

3 Financial Integration

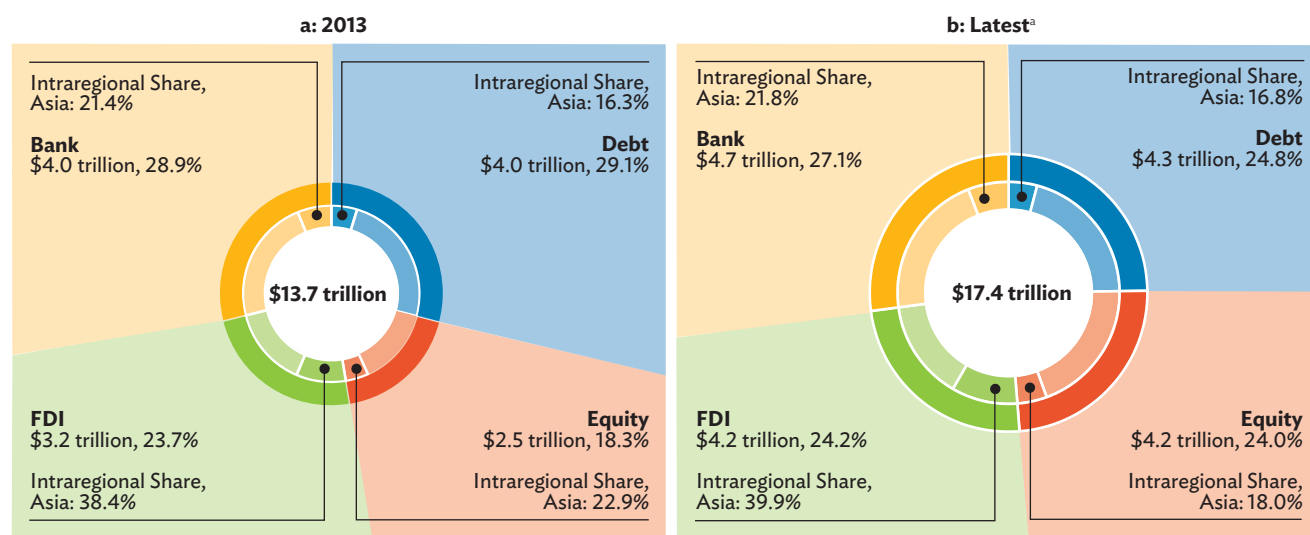
Asia's Cross-Border Financial Assets and Liabilities

Asia's cross-border financial linkages continue to grow and strengthen, with a pronounced increase in outward foreign direct investment (FDI) and equity. FDI grew from \$3.2 trillion in 2013 to \$4.2 trillion in 2017, while equity expanded from \$2.5 trillion in 2013 to \$4.2 trillion in 2018. Between 2013 and

2018, Asia's cross-border assets increased by \$3.7 trillion, with a significant contribution of the increase coming from cross-border portfolio equity holdings.¹⁴

Asia's cross-border assets increased by a compounded annual growth rate (CAGR) of 4.9%—from \$13.7 trillion in 2013 to \$17.4 trillion in 2018. Asia's intraregional share remained broadly stable at 24.0% in 2018 (24.2% in 2013) (Figure 3.1).¹⁵

Figure 3.1: Cross-Border Assets—Asia



FDI = foreign direct investment.

Notes: FDI assets refer to outward FDI holdings. Bank assets refer to bank claims of reporting Asian economies. Asia includes ADB regional members for which data are available.

* As of December 2018 for Bank, Debt, and Equity, and as of December 2017 for FDI.

Sources: ADB calculations using data from Bank for International Settlements. Locational Banking Statistics. <https://www.bis.org/statistics/bankstats.htm> (accessed September 2019); International Monetary Fund (IMF). Coordinated Direct Investment Survey. <http://data.imf.org/CDIS> (accessed May 2019); and IMF. Coordinated Portfolio Investment Survey. <http://data.imf.org/CPIS> (accessed September 2019).

¹⁴ There is a slight difference between the figures presented for 2017 in AEIR 2018 and AEIR 2019/2020 due to data revisions.

¹⁵ Throughout this chapter, Asia's cross-border asset holdings refer to the stock of outward portfolio debt, portfolio equity, FDI, and bank claims. Asia's cross-border liabilities refer to the stock of inward portfolio debt, portfolio equity, FDI, and bank liabilities.

The increase in cross-border portfolio debt was benign. However, increases in bank claims (\$0.7 trillion), FDI (\$1.0 trillion), and cross-border portfolio equity (\$1.7 trillion) were more pronounced by their sheer size. The intraregional share for FDI increased to 39.9% from 38.4%, bank claims grew to 21.8% from 21.4%, and cross-border portfolio debt to 16.8% from 16.3%. However, the intraregional share for cross-border portfolio equity declined to 18.0% from 22.9%.

Between 2013 and 2018, Asia's cross-border liabilities also increased, largely due to a substantial increase in inward FDI holdings and portfolio equity investment.

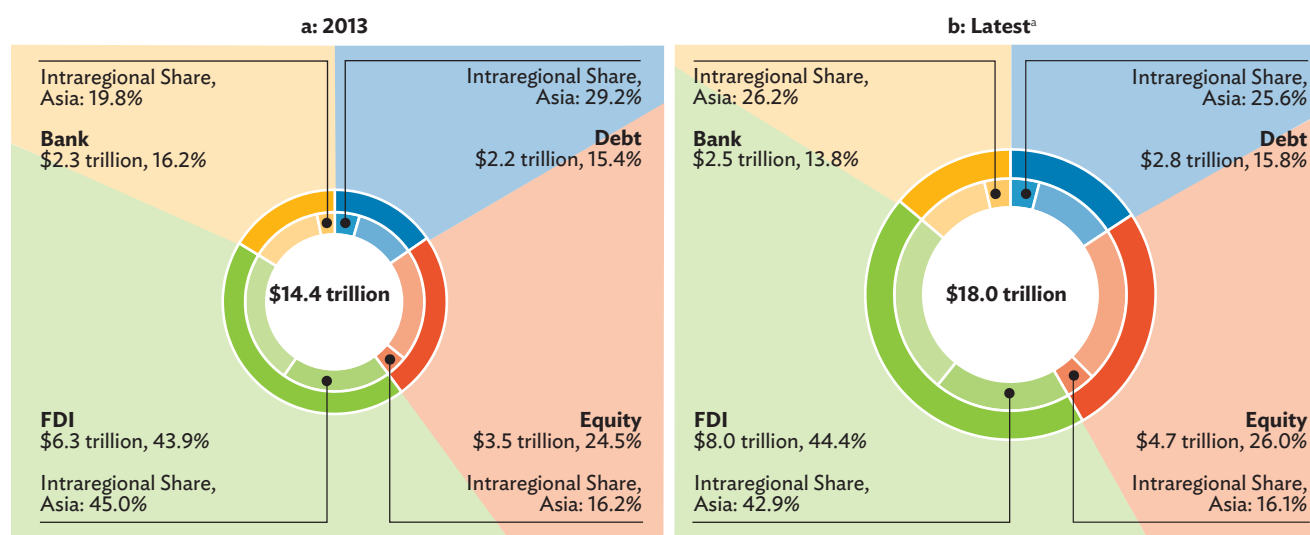
Asia's cross-border liabilities increased by a CAGR of 4.5%, from \$14.4 trillion in 2013 to \$18.0 trillion in 2018, while Asia's intraregional share declined from 31.4% to 30.9% (Figure 3.2). FDI holdings grew by \$1.6 trillion, while the intraregional share declined to 42.9%.

cross-border portfolio debt increased by \$0.6 trillion and cross-border portfolio equity investment outstanding rose by \$1.1 trillion. But the intraregional share of cross-border portfolio debt declined to 25.6% from 29.2% and cross-border portfolio equity investment outstanding increased slightly to 16.1% from 16.2%. Outstanding bank liabilities increased moderately by \$0.1 trillion from 2013 to 2018, with a considerable increase in the intraregional share from 19.8% in 2013 to 26.2% in 2018.

Outward Portfolio Investment¹⁶

Asian portfolio debt and equity investors continue to prefer investing outside the region, apparent from their moderate, stable intraregional share. Asia's outward portfolio debt investment outstanding was \$4.3 trillion in 2018, up from \$4.2 trillion in 2017, while outward portfolio equity investment was \$4.2 trillion in 2018, down from \$4.5 trillion in 2017.

Figure 3.2: Cross-Border Liabilities—Asia



* As of December 2018 for Bank, Debt, and Equity; and as of December 2017 for FDI.

FDI = foreign direct investment.

Notes: FDI liabilities refer to inward FDI holdings. Asia includes ADB regional members for which data are available.

Sources: ADB calculations using data from Bank for International Settlements. Locational Banking Statistics. <https://www.bis.org/statistics/bankstats.htm> (accessed September 2019); International Monetary Fund (IMF). Coordinated Direct Investment Survey. <http://data.imf.org/CDIS> (accessed May 2019); and IMF. Coordinated Portfolio Investment Survey. <http://data.imf.org/CPIS> (accessed September 2019).

¹⁶ Portfolio investment data are based on stock data from the Coordinated Portfolio Investment Survey of the International Monetary Fund. Asia's reporting economies include Australia; Bangladesh (data beginning 2014); Hong Kong, China; India (data beginning 2003); Indonesia; Japan; Kazakhstan; Malaysia; Mongolia (data beginning 2010); New Zealand; Pakistan (data beginning 2002); Palau (data beginning 2014); Singapore; Thailand; the Philippines; the Republic of Korea; and Vanuatu (data from 2001–2005). The People's Republic of China is excluded due to lack of comparable data for 2001–2014.

Asia's outward portfolio debt investment increased from \$4.2 trillion in 2017 to \$4.3 trillion in 2018, with intraregional share hovering at 16.8% in 2018 (Figure 3.3a). The year-on-year growth rate of outward portfolio debt investment in 2018 was 2.6% and is close to its CAGR of 1.6% between 2013 and 2018. Asia's outward portfolio equity investment, however, declined for the first time since 2011, from \$4.5 trillion in 2017 to \$4.2 trillion in 2018. Asia's intraregional outward portfolio equity investment share remained stable at 18.0% in 2018 (Figure 3.3b). Despite contracting by 6.6% in 2018, it has grown by a CAGR of 10.8% between 2013 and 2018.

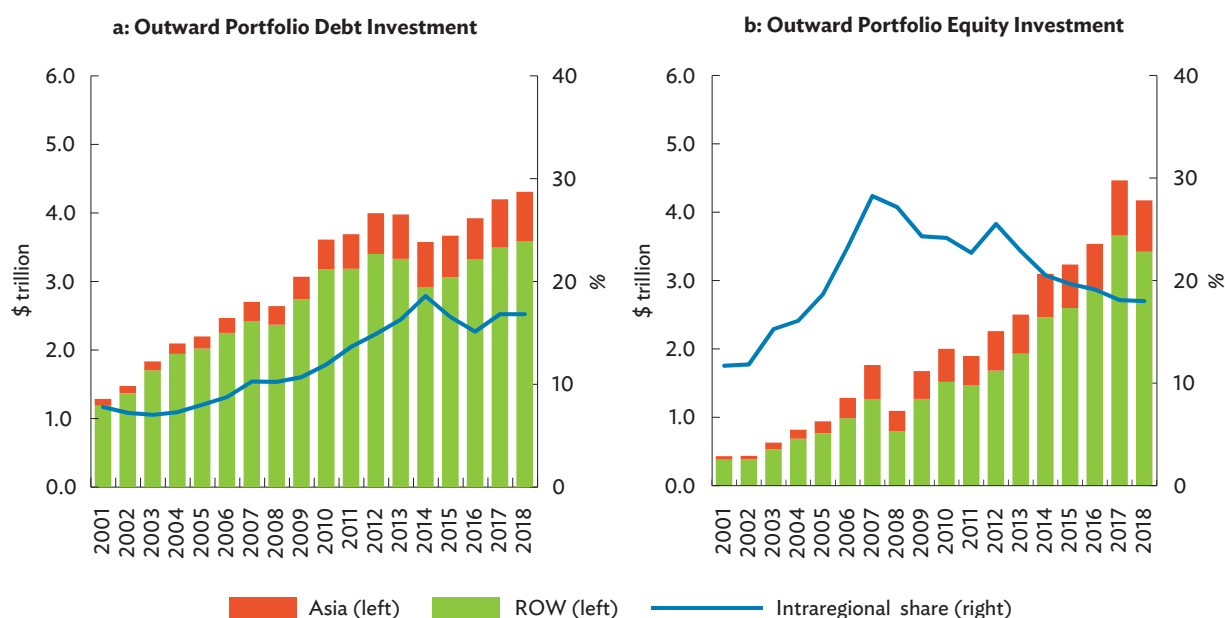
Asia's outward portfolio debt investment continued to increase in 2018, though at a slower pace compared with 2017. However, outward portfolio equity investment fell by 6.6% in 2018 after a 26.3% surge in 2017.

In 2018, outward portfolio debt investment increased by \$108.1 billion or 2.6% from 2017 (Figure 3.4a).

It was primarily driven by increased investment in debt securities issued in the European Union (EU), which rose by \$100.5 billion in 2018. As Japanese investors searched for higher-yielding assets, holdings of United States (US) portfolio debt securities contracted by \$18.0 billion (Greifeld 2018).

After an increase by almost \$1.0 trillion in 2017, portfolio equity investment declined by \$293.7 billion in 2018, given the subdued performance in equity markets and depreciating Asian currencies against the US dollar (Figure 3.4b). This large drop could also be attributed to a contraction in Asia's equity investment to the rest of the world (ROW) excluding the EU and the US, by \$243.8 billion in 2018 after increasing \$578.7 billion in 2017. From Australia alone, investment declined by \$86.3 billion, after increasing by \$111.0 billion in 2017. Hong Kong, China's combined equity investment in Bermuda and the Cayman Islands increased by \$262.5 billion in 2017, but contracted by \$174.0 billion in 2018. Japan's equity investment to the Cayman Islands increased by \$121.2 billion in 2017, but only by \$28.0 billion

Figure 3.3: Outward Portfolio Investment—Asia



ROW = rest of the world.

