

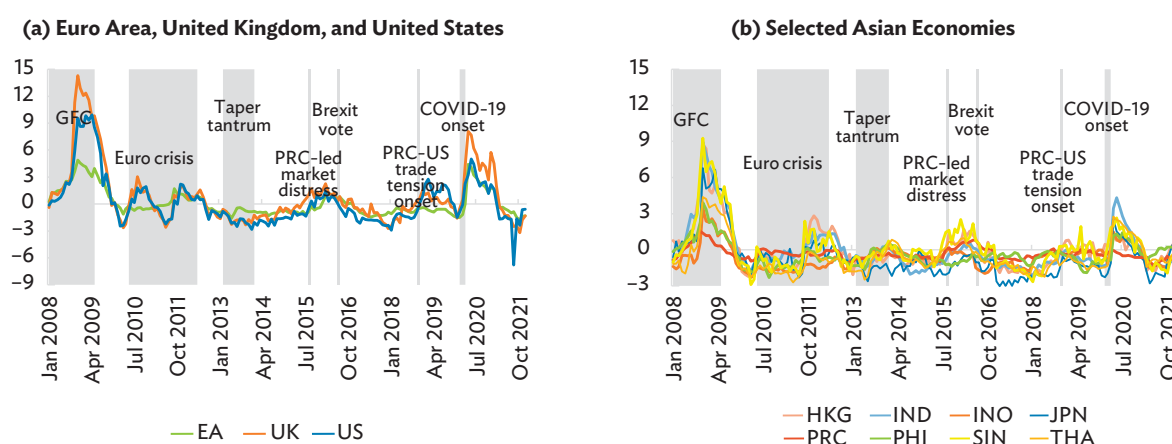
# 4 Financial Integration

**Continued accommodative policy and stronger growth prospects due to vaccine rollout in Asia and the Pacific and elsewhere buoyed financial conditions in the first half of 2021, but financial uncertainties emerged in the latter part of the year.**

Despite uncertainties about the coronavirus disease (COVID-19) pandemic, financial markets remained relatively calm in the first half (H1) of 2021, compared with 2020. Supportive fiscal and monetary policy measures and vaccination rollout lifted growth prospects and sustained favorable financial conditions in Asia and the Pacific and elsewhere. Global financial stress has trended downward since the second

quarter (Q2) of 2020. And financial stress indexes in advanced and selected Asia and Pacific economies have declined since early 2021 as investor sentiment improved and accommodative policy measures remained. The financial stress indexes in the euro area, the United Kingdom, and the United States (US)—and selected Asia and Pacific economies, including Hong Kong, China; India; Indonesia; Japan; the People's Republic of China (PRC); the Philippines; Singapore; and Thailand—showed no signs of stress in financial markets during March to July 2021 (Figure 4.1). Investor risk appetite also improved. The Chicago Board Options Exchange's volatility index (VIX), a measure of risk aversion, has likewise continued to trend downward, approaching its pre-pandemic level (Figure 4.2).

**Figure 4.1: Financial Stress Index**

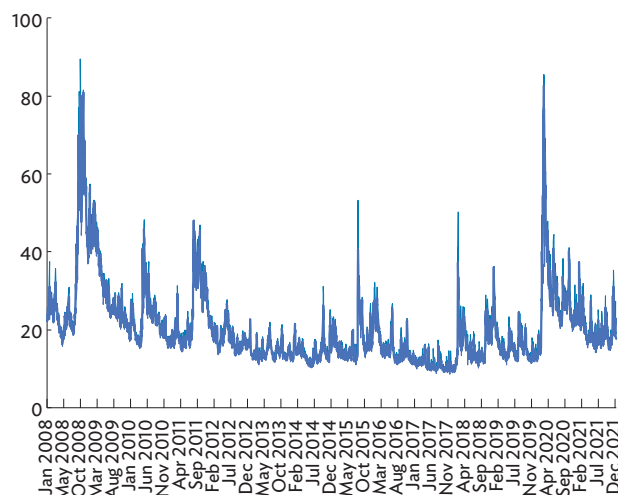


COVID-19 = coronavirus disease; EA = euro area; GFC = global financial crisis; HKG = Hong Kong, China; IND = India; INO = Indonesia; JPN = Japan; PHI = Philippines; PRC = People's Republic of China; SIN = Singapore; THA = Thailand; UK = United Kingdom; US = United States.

Notes:

- Based on principal components analysis on data from four major finance sectors: banking, debt, equity, and foreign exchange markets.
- Principal components are based on the banking sector price index, sovereign yield spreads, stock market volatility, stock price index return, and exchange market pressure index.

Sources: ADB calculations using data from Bloomberg; CEIC Data Company; Haver Analytics; and International Monetary Fund. International Financial Statistics. <http://data.imf.org/IFS> (accessed October 2021); and methodology by Park and Mercado (2014).

**Figure 4.2: Volatility Index**

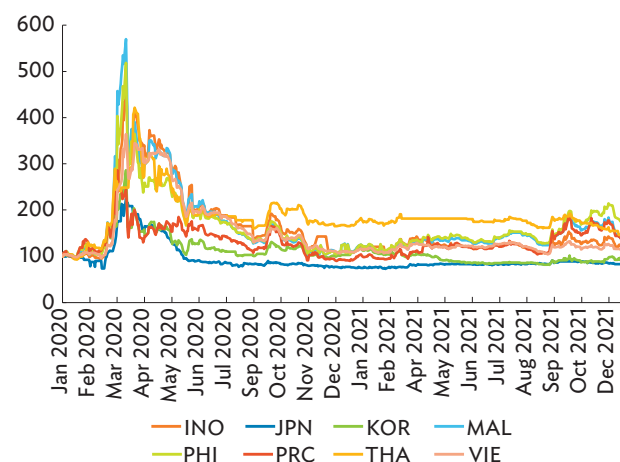
Notes: Volatility index (VIX) refers to the Chicago Board Options Exchange VIX Index's close value. High and low positions are plotted as confidence bands.

Source: Bloomberg.

Sovereign credit default swaps of selected Asian economies have also declined from peaks in March–May of 2020 (Figure 4.3). As of July 2021, sovereign credit default swaps have dropped below pre-pandemic levels for Japan and the Republic of Korea, and stayed above pre-pandemic levels for others. In addition, short-term US dollar funding markets have returned to pre-pandemic levels for most of 2021, along with offshore US dollar funding costs as measured by foreign currency basis swaps versus the US dollar (Figure 4.4). Consequently, these measures indicate favorable financial market conditions in the first 7 months of 2021.

However, financial uncertainties emerged in the second half of 2021. Strong growth in advanced economies, such as the US, and inflation concerns signaled earlier monetary policy normalization than in emerging and developing economies (Knightley and Garvey 2022). Such a scenario could lead to tighter liquidity conditions in emerging and developing economies, including those in Asia and the Pacific, and could result in lower capital inflows or capital flow reversals and further weakening of the region's currencies. In addition, the ongoing financial woes of Evergrande in the PRC property and housing sector adds to uncertainties over its domestic and cross-border financial spillovers. Consequently, the regional financial stress indexes, global

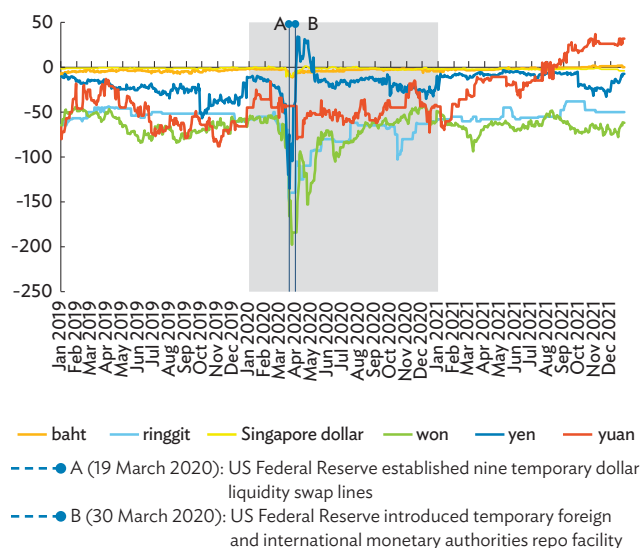
risk aversion, sovereign credit default swaps, and offshore dollar funding costs trended upward beginning October 2021 (Figures 4.1, 4.2, 4.3, and 4.4).

**Figure 4.3: Credit Default Swaps—Selected Asian Economies** (2 January 2020 = 100)

INO = Indonesia, JPN = Japan, KOR = Republic of Korea, MAL = Malaysia, PRC = People's Republic of China, PHI = Philippines, THA = Thailand, VIE = Viet Nam.

Notes: A credit default swap is a financial derivative that insures against the risk of default by one party. A higher index value reflects a higher spread, which is associated with higher default risk.

Source: ADB calculations using data from Bloomberg.

**Figure 4.4: Cross-Currency Basis Swap Against the United States Dollar** (basis points)

Note: 3-month cross-currency basis swap for the yen, ringgit, and yuan; 6 months for baht; and 3 months won versus 6 months US dollar.

