between per capita GDP and the importance of remittance inflows (Figure 24). This suggests that remittance inflows are negatively correlated with income. Hence, *ceteris paribus*, one would expect poorer economies to rely more on remittance inflows to support and raise their income levels. The share of remittance inflows for economies such as Tajikistan, Pakistan, Bangladesh, the Kyrgyz Republic, Sri Lanka, the Philippines, and India, are quite high. Moreover, not only do remittance inflows provide additional income, it is also a more stable source of financial resources. The coefficient of variation for various types of capital flows—including remittance inflows—for the period 2008–2012 show that the volatility of remittance inflows is smaller compared with other types of capital flows. In particular, the volatility of equity inflows is about 60% higher than that of remittance inflows (Figure 25).

**Figure 24: GDP Per Capita vs Remittance Inflow—Asia**

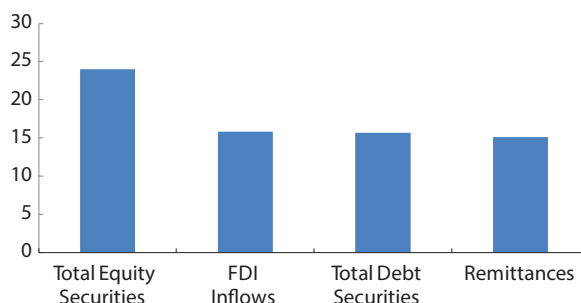


GDP = gross domestic product.  
Source: ADB calculations using data from *World Development Indicators* and *Annual Remittances Data*, World Bank.

The coefficient of variation for selected Southeast Asian economies for the 2000–2012 period shows a contrast in the volatility of remittance inflows between economies with a higher share of “primary-educated” than “highly-educated” emigrant populations. Economies with relatively more highly-educated emigrants—such as the Philippines—have more stable remittance inflows than economies with more primary-educated emigrants such as the Lao PDR and Myanmar. This shows that while remittance inflows are relatively less volatile than other types of capital flows, they are also subject to some volatility due to differences in skill level.

Generally speaking, the stability of remittance inflows stems from several structural factors—such as the stock of migrant population, skills of the migrant population, and economic conditions of destination economies. Given the right set of structural factors, remittance inflows tend to stabilize regardless of cyclical shock, such as the volatility of economic conditions in destination economies, changes in migrant intake policies, exchange rate variation, or geo-political tensions.

**Figure 25: Coefficient of Variation of Different Types of Capital Flows—Asia**



Note: Covers 2008 to 2012 period.  
Source: ADB calculations using data from *Annual Remittances Data*, World Bank; *Coordinated Portfolio Investment Survey*, International Monetary Fund; ASEAN Secretariat; Organisation for Economic Co-operation and Development; CEIC; and UNCTAD.

# THEME CHAPTER: INSURING AGAINST ASIA'S NATURAL CATASTROPHES

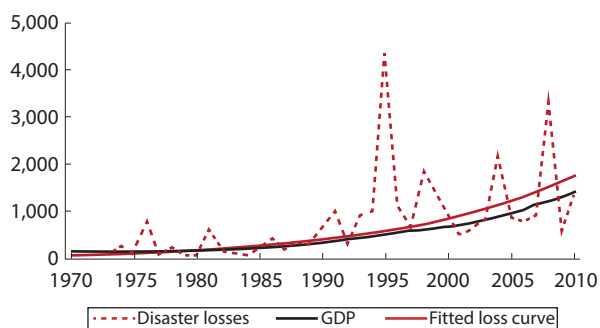
**Over the past 20 years, Asia has borne almost half the estimated global economic cost of natural disasters—around \$53 billion annually.**

Asia is more vulnerable to natural disasters than any other part of the world. According to the *Annual Global Climate and Catastrophe Report 2013*, total economic losses from natural catastrophes worldwide totaled \$192 billion in 2013—with insured losses a mere \$45 billion. While 67% of economic losses in the United States (US) were insured, just 7.6% were insured in Asia. Over the past 20 years, Asia has borne almost half of the estimated global economic cost of natural disasters—roughly \$53 billion annually. And over the past 4 decades, direct physical losses from disasters in the region significantly outpaced growth in gross domestic product (GDP) (**Figure 26**).

**Despite large-scale destruction, the insurance industry has dodged the bullet of a region-wide catastrophe due to low insurance penetration in Asia.**

For most of Asia, insurance is expensive. And aside from the scant awareness of the full economic impact of disasters, there is widespread mistrust of the industry itself. From the supply side, there are few appropriate insurance solutions to address people's real needs and

**Figure 26: Real GDP and Natural Disaster Losses—Asia (1970=100)**



GDP = gross domestic product.

Note: Annual GDP and direct physical losses were both set at a base value of 100 in 1970 and growth indexes in subsequent years calculated relative to 1970 to facilitate a comparison of growth rates.

Source: ADB. 2013. *Investing in Resilience: Ensuring a Disaster-Resistant Future*. Manila.

concerns. Distribution systems are less sophisticated, and in many cases, simply suffer from poor regulation. Given the concentration of catastrophic risk throughout the region—and the expected increase in both frequency and intensity of climate-related disasters—developing workable insurance and disaster risk financing solutions must become a key policy priority.

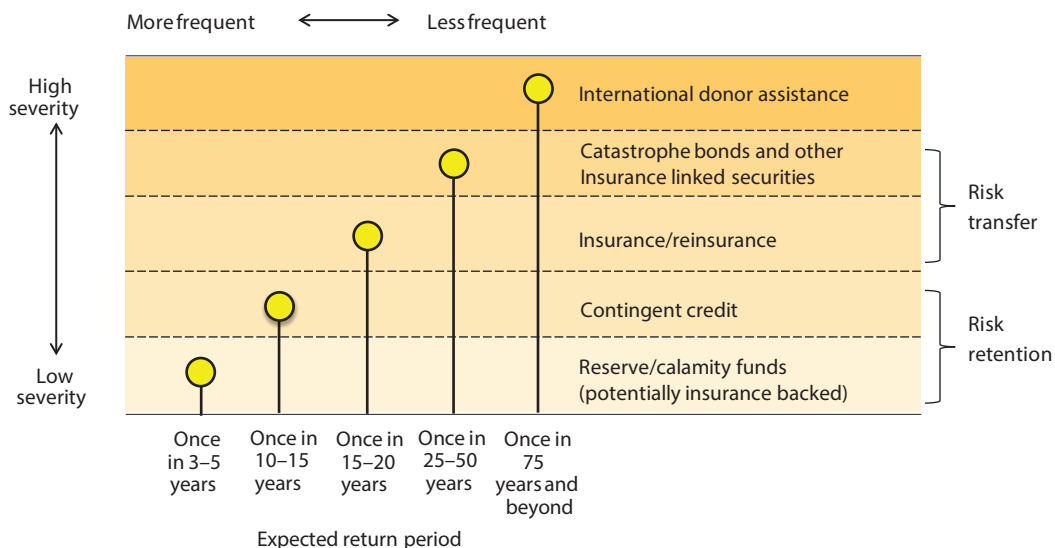
For example, agricultural insurance contributes to food security by stabilizing farmers' access to food by compensating for losses when a major hazard destroys crops or livestock. Similarly, governments can use agricultural insurance to ensure contingent funding is available for emergency food supplies when disaster strikes.

The economic impact of natural catastrophes can be devastating. Damage to infrastructure, crops, and housing are accompanied by loss of revenue, rising unemployment, disruptions in trade and commerce, and market destabilization. But the social impact of disasters on the quality of life in already vulnerable communities is far more profound—aside from lives lost during the immediate onslaught, entire households become refugees and poverty can engulf entire communities. This is particularly true in smaller developing economies with less diversified economic structures and high fiscal imbalances. In Myanmar, for example, more than 5 years after cyclone Nargis killed 146,000 people and severely affected 2.4 million others, inhabitants of the Ayeyarwady Delta have yet to fully recover (Impact Forecasting, 2009; United Nations, 2011).

**An array of disaster risk financing instruments can be offered based on the severity and frequency of previous natural calamities.**

Disaster risk financing (DRF) reduces country exposure to disaster-related losses by transferring or sharing risk through specifically designed financial instruments. There are two types of DRF: *ex ante* finance and *ex post* finance. *Ex ante* finance includes setting aside reserves; establishing contingent credit; and developing various kinds of risk transfer products involving insurance, reinsurance and parametric insurance, along with capital market solutions such as catastrophe bonds. *Ex post*

**Figure 27: Range of Financial Instruments to Deal with Different Degrees of Risk**



Source: J.D. Cummins and O. Mahul. 2009. *Catastrophe Risk Financing in Developing Countries: Principles for Public Intervention—Overview*. Washington, D.C.: World Bank. Quoted in ADB. 2013. *Investing in Resilience: Ensuring a Disaster-Resistant Future*. Manila. p. 128.

finance—or post-disaster response funding—includes budget reallocation, domestic and external credit, tax increases, and donor assistance. The main advantage of the *ex ante* approach is that it is secured before disaster strikes, thus making available immediate liquidity for emergency response, recovery or reconstruction through quick disbursements. On the other hand, *ex post* instruments can take time to mobilize or cannot be quickly accessed. The choice of risk financing and transfer instruments should be based on cost-benefit analysis.