Note: Asia includes ADB regional members for which data are available.

Source: ADB calculations using data from International Monetary Fund. Coordinated Portfolio Investment Survey. <http://data.imf.org/CPIS> (accessed September 2019).

in 2018. Additionally, intraregional portfolio equity investment declined, particularly from Hong Kong, China (–\$20.1 billion); Japan (–\$19.0 billion); Australia (–\$9.1 billion); and Singapore (–\$8.4 billion). The decline in intraregional equity investment could also be driven by valuation effects, as the Hong Kong dollar depreciated against the US dollar by 0.8% and the Singapore dollar by 4.0% in 2018.

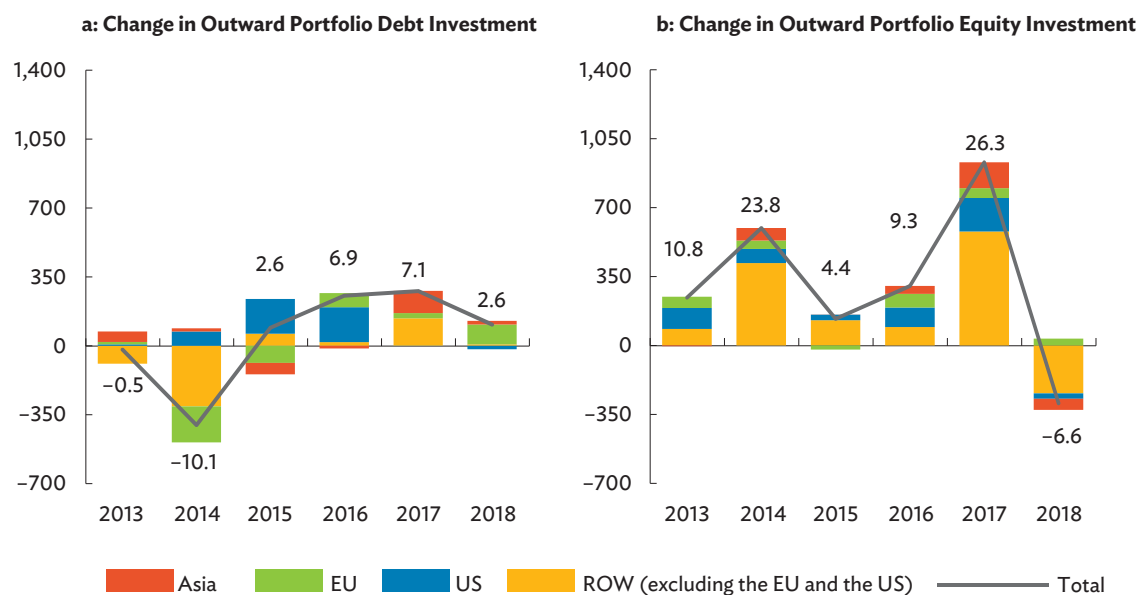
Portfolio debt securities issued in Australia, the People’s Republic of China (PRC), and Japan remained the most preferred by Asian cross-border investors (Table 3.1). Amid heightened trade tensions, the share of portfolio debt investment into the PRC declined from 5.2% to 4.4%, while the share of portfolio debt investment to Japan increased from 0.7% to 1.7%. Given the trade tensions and a slowdown in growth in the PRC, investors may have shifted their portfolio debt investment to Japan.

Between 2013 (the period of the “taper tantrum”) and 2018 (ongoing US monetary policy normalization),

Asian investors’ holdings of US portfolio debt securities increased by 6.1% CAGR, as treasury security yields moved up from zero. The share of portfolio debt investment to the US grew from 29.6% to 36.8%. Negative bond yields in the EU have made the region less attractive to regional investors, prompting the share of portfolio debt investment to the EU to fall from 30.1% in 2013 to 26.1% in 2018. Nonetheless, the region remained one of the most preferred destinations.

The PRC, Japan, and Australia remained the most preferred equity markets for Asian investors, although intraregional share declined from 22.9% in 2013 to 18.0% in 2018 (Table 3.2). This mirrors the fact that Asian investors increased their non-regional equity investment by 77.3% between 2013 and 2018, reaching \$1.5 trillion and underpinning the region’s appetite for global equities. Japan contributed significantly to the increase in portfolio equity investment from Asia to the Cayman Islands between 2013 and 2018—both by value and in share. Investment to the Cayman Islands grew more than three times between 2013 and 2018,

Figure 3.4: Change in Outward Portfolio Investment—Asia (\$ billion)



EU = European Union, ROW = rest of the world, US = United States.

Notes: Asia includes ADB regional members for which data are available. Labels refer to year-on-year percentage change in outward portfolio investment data.

Source: ADB calculations using data from International Monetary Fund. Coordinated Portfolio Investment Survey. <http://data.imf.org/CPIS> (accessed September 2019).

Table 3.1: Destinations of Outward Portfolio Debt Investment—Asia

	2013		2018		**
	\$ billion	% share	\$ billion	% share	
Asia					
Australia	166	4.2	197	4.6	▲
People's Republic of China	205	5.2	191	4.4	▼
Japan	26	0.7	73	1.7	▲
Other Asia	252	6.3	263	6.1	▼
Asia's outward portfolio debt investment to Asia	649	16.3	724	16.8	▲
Non-Asia					
United States	1,177	29.6	1,583	36.8	▲
European Union	1,197	30.1	1,126	26.1	▼
Cayman Islands	457	11.5	239	5.5	▼
Other non-Asia	498	12.5	635	14.7	▲
Asia's outward portfolio debt investment to non-Asia	3,329	83.7	3,583	83.2	▼
Asia total outward portfolio debt investment	3,978	100.0	4,307	100.0	

** = direction of change in % share, ▼ = decrease, ▲ = increase.

Source: ADB calculations using data from International Monetary Fund. Coordinated Portfolio Investment Survey. <http://data.imf.org/CPIS> (accessed September 2019).

Table 3.2: Destinations of Outward Portfolio Equity Investment—Asia

	2013		2018		**
	\$ billion	% share	\$ billion	% share	
Asia					
People's Republic of China	248	9.9	311	7.4	▼
Japan	59	2.4	91	2.2	▼
Australia	58	2.3	65	1.6	▼
Other Asia	206	8.3	284	6.8	▼
Asia's outward portfolio equity investment to Asia	573	22.9	751	18.0	▼
Non-Asia					
Cayman Islands	351	14.0	1,170	28.0	▲
United States	741	29.6	1,082	25.9	▼
European Union	445	17.8	621	14.9	▼
Other non-Asia	393	15.7	548	13.1	▼
Asia's outward portfolio equity investment to non-Asia	1,929	77.1	3,420	82.0	▲
Asia total outward portfolio equity investment	2,502	100.0	4,171	100.0	

** = direction of change in % share, ▼ = decrease, ▲ = increase.

Source: ADB calculations using data from International Monetary Fund. Coordinated Portfolio Investment Survey. <http://data.imf.org/CPIS> (accessed September 2019).

as Japanese investors looked for riskier—albeit higher yielding—assets. The world's largest pension fund, Japan's Government Pension Fund, has started to engage

in riskier assets in recent years, which can explain, in part, the trend to invest in equities issued outside of Asia, such as in the Cayman Islands (Huckle 2018).

Inward Portfolio Investment

In 2018, while inward portfolio debt investment growth slowed, inward equity investment actually fell amid rising concerns over Asia's economic prospects associated with rising global trade tensions.

In 2018, Asia's inward portfolio debt investment outstanding was \$2.8 trillion, while inward portfolio equity investment was \$4.7 trillion. After considerable increases in 2017, inward portfolio equity investment declined in 2018, from \$5.4 trillion in 2017, amid tightening global financial conditions, less favorable equity market performance in the region, and depreciating regional currencies. Inward portfolio debt investment slightly increased from \$2.7 trillion in 2017 (Figure 3.5a). This contrasts to the longer-term trend since 2013, during which portfolio debt investment increased by 5.0% CAGR and inward equity investment increased by 5.7% CAGR.

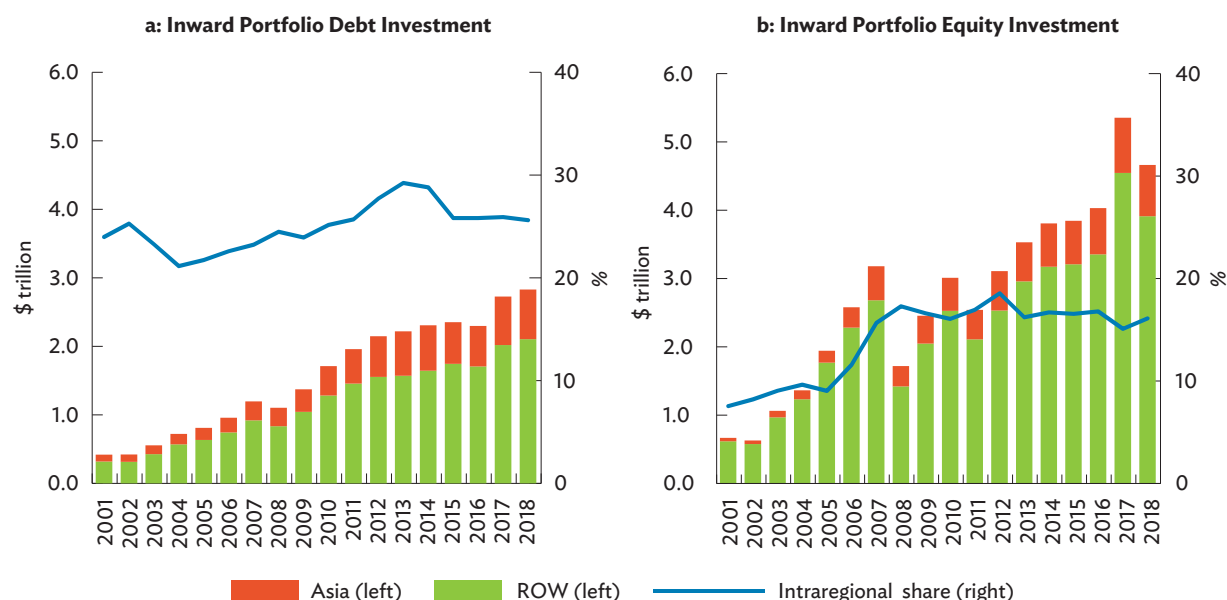
After a surge in cross-border equity investment into Asia between 2013 and 2017—from \$3.5 trillion to \$5.4 trillion—it declined to \$4.7 trillion in 2018

(Figure 3.5b). Despite a 7% decline in intraregional portfolio equity investment, the intraregional share still rose from 15.1% in 2017 to 16.1% in 2018, as inward portfolio equity investment outstanding from non-Asian economies even declined by 14.0%. The intraregional share of inward portfolio debt investment declined slightly—from 25.9% in 2017 to 25.6% in 2018.

In 2018, inward portfolio equity investment declined by a considerable 12.9%. While to some extent this may reflect rebalancing after a surge of 32.8% in 2017, it also mirrors tighter global financial market conditions in general in the same year.

Inward portfolio debt outstanding increased by 3.8% or \$103.7 billion in 2018, down from 18.6% in 2017, driven by smaller increases from the US and the ROW (excluding the EU and the US). Amid rising US interest rates, investment from the US only grew by \$19.9 billion in 2018 compared with \$128.3 billion in 2017, while investment from the ROW (excluding the EU and the US) grew \$61.4 billion in 2018 compared with

Figure 3.5: Inward Portfolio Investment—Asia



ROW = rest of the world.

Note: Asia includes ADB regional members for which data are available.

Source: ADB calculations using data from International Monetary Fund. Coordinated Portfolio Investment Survey. <http://data.imf.org/CPIS> (accessed September 2019).

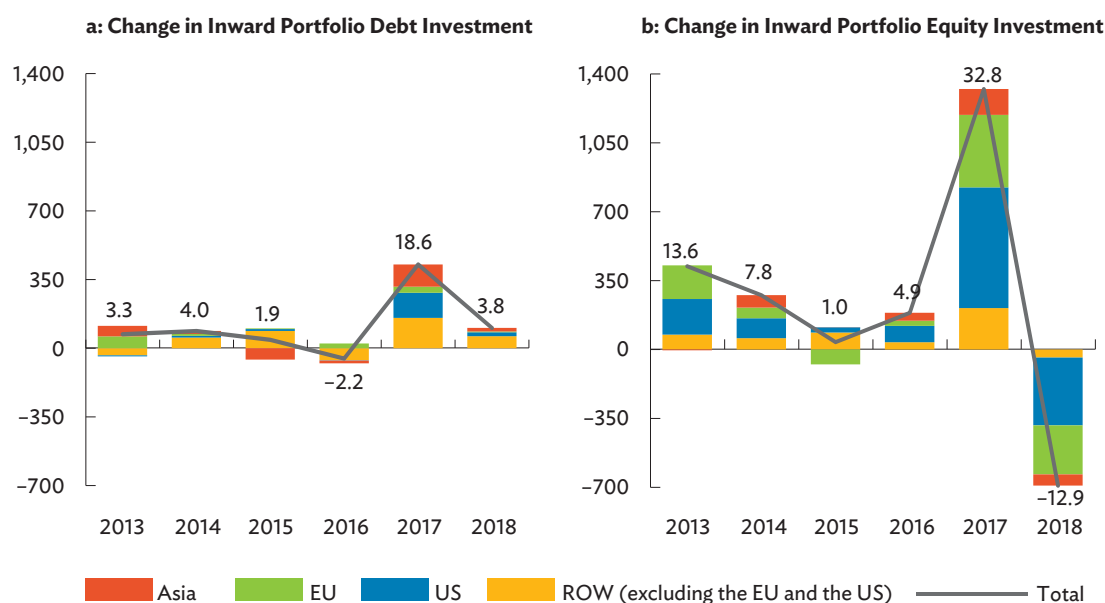
\$154.5 billion in 2017 (Figure 3.6a). US investment into Japanese portfolio debt increased by only \$1.6 billion in 2018 after increasing by \$75.0 billion in 2017. One of the reasons could be decreasing yields on Japanese debt in 2018, while US government bond yields increased in tandem with rising US interest rates in 2018.