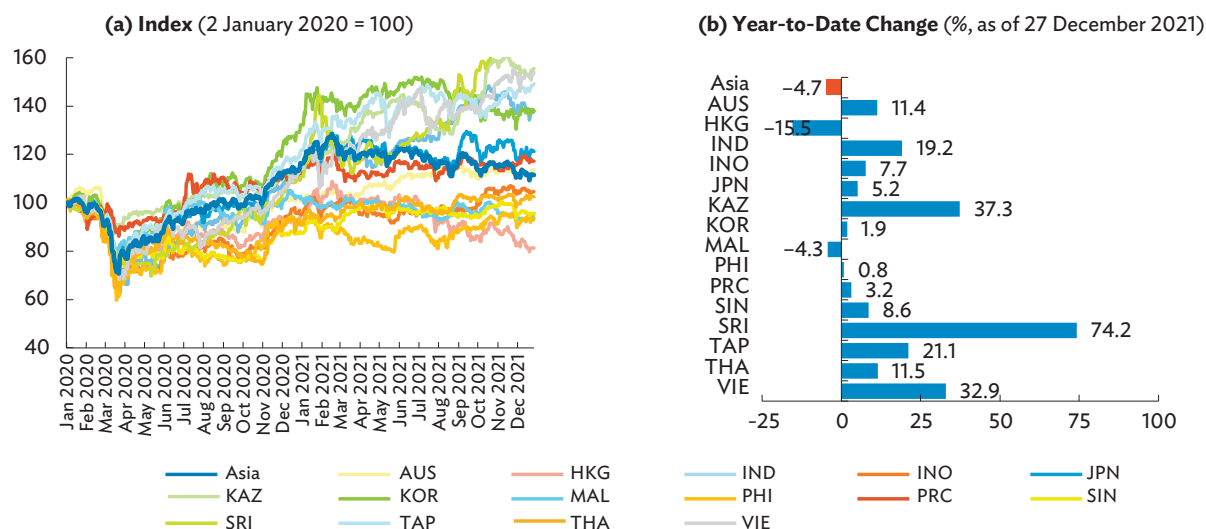
Source: Bloomberg.

**Prices of financial assets in the region have diverged in 2021 but the region's total nonresident capital inflows remained robust, while its currencies weakened.**

Stock prices in the region have recovered from their lowest point in 2020. However, equity prices have diverged across the region in 2021. Benchmark stock price indexes in Australia; India; Kazakhstan; Sri Lanka; Taipei, China;

Thailand; and Viet Nam have grown by more than 10% since the start of 2021 up to 10 December 2021. Those in Indonesia, Japan, the Philippines, the PRC, the Republic of Korea, and Singapore have grown less than 10%; while share prices in Malaysia and Hong Kong, China have declined in value since the start of 2021 (Figure 4.5). The prices of sovereign bonds of selected Asia and Pacific economies also diverged in 2021, following their recovery in late 2020 from a slight drop in March 2020 (Figure 4.6).

**Figure 4.5: Stock Price Index—Selected Asian Economies**

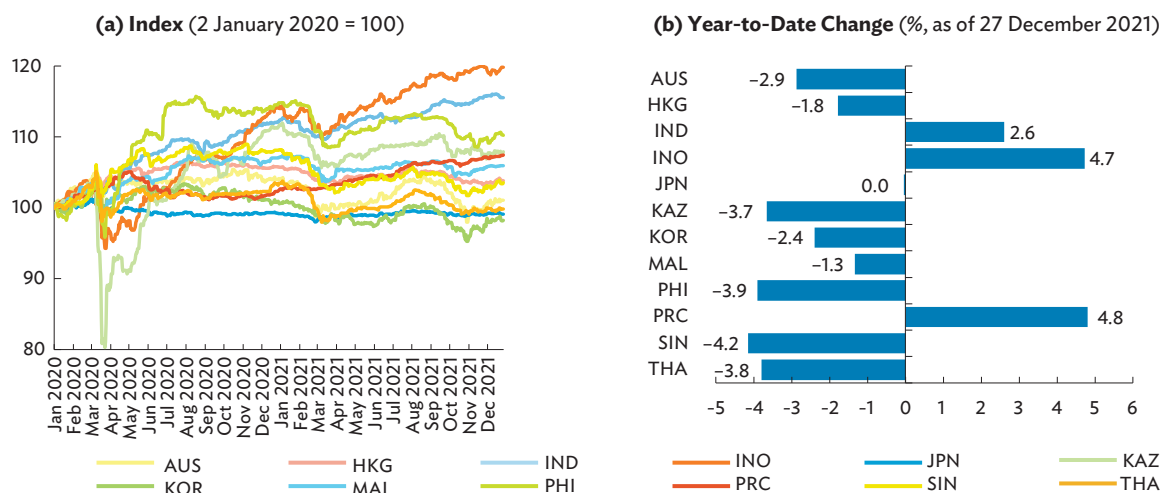


AUS = Australia; HKG = Hong Kong, China; IND = India; INO = Indonesia; JPN = Japan; KAZ = Kazakhstan; KOR = Republic of Korea; MAL = Malaysia; PHI = Philippines; PRC = People's Republic of China; SIN = Singapore; SRI = Sri Lanka; TAP = Taipei, China; THA = Thailand; and VIE = Viet Nam.

Note: Asia refers to the MSCI Asia Index.

Source: ADB calculations using data from Bloomberg.

**Figure 4.6: Total Bond Return Index—Selected Asian Economies**

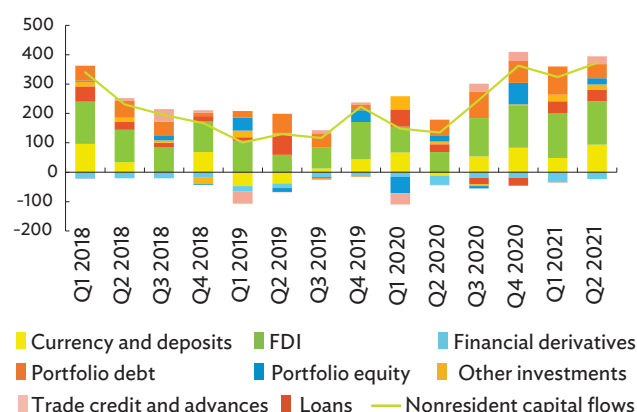


AUS = Australia; HKG = Hong Kong, China; IND = India; INO = Indonesia; JPN = Japan; KAZ = Kazakhstan; KOR = Republic of Korea; MAL = Malaysia; PHI = Philippines; PRC = People's Republic of China; SIN = Singapore; SRI = Sri Lanka; and THA = Thailand.

Source: ADB calculations using data from Bloomberg.

In particular, the values of sovereign bonds of Australia; Hong Kong, China; Kazakhstan; Malaysia; the Philippines; the Republic of Korea; Singapore; and Thailand slightly dipped in 2021, while those for India, Indonesia, Japan, and the PRC slightly increased, suggesting diverging bond price movements due to various economic factors associated with uneven economic recoveries, varying pace of vaccine rollout, and differences in policy support measures.

**Figure 4.7: Nonresident Capital Flows—Selected Asian Economies (\$ billion)**



FDI = foreign direct investment, Q = quarter.

Notes:

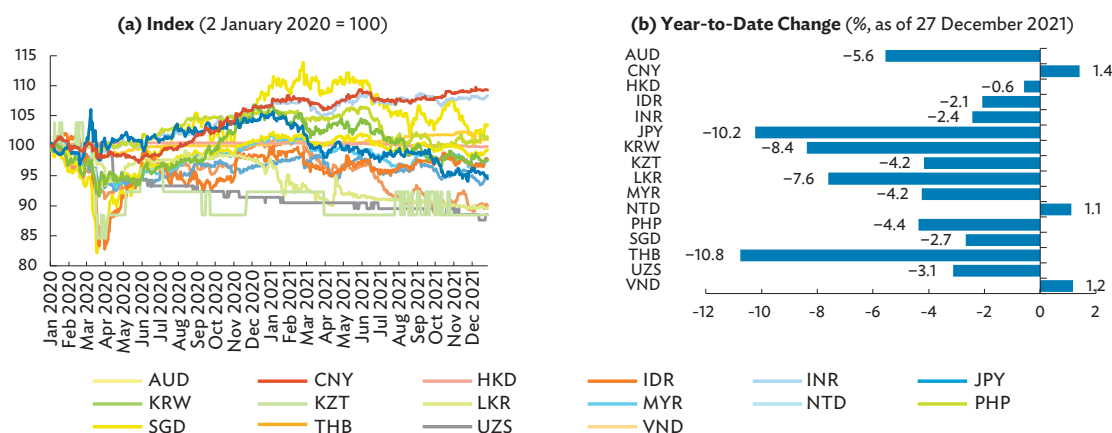
- Selected Asian economies include Bangladesh; Cambodia; Hong Kong, China; India; Indonesia; Kazakhstan; Mongolia; Nepal; the People's Republic of China; the Philippines; the Republic of Korea; Taipei, China; and Thailand.
- Other investments category includes insurance, pension, and standardized guaranteed schemes; other accounts payable; other equity; and special drawing rights.

Source: ADB calculations using data from International Monetary Fund. Balance of Payments and International Investment Position Statistics. Accessed from CEIC Data Company.

The region's nonresident capital inflows continued to increase in 2021, reaching around \$372 billion for select Asia and Pacific economies in Q2 2021, a 175% increase from Q2 2020 (Figure 4.7). Nonetheless, the volatility of nonresident capital inflows for select economies in the region increased slightly in H1 2021 compared with H1 2020. The sustained increase in nonresident capital inflows in 2021, follows the increase of capital inflows in 2020 to \$1.6 trillion from \$1.2 trillion in 2019, mainly due to increases in other accounts payable, currency and deposits, as well as debt inflows including portfolio debt and loans. In contrast, equity inflows including foreign direct investment (FDI) and portfolio equity decreased by 30% in 2020, compared with 2019. Moreover, the volatility of capital inflows inched higher in 2020 compared with 2019 as volatilities for loans and portfolio inflows have gone up.