The most effective application of *ex ante* financial solutions employs a “bottom-up” approach in segmenting disaster risk. A rigorous analysis of the underlying hazard measures the severity and frequency and then matches risk characteristics with the most cost-effective financial instrument, based on economic and social considerations. Thus, a menu of *ex ante* financial instruments can be crafted (Figure 27). Reserves are the least expensive and generally cover recurrent low-risk losses (the low risk layer). Other financing sources, such as contingent credit—and possibly insurance—should be used only once reserves and budget contingencies are exhausted or cannot be quickly accessed (the medium risk layer). Finally, less frequent but more severe disasters can be financed through risk transfer instruments, such as catastrophe risk reinsurance or catastrophe (cat) bonds (the high risk layer).

This process is based on two important principles. The first is that DRF tools are more effective when the

underlying risk assessment is more robust. The second is that by determining the break points for frequency and severity of loss, it is possible to deploy finance mechanisms more selectively and strategically. Thus, linking specific DRF instruments with the way disaster risk management is handled not only provides the added resilience financial protection offers, but simultaneously boosts resilience as a result of risk reduction. When linked to risk management in this way, DRF instruments can also provide price signals that can help guide other resilience-related decisions when the marginal cost of further disaster preparedness or reduction exceeds risk transfer costs.

**In the wake of a disaster, the gap between total economic losses and insured losses can be so wide that it may outstrip the government’s ability to act as insurer of last resort.**

Asia lags behind the rest of the world in developing insurance and capital market solutions that enable workable risk transfer markets that serve local governments, businesses, and homeowners. This reduces the region’s resilience. Most worrying is that the gap between economic and insured losses can be so severe that it may outstrip the government’s ability to act as insurer of last resort (The Society of Lloyd’s, 2012). For example, in Japan, only \$35 billion of the estimated \$210 billion of total damage wrought by the March 2011 earthquake and tsunami was insured



(Impact Forecasting, 2012). The low- to middle-income economies most at risk combine a high likelihood of natural catastrophes with low levels of insurance penetration—as well as other sources of DRF. Inevitably, it is the taxpayer who picks up most of the tab for disaster losses. When insurance is unavailable, the cost of reconstruction falls on the shoulders of governments, non-governmental organizations, charities and—all too frequently—the affected households and companies.

In most emerging markets, when netted out, the portfolio mix of non-life insurance is highly skewed toward automobile or health lines—compared with commercial lines such as energy, fire, and engineering. Generally, insurance against loss by fire, lightning, windstorms, tornados, earthquakes and allied risks like typhoons and floods are covered under fire insurance. In most cases they have high deductibles—and thus are not very popular. A 2012 study of the Society of Lloyd's (Lloyd's) covering 42 economies worldwide—accounting for over 90% of non-life premiums written in 2011—found 17 of them underinsured by an estimated \$168 billion. Eight of these economies are in Asia, underinsured by \$122.5 billion (**Table 13**). This suggests the region is highly vulnerable to excessive uninsured losses. As a proportion of GDP, Bangladesh is by far the most underinsured, while Hong Kong, China is the only high-income economy (as measured by GDP per capita) identified as underinsured. The People's Republic of China (PRC) accounts for 47% of the underinsurance

gap—and thus the most underinsured economy in monetary terms. It appears that the economies at greatest risk from natural catastrophes are the least insured.

A 2012 Marsh report says Asia's telecommunications, energy, and petrochemical firms underinsure their industrial assets by 30% to 60%. It suggests two reasons for this: (i) inaccurate valuations of loss potential, and (ii) the cost of premiums against perceived risk exposure. There is also an inclination in Asia toward self-insurance—viewing savings as a form of contingent capital and assuming balance sheets are sufficiently robust to cover their own risks. This makes marketing insurance far more difficult.

Whatever the reason, rising insurance penetration is a key indicator of improved risk transfer—the higher the insurance gap, the higher the cost to the taxpayer. The 2012 Lloyd's study analyzing seven recent natural catastrophes in five economies—the PRC, Japan, Thailand, the United Kingdom, and the US—found that an increase in insurance penetration of 1 percentage point reduces the damage borne by taxpayers by approximately 22%. It also found that economic activity returned to pre-catastrophe levels long before reconstruction was completed. Using non-life insurance in economies underinsured for natural disasters will significantly reduce both damages themselves and recovery costs—costs which governments bear and taxpayers pay.

**Table 13: Benchmarked Insurance Coverage and Underinsurance Gap (2011)**

<b>Economy</b>	<b>Non Life Insurance Penetration</b> (premium as % of GDP)	<b>Benchmarked insurance coverage</b> (% of nominal GDP)	<b>Underinsurance</b> (\$ billion)
Bangladesh	0.2	-2.6	3.0
China, People's Rep. of	1.2	-1.1	79.6
Hong Kong, China	1.4	0.0	0.1
India	0.7	-1.2	19.7
Indonesia	0.6	-1.7	14.1
Korea, Rep. of	4.6	2.6	–
Philippines	0.4	-1.4	2.9
Singapore	1.5	0.1	–
Taipei, China	3.1	1.0	–
Thailand	1.7	-0.4	1.4
Viet Nam	0.9	-1.4	1.7
<b>Total</b>			<b>122.5</b>

Source: The Society of Lloyd's (Lloyd's). 2012. *Lloyd's Global Underinsurance Report 2012*. Prepared by Centre for Economics and Business Research Ltd (Cebr). London.

## Market Solutions and the Role of Government

### From a commercial standpoint, there is substantial market interest for developing risk transfer mechanisms for the region.

Asia's relatively immature non-life insurance market presents both challenges and opportunities. The lack of quality historical loss data—or data on risk exposure and asset vulnerability—particularly in urban areas—is a good starting point. An added deterrent is the high cost of risk modeling—which tends to be proprietary.

### Governments need to promote innovative disaster risk financing to help strengthen financial resilience when calamities strike.

Governments must be proactive in strengthening legislative and regulatory frameworks for the financial sector—especially insurance—to develop and implement comprehensive disaster risk financing

instruments. For example, governments could strengthen financial resilience by enacting special regulatory regimes for parametric products, micro-insurance schemes or catastrophe-linked securities; introducing tax incentives for private insurance coverage; and enabling the use of insurance as a risk management tool for public entities.

A long menu of insurance and disaster risk financing instruments exist for protecting individuals, farmers, and governments against disaster shocks and supply chain disruptions (**Table 14, Box 5**).

Catastrophe risk transfer programs in conjunction with comprehensive disaster risk management strategies can transfer natural catastrophe risks to traditional insurance and reinsurance as well as global capital markets. Public private partnerships (PPPs) backed by international expertise and capital need to be explored with governments. PPPs can handle major disasters and can operate in countries with weak financial and regulatory institutions. At the same time they provide cover to those who cannot afford risk-based premiums. They can be publicly funded insurance schemes for target groups (such as small and medium enterprise suppliers) offering

**Table 14: A Menu of Insurance Solutions**

Instruments	Problems	Examples
Catastrophe Insurance Pools (national or regional)	<ul style="list-style-type: none"> <li>• Low catastrophe insurance penetration</li> <li>• Costs of insurance premium</li> <li>• Low quality of insurance coverage due to limited funding</li> <li>• Inadequate risk pricing (too high or low)</li> <li>• Lack of insurance access for households as well as small and medium enterprises</li> </ul>	<ul style="list-style-type: none"> <li>• Turkish Catastrophe Insurance Pool</li> <li>• Caribbean Catastrophe Insurance Facility</li> </ul>
Traditional private insurance contracts	<ul style="list-style-type: none"> <li>• Inadequate risk assessment/ management</li> <li>• Non availability of risk based pricing</li> <li>• Lack of access to insurance and its usage by utilizing innovative channels</li> <li>• Moral hazard</li> <li>• Adverse selection</li> <li>• Long loss settlement time</li> </ul>	<ul style="list-style-type: none"> <li>• Insurance covering the structure and contents of as well as operations within residential, commercial, industrial or agricultural properties</li> <li>• Liability insurance</li> <li>• Marine insurance (hull and cargo)</li> </ul>
Innovative private insurance contracts	<ul style="list-style-type: none"> <li>• Similar to the problems faced by traditional private insurance contracts</li> </ul>	<ul style="list-style-type: none"> <li>• Weather-based crop index insurance</li> <li>• Indemnity-based micro-insurance</li> </ul>
Reinsurance	<ul style="list-style-type: none"> <li>• Spatially and inter-temporal diversification of risk across portfolios</li> </ul>	
Insurance derivatives	<ul style="list-style-type: none"> <li>• Long loss settlement time</li> <li>• Moral hazard</li> <li>• Lack of reliable data</li> </ul>	<ul style="list-style-type: none"> <li>• Catastrophe bonds (Mexican CAT Bond)</li> <li>• Risk swaps</li> <li>• Options</li> </ul>

Source: ADB.

## Box 5: Building Resilience against Supply Chain Disruption

Complex logistics and “Just in Time” supply chains make Asian companies increasingly interdependent and globally integrated. And as production bases, supplier networks and distribution channels consolidate, so does the potential accumulation of risk. A single catastrophic event has the potential to trigger multiple supply chain-related losses and liabilities when production assets and public infrastructure are damaged.

The 2011 earthquake and tsunami in Japan, the floods in Thailand late that year, and the recent typhoon in the Philippines show just how vulnerable global supply chains are when linking component manufacturing in several economies with product assembly in others. Overnight, firms were left without crucial components or raw materials. This not only disrupted sourcing and manufacturing, but also reduced profits and the reputation of firms geographically remote from the actual catastrophes.