There was a sharper drop in inward portfolio investment outstanding in equities in 2018. After a \$1,323.2 billion increase in 2017, inward portfolio investment dropped by as much as \$691.5 billion in 2018, with inward equity investment from the US contracting by \$344.3 billion and by \$249.3 billion from the EU (Figure 3.6b). The large reversals in investment from the US were most pronounced in Japan (from \$206.9 billion in 2017 to -\$126.8 billion in 2018), the Republic of Korea (from \$87.7 billion in 2017 to -\$34.9 billion in 2018), and Singapore (from \$42.8 billion in 2017 to -\$89.5 billion in 2018), reflecting tighter global financial conditions and the tepid performance of regional equity markets in 2018. For instance, equity markets in the PRC declined by 24.6%

in 2018 after a 6.6% increase in 2017. The same trend occurred in the equity markets of Hong Kong, China (from 36.0% to -13.6%); the Republic of Korea (from 21.8% to -17.3%); Malaysia (from 9.4% to -5.9%); the Philippines (25.1% to -12.8%); and Singapore (18.1% to -9.8%). Portfolio equity investment from the ROW (excluding the EU and the US) also dropped by \$41.0 billion in 2018.

While Hong Kong, China; Japan; and Singapore remained the top sources of intraregional inward portfolio debt investment, their combined share declined from 91.5% in 2013 to 83.4% in 2018 (Table 3.3). This was primarily due to increased intraregional investment from the Republic of Korea, from \$6.5 billion to \$29.2 billion—a 352.8% increase. Hong Kong, China continued to invest heavily in the PRC. In 2018, 50.2% of its intraregional portfolio debt investment was to the PRC, while 15.7% went to Japan. In 2018, 62.2% of Japan's intraregional debt investment was to Australia. Singapore invested heavily in PRC portfolio debt (\$33.4 billion), the Republic of Korea (\$19.6 billion), and Australia (\$19.1 billion).

Figure 3.6: Change in Inward Portfolio Investment—Asia (\$ billion)



EU = European Union, ROW = rest of the world, US = United States.

Notes: Asia includes ADB regional members for which data are available. Labels refer to year-on-year percentage change in inward portfolio investment data.

Source: ADB calculations using data from International Monetary Fund. Coordinated Portfolio Investment Survey. <http://data.imf.org/CPIS> (accessed September 2019).

Table 3.3: Sources of Inward Portfolio Debt Investment—Asia

	2013		2018		**
	\$ billion	% share	\$ billion	% share	
Asia					
Hong Kong, China	272	12.2	271	9.6	▼
Japan	168	7.6	196	6.9	▼
Singapore	154	6.9	137	4.9	▼
Other Asia	55	2.5	120	4.2	▲
Asia's inward portfolio debt investment to Asia	649	29.2	724	25.6	▼
Non-Asia					
European Union	688	31.0	761	26.9	▼
United States	401	18.1	566	20.0	▲
International organizations	282	12.7	394	13.9	▲
Other non-Asia	199	9.0	384	13.6	▲
Asia's inward portfolio debt investment to non-Asia	1,571	70.8	2,104	74.4	▲
Asia total inward portfolio debt investment	2,219	100.0	2,828	100.0	

** = direction of change in % share, ▼ = decrease, ▲ = increase.

Source: ADB calculations using data from International Monetary Fund. Coordinated Portfolio Investment Survey. <http://data.imf.org/CPIs> (accessed September 2019).

Outside the region, the EU, the US, and international organizations remained the top sources of portfolio debt investment into the region. Japan was a popular destination for the top three sources. Inward investment from the EU into Australia and Japan accounted for 63.9% of its total portfolio debt investment into Asia. The US also invested in Japan, which absorbed 40.3% of its debt investment to Asia. In addition, 72.8% of international organizations' debt investment into the region went to Japan.

Financial hubs in the region—Hong Kong, China; Singapore; and Japan—remained the top sources of inward intraregional portfolio equity investment (Table 3.4). Other Asian economies increasing investment in the region were Australia (\$52.1 billion), the Republic of Korea (\$46.9 billion), and Malaysia (\$27.9 billion). Though from a low base, other Association of Southeast Asian Nations (ASEAN) economies also increased activity in cross-border intraregional equity investment—investment from Thailand increased by 249.2% and Indonesia by 150.3%.

Outside the region, the US, the EU, and Canada remained top investors in Asia. The increase in share of

other non-Asian investors—from 9.0% in 2013 to 13.6% in 2018—was buoyed by the increased participation of the Cayman Islands. In particular, investment from the Cayman Islands into Japan increased from \$4.0 million to \$43.9 billion over the same period. Investment from outside the region also came from Mauritius to India, increasing by more than 30% and amounting to \$90.7 billion in 2018.

Subregional Portfolio Investment

East Asia continued to drive inter- and intra-subregional portfolio debt investment. Most intraregional linkages strengthened in East Asia, Southeast Asia, and Oceania.

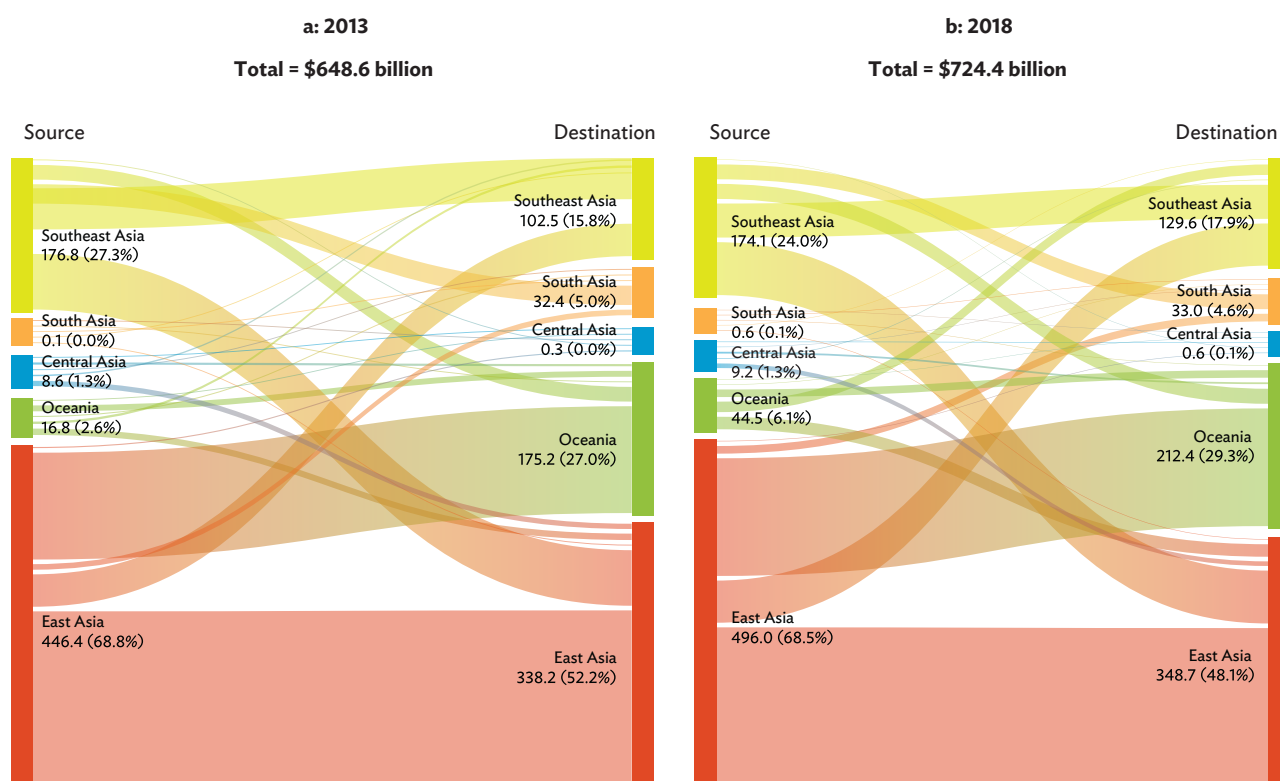
As a source, East Asia's share of intraregional portfolio debt investment hovered around 68.5% between 2013 and 2018 (Figure 3.7), with Hong Kong, China's investment to the PRC strengthening East Asia's intra-subregional portfolio debt investment. Despite the strong inter-subregional linkages of Japan and the Republic of Korea, East Asia's share as a destination

Table 3.4: Sources of Inward Portfolio Equity Investment—Asia

	2013		2018		**
	\$ billion	% share	\$ billion	% share	
Asia					
Hong Kong, China	196	5.6	246	5.3	▼
Singapore	183	5.2	246	5.3	▲
Japan	66	1.9	97	2.1	▲
Other Asia	127	3.6	162	3.5	▼
Asia's inward portfolio equity investment to Asia	573	16.2	751	16.1	▼
Non-Asia					
United States	1,497	42.4	1,976	42.4	—
European Union	1,044	29.6	1,169	25.1	▼
Canada	110	3.1	166	3.6	▲
Other non-Asia	306	8.7	601	12.9	▲
Asia's inward portfolio equity investment to non-Asia	2,958	83.8	3,911	83.9	▲
Asia total inward portfolio equity investment	3,530	100.0	4,662	100.0	

** = direction of change in % share, ▼ = decrease, ▲ = increase, — = no change.

Source: ADB calculations using data from International Monetary Fund. Coordinated Portfolio Investment Survey. <http://data.imf.org/CPIS> (accessed September 2019).

Figure 3.7: Subregional Portfolio Debt Investment—Asia

Notes: Figures in parentheses indicate the percent share of the total. Source economies for subregions are as follows: Central Asia includes Kazakhstan. East Asia includes Hong Kong, China; Japan; Mongolia; and the Republic of Korea. Oceania includes Australia and New Zealand. South Asia includes Bangladesh, India, and Pakistan. Southeast Asia includes Indonesia, Malaysia, the Philippines, Singapore, and Thailand. Asia includes Central Asia, East Asia, Oceania, South Asia, and Southeast Asia.

Source: ADB calculations using data from International Monetary Fund. Coordinated Portfolio Investment Survey. <http://data.imf.org/CPIS> (accessed September 2019).

declined from 52.2% in 2013 to 48.1% in 2018. The increased inter-subregional portfolio debt investment into Singapore reinforced Southeast Asia's inter-subregional linkages, with its share as a destination increasing from 15.8% to 17.9%. Oceania's linkage as source economy also grew from 2.6% to 6.1%, with rising portfolio debt investment to Japan and Singapore.

While South Asia's participation declined, Central Asia remained more or less isolated. ASEAN; Hong Kong, China; Japan; the PRC; and the Republic of Korea's (ASEAN+3) progress to promote local currency bond markets may provide further opportunities for intraregional portfolio debt investment (Box 3.1).

Box 3.1: Recent Progress in Developing Local Currency Bond Markets in ASEAN+3

Regional financial cooperation in Asia is designed to jointly meet development challenges. While local currency (LCY) bond market development is largely national, regional arrangements can support and often complement these efforts. ADB has been working closely with the Association of Southeast Asian Nations (ASEAN) plus Japan; the People's Republic of China; and the Republic of Korea (ASEAN+3) to develop LCY bond markets and promote regional bond market integration under the Asian Bond Markets Initiative (ABMI). ABMI was formed following the 1997/98 Asian financial crisis to offer alternative financing options in the bank-dominated region. There have been several recent developments.

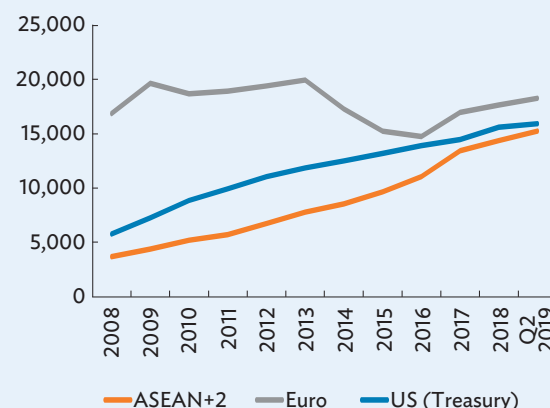
Expanding ABMI beyond ASEAN+3 to Share Experiences and Lessons Learned

Since the ABMI was established in 2002, LCY bond markets in ASEAN+3 economies have grown steadily, and today are comparable in size to the United States (US) Treasury and euro-denominated bonds issued by residents in the euro area (Box Figure 1).

Since 2018, ASEAN+3 has agreed to allow officials from non-ASEAN+3 economies to attend as observers to the ASEAN+3 Bond Market Forum (ABMF). The ABMF was established in 2010 under ABMI as a platform for dialogue between ASEAN+3 financial authorities, regional and global market participants and experts to promote the harmonization of regulatory standards and market practices. As the first non-ASEAN+3 official, Mongolia's Ministry of Finance joined the 28th ABMF meeting in June 2018 in Fukuoka, Japan.

In May 2019, ADB published *Good Practices for Developing a Local Currency Bond Market: Lessons from the ASEAN+3 Asian Bond Markets Initiative* at the ASEAN+3 Finance Ministers and Central Bank Governors' Meeting on the sidelines of the ADB annual meeting in Fiji (ADB 2019). Though every market has its own unique features—there is no “one-size-fits-all” approach—sharing experiences and lessons learned from the ABMI can help foster the process of LCY bond market development across developing Asia.