Regional currencies have mostly weakened against the US dollar in 2021 on expectations of stronger recovery in the US compared with other economies and softening regional growth prospects in the second half of 2021 (Figure 4.8). Regional currencies have weakened against the US dollar on a year-to-date basis in 2021, with the Australian dollar, baht, Sri Lankan rupee, yen, and won dropping by more than 5%; while the Hong Kong dollar, the Indian rupee, peso, ringgit, rupiah, Singapore dollar, som, and tenge have declined by less than 5% since the start of 2021.

**Figure 4.8: Exchange Rate, \$/LCU—Selected Asian Currencies**



AUD = Australian dollar, CNY = yuan, HKD = Hong Kong dollar, IDR = rupiah, INR = Indian rupee, JPY = yen, KRW = won, KZT = tenge, LCU = local currency unit, LKR = Sri Lanka rupee, MYR = ringgit, NTD = NT dollar, PHP = peso, SGD = Singapore dollar, THB = baht, UZS = som, VND = dong.

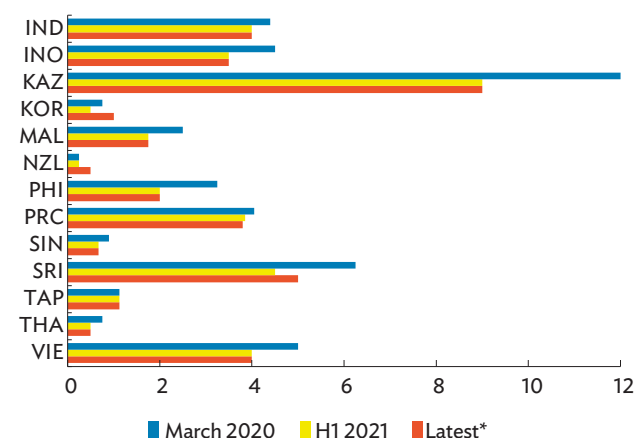
Source: ADB calculations using data from Bloomberg.

### Monetary policy in the region was mostly accommodative in 2021 as economies weathered the uncertainties of the ongoing pandemic.

Despite continuous efforts to curb the pandemic through containment measures and improved vaccine rollouts in 2021, Asia and Pacific economies and elsewhere continued to face uncertainties over the outcome of the pandemic as novel variants of the COVID-19 virus emerged, including the highly transmissible Delta and Omicron variants. To keep economies afloat and ease investor concerns, central banks in Asia kept policy rates low. With the exception of Taipei, China, policy rates in selected Asian economies in mid-2021 were mostly lower compared with March 2020. Taipei, China held its policy rate at 1.1% (Figure 4.9). But rising inflation concerns in the second half of 2021 prompted some regional central banks to raise policy rates. The Bank of Korea raised its policy rate from 0.5% to 0.75% in August 2021, then to 1.0% in November 2021, while the Central Bank of Sri Lanka raised its policy rate from 4.5% to 5.0% in the same period. The Reserve Bank of New Zealand also raised its policy rate to 0.5% in October 2021, after keeping it at 0.25% since March 2020.

To further curb exchange rate pressures and volatility, and to keep supporting foreign exchange rate liquidity, the US Federal Reserve extended its temporary US dollar swap lines, established in March 2020, up to December 2021.<sup>29</sup> In the region, some bilateral currency swap arrangements were renewed in 2021, notably, between those of the PRC and Thailand; Canada and the PRC; as well as between the Republic of Korea and Switzerland (Cantú et al. 2021).

**Figure 4.9: Policy Rate—Selected Asian Economies (%)**



H1 = first half; IND = India; INO = Indonesia; KAZ = Kazakhstan; KOR = Republic of Korea; MAL = Malaysia; NZL = New Zealand; PHI = Philippines; PRC = People's Republic of China; SIN = Singapore; SRI = Sri Lanka; TAP = Taipei, China; THA = Thailand; VIE = Viet Nam.

\*As of July 2021 for SIN; as of September 2021 for KAZ; as of October 2021 for NZL and THA; as of November 2021 for IND, INO, KOR, MAL, PHI, SRI, TAP, and VIE; and as of December 2021 for PRC.

Source: CEIC Data Company.

### The global nature of the ongoing COVID-19 pandemic was reflected in the increase in the share of global shocks in the variation of Asian financial asset price returns.

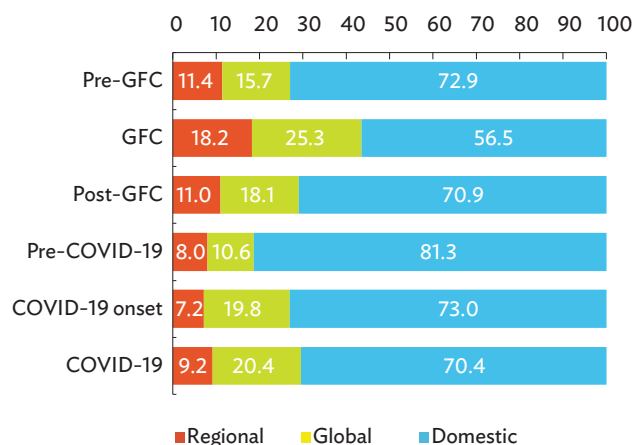
The share of global shocks that explains the variation of equity returns in Asia increased from 19.8% at the onset of the COVID-19 pandemic in the first quarter of 2020 to around 20.4% during the pandemic from April 2020 to December 2021 (Figure 4.10). The share of regional shocks during the pandemic, likewise, grew from 7.2% at the onset of the pandemic to 9.2%. Across subregions, South Asia's equity markets witnessed a large increase in sensitivity to global and regional shocks between both periods. In contrast, responsiveness to global and regional shocks dropped noticeably in the East Asia subregion. Meanwhile, the share of domestic shocks explaining the variation of equity returns dropped from 73.0% in the COVID-19 onset period to around 70.4%

<sup>29</sup> The temporary US dollar liquidity swap lines were extended up to 31 December 2021 (Board of Governors of the Federal Reserve System 2021a, 2021b).



during the pandemic, suggesting the importance of global and regional shocks over domestic shocks during the pandemic period.

**Figure 4.10: Variance Decomposition—Equity Returns**



COVID-19 = coronavirus disease, GFC = global financial crisis.

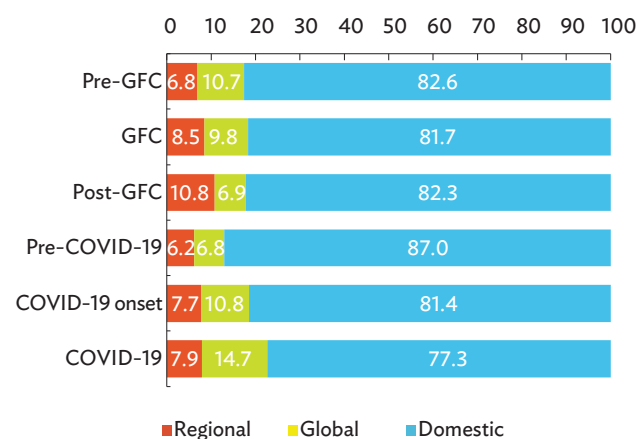
Pre-GFC = January 1999 to September 2007, GFC = October 2007 to June 2009, Post-GFC = July 2009 to December 2015, Pre-COVID-19 = September to December 2019, COVID-19 onset = January to March 2020, COVID-19 = April 2020 to December 2021.

Note: Asia and the Pacific includes Australia; Bangladesh; Cambodia; 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; Uzbekistan; and Viet Nam.

Sources: ADB calculations using data from Bloomberg; CEIC Data Company; and methodology by Lee and Park (2011).

Similarly, the proportion of global shocks that explain the variation of bond returns increased to 14.7% during the COVID-19 period (April 2020–December 2021) from 10.8% at the onset of COVID-19 period. Similarly, the proportion of regional shocks that explain the variation of bond returns also increased from 7.7% during the COVID-19 onset to 7.9% during the COVID-19 period (Figure 4.11). Across subregions, the increase in the share of global shocks between the COVID-19 onset and pandemic periods was highest for Southeast Asia, while the decrease in the proportion of regional shocks was largest for India. Similar to equity returns, the share of domestic shocks explaining the variation of bond returns dropped from 81.4% in the COVID-19 onset period to around 77.3% during the pandemic period.

**Figure 4.11: Variance Decomposition—Bond Returns**



COVID-19 = coronavirus disease, GFC = global financial crisis.

Pre-GFC = January 2005 to September 2007, GFC = October 2007 to June 2009, Post-GFC = July 2009 to December 2015, Pre-COVID-19 = September to December 2019, COVID-19 onset = January to March 2020, COVID-19 = April 2020 to December 2021.

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

Sources: ADB calculations using data from Bloomberg; CEIC Data Company; and methodology by Lee and Park (2011).

Compared with the 2008–2009 global financial crisis, the share of external shocks that account for the variations in equity returns was considerably lower during the COVID-19 pandemic, while the share of domestic shock was higher (Figure 4.10). In contrast, the proportions of global and regional shocks that account for the variations in bond returns were higher in the ongoing COVID-19 pandemic, while the proportion of domestic shocks was smaller (Figure 4.11). These imply the varying sensitivity of financial asset price returns to external shocks across these two different episodes.