For example, in 2010, Indonesia, Malaysia, the Philippines, and Thailand together were among the most dependent economies on parts, components, and industrial materials sourced from or sold to Japan (imports 22% and exports 18%).<sup>1</sup> Disruptions that followed the Great Tohoku Earthquake and Tsunami in 2011 caused automotive components production in Japan to contract 47.7% in March 2011. Production also fell in the Philippines (-24%), Thailand (-19.1%), and Indonesia (-6.1%) from April to June 2011. Electrical component production in Japan contracted 8.3% in March 2011; in the Philippines (-17.5%) and Malaysia (-8.4%) from April to May 2011. Similarly, disruptions caused by the Thai floods later that year not only disrupted 2011 Thai exports in electronics (-47.4%) and electrical appliances (-21.9%), they also hurt Japan, where the manufacturing production index fell 2.4% (from October 2011 to January 2012), led by a 3.7% contraction in electrical component production.<sup>2</sup>

These natural catastrophes delivered a wake-up call to businesses that suddenly found their supply chains compromised through events very much out of their control. In addition, heavy reliance on set logistics and transportation for cross-border production further increases the probability of supply disruptions when production assets and public infrastructure are damaged.

As the size and demands of industry continue to evolve both in Asia and globally, it is difficult to stay up to date on emerging or existing risks, and the potential losses posed by supply disruptions.

There are three main reasons for this:

- (i) *Accumulation of risk* occurs when a series of shipments are in the same place at the same time, whether in a warehouse, vessel, or port. Accumulation issues do not stop once cargo is unloaded. As trade volumes continue to expand, especially to and from the PRC, gathering and distribution points become more congested and/or capacity increases. Flooding, earthquakes, or typhoons will destroy, damage, or disrupt operations of numerous policyholders supplying a group of policyholders in the same industry. If that cluster of suppliers supports a large segment of an insurer’s policyholders, that accumulation of risk will mean a huge loss for the insurer;
- (ii) *Business interruption* occurs when economic losses and increased operation costs result from damage to the insured business operations caused by a specified peril at the insured’s own premises; or
- (iii) *Contingent business interruption* and contingent extra expense coverage occurs when there are lost profits and extra expenses resulting from business interruption at a supplier’s, customer’s, or other business partner’s premises.

Among the different generic consequences of disruption—some of which have immediate financial impact while others hold the potential for long-term damage—are loss of productivity, increased working costs, loss of revenue, damage to brand and reputation, product release delays, payment of service credits, a drop in share price, stakeholder/shareholder concerns, delayed cash flow, and loss of regular customers (**Box table**). These factors can deteriorate a firm’s financial health, in turn further inhibiting development and creating job loss. It may even affect their global competitiveness and loss of confidence among foreign investors. For small and medium-sized enterprises (SMEs) involved in the global supply chain, the risks of natural catastrophes is particularly high given their small market share, weak bargaining power, and poor disaster preparedness.

Based on a survey of over 400 corporate insurance experts from 33 economies, insurance is seen as one important tool for managing losses and common supply chain business interruption.<sup>3</sup> These typically account for 50% to 70% of insured property catastrophe losses. Firms can address this risk through either business interruption (BI) or contingent business interruption (CBI) insurance or supply chain insurance. BI and CBI cover these economic losses and increased costs of operation caused by any event or circumstance that result in disruption to normal business operations of the insured. All these forms of insurance cover external risks as well, including natural catastrophes—such as typhoons, earthquakes, flooding and landslides—and fire.

<sup>1</sup>Ministry of Economy, Trade and Industry (METI). 2011. *Japanese Industry—Lasting Change in Manufacturing Industry*. Tokyo.

<sup>2</sup>M. Liu and S. Hossain. 2013. Regional Cooperation: Natural Disasters and Production Networks in the Asia and Pacific Region. *Asia Pathways*. Asian Development Bank Institute. 5 February. <http://www.asiapathways-adbi.org/2013/02/natural-disasters-and-production-networks-in-the-asia-and-pacific-region/>

<sup>3</sup>Allianz SE and Allianz Global Corporate & Specialty SE. 2014. *Allianz Risk Barometer on Business Risks 2014*. Germany: Munich.

## Box 5 continued

### Supply Chain Risks and Availability of Insurance Coverage

Coverage Risks	Insurance	Supply chain	Contingent Business Interruption	Marine and Marine Business Interruption	Trade Credit	Political Risk	Product Liability
Supplier insolvency		X			X		
Failure of fuel supply or utilities		X					
Communication system failure		X					
Transport failures or port blockage		X		X			
Raw materials or component delays		X					
Delays caused by supplier's supplier		X					
Supplier staff illness or strike		X					
Cyber risks, viruses		X					
Denied access to supplier's premises		X					
Physical damage		X	X	X			
Political risk		X				X	
Expropriation		X				X	
Product quality/recall							X

Source: Zurich American Insurance Corporation. 2013. *Your Supply Chain at Risk: Why an Effective Contingent Business Interruption (CBI) Program is Critical*. US: Illinois.

They also cover some continual policyholder costs such as wages, building leases or mortgage costs, and other fixed costs.

Standard BI insurance policies do not cover disruptive events without accompanying physical loss—such as power and telecommunication outages or information and technology problems. Also, standard insurance cannot restore an eroded market position after a policyholder's customers turn

away to competitors that avoided production curtailment afterward; nor can it re-inflate sagging share values. While all property insurance policyholders can expect the basic elements of business interruption and CBI coverage, the breadth of policyholder coverage under either policy type will depend on various factors, including the nature of the insured's operations and where the policyholder is based. Therefore, firms also must build resilience into their supply chains to mitigate the risk to business continuity.

innovative microinsurance services and products. Microinsurance products cover against disaster impact on low-income households, businesses, and farmers. Field evidence suggests that if carefully implemented, index-based crop and livestock insurance can be a cost-effective alternative to indemnity-based insurance, and avoids moral hazard and adverse selection.

### Regional cooperation is needed to develop a risk pool for natural calamities.

Each economy has its own set of variables—specific local disaster risk exposures, the historical development of private insurance, reinsurance and financial markets, the insurance culture, legal and administrative frameworks, levels of economic development and financial capacity—that shape domestic and regional risk financing strategies.

Asia could emulate examples of small island nations who worked together in creating a regional catastrophe risk pool. The Caribbean Catastrophe Risk Insurance Facility (CCRIF), the Pacific Catastrophe Risk Insurance Pilot (PCRIP), and the African Risk Capacity (ARC) were formed with technical assistance from the international development community. Beyond domestic pools, these allow countries to obtain catastrophe reinsurance coverage at more competitive rates by spreading catastrophe risk across much wider geographic areas. However, it would be considerably more difficult to establish a catastrophe risk pool among ASEAN economies, for example, as over half have higher GDPs than the CCRIF and PCRIP combined. As a result, the modeling and funding requirements for the pool would be far larger. Moreover, risks are not homogeneous—for example, typhoon and earthquake risks tend to be more concentrated than widespread flooding, which historically has been far more difficult to model and insure.

## Data availability on hazards, exposure, vulnerabilities, and losses is key for strengthening financial resilience and disaster preparedness.

Another priority is to develop and promote a regional platform for collecting and disseminating data on assessing and modeling risks. These are useful tools for developing a common regional perspective of disaster risk. It will enhance understanding of different calamity risk financing strategies and tools—along with their potential benefits and limitations, including preconditions—that support the development of disaster risk financing instruments.

## Key priorities for developing disaster risk financing markets and strengthening financial resilience should include business continuity planning, enhancing technical and institutional capacities, and coordinating various governmental authorities across all levels.

In a difficult economic environment, financial exposure to natural disasters has a clear impact on recovery. Economies across Asia urgently need to address their financial disaster readiness if they are to cope with the fallout from events that are both more frequent and more costly. Insurance coverage is a powerful component of disaster risk management, ensuring that firms have sufficient liquidity to manage any disruption. But this is only one component of a wider risk management plan to support corporate recovery from a supply chain disruption. While insurance can cover some of the losses, insurance alone is a costly strategy and should not be seen as a panacea.

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# STATISTICAL APPENDIX: REGIONAL INTEGRATION TABLES

The statistical appendix is comprised of nine tables that present selected indicators on economic integration covering the 48 regional members of the Asian Development Bank (ADB). The succeeding notes describe regional groupings and calculation procedures undertaken.

## Regional Groupings

- Asia consists of the 48 regional members of ADB.
- Developing Asia refers to Asia excluding Australia, Japan, and New Zealand.
- European Union (EU) consists of Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain, Sweden, and the United Kingdom.

### Regional Groupings

Central Asia		
Armenia	Azerbaijan	Georgia
Kazakhstan	Kyrgyz Republic	Tajikistan
Turkmenistan	Uzbekistan	
East Asia		
PRC	Hong Kong, China	Japan
Korea, Rep. of	Mongolia	Taipei, China
South Asia		
Afghanistan	Bangladesh	Bhutan
India	Maldives	Nepal
Pakistan	Sri Lanka	
Southeast Asia		
Brunei Darussalam	Cambodia	Indonesia
Lao PDR	Malaysia	Myanmar
Philippines	Singapore	Thailand
Viet Nam		
The Pacific		
Cook Islands	Fiji	Kiribati
Marshall Islands	Micronesia, Fed. States of	Nauru
Palau	Papua New Guinea	Samoa
Solomon Islands	Timor-Leste	Tonga
Tuvalu	Vanuatu	
Oceania		
Australia	New Zealand	

Asia = Central Asia + East Asia + South Asia + Southeast Asia + The Pacific + Oceania, PRC = People's Republic of China.