1: Size of Local Currency Bond Markets
(amount outstanding, \$ billion)



ASEAN = Association of Southeast Asian Nations, Q2 = second quarter, US = United States.

Notes: ASEAN+2 refers to ASEAN plus the Republic of Korea; Hong Kong, China; and the People's Republic of China. Euro refers to euro-denominated debt securities issued by euro area residents. US (Treasury) includes bills, notes, bonds, treasury inflation-protected securities, and floating rate notes.

Sources: AsianBondsOnline, CEIC, European Central Bank, International Monetary Fund, and Securities Industry and Financial Markets Association.

ASEAN+3 Multi-Currency Bond Issuance Framework

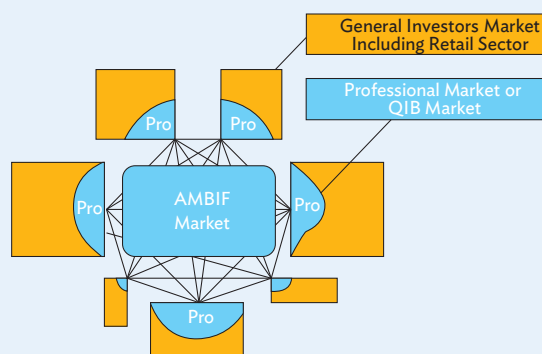
The ASEAN+3 Multi-Currency Bond Issuance Framework (AMBIF) is an ABMI policy initiative designed to help facilitate intraregional transactions by standardizing bond and note issuance, along with investment processes (Box Figure 2). This can help facilitate the process of recycling savings within the region more pragmatically and efficiently. AMBIF helps intraregional bond and note issuance and investment by creating common market practices; utilizing a common document for submission—the single submission form (SSF); and highlighting transparent issuance procedures documented in implementation guidelines for participating markets.

Box 3.1: Recent Progress in Developing Local Currency Bond Markets in ASEAN+3 (continued)

Under the AMBIF, an issuer can apply for bond issuance and make an offer under multiple jurisdictions using the SSF, which uses English as a common language. The AMBIF supports local funding of corporates that operate in various ASEAN+3 markets. It also facilitates intraregional bond investment as investors do not have to translate local documents.

Since 2018, use of the AMBIF has been gradually increasing (Box Table), due to the shift in corporate funding needs from US dollars to local currencies—as ASEAN+3 continues to transform from a production base to a consumer market. As the AMBIF allows multiple listings in different jurisdictions, it aims to support flexible funding needs in different currencies when needed.

Market integration offers various benefits—such as economies of scale, lower capital costs, more opportunities for risk sharing, and stronger political influence in global discussions. While ASEAN+3 recognizes these merits, it is pursuing development differently from the European Union, which is based on top-down leadership with strong cohesion and harmonization. ASEAN+3 integration efforts, however, operate on an open, multitrack, bottom-up and market-friendly approach, based on pragmatism—given the region’s diversity in market and economic development. Therefore, ASEAN+3 focuses more on standardization than harmonization. Standardization tries to ensure conformity, while harmonization attempts to eliminate differences. Standardization can ensure

2: Combining Professional Markets to Build an ASEAN+3 Multi-Currency Bond Issuance Framework


ASEAN = Association of Southeast Asian Nations; ASEAN+3 = ASEAN plus the People's Republic of China, Japan, and the Republic of Korea; AMBIF = ASEAN+3 Multi-Currency Bond Issuance Framework; QIB = qualified institutional buyer.

Source: ADB (2019).

interoperability among different systems under different jurisdictions, while harmonization tries to implement the same system across all jurisdictions. ASEAN+3’s “open regionalism” approach can be shared and transferred across other Asian subregions. Multilateral development banks like ADB can help facilitate and promote standards that provide a basis for regional cooperation and market integration. As an “honest broker,” it can help ensure the specific aims of each member economy are considered, and help bring all stakeholders together as part of a regional arrangement.

Selected Cases of Bond Issuance Based on AMBIF

No.	Issuer	Sector	Currency and Amount	Tenure	Issuance Date
1	Mizuho Bank, Ltd.	Financials (Banking)	B3 billion	3 years	28 September 2015
2	Hattha Kaksekar Limited	Financials (Consumer Finance)	KR120 billion	3 years	14 November 2018
3	AEON Credit Services (Philippines) Inc. ^a	Financials (Consumer Finance)	₱900 million	3 years	16 November 2018
			₱100 million	5 years	16 November 2018
4	CJ Logistics Asia Pte. Ltd. ^a	Logistics	S\$70 million	5 years	26 March 2019

AMBIF = ASEAN+3 Multi-Currency Bond Issuance Framework.

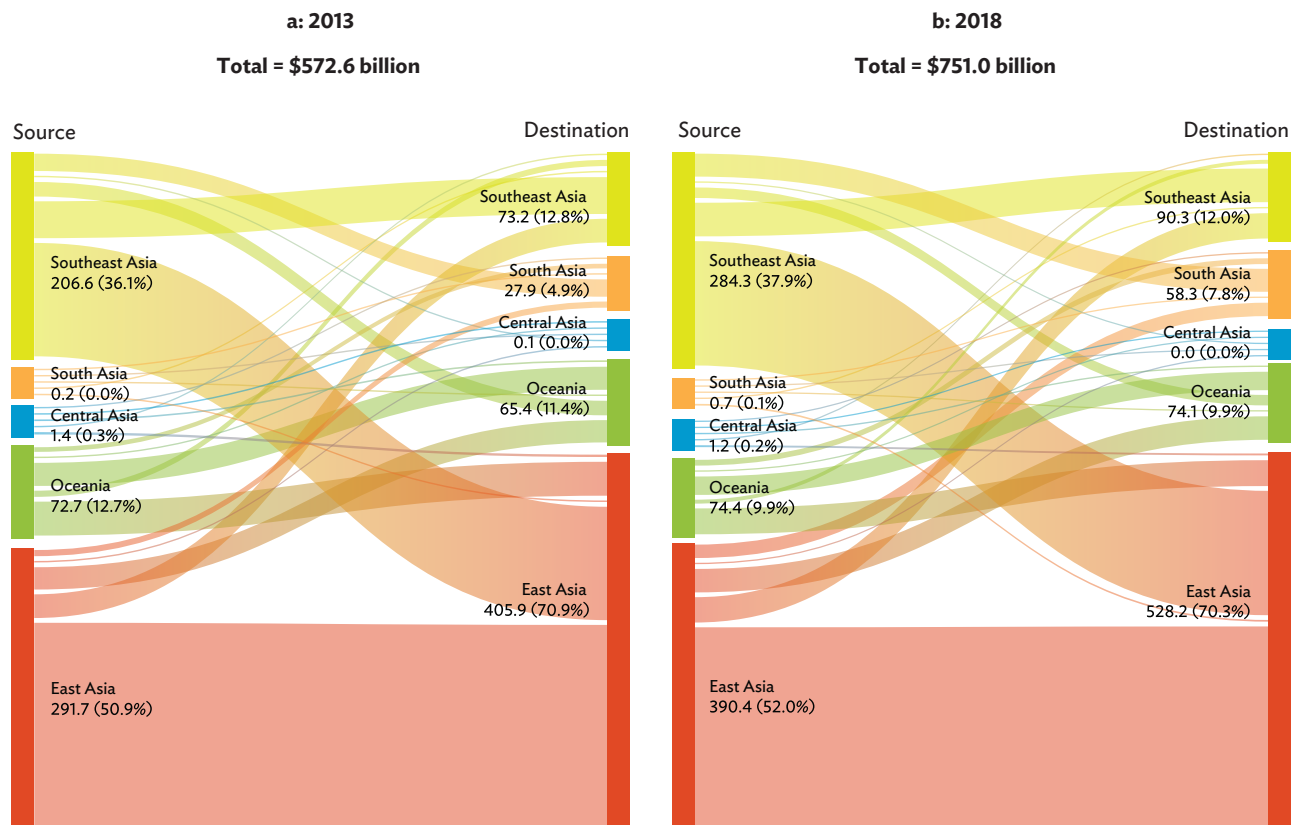
^a Guaranteed by the Credit Guarantee and Investment Facility.

Source: ADB (2019).

Source: Asian Development Bank.

With Hong Kong, China as the top source for intraregional portfolio equity investment, further buoyed by Japan and the Republic of Korea, East Asia’s share of intraregional portfolio equity investment increased from 50.9% to 52.0% from 2013 to 2018 (Figure 3.8). It also remained the most preferred destination, receiving 70.3% of intraregional equity investment. Aside from East Asia,

Southeast Asia and Oceania continued to drive inter-subregional equity investment. Apart from Singapore, other ASEAN economies such as Indonesia, Malaysia, and Thailand invested more in regional equities in 2018. New Zealand also bolstered its contribution to inter-subregional equity investment.

Figure 3.8: Subregional Portfolio Equity Investment—Asia

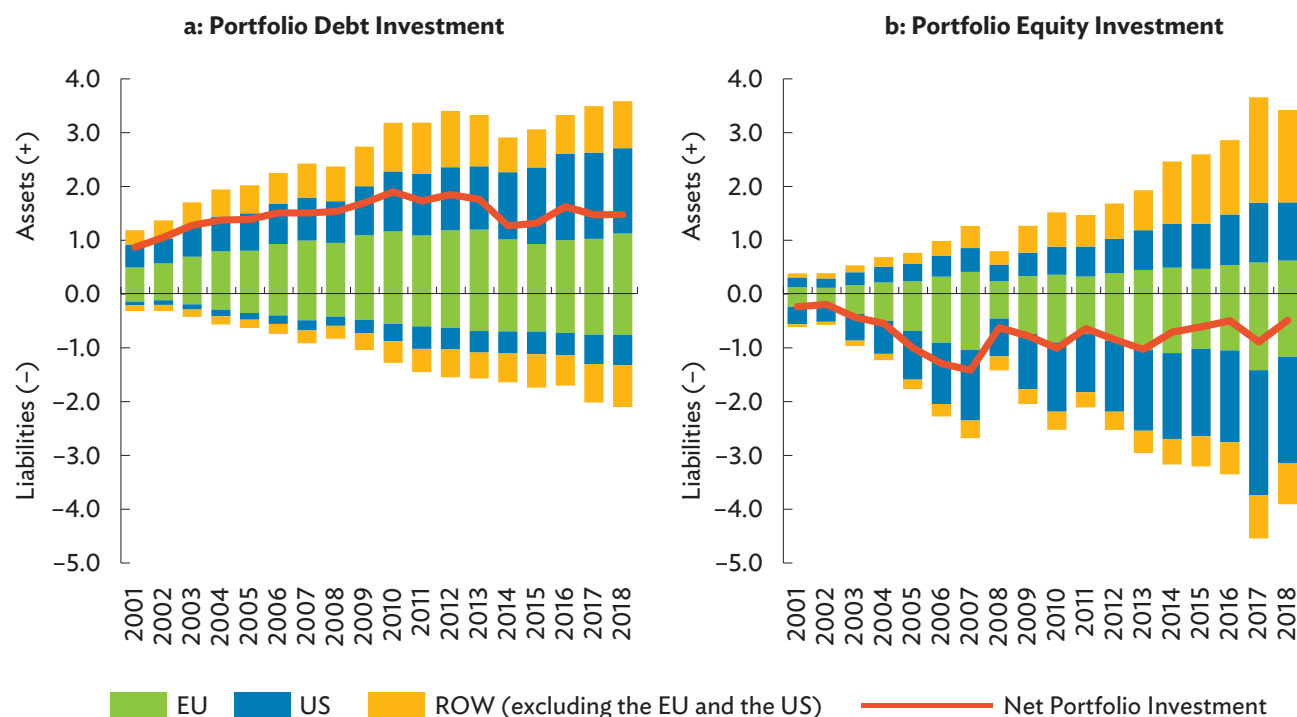
Notes: Figures in parentheses indicate the percent share of the total. Source economies for subregions are as follows: Central Asia includes Kazakhstan. East Asia includes Hong Kong, China; Japan; Mongolia; and the Republic of Korea. Oceania includes Australia and New Zealand. South Asia includes Bangladesh, India, and Pakistan. Southeast Asia includes Indonesia, Malaysia, the Philippines, Singapore, and Thailand. Asia includes Central Asia, East Asia, Oceania, South Asia, and Southeast Asia.

Source: ADB calculations using data from International Monetary Fund. Coordinated Portfolio Investment Survey. <http://data.imf.org/CPIs> (accessed September 2019).

Asia's global portfolio investment outstanding continued to grow, underpinning the region's increasing importance as both an attractive investment destination and global portfolio investor. In net terms, Asia remains a net portfolio debt investor and a net equity issuer globally.

Amid rather limited intraregional shares of portfolio investment, Asia steadily increased its global portfolio investment position, while global investors likewise continued to enlarge their portfolio investment in Asia. This pattern reflects both the preference of Asian investors to invest outside the region and global investor appetite for Asian debt and equities.

Asian investors hold more portfolio debt outside the region than global investors invest in debt securities issued in Asia (Figure 3.9a). As a result, the region is a net portfolio debt investor globally. Considering only extraregional cross-border portfolio investment, Asian investors held 17.8% or \$3.6 trillion of the global total in 2018. The main global portfolio debt investors are Japan; Hong Kong, China; and Singapore. But the Republic of Korea's investment has also grown strong, as it shifted from being a net debt issuer to a net debt investor. Global investors in turn invested 10.4% or \$2.1 trillion of the global total in 2018 in Asia, with Oceania increasingly becoming a net debt issuer. In 2018, the largest portion of Asian extraregional portfolio debt investment outstanding was invested in US debt securities, whereas

Figure 3.9: Global Portfolio Investment—Asia with the Rest of the World (\$ trillion)

EU = European Union, ROW = rest of the world, US = United States.