**While stable at the moment, Asia and the Pacific is not immune to risks of capital flow reversals, and financial vulnerabilities and uncertainties.**

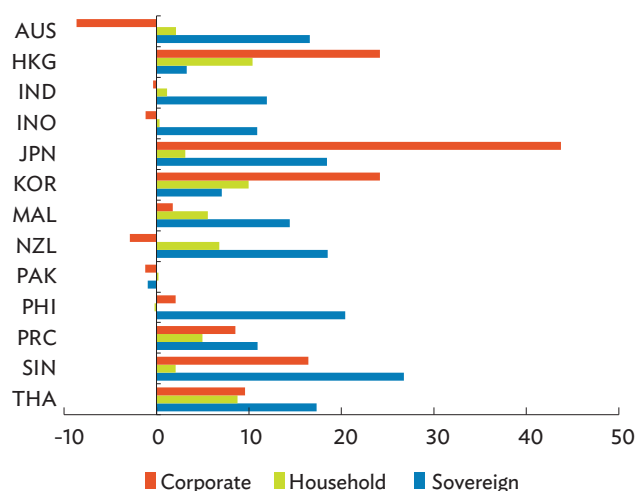
Diverging economic growth paths, due to uneven vaccine rollout, as well as differences in policy support and containment measures, could lead some large

and advanced economies, such as the US, to pursue policy normalization ahead of emerging and developing economies, including those in Asia and the Pacific. The expected economic recovery in the US—5.5% for 2021 and 3.9% by 2022—as projected by ADB’s Asian Development Outlook Supplement (ADB 2021), along with rising inflation, partly due to commodity price increases and supply chain bottlenecks, could signal winding down of policy support measures while other emerging and developing economies are still addressing and containing the ongoing COVID-19 pandemic, given the spread of Omicron variant in the final months of 2021. Such a scenario may lead to tighter liquidity conditions in emerging and developing economies and could potentially result in lower capital inflows or capital flow reversals.

Economies with slower inoculation and higher infections of new COVID-19 variants may turn to renewed and/or continued containment measures. This will slow economic recovery momentum by limiting economic reopening, resulting in weaker economic growth. Such weak recovery coupled with higher corporate debt levels may result in debt servicing difficulties. As governments and corporations borrowed to weather the pandemic, economies in the region reported increases in corporate debt ratios, between 2019 and the third quarter of 2021 (Figure 4.12). For example, the changes in the corporate debt ratios of Hong Kong, China; Japan; and the Republic of Korea were greater than 20% of gross domestic product (GDP); while the increase in government debt ratios for the Philippines and Singapore were above 20% of GDP. Increasing interest rates, coupled with high debt levels, may lead to higher borrowing costs; and will make debt with variable interest rates more costly. Should that happen, debtors may face debt payment difficulties, particularly when growth remains fragile, and could result in higher debt premiums and lower credit ratings.

As economies in the region rely heavily on bank credit for corporate financing, this adds more reason to be concerned with looming rising interest rates (Figure 4.13). Should corporations be unable to make their debt payments on time, banks’ debt quality could erode. As it is, some economies in the region have already experienced increased banking sector nonperforming loan (NPL) ratio in 2020 (Figure 4.14).

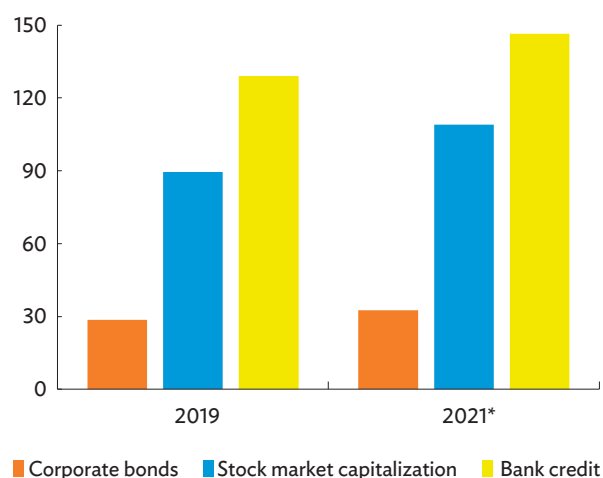
**Figure 4.12: Change in Sectoral Debt Ratio, 2019 versus Q3 2021—Selected Asian Economies**  
(% of GDP)



AUS = Australia; GDP = gross domestic product; HKG = Hong Kong, China; IND = India; INO = Indonesia; JPN = Japan; KOR = Republic of Korea; NZL = New Zealand; PAK = Pakistan; PHI = Philippines; PRC = People's Republic of China; Q3 = third quarter; SIN = Singapore; and THA = Thailand.

Source: ADB calculations using data from Institute of International Finance. Global Debt Monitor November 2021. <https://www.iif.com/Research/Capital-Flows-and-Debt/Global-Debt-Monitor> (accessed December 2021).

**Figure 4.13: Corporate Financing—Emerging Asia**  
(% of GDP)



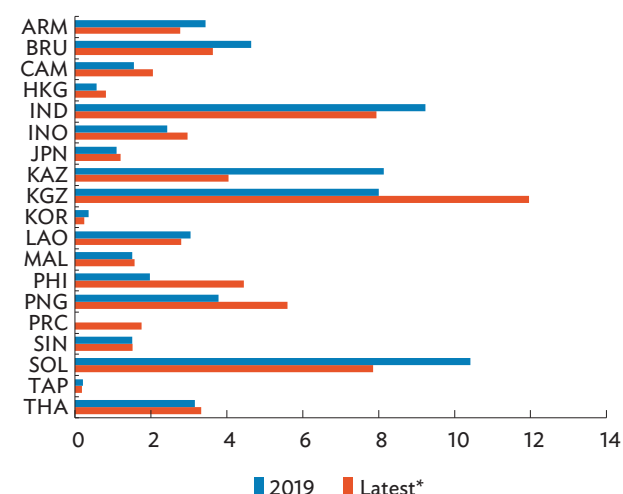
GDP = gross domestic product.

\*As of second quarter of 2021 for bank credit, and as of third quarter of 2021 for corporate bonds and stock market capitalization.

Note: Emerging Asia includes Hong Kong, China; India; Indonesia; Malaysia; the People's Republic of China; the Philippines; the Republic of Korea; Singapore; and Thailand.

Sources: ADB calculations using data from ADB, AsianBondsOnline. <https://asianbondsonline.adb.org> (accessed December 2021); and CEIC Data Company.

**Figure 4.14: Bank NPL Ratio—Selected Asian Economies**  
(% of total loans)



ARM = Armenia; BRU = Brunei Darussalam; CAM = Cambodia; HKG = Hong Kong, China; IND = India; INO = Indonesia; JPN = Japan; KAZ = Kazakhstan; KGZ = Kyrgyz Republic; KOR = Republic of Korea; LAO = Lao People's Democratic Republic; MAL = Malaysia; NPL = nonperforming loan; PHI = Philippines; PNG = Papua New Guinea; PRC = People's Republic of China; SIN = Singapore; SOL = Solomon Islands; TAP = Taipei, China; THA = Thailand.

\* = As of December 2020 for IND; as of March 2021 for JPN and SOL; as of June 2021 for PHI, PRC, and SIN; as of September 2021 for BRU, CAM, HKG, INO, LAO, MAL, PNG, and THA; and as of October 2021 for ARM, KAZ, KOR, KGZ, and TAP.

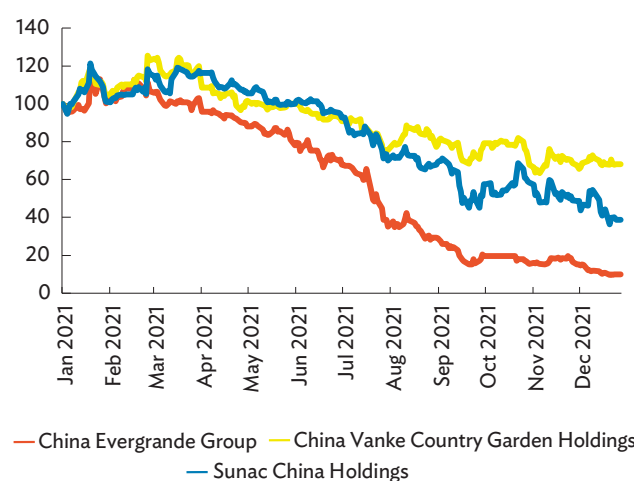
Sources: ADB calculations using data from CEIC Data Company.

For instance, Papua New Guinea's NPL ratio increased from 3.8% in 2019 to 5.9% in June 2021; that of the Philippines increased from 2.0% in 2019 to 4.4% in June 2021; and the Kyrgyz Republic's NPL ratio increased from 7.7% in 2019 to 11.8% in October 2021. Uncertain recovery, higher interest rates, and rising NPL ratios may prompt banks to be more cautious in lending, which could undermine prospects of stronger recovery.

The Asia and Pacific region also faced potential cross-border financial risk spillovers emanating from Evergrande's debt woes and its impact on the PRC's property sector and the broader economy in the second half of 2021. The Evergrande group, with debts exceeding \$300 billion, is the PRC's most indebted property developer. In Q4 2021, the company delayed its offshore bond payments amounting to \$83.5 million, indicating its difficulties in repaying its debt obligations (Wilkins et al. 2021); its share price lost about 90% of its value and its market capitalization 89% of its value from early January 2021 to the end of 2021. Several property

developers in the PRC, including China Properties Group, Fantasia Holdings Group, and Sinic Holdings Group also faced debt repayment difficulties in the latter part of 2021 (Nikkei Asia 2021, The Straits Times 2021). Rating agencies, including Moody's and Fitch, downgraded the credit ratings of several PRC property bond issuers (Toh 2021). As Evergrande and other property developers delayed their debt payments, concerns grew over their impact on the PRC's property sector, which accounts for almost 30% of its economy. Share prices of property developers plunged and the PRC's junk bond yields peaked in November 2021 (Figures 4.15 and 4.16).