## Table Descriptions

**Table A1: Trade Share—Asia**  
(% of total trade, Jan–Aug 2013)

It is calculated as  $(t_{ij}/T_{iw}) * 100$ , where  $t_{ij}$  is the total trade of economy “i” with partner “j” and  $T_{iw}$  is the total trade of economy “i” with the world. A higher share indicates a higher degree of regional trade integration.

**Table A2: Time to Export and Import—Asia**  
(% to EU)

Time to export/ import data measures the number of days required to export/import by ocean transport, including the processing of documents required to complete the transaction. It covers time used up for documentation requirements and procedures at customs and other regulatory agencies as well as the time of inland transport between the largest business city and the main port used by traders. Regional aggregates are weighted averages based on total exports or imports. A score above (below) 100 means that it takes more (less) time to export or import from that economy compared to EU.

**Table A3: Logistics Performance Index—Asia** (% to EU)

Logistics Performance Index (LPI) scores are based on the following dimensions: (i) efficiency of border control and customs process, (ii) transport and trade-related infrastructure, (iii) competitively priced shipments, (iv) ability to track and trace consignments, and (v) timeliness of shipments. Regional aggregates are computed using total trade as weight. A score above (below) 100 means that it is easier (more difficult) to export or import from that economy compared to EU.

**Table A4: Cross-Border Equity Holdings—Asia**  
(% of total cross-border equity holdings, 2012)

It is calculated as  $(E_{ij}/E_{iw}) * 100$  where  $E_{ij}$  is the holding of economy “i” of the equity securities issued by partner “j” and  $E_{iw}$  is the holding of economy “i” of the equity securities issued by all economies except those issued in the domestic market. Calculations were based solely on available data in the Coordinated Portfolio Investment Survey (CPIS) database of the International Monetary

Fund (IMF). Rest of the World (ROW) includes equity securities issued by international organizations defined in the CPIS database and “unallocated data”. A higher share indicates a higher degree of regional integration.

**Table A5: Cross-Border Bond Holdings—Asia**  
(% of total cross-border bond holdings, 2012)

It is calculated as  $(B_{ij}/B_{iw}) * 100$  where  $B_{ij}$  is the holding of economy “i” of the debt securities issued by partner “j” and  $B_{iw}$  is the holding of economy “i” of the debt securities issued by all economies except those issued in the domestic market. Calculations were based solely on available data in the Coordinated Portfolio Investment Survey (CPIS) database of the International Monetary Fund (IMF). Rest of the World (ROW) includes equity securities issued by international organizations defined in the CPIS database and “unallocated data”. A higher share indicates a higher degree of regional integration.

**Table A6: FDI Inflow Share—Asia**  
(% of total inflows, 2012)

It is calculated as  $(F_{ij}/F_{iw}) * 100$  where  $F_{ij}$  is the FDI received by economy “i” from partner “j” and  $F_{iw}$  is the FDI received by economy “i” from the world. Figures are based on net FDI inflow data. A higher share indicates a higher degree of regional integration.

**Table A7: Remittance Inflows Share—Asia**  
(% of total remittance inflows, 2012)

It is calculated as  $(R_{ij}/R_{iw}) * 100$  where  $R_{ij}$  is the remittance received by economy “i” from partner “j” and  $R_{iw}$  is the remittance received by economy “i” from the world. Remittances refer to the sum of the following: (i) workers’ remittances which are recorded as current transfers under the current account of the IMF’s Balance of Payments (BOP); (ii) compensation of employees which

includes wages, salaries, and other benefits of border, seasonal, and other non-resident workers and which are recorded under the “income” subcategory of the current account; and (c) migrants’ transfers which are reported under capital transfers in the BOP’s capital account. Transfers through informal channels are excluded. A higher share indicates a stronger reliance of the reporter economy on the partner economy and a higher degree of regional integration.

**Table A8: Outbound Migration Share—Asia**  
(% of total outbound migrants, 2013)

It is calculated as  $(M_{ij}/M_{iw}) * 100$  where  $M_{ij}$  is the number of migrants of economy “i” residing in partner “j” and  $M_{iw}$  is the number of all migrants of economy “i” residing overseas. This definition excludes those traveling abroad on a temporary basis. A higher share indicates a higher degree of regional integration.

**Table A9: Outbound Tourism Share—Asia**  
(% of total outbound tourists, 2012)

It is calculated as  $(TR_{ij}/TR_{iw}) * 100$  where  $TR_{ij}$  is the number of nationals of economy “i” travelling as tourists in partner “j” and  $TR_{iw}$  is the total number of nationals of economy “i” travelling as tourists overseas. A higher share indicates a higher degree of regional integration.

**Table A1: Trade Share—Asia** (% of total trade, 2012)

Reporter	Partner					
	Asia	of which				
		PRC	Japan	EU	US	ROW
<b>Central Asia</b>	<b>35.8</b>	<b>21.1</b>	<b>1.5</b>	<b>35.8</b>	<b>2.9</b>	<b>25.4</b>
Armenia	17.1	7.6	1.7	29.6	4.1	49.2
Azerbaijan	25.7	2.4	0.7	41.4	6.9	26.1
Georgia	30.8	5.8	3.1	27.2	4.3	37.7
Kazakhstan	30.2	21.4	1.8	48.0	2.3	19.6
Kyrgyz Republic	68.5	50.0	0.7	5.4	1.5	24.7
Tajikistan	58.5	35.2	0.3	5.3	1.5	34.7
Turkmenistan	53.6	45.3	0.7	12.6	0.9	32.8
Uzbekistan	52.0	17.2	1.2	10.6	2.0	35.4
<b>East Asia</b>	<b>52.9</b>	<b>14.1</b>	<b>6.8</b>	<b>11.6</b>	<b>11.4</b>	<b>24.1</b>
PRC	44.5	–	8.5	14.1	12.4	28.9
Hong Kong, China	77.0	50.3	6.2	8.7	7.4	6.9
Japan	54.0	19.7	–	9.8	13.1	23.2
Korea, Rep. of	53.7	20.2	9.7	9.4	9.6	27.3
Mongolia	65.7	54.9	3.4	5.5	6.5	22.3
Taipei, China	64.4	21.3	11.7	8.5	9.9	17.2
<b>South Asia</b>	<b>33.5</b>	<b>9.4</b>	<b>2.5</b>	<b>13.7</b>	<b>7.7</b>	<b>45.0</b>
Afghanistan	51.4	5.2	1.1	12.2	16.9	19.5
Bangladesh	44.6	11.4	3.0	21.4	7.6	26.4
Bhutan	–	–	–	–	–	–
India	30.8	8.5	2.4	13.2	7.8	48.2
Maldives	58.1	5.2	1.0	13.6	3.2	25.1
Nepal	90.0	30.0	0.9	3.2	1.7	5.1
Pakistan	41.0	16.9	2.9	13.0	6.7	39.3
Sri Lanka	45.5	4.8	2.8	17.4	8.4	28.7
<b>Southeast Asia</b>	<b>67.9</b>	<b>13.1</b>	<b>10.7</b>	<b>9.9</b>	<b>8.1</b>	<b>14.1</b>
Brunei Darussalam	89.4	9.3	30.8	8.5	1.4	0.8
Cambodia	72.5	13.7	2.7	10.7	12.1	4.7
Indonesia	72.6	13.4	13.9	8.4	6.9	12.0

Reporter	Partner					
	Asia	of which				
		PRC	Japan	EU	US	ROW
Lao PDR	87.9	18.0	2.7	5.9	0.6	5.5
Malaysia	71.1	13.8	11.1	9.8	8.4	10.8
Myanmar	93.8	29.4	7.9	1.9	0.3	4.0
Philippines	71.5	11.3	14.4	9.3	12.8	6.5
Singapore	64.7	10.5	5.4	10.8	7.8	16.7
Thailand	63.3	13.4	15.3	8.7	7.4	20.6
Viet Nam	67.6	18.5	11.1	13.1	11.0	8.3
<b>The Pacific</b>	<b>73.7</b>	<b>8.2</b>	<b>7.8</b>	<b>7.2</b>	<b>3.6</b>	<b>15.6</b>
Cook Islands	–	–	–	–	–	–
Fiji	75.5	7.2	3.8	2.7	7.4	14.5
Kiribati	–	–	–	–	–	–
Marshall Islands	–	–	–	–	–	–
Micronesia, Fed. States of	–	–	–	–	–	–
Nauru	–	–	–	–	–	–
Palau	–	–	–	–	–	–
Papua New Guinea	66.5	6.2	8.1	8.5	2.6	22.4
Samoa	78.1	12.1	2.6	1.2	4.6	16.2
Solomon Islands	85.6	30.8	2.4	6.1	0.8	7.5
Timor-Leste	–	–	–	–	–	–
Tonga	86.2	9.6	2.8	1.3	10.9	1.6
Tuvalu	–	–	–	–	–	–
Vanuatu	72.8	13.7	12.6	1.7	10.3	15.2
<b>Oceania</b>	<b>68.2</b>	<b>22.7</b>	<b>12.6</b>	<b>12.5</b>	<b>8.1</b>	<b>11.3</b>
Australia	68.9	23.7	13.4	12.4	7.9	10.8
New Zealand	63.0	15.7	6.7	12.6	9.3	15.1
<b>Asia</b>	<b>54.9</b>	<b>14.1</b>	<b>7.5</b>	<b>11.9</b>	<b>10.1</b>	<b>23.1</b>
<b>Developing Asia</b>	<b>54.2</b>	<b>12.6</b>	<b>8.4</b>	<b>12.2</b>	<b>9.8</b>	<b>23.8</b>

– = unavailable, PRC = People's Republic of China, EU = European Union (27 members), Lao PDR = Lao People's Democratic Republic, US = United States, ROW = rest of the world.