Note: Asia includes ADB regional members for which data are available.

Source: ADB calculations using data from International Monetary Fund. Coordinated Portfolio Investment Survey. <http://data.imf.org/CPIs> (accessed September 2019).

the ROW (excluding the EU and the US) was the primary investor in Asian debt securities.

The pattern is different for global portfolio equity investment, with Asia remaining a net equity issuer (Figure 3.9b). Global investors placed 18.9% or \$3.9 trillion of the global total extraregional portfolio equity investment in 2018 in Asia, exceeding Asia's global equity investment—\$3.4 trillion or 16.5% of the global total. India, the Republic of Korea, and ASEAN4 economies are significant net equity issuers, while Hong Kong, China and Singapore have increasingly become net equity investors.¹⁷ Australia shifted from being a net equity issuer to an investor in 2011. In 2018, the US was the main global investor in Asian equities, whereas Asia's equity investment to the ROW (excluding the EU and the US) increased considerably over recent years, and was the largest in 2018.

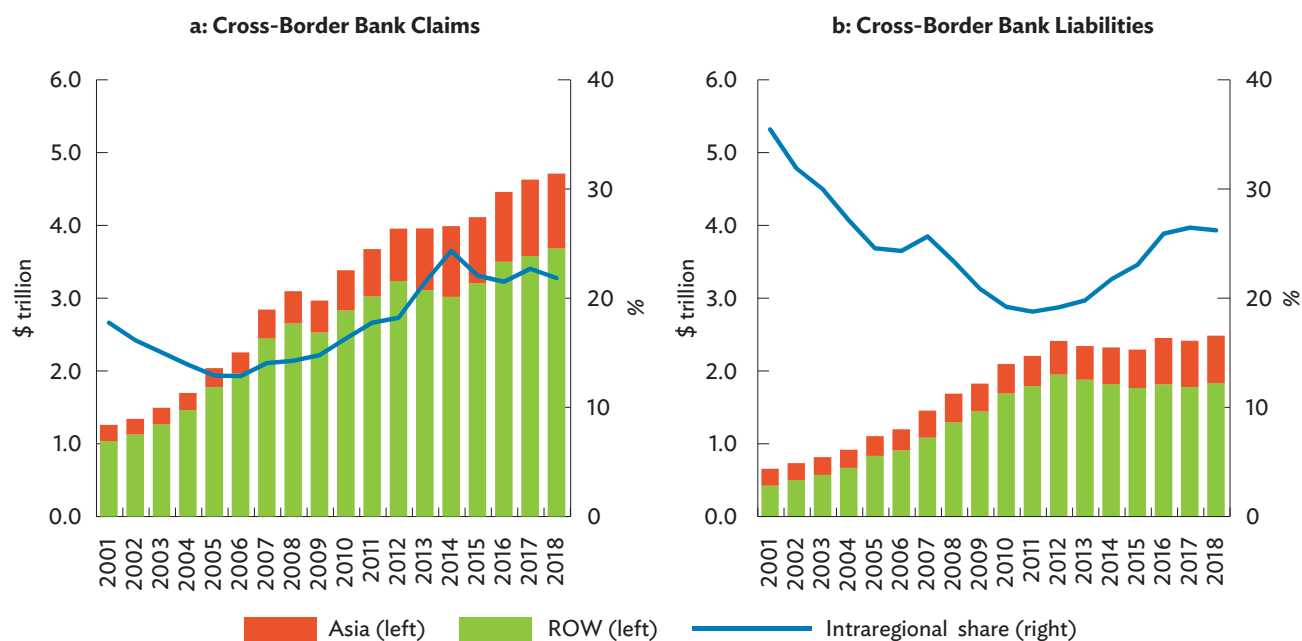
Bank Holdings¹⁸

Asia's cross-border bank credit continues to soar, with cross-border bank claims reaching a record \$4.7 trillion in 2018 and liabilities hitting \$2.5 trillion, also a record. Bank claims on borrowers outside the region increased, while intraregional bank credit fell from \$1.1 trillion in 2017 to \$1.0 trillion.

Asia's cross-border bank claims rose to \$4.7 trillion in 2018 from \$4.6 trillion in 2017, despite the decline in intraregional bank claims to \$1.0 trillion from \$1.1 trillion (Figure 3.10a). The share of intraregional bank claims thus fell to 21.8% from 22.7%. Asia's cross-border bank liabilities rose to \$2.5 trillion in 2018 from \$2.4 trillion in 2017, but the intraregional share declined slightly from

¹⁷ ASEAN4 economies comprise Indonesia, Malaysia, the Philippines, and Thailand.

¹⁸ Bank holdings are based on the Locational Banking Statistics from the Bank for International Settlements. Asia's reporting economies include Australia; Japan; the Republic of Korea (data beginning 2005); the Philippines (data beginning 2016); and Taipei, China. Hong Kong, China is excluded due to lack of comparable data for 2001–2013.

Figure 3.10: Cross-Border Bank Holdings—Asia

ROW = rest of the world.

Note: Asia includes ADB regional members for which data are available.

Source: ADB calculations using data from Bank for International Settlements, Locational Banking Statistics. <https://www.bis.org/statistics/bankstats.htm> (accessed September 2019).

26.5% to 26.2% (Figure 3.10b). The majority of Asia's bank claims and liabilities remain on countries outside the region, while both shares of intraregional bank claims and liabilities fell during 2017–2018.

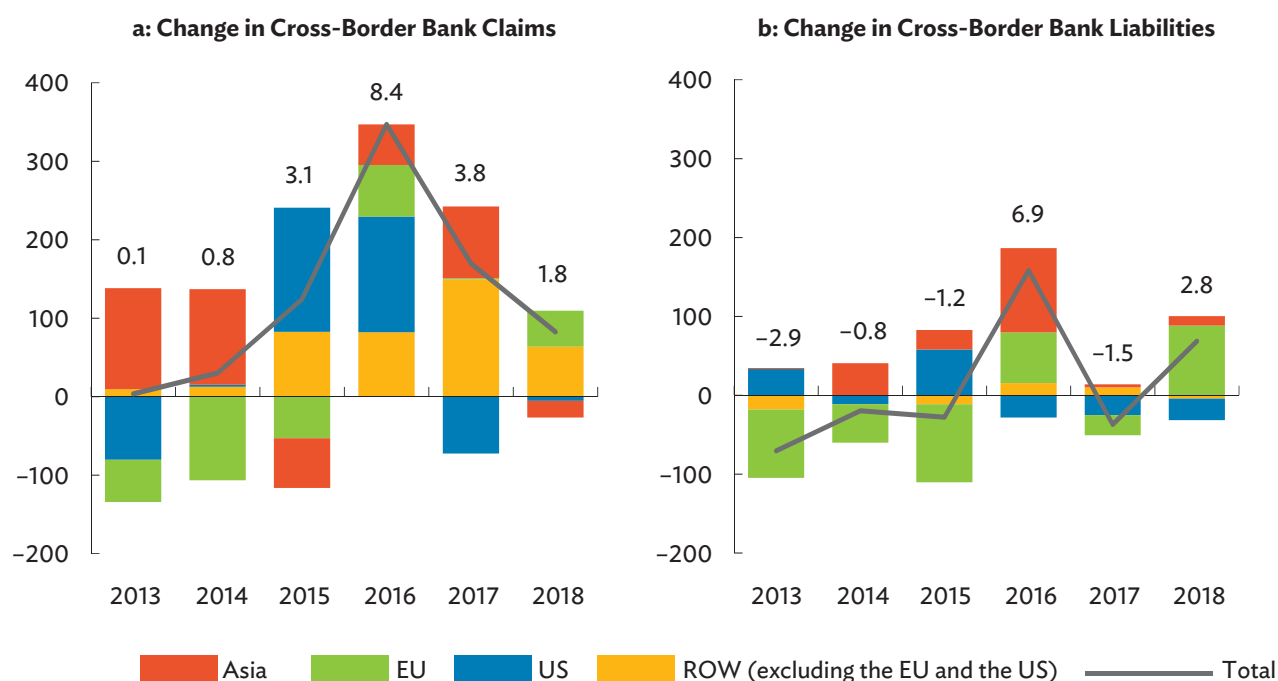
Asia's cross-border bank claims on the ROW (excluding the EU and the US) and liabilities on the EU were behind the rise in cross-border bank claims in 2018, while Asia's bank liabilities on the US have continued to decline since 2016. Asia's bank claims within the region fell by \$21.3 billion while those on the ROW (excluding the EU and the US) rose by \$63.5 billion.

Both Asia's bank claims and liabilities on the EU rose in 2018, while intraregional bank claims declined. The region increased its bank claims on the ROW (excluding the EU and the US) by 5.8% or \$63.5 billion, possibly driven by a search for higher returns in an otherwise low

interest rate environment. Japan still accounts for the major share of the region's overall cross-border banking activity.

The increase in Asia's cross-border bank claims declined from \$169.7 billion in 2017 to \$82.5 billion in 2018, with the change in intraregional bank claims accounting for much of the drop (Figure 3.11a), as it fell from \$91.5 billion in 2017 to -\$21.3 billion in 2018. The combined change in bank claims on the PRC; Hong Kong, China; and Japan was -\$35.7 billion. Asia's bank claims on the EU, however, increased from \$1.7 billion in 2017 to \$45.8 billion in 2018, with bank claims on the United Kingdom (UK) accounting for much of the increase (\$51.0 billion).

The change in Asia's bank liabilities increased significantly—to \$68.6 billion in 2018 from -\$37.0 billion in 2017—with Asia and the EU driving the increase (Figure 3.11b). The change in Asia's bank liabilities with the EU increased from -\$25.6 billion to \$88.3 billion,

Figure 3.11: Change in Cross-Border Bank Holdings—Asia (\$ billion)

EU = European Union, ROW = rest of the world, US = United States.

Notes: Asia includes ADB regional members for which data are available. Labels refer to year-on-year percentage change in bank holdings data.

Source: ADB calculations using data from Bank for International Settlements. Locational Banking Statistics. <https://www.bis.org/statistics/bankstats.htm> (accessed September 2019).

with Asia's bank liabilities on France, Germany, and the UK accounting for \$80.7 billion. Asia's intraregional bank liabilities also picked up by \$11.9 billion in 2018, compared with only \$3.8 billion in 2017, during which bank liabilities with Hong Kong, China increased by \$13.5 billion.

With increased cross-border banking linkages between Australia and the PRC, the PRC has overtaken both Singapore and Hong Kong, China as the most preferred destination for intraregional bank claims (Table 3.5). Australia's bank claims on the PRC more than doubled from \$20.1 billion in 2013 to \$41.6 billion in 2018, as they forged closer ties (Cranston 2019). The increasing proportion of intraregional bank claims on other Asian economies could specifically be attributed to Asia's rising bank claims on Japan and India.

Despite the contraction in Asia's bank claims on the US in 2017 and 2018, the US remained the most preferred destination in 2018 in terms cross-border bank claims outstanding. While bank claims on the EU declined

between the 2013 taper tantrum and the US monetary policy normalization period, they have increased again. The increase in Asia's bank claims on the Cayman Islands stands out, as Japan's bank claims almost doubled from \$396.0 billion in 2013 to \$759.3 billion in 2018—the Cayman Islands is Japan's second largest counterparty for cross-border bank claims. This could be attributed to a search for higher returns by Japanese investors amid the low domestic interest rate environment and associated challenges for large institutional investors, such as pension funds. Australia's bank claims on the Cayman Islands also increased substantially, from \$1.0 billion in 2013 to \$27.8 billion in 2018.

In the aftermath of the global financial crisis (GFC), Asia's cross-border bank liabilities outside the region fell in tandem with the rising trend of its intraregional share, from 19.8% in 2013 to 26.2% in 2018 (Table 3.6). Hong Kong, China; Singapore; and the PRC remained the region's top sources of cross-border bank liabilities,

Table 3.5: Destinations of Cross-Border Bank Claims—Asia

	2013		2018		**
	\$ billion	% share	\$ billion	% share	
Asia					
People's Republic of China	166	4.2	214	4.5	▲
Singapore	196	5.0	213	4.5	▼
Hong Kong, China	186	4.7	210	4.5	▼
Other Asia	300	7.6	393	8.3	▲
Asia's cross-border bank claims on Asia	849	21.4	1,029	21.8	▲
Non-Asia					
United States	1,049	26.5	1,279	27.1	▲
European Union	1,288	32.6	1,242	26.4	▼
Cayman Islands	409	10.3	808	17.2	▲
Other non-Asia	363	9.2	353	7.5	▼
Asia's cross-border bank claims on non-Asia	3,109	78.6	3,682	78.2	▼
Asia's total cross-border bank claims	3,958	100.0	4,711	100.0	

** = direction of change in % share, ▼ = decrease, ▲ = increase.

Source: ADB calculations using data from Bank for International Settlements. Locational Banking Statistics. <https://www.bis.org/statistics/bankstats.htm> (accessed September 2019).

Table 3.6: Sources of Cross-Border Bank Liabilities—Asia

	2013		2018		**
	\$ billion	% share	\$ billion	% share	
Asia					
Hong Kong, China	165	7.0	272	11.0	▲
Singapore	127	5.4	149	6.0	▲
People's Republic of China	25	1.1	70	2.8	▲
Other Asia	147	6.3	160	6.4	▲
Asia's cross-border bank liabilities to Asia	463	19.8	651	26.2	▲
Non-Asia					
European Union	997	42.6	976	39.3	▼
United States	706	30.2	673	27.1	▼
Cayman Islands	54	2.3	54	2.2	▼
Other non-Asia	121	5.2	130	5.2	—
Asia's cross-border bank liabilities to non-Asia	1,878	80.2	1,833	73.8	▼
Asia's total cross-border bank liabilities	2,341	100.0	2,484	100.0	

** = direction of change in % share, ▼ = decrease, ▲ = increase, — = no change.

Source: ADB calculations using data from Bank for International Settlements. Locational Banking Statistics. <https://www.bis.org/statistics/bankstats.htm> (accessed September 2019).

accounting for more than three-quarters of total intraregional bank liabilities. The EU, the US, and the Cayman Islands remain the region's main sources of bank liabilities from outside the region.