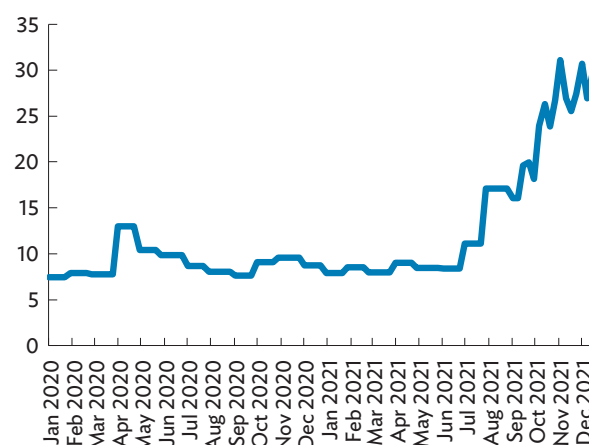
**Figure 4.15: Share Prices of Selected Property Developers in the PRC** (1 January 2021 = 100)



PRC = People's Republic of China.

Source: ADB calculations using data from Bloomberg.

**Figure 4.16: Yield of the PRC's Junk Bonds (%)**



PRC = People's Republic of China.

Source: Bloomberg.



Although the PRC's property sector debt problems remained contained within the sector as of final quarter of 2021, risks of wider impact on the economy and potential cross-border spillovers persisted (Magnus 2021, Tan 2021).

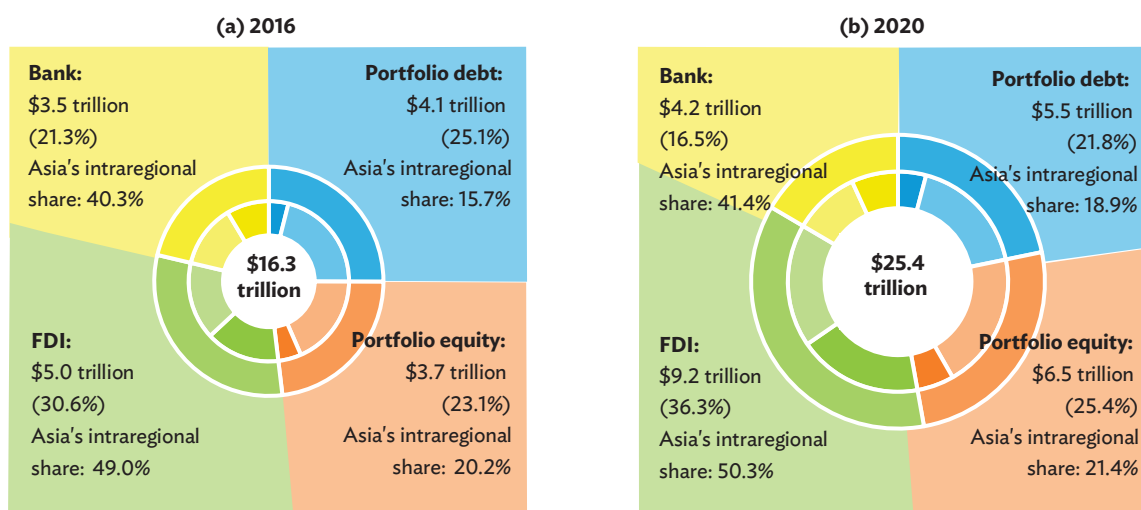
To mitigate potential risks in the finance sector, economies in the region need to continue to strengthen economic fundamentals. Speeding and scaling up the inoculation drive to contain the spread and emergence of new COVID-19 variants remains paramount in supporting economic recovery and reopening economies, particularly for emerging and developing economies. Sustained and stable growth momentum will help ease risks of rising corporate and government debt levels. Policy support must also be calibrated depending on domestic financial conditions and circumstances and the viability of recipients. Addressing rising NPLs will help improve debt quality and bank balance sheets.

## Recent Trends in Asia's Cross-Border Financial Assets and Liabilities

**In 2020, Asian investors continued to invest more outside the region than inside.<sup>30</sup>**

Asia's total cross-border financial asset holdings reached \$25.4 trillion in 2020, up significantly from \$16.3 trillion at the end of 2016 (Figure 4.17).<sup>31</sup> Most of the region's investment holdings in 2020 were FDI assets (\$9.2 trillion), followed by portfolio equity (\$6.5 trillion), portfolio debt (\$5.5 trillion), and banking sector loan and deposit holdings (\$4.2 trillion). Around two-thirds of Asia's asset holdings were placed in non-regional economies, and only one-third in regional economies. This proportion was roughly unchanged between 2016 and 2020, despite Asia's growing share of world output. Nonetheless, this proportion suggests the region's diversified investment position. Of Asia's intraregional

**Figure 4.17: Cross-Border Assets—Asia and the Pacific**



FDI = foreign direct investment.

Notes: FDI assets refer to outward FDI holdings. Bank assets (claims) are limited to loans and deposits. Values may not add up due to rounding off.

Sources: ADB calculations using data from the Bank for International Settlements. Locational Banking Statistics. <https://www.bis.org/statistics/bankstats.htm>; International Monetary Fund (IMF). Coordinated Direct Investment Survey. <https://data.imf.org/cdis> (both accessed December 2021); and IMF. Coordinated Portfolio Investment Survey. <https://data.imf.org/cpis> (accessed September 2021).

<sup>30</sup> The Asia and Pacific reporting economies include Australia; Bangladesh; the People's Republic of China; Hong Kong, China; India; Indonesia; Japan; Kazakhstan; Malaysia; Mongolia; New Zealand; Pakistan; Palau; the Philippines; the Republic of Korea; Singapore; and Thailand.

<sup>31</sup> The values reported for total cross-border assets, liabilities, and net position do not reflect total values in the International Investment Position. This is because reported values include only those with available bilateral breakdown to decompose regional and non-regional holdings and liabilities. Refer to Box 4.1 for discussion on the uses of the International Investment Position data set. Throughout this chapter, cross-border investment holdings include banking sector loan and deposit assets (claims) and liabilities, FDI, portfolio debt, and portfolio equity.

holdings, much of its portfolio assets in 2020 were East Asian assets (68.7%). East Asia and Southeast Asia mostly held East Asian portfolio assets in 2020, at 67.1%, and 24.9%, respectively, suggesting the attractiveness of East Asian portfolio debt and equity assets.

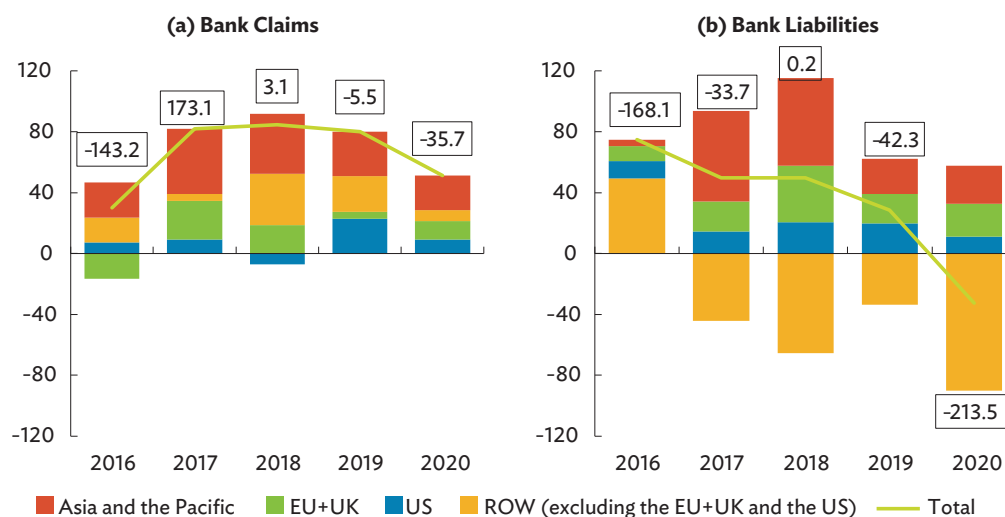
Asia's portfolio debt holdings increased from \$5.0 trillion in 2019 to \$5.5 trillion in 2020, reporting a 11.1% increase and continuing a rising trend over the past 6 years.<sup>32</sup> Asian investors' portfolio equity holdings increased 19.4% from \$5.4 trillion in 2019 to \$6.4 trillion in 2020. Asia's cross-border loan and deposit claims, meanwhile, continued to rise in 2020, to \$4.2 trillion from \$3.9 trillion in 2019. For cross-border banking flows, loan and deposit asset flows decreased from \$79.9 billion in 2019 to \$51.4 billion in 2020, much of the decrease was attributable to the decline in banking flows to the rest of the world (Figure 4.18a).

The region's total external financial liabilities also inched higher, to \$25.4 trillion in 2020, up from \$18.0 trillion in 2016 (Figure 4.19). Much of the region's liabilities were FDI (\$10.1 trillion), followed by portfolio equity (\$6.8 trillion),

banking sector loan and deposit liabilities (\$4.9 trillion), then portfolio debt (\$3.7 trillion). As in previous years, around two-thirds of the region's external investment liabilities were held by non-regional economies, and one-third by regional economies. Inward debt portfolio investment increased 16.4% to \$3.7 trillion in 2020 from \$3.2 trillion in 2019, while the value of inward equity portfolio investment rose 21.1% to \$6.8 trillion in 2020 from \$5.6 trillion in 2019. The intraregional share of inward portfolio debt edged down from 28.6% in 2019 to 28.5% in 2020; the intraregional share of inward portfolio equity increased from 19.1% to 20.3% in the same period. Asia's cross-border loan and deposit liabilities increased in 2020 to \$4.9 trillion from \$4.6 trillion in 2019.