Source: ADB calculations using data from *Direction of Trade Statistics*, International Monetary Fund.



**Table A2: Time to Export or Import—Asia (% to EU)**

	Time to Export			Time to Import		
	2011	2012	2013	2011	2012	2013
<b>Central Asia</b>	<b>591.2</b>	<b>637.5</b>	<b>640.1</b>	<b>561.8</b>	<b>636.8</b>	<b>628.9</b>
Armenia	149.1	149.5	150.7	183.9	190.3	190.4
Azerbaijan	270.3	271.1	263.7	265.6	274.9	264.4
Georgia	93.2	84.1	84.8	112.4	105.7	105.8
Kazakhstan	708.3	757.1	762.8	633.3	729.6	729.8
Kyrgyz Republic	587.2	588.8	593.3	735.4	793.1	793.3
Tajikistan	661.7	663.6	668.7	663.9	761.3	761.5
Turkmenistan	–	–	–	–	–	–
Uzbekistan	717.6	747.7	744.0	939.7	1046.8	1004.8
<b>East Asia</b>	<b>138.8</b>	<b>140.0</b>	<b>141.1</b>	<b>160.0</b>	<b>165.3</b>	<b>165.3</b>
PRC	195.7	196.3	197.8	245.1	253.8	253.8
Hong Kong, China	55.9	56.1	56.5	51.1	52.9	52.9
Japan	102.5	102.8	103.6	112.4	116.3	116.3
Korea, Rep. of	74.6	74.8	75.3	71.5	74.0	74.0
Mongolia	428.7	458.0	461.5	480.1	528.7	528.8
Taipei, China	111.8	93.5	94.2	122.6	105.7	105.8
<b>South Asia</b>	<b>160.4</b>	<b>160.6</b>	<b>162.0</b>	<b>222.8</b>	<b>229.1</b>	<b>230.6</b>
Afghanistan	689.7	691.7	762.8	786.5	814.2	899.0
Bangladesh	233.0	233.7	235.4	347.3	359.5	370.2
Bhutan	354.2	355.2	357.9	388.1	401.8	401.9
India	149.1	149.5	150.7	204.3	211.5	211.5
Maldives	195.7	196.3	197.8	224.7	232.6	232.7
Nepal	382.1	383.2	395.5	357.5	401.8	412.5
Pakistan	195.7	196.3	197.8	183.9	190.3	190.4
Sri Lanka	195.7	186.9	188.4	194.1	200.9	179.8
<b>Southeast Asia</b>	<b>114.9</b>	<b>113.5</b>	<b>114.4</b>	<b>129.4</b>	<b>128.9</b>	<b>128.7</b>
Brunei Darussalam	177.1	177.6	178.9	153.2	158.6	158.7
Cambodia	205.0	205.6	207.2	265.6	274.9	253.8
Indonesia	158.4	158.9	160.1	275.8	243.2	243.3
Lao PDR	298.2	233.7	216.6	337.1	274.9	275.0
Malaysia	121.2	102.8	103.6	102.1	84.6	84.6
Myanmar	–	233.7	235.4	–	285.5	285.6
Philippines	139.8	140.2	141.3	143.0	148.0	148.1
Singapore	55.9	56.1	56.5	40.9	42.3	42.3
Thailand	130.5	130.9	131.8	132.8	137.5	137.5
Viet Nam	205.0	196.3	197.8	214.5	222.1	222.1
<b>The Pacific</b>	<b>209.4</b>	<b>209.6</b>	<b>211.2</b>	<b>274.3</b>	<b>306.5</b>	<b>306.6</b>
Cook Islands	–	–	–	–	–	–
Fiji	167.8	168.2	169.5	224.7	232.6	232.7
Kiribati	186.4	186.9	188.4	214.5	222.1	222.1
Marshall Islands	214.4	215.0	216.6	255.4	264.4	264.4
Micronesia, Fed. States of	279.6	280.4	282.5	316.6	327.8	327.9
Nauru	–	–	–	–	–	–
Palau	242.3	243.0	244.9	316.6	327.8	327.9
Papua New Guinea	214.4	215.0	216.6	296.2	338.4	338.5
Samoa	205.0	205.6	207.2	286.0	296.1	296.2
Solomon Islands	205.0	205.6	207.2	204.3	211.5	211.5
Timor-Leste	261.0	261.7	263.7	265.6	274.9	275.0
Tonga	205.0	205.6	207.2	255.4	264.4	264.4
Tuvalu	–	–	–	–	–	–
Vanuatu	195.7	196.3	197.8	245.1	253.8	253.8
<b>Oceania</b>	<b>85.0</b>	<b>85.3</b>	<b>85.9</b>	<b>83.0</b>	<b>85.9</b>	<b>85.9</b>
Australia	83.9	84.1	84.8	81.7	84.6	84.6
New Zealand	93.2	93.5	94.2	91.9	95.2	95.2
<b>Asia</b>	<b>141.5</b>	<b>143.1</b>	<b>144.2</b>	<b>161.2</b>	<b>166.3</b>	<b>166.4</b>
<b>Developing Asia</b>	<b>144.8</b>	<b>145.9</b>	<b>147.0</b>	<b>165.5</b>	<b>170.6</b>	<b>170.7</b>

– = unavailable, PRC = People's Republic of China, EU = European Union (27 members), Lao PDR = Lao People's Democratic Republic.  
Source: ADB calculations using data from *Doing Business Database*, World Bank.

**Table A3: Logistics Performance Index (LPI) Scores—Asia (% to EU)**

	2010	2012	2014		2010	2012	2014
<b>Central Asia</b>	<b>71.2</b>	<b>68.4</b>	<b>66.3</b>	Lao PDR	64.2	65.7	61.8
Armenia	65.7	67.3	69.0	Malaysia	89.7	91.7	92.8
Azerbaijan	68.9	65.2	63.3	Myanmar	60.8	62.3	58.2
Georgia	68.1	72.8	64.9	Philippines	81.9	79.4	77.5
Kazakhstan	73.8	70.7	69.8	Singapore	106.7	108.5	103.4
Kyrgyz Republic	68.4	61.8	57.1	Thailand	85.8	83.6	88.7
Tajikistan	61.3	59.9	65.4	Viet Nam	77.2	78.8	81.4
Turkmenistan	65.0	–	59.5	<b>The Pacific</b>	<b>61.7</b>	<b>62.4</b>	<b>63.2</b>
Uzbekistan	72.8	64.6	61.8	Cook Islands	–	–	–
<b>East Asia</b>	<b>96.0</b>	<b>97.5</b>	<b>95.0</b>	Fiji	58.4	63.6	65.9
PRC	91.0	92.5	91.2	Kiribati	–	–	–
Hong Kong, China	101.2	108.3	99.0	Marshall Islands	–	–	–
Japan	103.6	103.3	101.1	Micronesia, Fed. States of	–	–	–
Korea, Rep of.	95.0	97.2	94.9	Nauru	–	–	–
Mongolia	58.7	59.1	61.0	Palau	–	–	–
Taipei, China	96.8	97.5	96.2	Papua New Guinea	62.9	62.5	62.8
<b>South Asia</b>	<b>78.2</b>	<b>79.6</b>	<b>77.5</b>	Samoa	–	–	–
Afghanistan	58.4	60.4	53.5	Solomon Islands	60.3	63.3	66.9
Bangladesh	71.5	–	66.2	Timor-Leste	–	–	–
Bhutan	62.1	66.2	59.2	Tonga	–	–	–
India	81.4	80.9	79.6	Tuvalu	–	–	–
Maldives	62.6	67.0	71.1	Vanuatu	–	–	–
Nepal	57.4	53.6	66.9	<b>Oceania</b>	<b>99.5</b>	<b>97.0</b>	<b>97.9</b>
Pakistan	66.0	74.4	73.2	Australia	100.2	98.0	98.5
Sri Lanka	59.7	72.3	69.8	New Zealand	95.2	89.9	94.1
<b>Southeast Asia</b>	<b>89.7</b>	<b>90.2</b>	<b>90.3</b>	<b>Asia</b>	<b>93.2</b>	<b>94.2</b>	<b>92.3</b>
Brunei Darussalam	–	–	–	<b>Developing Asia</b>	<b>92.3</b>	<b>93.4</b>	<b>91.6</b>
Cambodia	61.8	67.3	70.8				
Indonesia	72.0	77.3	79.6				

– = unavailable, PRC = People's Republic of China, EU = European Union (27 members), Lao PDR = Lao People's Democratic Republic.

Source: ADB calculations using data from *Logistics Performance Index*, World Bank.