The volatility of intraregional bank claims and liabilities tends to be lower than those with the US and the EU. The volatility with the US has increased steadily, especially

since the onset of US monetary policy normalization in 2016. Asia's bank liabilities with the EU have been more volatile than those with the US, Asia, and the ROW (excluding the EU and the US).

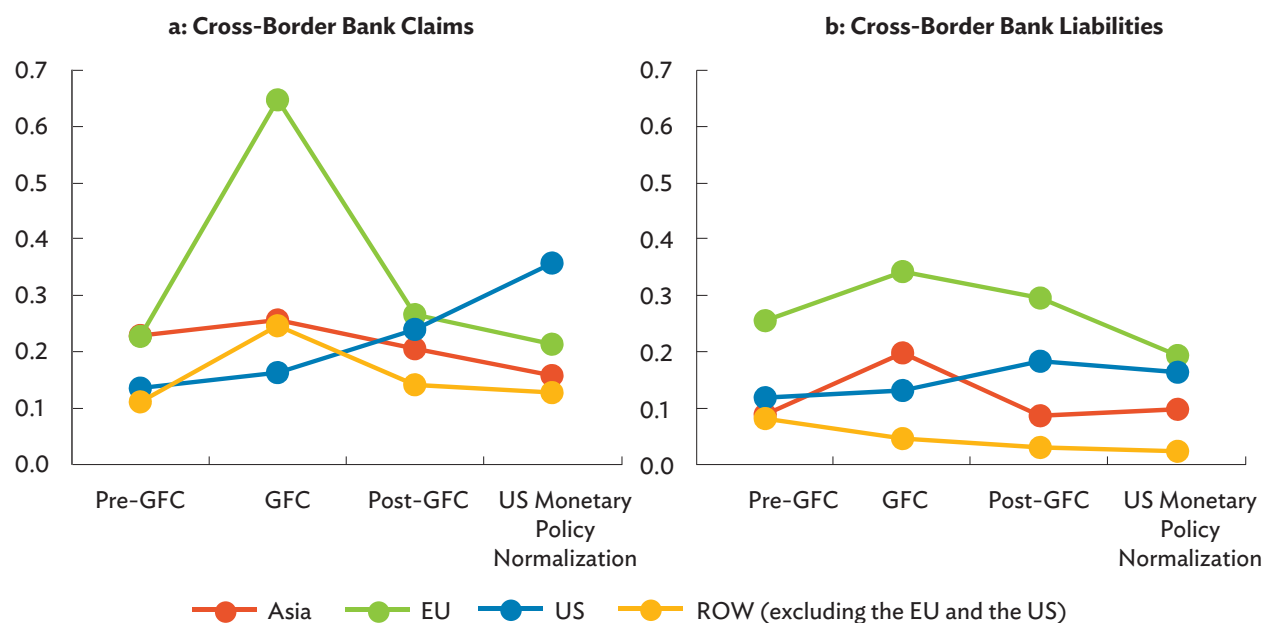
From December 1998 until the GFC period, Asia's cross-border bank claims on the EU were the most volatile compared with others. Since the post-GFC and US monetary policy normalization periods, Asia's bank claim volatility with the US has risen rapidly, but still remains lower than the peak volatility with the EU during the GFC period (Figure 3.12a). On the liability side, while the EU was the largest counterpart of Asia's bank liabilities, they were also the most volatile, illustrating the associated risks of financial volatility (Figure 3.12b).

The volatilities of intraregional cross-border bank claims and liabilities have fallen since the 2008/09 GFC and are lower than those in the EU and the US, suggesting that intraregional banking activities are less responsive to external shocks compared with others. Therefore, in recent years, there has been a need for Asian policy

makers to closely monitor Asia's bank credit exposure to the global banking network—such as the EU and the US. Appropriate macroprudential and capital flow management measures—such as limiting short-term bank debt—could be used to lessen systemic concern and mitigate volatilities of cross-border bank credits if needed. The volatile nature of cross-border bank claims and liabilities calls for close monitoring of Asian banks' foreign exposures in case the global liquidity cycle reverses.

Ensuring the stability of the banking sector—the major source of credit in Asia—is more crucial in the face of recently increasing nonperforming loans (NPLs) and their ratios in selected Asian economies. NPL ratios for these economies increased in recent years and remain elevated (Figure 3.13). With Asia's financial markets becoming increasingly integrated, addressing NPLs swiftly remains critical to safeguard regional financial stability and development. Since the European sovereign debt crisis, Europe has taken great efforts regionally to address the systemic challenges associated with NPLs—which have grown and persisted—offering important lessons for Asia's forward-looking policy options (Box 3.2).

Figure 3.12: Bank Volatility—Asia (change in bank holdings to GDP, standard deviation)



EU = European Union, GDP = gross domestic product, GFC = global financial crisis, ROW = rest of the world, US = United States.

Pre-GFC = December 1998 to September 2007, GFC = October 2007 to June 2009, Post-GFC = July 2009 to December 2015, US Monetary Policy Normalization = January 2016 to December 2018.

Notes: Asia includes ADB regional members for which data are available. Volatility is measured as the standard deviation of the 4-quarter moving average of the change in bank holdings to GDP.

Source: ADB calculations using data from Bank for International Settlements. Locational Banking Statistics. <https://www.bis.org/statistics/bankstats.htm> (accessed May 2019).

Box 3.2: Harnessing Regional Cooperation to Address Nonperforming Loans: Lessons from Europe

Previous financial crises have demonstrated the long-lasting negative impact nonperforming loans (NPLs) can have on financial stability and the economy, as the effects of elevated NPL levels persist beyond crisis periods. Even after the recovery of economic growth, there is a tendency for NPLs to continue to rise unless appropriate measures are taken. Mongolia is the latest example of an economic recovery with persisting high NPLs. High and rising NPL levels are a cause for concern, as they are a result of weak macroeconomic conditions and prompt harmful feedback effects on the overall economy. Empirical analysis examining the macrofinancial implications of NPLs illustrates how a rising NPL ratio decreases gross domestic product (GDP) growth and credit supply while increasing unemployment (Lee and Rosenkranz 2019).

This lesson is particularly relevant for Asia, with its increasingly integrated financial markets. Risks of contagion and spillover of financial instability can potentially spread across sectors and economies. Its significance is underscored by the important role banking plays across Asia's financial systems. Bank financing comprises by far the largest share of corporate financing in emerging Asia, accounting for 123.6% of corporate financing (as a percentage of GDP) in the region in 2018.^a

NPLs increased in several Asian economies in recent years, constituting cause for concern for policy makers and highlighting that swift action is critical for safeguarding regional financial stability and economic development (see Figure 3.13). Hence, an appropriate mix of national and regional policies should become a part of crisis management and prevention toolkits.

The European Response to the NPL Problem

The euro area's recent experience with mounting NPLs vividly illustrates the systemic and negative impact NPLs have on all economies in the region. In the absence of a banking union—alongside insufficient transnational supervisory and regulatory structures governing banks and other financial institutions—failures of banks that also operate across borders can easily be transmitted across a highly financially integrated single market.

In response to the European sovereign debt crisis, Europe has taken great strides toward establishing a European banking union, putting in place mechanisms and facilities for integrated banking supervision and resolution. First, the Single Supervisory Mechanism was established to strengthen the European Central Bank's supervisory capabilities over important financial institutions and enhance its ability to monitor compliance with capital,

leverage, and liquidity requirements. Second, the Single Resolution Mechanism was set up in 2014 to ensure the protection of depositors and public funds, secure the continuity of essential banking operations, and more broadly enhance financial stability.

Despite extensive efforts to strengthen banking sector stability and resilience in the euro area, the region still suffers from high NPL levels in some countries, and NPL resolution—while gaining in momentum—has been slow (European Central Bank 2019). As of the third quarter of 2018, gross NPLs and advances as a percentage of total gross loans and advances for the six euro area economies^b most plagued by NPLs during the height of the crisis averaged 16.8%; the corresponding figure for the European Union (EU) as a whole was 3.3% (European Commission 2019).

Consequently, European policy makers have been determined to act in recent years to address the NPL challenge—identified as a key area to reduce risk in European banking—which has systemic implications for the region's banking sector as a whole. A comprehensive response was the EU's Action Plan to Tackle NPLs in Europe (Action Plan), which was announced in July 2017. It is grounded in four areas—(i) insolvency frameworks, (ii) supervision, (iii) secondary markets, and (iv) macroprudential approaches. The Action Plan is close to being fully implemented^c (European Commission 2019) and includes measures ranging from the review of national insolvency frameworks, data harmonization, and provisioning requirements; to more innovative solutions such as a blueprint for creating national asset management companies (AMCs), or the potential creation of regional NPL transaction platforms (European Commission 2018a).

As part of the Action Plan, the European Commission (2018b) outlined factors to be considered in establishing EU-wide transaction platforms to bolster NPL market development, particularly secondary markets. A European NPL platform would be an electronic marketplace and data warehouse facilitating the exchange of NPLs between banks and investors and providing a facility for the efficient and timely disposal of NPLs. To maximize effectiveness and stem the buildup of NPLs on financial institutions' future balance sheets, the platform should (i) be broad in scope, (ii) ensure data sharing and a high degree of data standardization, and (iii) serve as a price discovery mechanism and intermediary between investors and third-party service providers (European Commission 2018b). Asian policy makers should closely monitor these developments and draw on any relevant lessons.

Box 3.2: Harnessing Regional Cooperation to Address Nonperforming Loans: Lessons from Europe *(continued)***Lessons for Asia**

As seen in Europe, increasing financial integration highlights the possible systemic implications of NPLs. This underscores the need for regional cooperation to safeguard financial stability and resilience. Against the backdrop of Europe's NPL experience—and the recent rise of NPLs in Asia—it is an increasingly important issue for stability in predominantly bank-based Asia. Regional cooperation can help bolster NPL resolution and promote secondary NPL market development.

Regional efforts to address growing NPL levels and stem any future NPL buildup must deal with Asia's heterogeneous legal frameworks, lack of a standardized definition of NPLs, and less data harmonization relative to Europe. Asian policy makers need to take concerted action to strengthen legal structures—such as collateral or insolvency frameworks—enhance data transparency and harmonization, and facilitate knowledge exchange, all while taking into account specifics in each economy.

The option of creating a public AMC has long existed in several Asian economies. It is a viable option as a (i) NPL resolution mechanism, and (ii) facilitator for NPL market development. Public AMCs in Indonesia, Malaysia, the Republic of Korea, and Thailand helped banks recover in

the aftermath of the 1997/98 Asian financial crisis (AFC). A mix of policy options in the aftermath of the AFC, including AMC operations with strengthened legal and institutional reforms, contributed to building financial market resilience which helped Asian financial markets weather the GFC. Asia's experience illustrates the efficiency in reducing NPLs by combining a market-friendly resolution approach with a clearly defined role for a centralized public AMC. Furthermore, Asia's experience has demonstrated how public AMCs can simultaneously facilitate crisis resolution while enhancing financial resilience between crises.

NPL transaction platforms in Asia could also help deepen Asian NPL markets, possibly across borders, thereby eventually strengthening the regional financial safety net. The platform could facilitate data consolidation and standardization, bridge investors and sellers through a centralized contact point, guarantee transparency and fairness in the exchange of NPLs (Manca, Böschbrocker, and Navarra 2019), and contribute to fostering banking sector stability. NPL transaction platforms remain an innovative policy option that can help overcome implementation challenges. Such platforms could be developed using fintech developments—including big data, a robo-advisor on distressed assets, and payment and settlement.

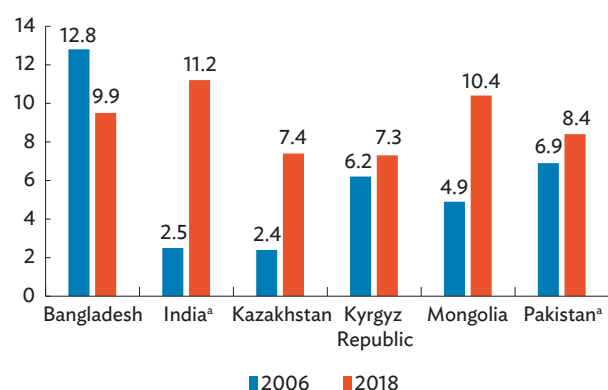
^a Emerging Asia includes India, Indonesia, Malaysia, the People's Republic of China, the Philippines, the Republic of Korea, Thailand, and Viet Nam. Data taken from CEIC; International Monetary Fund. World Economic Outlook. www.imf.org/en/Data; and national sources (all accessed August 2019).

^b These are Cyprus, Greece, Ireland, Italy, Portugal, and Slovenia.

^c Of the 14 initiatives subsumed under the Action Plan, 11 were accomplished as of 12 June 2019; two were categorized as ongoing, and one imminent (European Commission 2019).

Source: Asian Development Bank.

Figure 3.13: Nonperforming Loan Ratios—Selected Asian Economies (% of gross loans)



^a Latest available data as of 2017.

Source: ADB calculations using data from the Bank of Mongolia; CEIC; and World Bank. World Development Indicators. <https://databank.worldbank.org/source/world-development-indicators> (accessed July 2019).

Analysis Using Price Indicators

Debt

The intraregional correlation of Asia's bond market returns and correlation of Asia's bond markets with global markets increased between 2016 and 2019—the period of US monetary policy normalization. The correlation with global markets exceeded the intraregional correlation, coinciding with the limited intraregional shares for outstanding portfolio debt investment discussed earlier.