For cross-border banking flows, Asia's loan and deposit inflows reversed from \$28.7 billion in 2019 to -\$32.6 billion in 2020 as the region's loan and deposit liabilities with the rest of world registered a large reversal, amounting to \$90.1 billion, while liabilities with Asia increased from \$23.1 billion in 2019 to \$24.9 billion in 2020 (Figure 4.18b).

**Figure 4.18: Cross-Border Loan and Deposit Flows—Asia and the Pacific (\$ billion)**

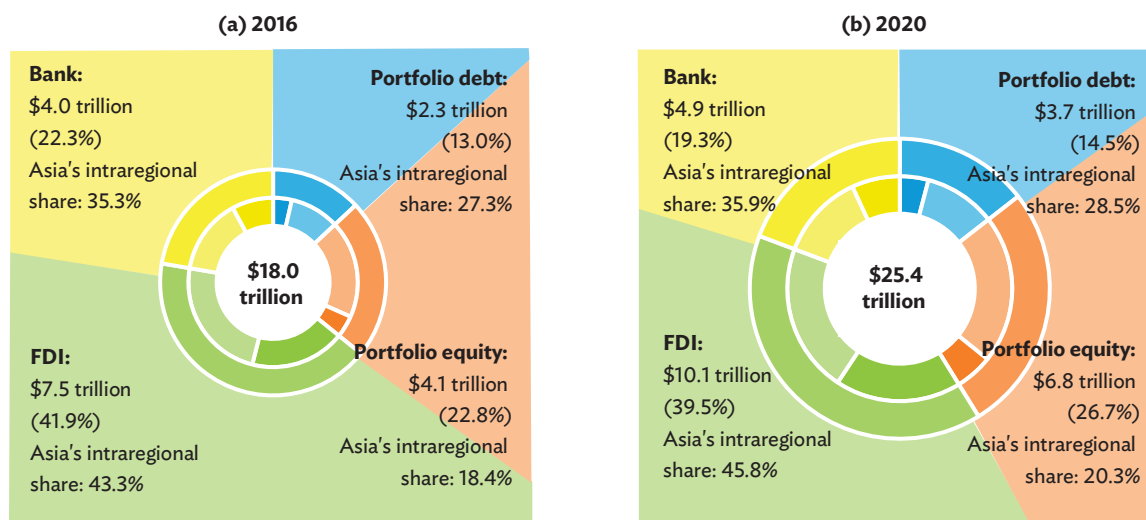


EU = European Union (27 members), ROW = rest of the world, UK = United Kingdom, US = United States.

Note: Labels refer to year-on-year percentage change.

Source: ADB calculations using data from the Bank for International Settlements. Locational Banking Statistics. <https://www.bis.org/statistics/bankstats.htm> (accessed December 2021).

<sup>32</sup> The overall increase or decrease in stock portfolio holdings and liabilities is attributed to changes in flows and valuation changes of existing portfolio assets and liabilities.

**Figure 4.19: Cross-Border Liabilities—Asia and the Pacific**

FDI = foreign direct investment.

Notes: FDI liabilities refer to inward FDI holdings. Bank liabilities are limited to loans and deposits. Values may not add up due to rounding off.

Sources: ADB calculations using data from Bank for International Settlements. Locational Banking Statistics. <https://www.bis.org/statistics/bankstats.htm>; International Monetary Fund (IMF). Coordinated Direct Investment Survey. <https://data.imf.org/cdis> (both accessed December 2021); and IMF. Coordinated Portfolio Investment Survey. <https://data.imf.org/cpis> (accessed September 2021).

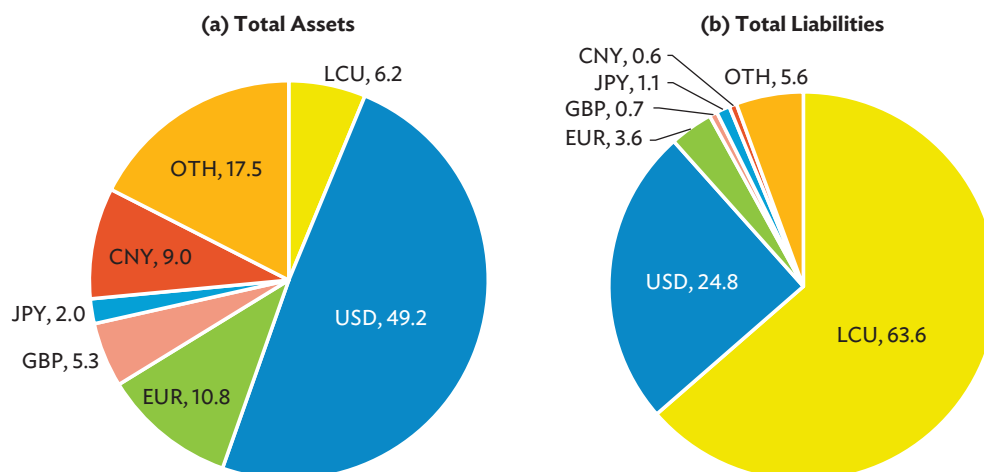
As the region held more debt assets than debt liabilities, but more equity liabilities than equity assets, it retained its long debt, short equity position as of the end of 2020. The net debt positions in 2016 and 2020 were the same, at \$1.2 trillion, while the net equity position improved from  $-\$2.9$  trillion in 2016 to  $-\$1.2$  trillion in 2020. As of the end of 2020, the largest share of its long debt and short equity positions were with non-regional economies, mirroring the regional breakdown of its international investment assets and liabilities.

### The currency compositions of Asia's international investment assets and liabilities indicate the dominance of the US dollar.<sup>33</sup>

Almost half of Asia's international asset holdings were denominated in US dollars as of the end of 2020, followed by other currencies, at 17% and then euros, at 11%. In contrast, around 64% of the region's external liabilities were dominated in local currencies, followed by US dollars, at 25% (Figure 4.20). Across

types of international investments, equity-type assets, which include FDI and portfolio equity, were mostly denominated in other currencies, as it is assumed that the currency composition of these investments closely tracks geographic positions. Equity-type liabilities were denominated in local currency as FDI and portfolio equity ownerships were mostly denominated in the host economy's currency. The currency compositions of debt-type international investments indicated the dominance of the US dollar. For debt assets, which include portfolio debt, other investments, and official reserves, about 63% were denominated in the US dollar, followed by the euro (13%), and other currencies (9%). In contrast, half of debt liabilities, including portfolio debt and other investments, were denominated in US dollars, followed by local currency (28%), and other currencies (10%) (Figure 4.21). The dollar dominance in Asia's cross-border investment holdings can lead to several risks, including US monetary policy spillovers and their impact on global liquidity and the balance sheet and welfare effects of large exchange rate fluctuations between the US dollar and local currency.

<sup>33</sup> This analysis uses the estimated Bénétix et al. (2019) data set on currency composition weights for 2017 and applied those weights to the 2020 values of the International Investment Position, which reports the total external assets and liabilities across all types of instruments, for selected Asia and Pacific economies.

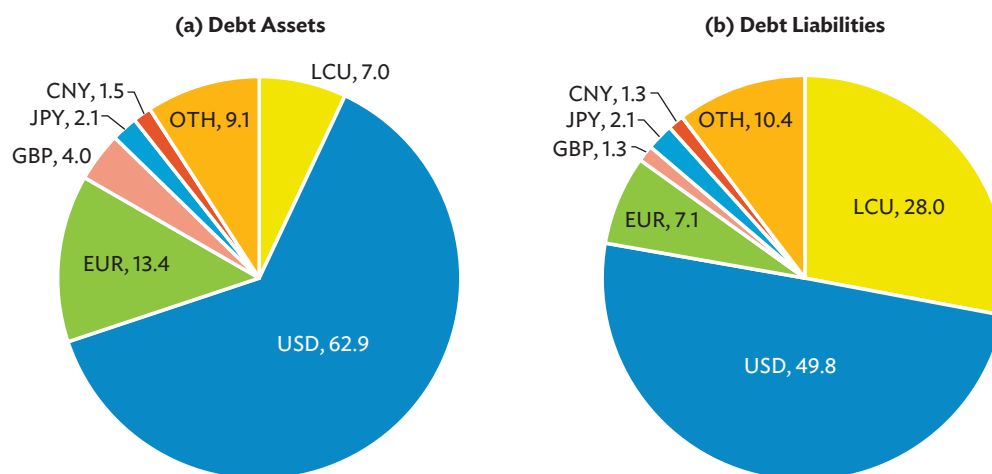
**Figure 4.20: Currency Composition of Asia's International Total Investments, 2020 (%)**

CNY = yuan, EUR = euro, GBP = pound, JPY = yen, LCU = local currency unit, OTH = other currencies, USD = United States dollar.

Notes:

- (i) CNY and JPY are classified as LCU for the People's Republic of China and Japan, respectively.
- (ii) Values were estimated using currency weights for 2017 based on latest available data set from Benetrix et al. (2019) and International Investment Positions for 2020. The values shown are in percentages of total.
- (iii) OTH shares were derived as residual values.
- (iv) Asia and the Pacific includes Australia; Hong Kong, China; India; Indonesia; Japan; Malaysia; New Zealand; Pakistan; the People's Republic of China; the Philippines; the Republic of Korea; Singapore; Sri Lanka; and Thailand.

Source: ADB calculations using data from International Monetary Fund. Balance of Payments and International Investment Position Statistics. <http://data.imf.org/IIP> (accessed September 2021); and Benetrix et al. (2019).