**Table A4: Cross-Border Equity Holdings** (% of total cross-border equity holdings, 2012)

Reporter	Partner						
	Asia	of which			EU	US	ROW
		PRC	Japan				
<b>Central Asia</b>	<b>12.8</b>	<b>0.0</b>	<b>8.4</b>	<b>28.1</b>	<b>48.6</b>	<b>10.5</b>	
Armenia	-	-	-	-	-	-	
Azerbaijan	-	-	-	-	-	-	
Georgia	-	-	-	-	-	-	
Kazakhstan	12.8	0.0	8.4	28.1	48.6	10.5	
Kyrgyz Republic	-	-	-	-	-	-	
Tajikistan	-	-	-	-	-	-	
Turkmenistan	-	-	-	-	-	-	
Uzbekistan	-	-	-	-	-	-	
<b>East Asia</b>	<b>21.9</b>	<b>14.4</b>	<b>0.8</b>	<b>19.1</b>	<b>24.7</b>	<b>34.2</b>	
PRC	-	-	-	-	-	-	
Hong Kong, China	33.8	30.2	0.9	16.0	2.5	47.6	
Japan	10.6	1.4	-	21.6	43.2	24.6	
Korea, Rep. of	26.1	6.5	5.2	21.6	34.5	17.8	
Mongolia	94.6	0.3	0.1	1.4	2.2	1.8	
Taipei,China	-	-	-	-	-	-	
<b>South Asia</b>	<b>17.1</b>	<b>0.2</b>	<b>1.1</b>	<b>35.2</b>	<b>9.3</b>	<b>38.4</b>	
Afghanistan	-	-	-	-	-	-	
Bangladesh	-	-	-	-	-	-	
Bhutan	-	-	-	-	-	-	
India	19.7	0.3	1.3	39.7	10.5	30.0	
Maldives	-	-	-	-	-	-	
Nepal	-	-	-	-	-	-	
Pakistan	-	-	-	7.0	1.3	92.4	
Sri Lanka	-	-	-	-	-	-	
<b>Southeast Asia</b>	<b>41.7</b>	<b>10.1</b>	<b>4.7</b>	<b>8.3</b>	<b>28.9</b>	<b>21.1</b>	
Brunei Darussalam	-	-	-	-	-	-	
Cambodia	-	-	-	-	-	-	
Indonesia	45.0	21.1	0.0	0.0	3.7	51.3	

Reporter	Partner						
	Asia	of which			EU	US	ROW
		PRC	Japan				
Lao PDR	-	-	-	-	-	-	-
Malaysia	49.1	1.4	0.5	5.6	35.9	9.3	
Myanmar	-	-	-	-	-	-	
Philippines	17.2	1.7	-	34.5	41.7	6.6	
Singapore	41.1	10.9	5.1	8.4	28.3	22.1	
Thailand	41.6	2.7	0.2	15.8	36.4	6.2	
Viet Nam	-	-	-	-	-	-	
<b>The Pacific</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	
Cook Islands	-	-	-	-	-	-	
Fiji	-	-	-	-	-	-	
Kiribati	-	-	-	-	-	-	
Marshall Islands	-	-	-	-	-	-	
Micronesia, Fed. States of	-	-	-	-	-	-	
Nauru	-	-	-	-	-	-	
Palau	-	-	-	-	-	-	
Papua New Guinea	-	-	-	-	-	-	
Samoa	-	-	-	-	-	-	
Solomon Islands	-	-	-	-	-	-	
Timor-Leste	-	-	-	-	-	-	
Tonga	-	-	-	-	-	-	
Tuvalu	-	-	-	-	-	-	
Vanuatu	-	-	-	-	-	-	
<b>Oceania</b>	<b>17.3</b>	<b>1.0</b>	<b>4.7</b>	<b>18.9</b>	<b>42.2</b>	<b>21.5</b>	
Australia	13.6	1.1	4.9	20.2	44.5	21.7	
New Zealand	49.0	-	2.7	8.4	22.9	19.7	
<b>Asia</b>	<b>25.2</b>	<b>11.3</b>	<b>2.2</b>	<b>16.9</b>	<b>28.5</b>	<b>29.4</b>	
<b>Developing Asia</b>	<b>36.1</b>	<b>20.2</b>	<b>2.8</b>	<b>13.5</b>	<b>15.8</b>	<b>34.5</b>	

- = unavailable, PRC = People's Republic of China, EU = European Union (27 members), Lao PDR = Lao People's Democratic Republic, US = United States, ROW = rest of the world.

Source: ADB calculations using data from *Coordinated Portfolio Investment Survey 2012*, International Monetary Fund.

**Table A5: Cross-Border Bond Holdings** (% of total cross-border bond holdings, 2012)

Reporter	Partner					
	Asia	of which				ROW
		PRC	Japan	EU	US	
<b>Central Asia</b>	<b>12.8</b>	<b>0.0</b>	<b>4.6</b>	<b>25.6</b>	<b>56.1</b>	<b>5.5</b>
Armenia	-	-	-	-	-	-
Azerbaijan	-	-	-	-	-	-
Georgia	-	-	-	-	-	-
Kazakhstan	12.8	0.0	4.6	25.6	56.1	5.5
Kyrgyz Republic	-	-	-	-	-	-
Tajikistan	-	-	-	-	-	-
Turkmenistan	-	-	-	-	-	-
Uzbekistan	-	-	-	-	-	-
<b>East Asia</b>	<b>12.7</b>	<b>3.2</b>	<b>1.0</b>	<b>31.3</b>	<b>29.5</b>	<b>26.6</b>
PRC	-	-	-	-	-	-
Hong Kong, China	57.0	27.4	8.4	16.3	16.2	10.5
Japan	6.9	0.0	0.0	33.2	31.2	28.7
Korea, Rep. of	12.2	0.8	1.0	33.3	31.4	23.1
Mongolia	67.3	0.0	2.1	0.0	0.0	32.7
Taipei, China	-	-	-	-	-	-
<b>South Asia</b>	<b>25.6</b>	<b>2.2</b>	<b>1.9</b>	<b>13.1</b>	<b>2.6</b>	<b>58.8</b>
Afghanistan	-	-	-	-	-	-
Bangladesh	-	-	-	-	-	-
Bhutan	-	-	-	-	-	-
India	97.6	0.0	0.0	2.0	0.4	0.0
Maldives	-	-	-	-	-	-
Nepal	-	-	-	-	-	-
Pakistan	19.5	2.4	2.0	14.0	2.7	63.7
Sri Lanka	-	-	-	-	-	-
	-	-	-	-	-	-
<b>Southeast Asia</b>	<b>35.6</b>	<b>1.3</b>	<b>0.1</b>	<b>21.4</b>	<b>20.1</b>	<b>22.9</b>
Brunei Darussalam	-	-	-	-	-	-
Cambodia	-	-	-	-	-	-
Indonesia	11.2	4.6	1.2	22.4	3.0	63.3

Reporter	Partner					
	Asia	of which				ROW
		PRC	Japan	EU	US	
Lao PDR	-	-	-	-	-	-
Malaysia	59.6	0.5	0.4	8.1	10.2	22.1
Myanmar	-	-	-	-	-	-
Philippines	38.9	5.5	0.5	11.3	35.9	14.0
Singapore	35.5	1.2	-	22.9	21.6	20.0
Thailand	30.4	1.5	0.6	8.3	5.5	55.8
Viet Nam	-	-	-	-	-	-
<b>The Pacific</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
Cook Islands	-	-	-	-	-	-
Fiji	-	-	-	-	-	-
Kiribati	-	-	-	-	-	-
Marshall Islands	-	-	-	-	-	-
Micronesia, Fed. States of	-	-	-	-	-	-
Nauru	-	-	-	-	-	-
Palau	-	-	-	-	-	-
Papua New Guinea	-	-	-	-	-	-
Samoa	-	-	-	-	-	-
Solomon Islands	-	-	-	-	-	-
Timor-Leste	-	-	-	-	-	-
Tonga	-	-	-	-	-	-
Tuvalu	-	-	-	-	-	-
Vanuatu	-	-	-	-	-	-
<b>Oceania</b>	<b>5.9</b>	<b>0.3</b>	<b>1.8</b>	<b>33.9</b>	<b>31.5</b>	<b>28.7</b>
Australia	6.4	0.3	2.0	36.8	34.2	22.5
New Zealand	0.0	-	0.0	0.0	0.0	100.0
<b>Asia</b>	<b>14.8</b>	<b>2.8</b>	<b>1.0</b>	<b>30.3</b>	<b>28.9</b>	<b>26.0</b>
<b>Developing Asia</b>	<b>42.0</b>	<b>12.0</b>	<b>3.8</b>	<b>20.1</b>	<b>21.2</b>	<b>16.7</b>

- = unavailable, PRC = People's Republic of China, EU = European Union (27 members), Lao PDR = Lao People's Democratic Republic, US = United States, ROW = rest of the world.

Source: ADB calculations using data from *Coordinated Portfolio Investment Survey 2012*, International Monetary Fund.