Between the post-GFC and US monetary policy normalization periods, the correlation of Asia's bond returns with the global markets increased considerably, both within the region and the world (Table 3.7). The increasing correlation between Asia and the world can be attributed to the increasing correlation between Asian and US bond market returns. By subregion, markets in East Asia, Southeast Asia, and South Asia contributed to this increased correlation. Central Asia's bond markets correlation with external markets also increased significantly, while Oceania's markets remained negatively correlated with global markets.

The average intraregional bond return correlation increased from 0.19 to 0.34, illustrating the increased integration of the region's bond markets. Bond returns in the PRC and Japan have become increasingly correlated with Asia's bond returns. Central Asia, East Asia, Southeast Asia, and South Asia also drove this increased correlation, while Oceania's bond market returns became negatively correlated with Asia's bond returns.

The correlation of Asia's bond returns with global markets increased considerably between the post-GFC and US monetary policy normalization periods. By subregion, the markets of East Asia, Southeast Asia, and South Asia

contributed to this trend. The correlation of Central Asia's bond markets with external markets significantly increased, while Oceania's markets remained negatively correlated with global markets.

The dynamic conditional correlation of Asia's bond returns remained highest with global markets, followed by the US markets.

A dynamic conditional correlation (DCC) analysis of Asia's bond returns shows similar patterns to the analysis of simple correlation—Asia's bond market returns tend to co-move more with global markets than with those within the region. For Asia's DCCs with the world and the US, as well as intraregionally, there were peaks during the 2016 US presidential election as well as US interest rate hikes and the PRC–US trade tension onset in 2018, suggesting that these events had a considerable influence on the region's bonds market returns (Figure 3.14). By contrast, during US interest rate hikes, the DCC with the PRC fell into a trough. Asia's bond return DCC with the US picked up considerably since the period of US monetary policy normalization in 2016, while Asia's bond return DCC with EU markets hovered below zero.

Table 3.7: Average Simple Correlation of Weekly Total Bond Return Indexes—Asia with Asia and the World

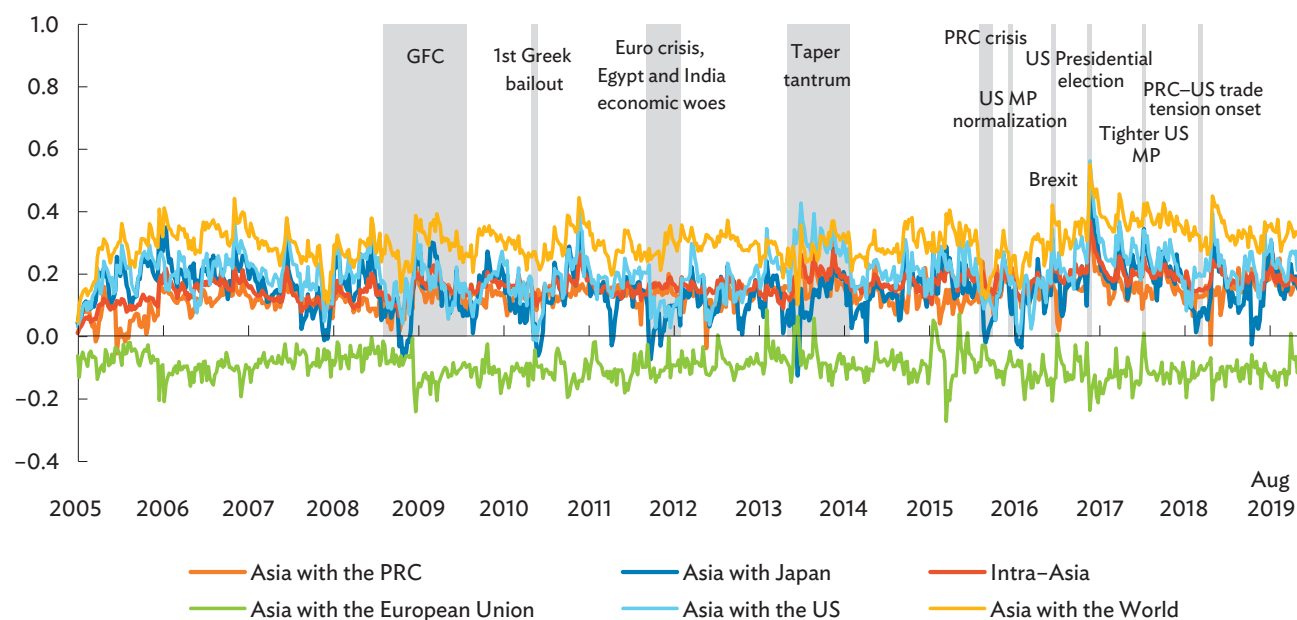
Region	Asia			World		
	Post-GFC	US Monetary Policy Normalization	**	Post-GFC	US Monetary Policy Normalization	**
Central Asia	0.12	0.32	▲	0.15	0.35	▲
East Asia	0.25	0.42	▲	0.41	0.53	▲
Southeast Asia	0.26	0.54	▲	0.35	0.55	▲
South Asia	0.03	0.27	▲	0.18	0.23	▲
Oceania	0.01	-0.34	▼	-0.21	-0.24	▼
Asia	0.19	0.34	▲	0.27	0.39	▲

** = direction of change in simple correlation between post-GFC and US monetary policy normalization, ▼ = decrease, ▲ = increase, GFC = global financial crisis, US = United States.

Post-GFC = July 2009 to December 2015, US Monetary Policy Normalization = January 2016 to August 2019.

Notes: (i) Values refer to the average of pair-wise correlations. Weekly returns are computed as the natural logarithm difference between weekly average of daily total bond return index for the current week, and the weekly average of the daily total bond return index from the previous week. World returns are calculated from Bloomberg Barclays Global Treasury Total Return Index Value Unhedged USD. (ii) Central Asia includes Kazakhstan. East Asia includes Hong Kong, China; Japan; the People's Republic of China; the Republic of Korea; and Taipei, China. Oceania includes Australia and New Zealand. South Asia includes India. Southeast Asia includes Indonesia, Malaysia, the Philippines, Singapore, and Thailand. Asia includes Central Asia, East Asia, Oceania, South Asia, and Southeast Asia.

Sources: ADB calculations using data from Bloomberg; CEIC; and World Bank. World Development Indicators. <https://data.worldbank.org/indicator/ny.gdp.mktp.cd> (accessed September 2019).

Figure 3.14: Conditional Correlation of Total Bond Return Indexes—Asia with Select Economies and Regions

GFC = global financial crisis, MP = monetary policy, PRC = People's Republic of China, US = United States.

Note: Asia includes Australia; Hong Kong, China; India; Indonesia; Japan; Kazakhstan; Malaysia; New Zealand; the People's Republic of China; the Philippines; the Republic of Korea; Singapore; Taipei, China; and Thailand.

Source: ADB calculations using data from Bloomberg; and methodology by Hinojales and Park (2010).

Equity

Asia's equity returns continue to be more correlated globally than regionally, with increasing intraregional correlations. While the increased correlation in bond returns is more pronounced, average equity return correlations still exceed those of bond returns, suggesting that Asia's equity markets are more integrated than its bond markets.

Asia's intraregional equity return correlation increased in the US monetary policy normalization period, driven primarily by East Asia and Southeast Asia, suggesting progress in integrating the region's equity markets. In particular, Japan's equity return correlation with East Asia has increased since 2016 (Table 3.8).

Asia's equity return correlation with world equity returns has increased slightly from 0.33 to 0.37. By subregion, there has been a slight decline in Oceania and a notable increase in East Asia. The increase suggests a rising

degree of integration of the PRC and Hong Kong, China equity markets globally.

Asia's equity return DCC, both intraregional and global, peaked toward the end of 2018, suggesting that escalating trade tensions were triggering equity market volatility. In line with Asia's pronounced portfolio equity investment globally, DCC with the world and US markets remain highest.

Asia's DCC with the world remained higher than the intraregional DCC (Figure 3.15). Asia's intraregional equity return DCC remained buoyed by the elevated equity return DCC with Japan. During crisis episodes and other important events, intraregional equity returns move in the same direction as Japan's. Asia's equity return DCC, however, moves in the opposite direction of the PRC's equity returns. However, after Asia's DCC peaked in October 2018—a period during which PRC–US trade tensions intensified—Asia's intraregional equity return DCC increased.

Table 3.8: Average Simple Correlation of Stock Price Index Weekly Returns—Asia with Asia and the World

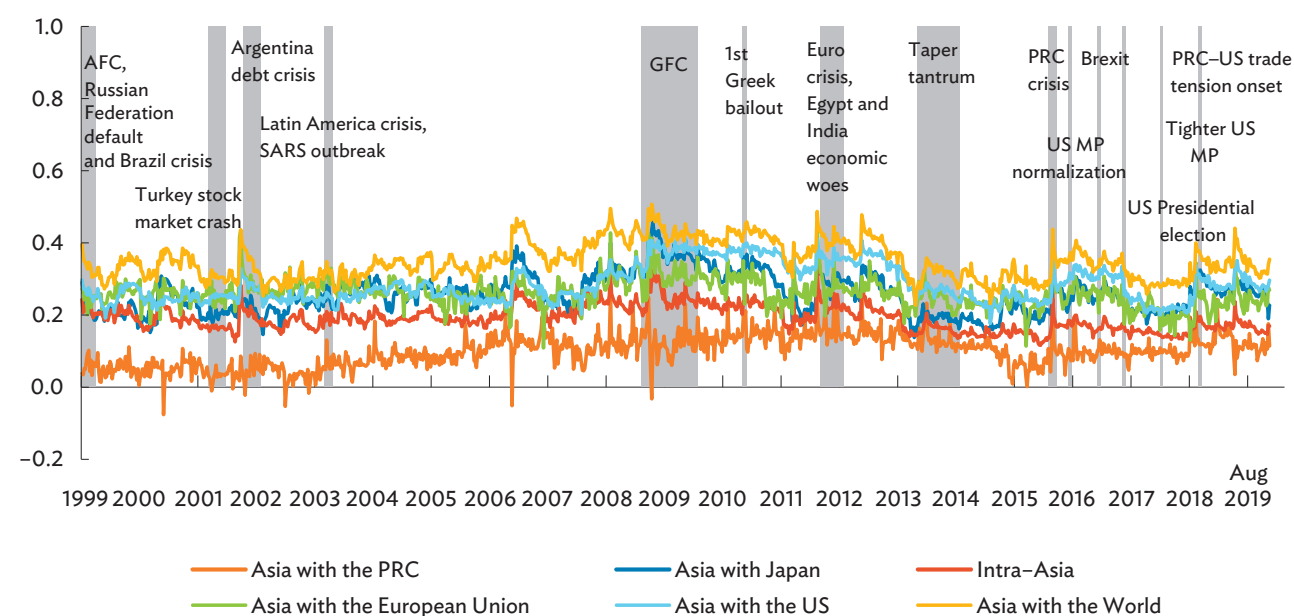
Region	Asia			World		
	Post-GFC	US Monetary Policy Normalization	**	Post-GFC	US Monetary Policy Normalization	**
Central Asia	0.13	0.16	▲	0.12	0.16	▲
East Asia	0.52	0.61	▲	0.49	0.60	▲
Southeast Asia	0.37	0.44	▲	0.46	0.47	▲
South Asia	0.18	0.18	—	0.15	0.19	▲
Oceania	0.07	0.03	▼	0.18	0.13	▼
Asia	0.31	0.36	▲	0.33	0.37	▲

** = direction of change in simple correlation between post-GFC and US monetary policy normalization, ▼ = decrease, ▲ = increase, — = no change, GFC = global financial crisis, US = United States.

Post-GFC = July 2009 to December 2015, US Monetary Policy Normalization = January 2016 to August 2019.

Notes: (i) Values refer to the average of pair-wise correlations. Weekly returns are computed as the natural logarithm difference between weekly average of daily stock price index for the current week, and the weekly average of the daily stock price index from the previous week. World returns are calculated from the MSCI All-Country World Index. (ii) Central Asia includes Georgia, Kazakhstan, and the Kyrgyz Republic. East Asia includes Hong Kong, China; Japan; Mongolia; the People's Republic of China; the Republic of Korea; and Taipei, China. Oceania includes Australia and New Zealand. South Asia includes Bangladesh, India, Nepal, Pakistan, and Sri Lanka. Southeast Asia includes Indonesia, the Lao People's Democratic Republic, Malaysia, the Philippines, Singapore, Thailand, and Viet Nam. Asia includes Central Asia, East Asia, Oceania, South Asia, and Southeast Asia.

Sources: ADB calculations using data from Bloomberg; CEIC; Stooq. Stooq Online. <https://stooq.com/q/?s=^sti>; and World Bank. World Development Indicators. <http://data.worldbank.org/data-catalog/world-development-indicators> (all accessed September 2019).

Figure 3.15: Conditional Correlation of Equity Markets—Asia with Select Economies and Regions

AFC = Asian financial crisis, GFC = global financial crisis, MP = monetary policy, PRC = People's Republic of China, SARS = severe acute respiratory syndrome, US = United States.

Note: Asia includes Australia; Bangladesh; Georgia; Hong Kong, China; India; Indonesia; Japan; Kazakhstan; the Kyrgyz Republic; the Lao People's Democratic Republic; Malaysia; Mongolia; Nepal; New Zealand; Pakistan; the People's Republic of China; the Philippines; the Republic of Korea; Singapore; Sri Lanka; Taipei, China; Thailand; and Viet Nam.

Sources: ADB calculations using Bloomberg; CEIC; Stooq. Stooq Online. http://stooq.com/q/d/_s=^sti (accessed September 2019); and methodology by Hinojales and Park (2010).