**Figure 4.21: Currency Composition of Asia's International Debt Investments, 2020 (%)**

CNY = yuan, EUR = euro, GBP = pound, JPY = yen, LCU = local currency unit, OTH = other currencies, USD = United States dollar.

Notes:

- (i) CNY and JPY are classified as LCU for the People's Republic of China and Japan, respectively.
- (ii) Values were estimated using currency weights for 2017 based on latest available data set from Benetrix et al. (2019) and International Investment Positions for 2020. The values shown are in percentages of total.
- (iii) OTH shares were derived as residual values.
- (iv) Asia and the Pacific includes Australia; Hong Kong, China; India; Indonesia; Japan; Malaysia; New Zealand; Pakistan; the People's Republic of China; the Philippines; the Republic of Korea; Singapore; Sri Lanka; and Thailand.

Source: ADB calculations using data from International Monetary Fund. Balance of Payments and International Investment Position Statistics. <http://data.imf.org/IIP> (accessed September 2021); and Benetrix et al. (2019).

## Evolving Patterns of Capital Flows in Asia and the Pacific

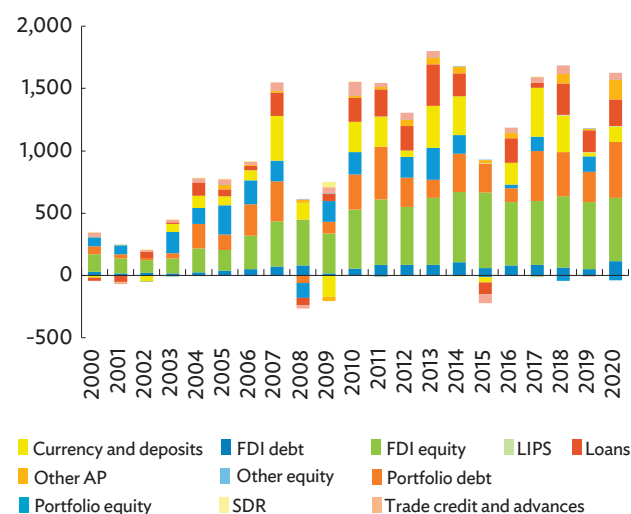
An earlier monetary policy normalization in large and advanced economies, such as the US, has raised concerns about the impacts on emerging and developing economies. Specifically, higher interest rates in advanced economies are often associated with capital inflow decreases or reversals in emerging and developing economies (Bryne and Fiess 2016; Ghosh et al. 2014; Giordani et al. 2017; Li, de Haan, and Scholtens 2018; and Mercado 2018a). As the divergence of economic recovery becomes more apparent in 2021, assessing the evolution of nonresident capital flows is warranted to better understand the likely impacts of large capital flow reversals, in the light of uncertain pandemic outcomes. This subsection discusses the patterns of nonresident capital flows over the past 2 decades for Asia and the Pacific. It also considers policy tools used to address the adverse effects of volatile capital flows.

### Nonresident capital inflows in Asia and the Pacific have doubled in the last decade, with notable changes in the composition and patterns of capital flows.

Total gross capital inflows in Asia and the Pacific roughly doubled over the last 2 decades, from average annual inflows of around \$0.7 trillion in 2001–2010 to over \$1.4 trillion in 2011–2020 (Figure 4.22).<sup>34</sup> The doubling of gross flows in Asia and the Pacific contrasted starkly to the decline of capital inflows to advanced economies, from an annual average of \$4.3 trillion in 2001–2010 to \$3.0 trillion in 2011–2020, in line with subdued cross-border banking flows following the global financial crisis of 2008–2009 (McQuade and Schmitz 2017), as well as the moderate increase in capital inflows to other emerging and developing economies from an annual average of around \$0.4 trillion in 2001–2010 to around

\$0.6 trillion in 2011–2020. On the one hand, the doubling of gross flows to Asia reflects its attractiveness as a main destination of foreign investments. Specifically, compared with other emerging and developing economies, Asia and the Pacific received twice the FDIs in 2011–2020. But the doubling of gross capital inflows to the region implies greater potential adverse impact of capital flow reversals.

**Figure 4.22: Nonresident Capital Flows—Asia and the Pacific, by Investment Type (\$ billion)**



AP = accounts payable; FDI = foreign direct investment; LIPS = loans, insurance, pension, and guaranteed investment schemes; SDR = special drawing rights.

Note: Asia and the Pacific includes Afghanistan (beginning 2008); Armenia; Australia; Azerbaijan (beginning 2002); Bangladesh; Bhutan (beginning 2006); Cambodia; Fiji; Georgia; Hong Kong, China; India; Indonesia; Japan; Kazakhstan; Kiribati (beginning 2006); the Kyrgyz Republic; the Lao People's Democratic Republic; Malaysia (beginning 2002); Maldives; Mongolia; Nepal; New Zealand; Pakistan; the People's Republic of China; the Philippines; the Republic of Korea; Samoa (beginning 2004); Singapore; Solomon Islands; Sri Lanka; Taipei, China; Tajikistan (beginning 2002); Thailand; Timor-Leste (beginning 2006); Tonga (beginning 2003); Tuvalu; Uzbekistan (beginning 2010); and Vanuatu.

Sources: ADB calculations using data from CEIC Data Company; International Monetary Fund. Balance of Payments and International Investment Position Statistics. <http://data.imf.org/IIP> (accessed October 2021); and national sources.

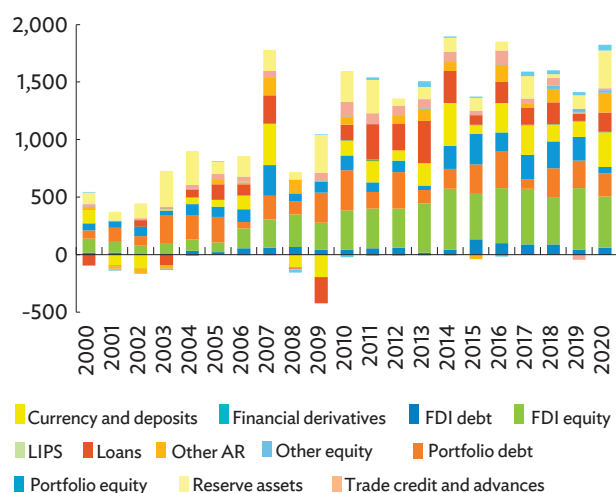
Nonetheless, as a percentage of GDP, the magnitude of gross capital inflows to the region remained roughly the same, at an average of 5.5% for both periods. In addition,

<sup>34</sup> The focus of analysis in this subsection is on nonresident capital inflows (gross capital inflows), instead of net nonresident capital inflows (net capital inflows) or resident capital outflows. Net capital inflows are usually more stable than nonresident capital inflows, which exhibit volatilities. Moreover, focusing on nonresident capital inflows will identify nonresident capital flow reversals, instead of net capital inflow reversals, which may either be attributed to residents or nonresidents. Nonresident capital flows include direct investment abroad, portfolio equity, portfolio debt, and other investments as defined by Balance of Payments Manual 6 (BPM6). Resident capital flows include foreign direct investment, portfolio equity, portfolio debt, other investment, and reserve assets as defined by BPM6.



resident capital outflows have grown, from an annual average of \$0.8 trillion in 2001–2010 to \$1.6 trillion in 2011 to 2020 (Figure 4.23). Hence, net resident capital outflows have mostly been positive in the last 2 decades, indicating that Asia and the Pacific had been a net capital exporter.

**Figure 4.23: Resident Capital Flows—Asia and the Pacific, by Investment Type (\$ billion)**



AR = accounts receivable; FDI = foreign direct investment;  
LIPS = loans, insurance, pension, and guaranteed investment schemes.

Note: Asia and the Pacific includes Afghanistan (beginning 2008); Armenia; Australia; Azerbaijan (beginning 2002); Bangladesh; Bhutan (beginning 2006); Cambodia; Fiji; Georgia; Hong Kong, China; India; Indonesia; Japan; Kazakhstan; Kiribati (beginning 2006); the Kyrgyz Republic; the Lao People's Democratic Republic; Malaysia (beginning 2002); Maldives; Mongolia; Nepal; New Zealand; Pakistan; the People's Republic of China; the Philippines; the Republic of Korea; Samoa (beginning 2004); Singapore; Solomon Islands; Sri Lanka; Taipei, China; Tajikistan (beginning 2002); Thailand; Timor-Leste (beginning 2006); Tonga (beginning 2003); Tuvalu; Uzbekistan (beginning 2010); and Vanuatu.

Sources: ADB calculations using data from CEIC Data Company; International Monetary Fund. Balance of Payments and International Investment Position Statistics. <http://data.imf.org/IIP> (accessed October 2021); and national sources.

As nonresident capital inflows increased in the region, there are noticeable changes in their composition and patterns. First, multinational enterprises, including those in the region, have significantly shaped nonresident capital flows in the past decade, given the complexity of their

cross-border financial investments (Avdjiev, Chui, and Shin 2014). Nonfinancial multinational enterprises can provide within-company credit to their parent company or subsidiaries located elsewhere. This transaction appears as “FDI debt” in the balance of payments statistics. In Asia and the Pacific, FDI debt has more than doubled from an average annual value of \$39 billion in 2001–2010 to \$82 billion in 2011–2020. Nonfinancial multinational enterprises also provide trade credits and loans to other companies, and can make cross-border bank deposits. These partly explain the rise in cross-border currency and deposits and loans, which have increased from an average annual value of \$84 billion and \$60 billion in 2001–2010 to \$190 billion and \$170 billion in 2011–2020, respectively. These transactions may understate the true cross-border exposures of nonfinancial multinational enterprises that have borrowed abroad through their affiliates.