**Table A6: FDI Inflow Share—Asia** (% of total inflows, 2012)

Reporter	Partner					
	Asia	of which				
		PRC	Japan	EU	US	ROW
<b>Central Asia</b>	-	-	-	-	-	-
Armenia	-	-	-	-	-	-
Azerbaijan	-	-	-	-	-	-
Georgia	-	-	-	-	-	-
Kazakhstan	-	-	-	-	-	-
Kyrgyz Republic	-	-	-	-	-	-
Tajikistan	-	-	-	-	-	-
Turkmenistan	-	-	-	-	-	-
Uzbekistan	-	-	-	-	-	-
<b>East Asia</b>	<b>60.4</b>	<b>14.6</b>	<b>6.1</b>	<b>1.9</b>	<b>-5.3</b>	<b>42.9</b>
PRC	69.0	-	6.1	4.4	2.1	24.4
Hong Kong, China	44.5	40.2	1.3	-	-20.9	76.4
Japan	-	4.1	-	-	-7.7	-
Korea, Rep. of	60.3	2.5	41.6	15.7	21.7	2.3
Mongolia	-	-	-	-	-	-
Taipei, China	-	-	-	-	-	-
<b>South Asia</b>	<b>22.8</b>	<b>0.1</b>	<b>1.0</b>	<b>25.1</b>	<b>-41.5</b>	<b>93.6</b>
Afghanistan	-	-	-	-	-	-
Bangladesh	-	-	-	-	-	-
Bhutan	-	-	-	-	-	-
India	22.5	0.5	7.6	24.7	2.5	50.3
Maldives	-	-	-	-	-	-
Nepal	-	-	-	-	-	-
Pakistan	30.6	14.9	3.5	39.0	26.9	3.5
Sri Lanka	-	-	-	-	-	-
<b>Southeast Asia</b>	<b>75.2</b>	<b>4.0</b>	<b>21.2</b>	<b>22.2</b>	<b>6.5</b>	<b>-3.9</b>
Brunei Darussalam	23.2	-	14.9	-	3.2	73.7
Cambodia	68.7	23.6	0.9	8.1	1.0	22.2
Indonesia	87.9	1.7	39.2	-0.3	4.3	8.2

Reporter	Partner					
	Asia	of which				
		PRC	Japan	EU	US	ROW
Lao PDR	0.1	-	-	-	-	-
Malaysia	93.7	0.4	20.1	16.2	-7.1	-2.8
Myanmar	-	-	-	-	-	-
Philippines	15.4	-0.1	1.9	5.2	31.1	48.3
Singapore	63.1	5.0	8.3	33.6	8.9	-5.6
Thailand	83.8	6.6	67.4	22.9	10.2	-16.9
Viet Nam	68.3	2.3	34.2	6.5	1.0	24.2
<b>The Pacific</b>	-	-	-	-	-	-
Cook Islands	-	-	-	-	-	-
Fiji	-	-	-	-	-	-
Kiribati	-	-	-	-	-	-
Marshall Islands	-	-	-	-	-	-
Micronesia, Fed. States of	-	-	-	-	-	-
Nauru	-	-	-	-	-	-
Palau	-	-	-	-	-	-
Papua New Guinea	-	-	-	-	-	-
Samoa	-	-	-	-	-	-
Solomon Islands	-	-	-	-	-	-
Timor-Leste	-	-	-	-	-	-
Tonga	-	-	-	-	-	-
Tuvalu	-	-	-	-	-	-
Vanuatu	-	-	-	-	-	-
<b>Oceania</b>	<b>34.0</b>	<b>6.5</b>	<b>17.6</b>	<b>24.9</b>	<b>22.2</b>	<b>19.0</b>
Australia	30.8	6.7	18.6	24.5	23.6	21.1
New Zealand	96.4	2.6	-1.0	33.3	-6.8	-22.9
<b>Asia</b>	<b>58.1</b>	<b>9.6</b>	<b>12.0</b>	<b>12.3</b>	<b>2.5</b>	<b>27.0</b>
<b>Developing Asia</b>	<b>61.8</b>	<b>10.2</b>	<b>11.1</b>	<b>11.1</b>	<b>-0.8</b>	<b>27.9</b>

- = unavailable, FDI = foreign direct investments, PRC = People's Republic of China, EU = European Union (27 members), Lao PDR = Lao People's Democratic Republic, US = United States, ROW = rest of the world.

Source: ADB calculations using data from ASEAN Secretariat, CEIC, Organisation for Economic Co-operation and Development (OECD), and United Nations Conference on Trade and Development (UNCTAD).

**Table A7: Remittance Inflows Share—Asia** (% of total remittance inflows, 2012)

Reporter	Partner					Reporter	Partner				
	Asia	of which Japan	EU	US	ROW		Asia	of which Japan	EU	US	ROW
<b>Central Asia</b>	<b>13.3</b>	<b>0.01</b>	<b>3.8</b>	<b>2.4</b>	<b>80.5</b>	Lao PDR	18.1	0.7	14.6	60.6	6.8
Armenia	7.7	0.00	8.4	10.9	73.0	Malaysia	88.6	0.5	5.5	3.7	2.3
Azerbaijan	14.1	0.00	2.8	0.8	82.2	Myanmar	–	–	–	–	100.0
Georgia	6.7	0.01	10.1	3.1	80.1	Philippines	14.8	4.7	9.2	43.4	32.7
Kazakhstan	5.8	0.01	3.1	0.4	90.7	Singapore	–	–	–	–	–
Kyrgyz Republic	1.2	0.03	3.2	0.7	94.8	Thailand	39.3	5.3	22.9	27.7	10.1
Tajikistan	23.8	0.00	1.0	0.7	74.5	Viet Nam	17.7	1.6	14.9	56.8	10.6
Turkmenistan	–	–	–	–	–	<b>The Pacific</b>	<b>60.5</b>	<b>0.1</b>	<b>3.1</b>	<b>22.7</b>	<b>13.8</b>
Uzbekistan	–	–	–	–	–	Cook Islands	–	–	–	–	–
<b>East Asia</b>	<b>51.4</b>	<b>10.0</b>	<b>9.1</b>	<b>26.9</b>	<b>12.6</b>	Fiji	55.0	0.1	2.8	24.7	17.5
PRC	56.4	7.2	9.2	21.7	12.7	Kiribati	–	–	–	–	–
Hong Kong, China	14.3	–	15.9	29.8	39.9	Marshall Islands	–	–	–	–	–
Japan	16.2	–	18.3	44.8	20.6	Micronesia, Fed. States of	–	–	–	–	–
Korea, Rep. of	33.7	28.4	5.5	51.3	9.5	Nauru	–	–	–	–	–
Mongolia	55.9	13.7	31.2	10.9	2.0	Palau	–	–	–	–	–
Taipei, China	–	–	–	–	–	Papua New Guinea	67.4	0.1	3.9	5.1	23.5
<b>South Asia</b>	<b>23.4</b>	<b>0.3</b>	<b>10.6</b>	<b>13.0</b>	<b>53.0</b>	Samoa	64.5	0.1	0.4	21.7	13.4
Afghanistan	3.3	0.0	14.0	4.9	77.9	Solomon Islands	61.0	0.6	10.6	5.0	23.4
Bangladesh	51.7	0.3	9.1	4.9	34.3	Timor-Leste	–	–	–	–	–
Bhutan	83.9	0.2	3.8	1.4	10.9	Tonga	67.5	0.3	1.3	27.5	3.7
India	18.4	0.2	9.3	17.2	55.1	Tuvalu	–	–	–	–	–
Maldives	62.1	2.0	25.2	3.0	9.7	Vanuatu	49.7	0.1	28.3	3.6	18.4
Nepal	39.8	1.3	5.6	6.6	48.1	<b>Oceania</b>	<b>46.1</b>	<b>1.8</b>	<b>31.5</b>	<b>12.7</b>	<b>9.7</b>
Pakistan	18.4	0.2	17.1	7.8	56.8	Australia	26.9	2.5	42.6	17.9	12.5
Sri Lanka	13.8	0.5	18.0	2.1	66.1	New Zealand	81.3	0.6	11.1	3.2	4.4
<b>Southeast Asia</b>	<b>26.8</b>	<b>3.4</b>	<b>11.4</b>	<b>37.5</b>	<b>24.3</b>	<b>Asia</b>	<b>32.4</b>	<b>3.9</b>	<b>10.2</b>	<b>21.6</b>	<b>35.7</b>
Brunei Darussalam	–	–	–	–	–	<b>Developing Asia</b>	<b>32.5</b>	<b>3.9</b>	<b>9.9</b>	<b>21.5</b>	<b>36.2</b>
Cambodia	20.9	0.7	21.8	48.4	8.8						
Indonesia	64.3	1.2	9.2	4.5	22.0						

– = unavailable, PRC = People's Republic of China, EU = European Union (27 members), Lao PDR = Lao People's Democratic Republic, US = United States, ROW = rest of the world.

Source: ADB calculations using data from *Bilateral Remittance Estimates for 2012 using Migrant Stocks, Host Country Incomes, and Origin Country Incomes (\$ million)* (May 2013 Version), World Bank.