Financial Spillovers

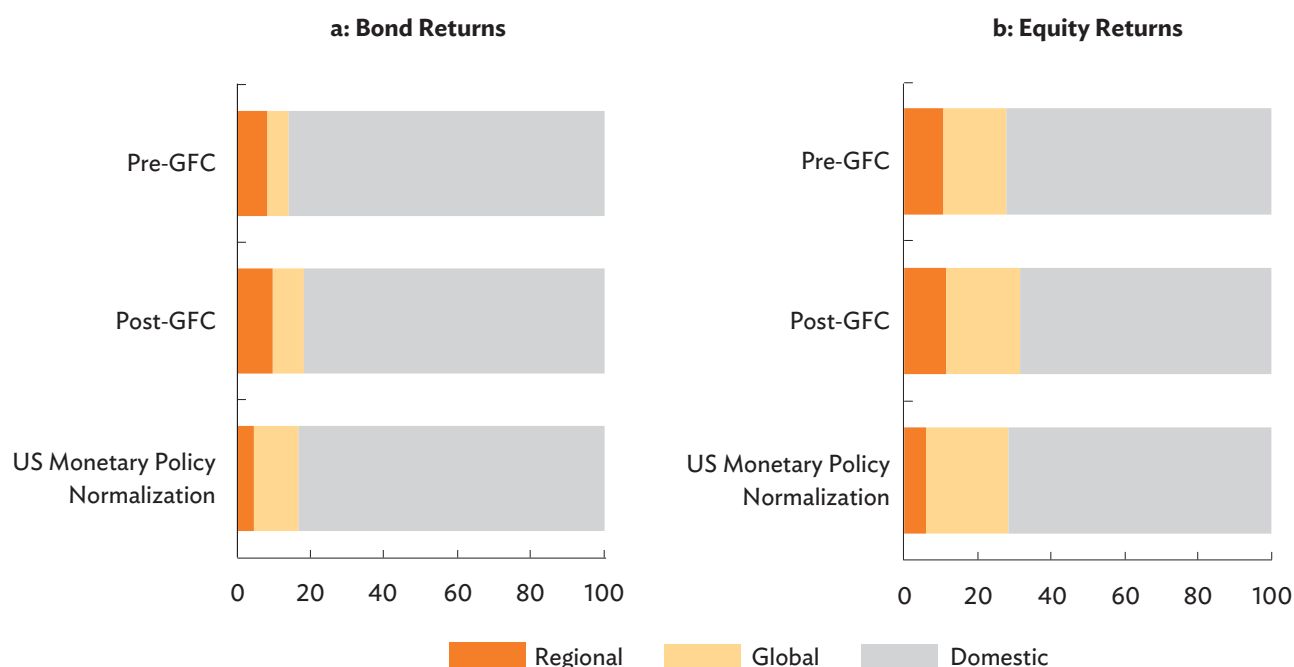
Since the US monetary policy normalization—including the onset of trade tensions in 2018—the sensitivity of Asian bond and equity market returns to global shocks has risen, while their sensitivity to regional shocks has declined. These patterns suggest that Asia’s financial markets continue to be more exposed to global markets than those within the region.

Between post-GFC and US monetary policy normalization periods, Asia’s bond return sensitivity to global shocks increased, from 8.5% to 12.2% (Figure 3.16a). Substantial increases were in Oceania (7.1% to 11.4%) and Southeast Asia (9.0% to 17.4%). At the same time, their sensitivity to regional shocks declined, with only 4.5% of their variances explained by regional shocks during the period of US monetary policy normalization.

As illustrated by the correlation analyses, the region’s equity markets are more integrated regionally and globally than their bond market counterpart. This in turn could result in equity markets being more sensitive to shocks in external markets than bond markets. In particular, Asia’s equity market sensitivity to global shocks increased—from 20.2% during the post-GFC period to 22.4% since 2016 (Figure 3.16b). East Asia, South Asia, and Southeast Asia contributed to this increase. At the same time, Asia’s equity market sensitivity to regional shocks decreased from 11.4% to 6.0%, with substantial declines in East Asia, South Asia, and Southeast Asia. This pattern mirrors the declining intraregional share of outward portfolio equity investment.

Recent developments in fintech and its potential implications for the region’s financial stability could affect the region’s exposure to financial spillovers (Box 3.3).

Figure 3.16: Share of Variance in Asian Capital Market Returns, as Explained by Global, Regional, and Domestic Shocks (%)



GFC = global financial crisis, US = United States.

Pre-GFC = January 1999 to September 2007, Post-GFC = July 2009 to December 2015, US Monetary Policy Normalization = January 2016 to August 2019.

Notes: Asia includes Australia; *Bangladesh*; *Georgia*; Hong Kong, China; India; Indonesia; Japan; Kazakhstan; *the Kyrgyz Republic*; *the Lao People's Democratic Republic*; Malaysia; *Mongolia*; *Nepal*; New Zealand; *Pakistan*; the People's Republic of China; the Philippines; the Republic of Korea; Singapore; *Sri Lanka*; *Taipei, China*; Thailand; and *Viet Nam*. Italicized names indicate they are included only in equity returns.

Sources: ADB calculations using data from Bloomberg; CEIC; Stooq. Stooq Online. http://stooq.com/q/d/_s=^sti (accessed September 2019); World Bank. World Development Indicators. <https://data.worldbank.org/indicator/ny.gdp.mktp.cd> (accessed September 2019); and methodology by Lee and Park (2011).

Box 3.3: Fintech and Regional Financial Development and Stability

Currently, innovations in financial technology (fintech) can offer a “leapfrog” development opportunity for developing Asian economies. Financial innovation offers new solutions to solving financial system frictions by increasing the efficiency, accessibility, and the provision of financial services. However, there are also concerns over possible risks to regional financial stability.

Fintech can benefit both users of traditional banking services and new, previously unbanked consumers. Mobile banking and mobile cross-border remittances using fintech services can enhance consumer welfare, creating a virtuous cycle of better services at lower cost. Low-hanging fruit can be enjoyed by filling the gaps between traditional banking services and consumers’ increasing needs—such as lowering remittance costs by using technology in financial services.

New solutions built on the cloud, digital platforms, and distributed ledger technologies covering mobile payments and peer-to-peer (P2P) applications have appeared, filling gaps brought about by legacy systems (GSMA 2018). Mobile money and mobile payments—which provide significant benefits such as lower fees, time savings, and reduced travel costs—have increased customer activity rates over the years. Total global transaction value grew by 21% from \$26 billion in 2016 to \$31.5 billion in 2017, while registered accounts grew 18.4% from \$285.9 million in 2016 to \$338.4 million in 2017 (GSMA 2018).

Among all economies, the People’s Republic of China (PRC) has the largest mobile payment market—dominated by BigTech companies such as Ant Financial (Alipay) and Tencent (WeChat Pay), which account for 94% of the PRC mobile payments market (Frost et al. 2019).^a BigTech companies have been a major source of financial innovation. Traditionally starting with mobile payments to facilitate their core business, BigTech companies can leverage network effects and data into other business lines such as credit, insurance, and savings and investment products (Frost et al. 2019). Overall, fintech investment saw explosive growth in 2018 (KPMG 2019), while fintech credit has had steadily increasing growth since 2013 (Frost et al. 2019).

Though fintech has the capacity to increase financial inclusion, increased access to credit could lead to potential financial instability if left unchecked. In the PRC, the lack of regulation has led to significant growth in domestic P2P lending, which was accompanied by growth in fraudulent activities—leading to an estimated failure of one-third of all P2P lenders (UNSGSA FinTech Working Group and CCAF 2019). Operational risks such as cybersecurity and anti-money laundering/combating the financing of terrorism

issues also rise with increasing reliance on decentralized digital solutions, brought about by financial innovation. Fintech could facilitate financial contagion caused by new forms of cross-border financial flows such as tokenized securities, blockchain bonds, or cross-border crowdfunding activities (IMF and World Bank Group 2019).

Financial innovation has blurred the lines between fintech firms and traditional financial service providers. This potential transition could lead to many financial service providers with greater incentives for risk-taking activities—due to their licenses falling outside the regulatory perimeter. Lai and Van Order (2017) indicate that fintech and BigTech firms that engage in deposit-taking and loan-provision activities are essentially unregulated and uninsured shadow banks.

Adding to the risks presented by fintech activities, fintech regulation remains challenging. This is due to numerous factors: (i) fintech firms benefit from regulatory arbitrage due to the limited scope of existing financial regulation—while fintech firms increasingly diversify reach and essentially provide banking and other financial services, fintech firms have less reporting and regulatory requirements as licenses are subject to less stringent monitoring; (ii) limited regulatory experience results in difficulty understanding and assessing fintech’s regulatory implications; (iii) resource constraints, especially for emerging and developing economies, limit adequate responses to fintech risks; and (iv) the focus on domestic financial landscape increases risks for cross-border regulatory arbitrage.

Faced with the risks brought about by financial innovation, regulators have responded with similar regulatory innovations. Challenges posed by regulatory arbitrage and limited knowledge of fintech activities can be solved with innovation offices and regulatory sandboxes. Innovation offices provide an avenue for regulator–innovator engagement. Engaging with the fintech industry helps regulators understand key trends and the potential issues and risks of innovative financial services and their implications for regulatory policy.

Resource constraints for emerging and developing economies, though not directly addressed, can be mitigated through regional knowledge-sharing and policy dialogue, such as the ASEAN+3 Economic Review and Policy Dialogue. Efficient and effective policies and regulations can be implemented directly using the experience of more developed economies or through other knowledge-sharing policy platforms. Tangentially, the coordination provided by regional knowledge-sharing and policy dialogue may reduce the potential for regulatory arbitrage by creating uniform international best practices in formulating policies and regulations.

^a BigTech companies offer financial products as one component of a much broader business line while fintech companies operate primarily in financial services.

Source: Asian Development Bank.

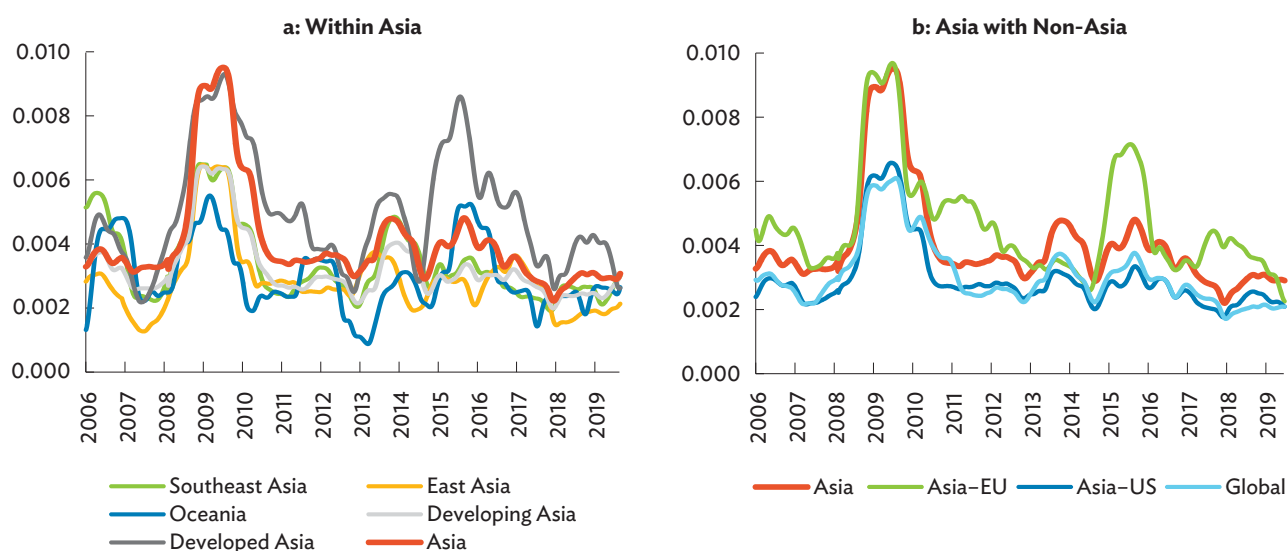
Since 2006, there have been several episodes of pronounced bond return divergence—the GFC, the 2013 taper tantrum, and the 2015 steep decline in world commodity prices—while current levels are comparably low. However, since 2018 there have been some signs of divergence.

Amid a steep decline in world commodity prices, bond returns in developing Asia diverged significantly in 2015, driven by Kazakhstan's tightening economic and financial conditions as a commodity price exporter. While this has eased, Asian economies total bond return indexes have signaled divergence since the onset of the PRC-US trade

tensions in 2018 (Figure 3.17a), both intraregionally and within subregions, though being at more moderate levels compared with earlier crisis periods.

Outside the region, the Asia-World sigma-convergence remains lower than intra-Asia's sigma-convergence, indicating a stronger convergence with global markets than within Asia (Figure 3.17b). Recent signs of divergence, particularly with US bond returns, could be driven by deviating economic outlooks and financial conditions among emerging and developed economies. While financial conditions in advanced economies have remained rather accommodative, conditions have tightened in emerging economies.

Figure 3.17: σ -Convergence of Total Return Bond Indexes—Asia



EU = European Union, US = United States.

Notes:

- (i) Values refer to the unweighted mean of an individual economy's σ -convergence included in the subregion. Each economy's σ -convergence is the simple mean of all its pairwise standard deviations. Data are filtered using the Hodrick-Prescott method.
- (ii) East Asia includes Hong Kong, China; Japan; the People's Republic of China; the Republic of Korea; and Taipei, China. Oceania includes Australia and New Zealand. Southeast Asia includes Indonesia, Malaysia, the Philippines, Singapore, and Thailand. Developed Asia includes Japan and Oceania. Developing Asia includes East Asia excluding Japan, India, Kazakhstan, and Southeast Asia. Asia includes developed and developing Asia. World σ -convergence calculated from Bloomberg Barclays Global Treasury Total Return Index Value Unhedged USD.

Sources: ADB calculations using data from Bloomberg; CEIC; and methodology by Espinoza, Prasad, and Williams (2010), and Park (2013).

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