**Table A8: Outbound Migration Share—Asia** (% of total outbound migrants, 2013)

Reporter	Partner						Reporter	Partner					
	Asia	of which						Asia	of which				
		PRC	Japan	EU	US	ROW			PRC	Japan	EU	US	ROW
<b>Central Asia</b>	<b>11.2</b>	–	–	<b>10.9</b>	<b>2.3</b>	<b>75.7</b>	Lao PDR	79.7	–	–	3.5	15.2	1.5
Armenia	4.9	–	–	8.7	11.9	74.5	Malaysia	87.2	0.6	0.6	5.1	4.5	3.2
Azerbaijan	25.0	–	–	2.6	1.7	70.7	Myanmar	95.3	–	–	0.6	3.7	0.4
Georgia	10.3	–	–	14.7	2.0	73.0	Philippines	14.2	2.2	4.1	7.9	36.4	41.5
Kazakhstan	4.2	–	–	20.2	0.7	74.9	Singapore	65.2	–	0.9	16.9	12.2	5.6
Kyrgyz Republic	5.8	–	–	7.9	0.5	85.8	Thailand	34.0	2.6	5.2	25.1	30.0	10.9
Tajikistan	14.7	–	–	2.5	0.6	82.2	Viet Nam	23.2	1.2	1.5	15.0	53.0	8.8
Turkmenistan	5.9	–	–	3.1	0.5	90.5	<b>The Pacific</b>	<b>63.6</b>	–	–	<b>1.8</b>	<b>20.2</b>	<b>14.4</b>
Uzbekistan	20.2	–	–	2.2	3.3	74.3	Cook Islands	99.6	–	–	0.0	0.3	0.1
<b>East Asia</b>	<b>48.8</b>	<b>1.7</b>	<b>9.9</b>	<b>8.7</b>	<b>29.1</b>	<b>13.4</b>	Fiji	59.9	–	–	3.3	22.3	14.6
PRC	53.8	–	7.0	9.1	24.0	13.0	Kiribati	58.1	–	–	0.7	39.2	2.1
Hong Kong, China	24.7	0.8	–	11.2	29.8	34.3	Marshall Islands	5.2	–	–	0.2	91.2	3.4
Japan	32.5	1.0	–	13.9	39.2	14.4	Micronesia, Fed. States of	2.2	–	–	0.0	67.4	30.4
Korea, Rep. of	44.2	8.6	26.9	4.2	44.1	7.6	Nauru	80.8	–	–	0.8	10.3	8.2
Mongolia	43.9	–	–	21.2	0.3	34.6	Palau	47.3	–	–	0.2	30.5	21.9
Taipei, China	–	–	–	–	–	–	Papua New Guinea	90.4	–	–	1.1	6.8	1.7
<b>South Asia</b>	<b>35.6</b>	<b>0.1</b>	<b>0.2</b>	<b>8.3</b>	<b>8.0</b>	<b>48.0</b>	Samoa	66.1	–	–	0.2	9.6	24.2
Afghanistan	46.5	–	–	4.9	1.4	47.2	Solomon Islands	92.9	–	–	1.5	3.0	2.7
Bangladesh	51.1	0.1	0.2	4.9	2.6	41.4	Timor-Leste	95.2	–	–	4.6	–	0.2
Bhutan	97.9	–	–	1.3	0.2	0.6	Tonga	61.6	–	–	0.3	34.0	4.0
India	24.4	0.1	0.2	7.9	14.5	53.2	Tuvalu	78.3	–	–	1.0	3.6	17.2
Maldives	61.9	–	–	11.2	–	26.9	Vanuatu	25.6	–	–	9.2	1.7	63.5
Nepal	82.1	–	–	5.9	8.4	3.6	<b>Oceania</b>	<b>64.0</b>	<b>0.7</b>	<b>1.4</b>	<b>21.5</b>	<b>8.2</b>	<b>6.3</b>
Pakistan	25.1	0.1	0.2	13.4	6.0	55.5	Australia	33.2	1.7	2.7	40.4	14.6	11.8
Sri Lanka	27.9	0.5	0.8	26.9	4.3	40.9	New Zealand	83.9	–	0.6	9.2	4.1	2.8
<b>Southeast Asia</b>	<b>49.5</b>	<b>1.3</b>	<b>1.9</b>	<b>7.9</b>	<b>23.0</b>	<b>19.6</b>	<b>Asia</b>	<b>38.7</b>	<b>0.7</b>	<b>2.2</b>	<b>8.8</b>	<b>14.6</b>	<b>37.9</b>
Brunei Darussalam	75.4	–	–	11.7	2.1	10.8	<b>Developing Asia</b>	<b>38.4</b>	<b>0.7</b>	<b>2.3</b>	<b>8.5</b>	<b>14.4</b>	<b>38.7</b>
Cambodia	75.8	–	0.2	6.2	15.5	2.5							
Indonesia	57.8	2.0	1.0	6.0	3.6	32.5							

– = unavailable, PRC = People's Republic of China, EU = European Union (27 members), Lao PDR = Lao People's Democratic Republic, US = United States, ROW = rest of the world.

Source: ADB calculations using data from *Trends in International Migrant Stock: Migrants by Destination and Origin*, Department of Economic and Social Affairs, United Nations.

**Table A9: Outbound Tourism Share—Asia** (% of total outbound tourists, 2012)

Reporter	Partner						Reporter	Partner					
	Asia	of which						Asia	of which				
		PRC	Japan	EU	US	ROW			PRC	Japan	EU	US	ROW
<b>Central Asia</b>	<b>35.1</b>	<b>3.0</b>	–	<b>0.2</b>	<b>0.2</b>	<b>64.5</b>	Lao PDR	99.8	1.1	0.2	0.0	0.1	0.1
Armenia	6.6	0.4	–	0.4	0.3	92.7	Malaysia	92.4	13.3	1.4	1.6	0.7	5.3
Azerbaijan	6.6	0.7	–	0.1	0.2	93.1	Myanmar	97.8	31.3	1.1	0.0	0.3	1.8
Georgia	34.2	0.3	–	0.3	0.2	65.3	Philippines	80.3	19.0	1.7	1.1	3.5	15.1
Kazakhstan	35.3	7.6	–	0.4	0.2	64.1	Singapore	96.5	5.3	0.7	1.1	0.8	1.6
Kyrgyz Republic	69.3	2.1	–	0.0	0.1	30.5	Thailand	93.0	9.4	3.8	1.8	1.2	4.0
Tajikistan	19.0	1.9	–	0.0	0.1	80.9	Viet Nam	96.2	26.3	1.3	0.1	1.3	2.4
Turkmenistan	16.2	3.8	–	0.1	0.2	83.6	<b>The Pacific</b>	<b>84.4</b>	<b>2.8</b>	–	<b>0.4</b>	<b>3.6</b>	<b>11.6</b>
Uzbekistan	47.3	1.0	–	0.1	0.1	52.5	Cook Islands	97.6	–	–	0.0	0.3	2.1
<b>East Asia</b>	<b>83.5</b>	<b>50.6</b>	<b>3.0</b>	<b>4.4</b>	<b>3.7</b>	<b>8.4</b>	Fiji	87.3	4.2	–	0.3	8.6	3.9
PRC	71.2	–	3.1	7.5	3.2	18.1	Kiribati	91.0	36.1	–	0.5	3.2	5.3
Hong Kong, China	97.3	93.3	0.6	0.2	0.2	2.3	Marshall Islands	24.0	–	–	0.6	–	75.3
Japan	59.6	14.6	–	13.8	15.4	11.2	Micronesia, Fed. States of	13.4	–	–	1.2	–	85.3
Korea, Rep. of	78.3	26.5	13.3	5.3	8.1	8.3	Nauru	92.6	–	–	4.2	2.5	0.6
Mongolia	75.1	68.2	0.9	0.1	–	24.9	Palau	11.5	–	–	1.0	–	87.5
Taipei, China	90.0	47.1	12.9	2.2	2.6	5.2	Papua New Guinea	97.9	–	–	0.1	0.8	1.2
<b>South Asia</b>	<b>48.3</b>	<b>5.7</b>	<b>0.7</b>	<b>6.7</b>	<b>5.4</b>	<b>39.5</b>	Samoa	68.5	–	–	0.3	2.8	28.4
Afghanistan	30.7	2.3	–	0.7	0.3	68.4	Solomon Islands	95.6	–	–	1.3	1.2	1.9
Bangladesh	74.5	4.3	0.5	1.3	1.3	22.9	Timor-Leste	98.0	–	–	0.4	0.1	1.4
Bhutan	95.3	2.7	–	0.8	1.0	2.9	Tonga	93.8	5.9	–	0.1	4.7	1.4
India	48.6	6.5	0.7	9.1	7.7	34.6	Tuvalu	90.1	–	–	2.7	1.0	6.2
Maldives	97.4	3.1	–	0.1	0.2	2.4	Vanuatu	78.0	2.7	–	0.4	1.0	20.6
Nepal	76.6	8.5	2.7	0.1	2.5	20.8	<b>Oceania</b>	<b>63.2</b>	<b>5.7</b>	<b>1.5</b>	<b>18.1</b>	<b>8.3</b>	<b>10.4</b>
Pakistan	17.8	4.3	0.4	4.7	2.0	75.5	Australia	60.5	6.1	1.6	20.0	8.8	10.8
Sri Lanka	72.4	4.4	1.2	2.1	1.3	24.2	New Zealand	75.1	4.4	1.1	9.7	6.3	8.8
<b>Southeast Asia</b>	<b>92.6</b>	<b>10.2</b>	<b>1.4</b>	<b>1.1</b>	<b>1.1</b>	<b>5.2</b>	<b>Asia</b>	<b>78.7</b>	<b>34.3</b>	<b>2.2</b>	<b>4.3</b>	<b>3.3</b>	<b>13.7</b>
Brunei Darussalam	99.2	0.7	0.1	0.0	0.1	0.7	<b>Developing Asia</b>	<b>81.5</b>	<b>37.9</b>	<b>2.5</b>	<b>2.5</b>	<b>1.8</b>	<b>14.2</b>
Cambodia	99.4	3.2	0.4	0.0	0.3	0.3							
Indonesia	86.1	7.3	1.2	0.7	0.9	12.3							

– = unavailable, PRC = People's Republic of China, EU = European Union (27 members), Lao PDR = Lao People's Democratic Republic, US = United States, ROW = rest of the world.

Source: ADB calculations using *Data on Outbound Tourism*, World Tourism Organization.





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