Second, in 2011–2020 nonresident portfolio debt inflows rose, coinciding with the rise in debt issuance in Asia and the Pacific. In the same period, total bond issuance in the region increased from \$2.3 trillion to \$7.2 trillion, representing a compounded annual growth rate of 13.2%.<sup>35</sup> Average annual portfolio debt inflows more than doubled from \$131 billion in 2001–2010 to \$290 billion in 2011–2020. The increase in portfolio debt inflows reflects the shift from bank-intermediated financing to market-based financing centering on emerging market debt securities over the last decade (Shin 2013).

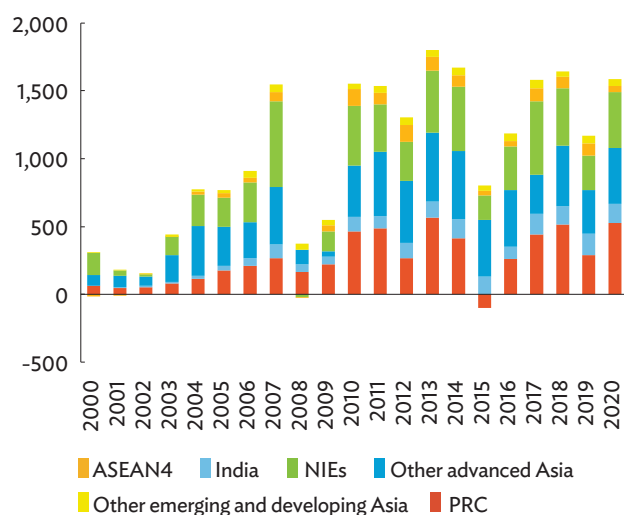
Third, subregionally, “other advanced Asia,” which includes Australia, Japan, and New Zealand, remains the top destination of nonresident capital flows in the last decade, with an average annual capital flow amounting to \$424 billion in 2011–2020, significantly up from \$222 billion in 2001–2010 (Figure 4.24). Newly industrialized economies (NIEs) remained the second-biggest recipient of foreign capital inflows in 2011–2020, followed by the PRC, India, ASEAN4, and other Asia emerging/developing economies, respectively.<sup>36</sup> But there are also noticeable differences in the composition

<sup>35</sup> Asian economies with data include Indonesia, Malaysia, the People's Republic of China, the Philippines, the Republic of Korea, Thailand, and Viet Nam. see ADB. AsianBondsOnline. <https://asianbondsonline.adb.org> (accessed October 2021).

<sup>36</sup> Other advanced Asia refers to Australia, Japan, and New Zealand. NIEs refer to Hong Kong, China; the Republic of Korea; Singapore; and Taipei, China. ASEAN4 refers to Indonesia, Malaysia, the Philippines, and Thailand.

of capital inflows across economies and subregions, as shown in figures in Annex 4a.1. The PRC received a large share of FDI equity in both periods, and there was a marked shift from loan inflows to portfolio debt (bond) inflows in 2011–2020. For India and the NIEs, aside from FDI equity inflows, both subregions received large amounts of nonresident currency and deposit inflows in 2011–2020. ASEAN4 received large FDI equity inflows as well as portfolio debt inflows, while other emerging and developing Asia economies received large FDI equity inflows and loan inflows in 2011–2020.

**Figure 4.24: Nonresident Capital Flows—Asia and the Pacific, by Subregion (\$ billion)**



ASEAN = Association of Southeast Asian Nations, NIE = newly industrialized economy, PRC = People's Republic of China.

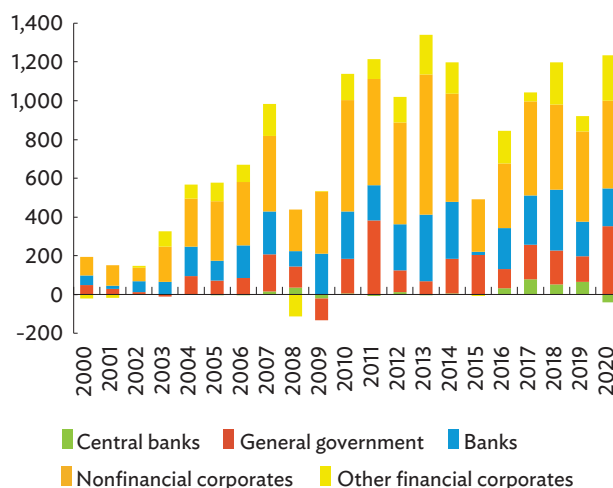
Note: ASEAN4 includes Indonesia, Malaysia (beginning 2002), the Philippines, and Thailand. NIEs include Hong Kong, China; the Republic of Korea; Singapore; and Taipei, China. Other advanced Asia includes Australia, Japan, and New Zealand. Other emerging and developing Asia includes Afghanistan (beginning 2008), Armenia, Azerbaijan (beginning 2002), Bangladesh, Bhutan (beginning 2006), Cambodia, Fiji, Georgia, Kazakhstan, Kiribati (beginning 2006), the Kyrgyz Republic, the Lao People's Democratic Republic, Maldives, Mongolia, Nepal, Pakistan, Samoa (beginning 2004), Solomon Islands, Sri Lanka, Tajikistan (beginning 2002), Timor-Leste (beginning 2006), Tonga (beginning 2003), Tuvalu, Uzbekistan (beginning 2010), and Vanuatu.

Sources: ADB calculations using data from CEIC Data Company; International Monetary Fund. Balance of Payments and International Investment Position Statistics. <http://data.imf.org/IIP> (accessed October 2021); and national sources.

Fourth, nonresident capital inflows to Asia and Pacific economies mostly went to nonfinancial corporates (Figure 4.25). This pattern is unsurprising given that the region attracts a large share of global FDI and that nonfinancial multinational enterprises are increasing

their cross-border financial transactions. Such patterns may give rise to financial stability concerns if these flows lead to more financial operations rather than real economic activities (Avdjiev, Chui, and Shin 2014). The banking sector was the second-largest recipient of nonresident capital flows. But for some years, including 2020, the government sector received more nonresident capital flows than the banking sector, suggesting the rising importance of the public sector as borrower, as also noted by the Committee on Global Financial System report (CGFS 2021). The capital inflow surges and reversals before and during the global financial crisis of 2008–2009; as well as the moderate levels of nonresident capital inflows in post-global financial crisis were largely explained by banking sector flows (Milesi-Ferretti and Tille 2011; McCauley et al. 2019; and McQuade and Schmitz 2017). In contrast, the sudden stops experienced by some economies at the onset of the COVID-19 pandemic appeared mainly to be driven by investment funds from advanced economies (Lane 2020). These evolving patterns of sectoral nonresident capital inflows into the region and elsewhere highlight sectoral differences in sensitivity to drivers as well as to policy measures (Lepers and Mercado 2021).

**Figure 4.25: Nonresident Capital Flows—Selected Asian Economies, by Sector (\$ billion)**



Notes:

- (i) Selected Asian economies include Armenia, Australia, Georgia, Indonesia, India, Kazakhstan, Japan, Malaysia, Mongolia, New Zealand, Pakistan, the People's Republic of China, the Philippines, the Republic of Korea, and Thailand.
- (ii) Nonresident capital flows include foreign direct investment, portfolio, and other investments.

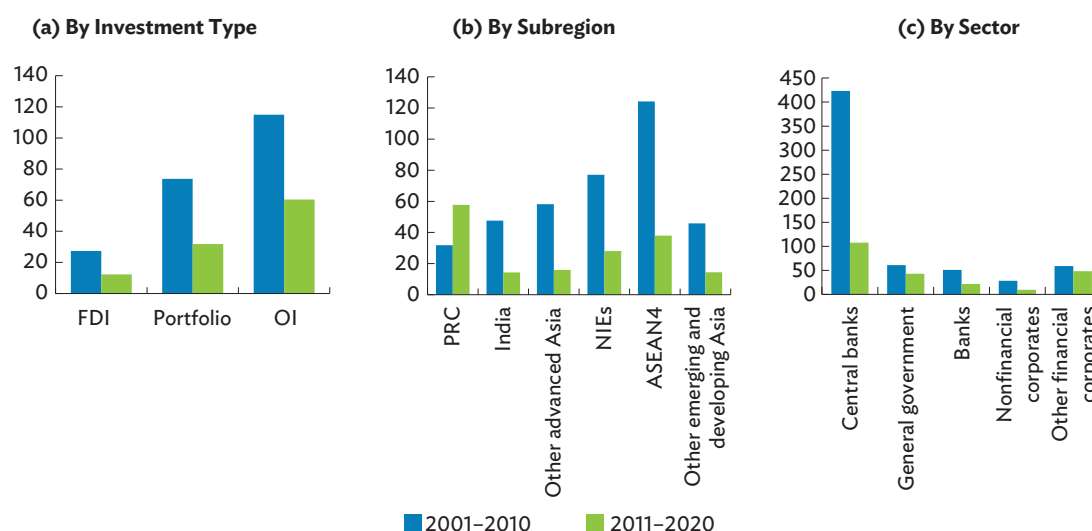
Source: ADB calculation using data from Lepers and Mercado (2021).

Across types of investments, most FDI and portfolio equity inflows in selected Asia and the Pacific economies went to nonfinancial corporates (The SEACEN Centre 2020). But there are differences for sectoral debt inflows, which includes bond and loan inflows, as shown in the figures in Annex 4a.2. For instance, in the PRC, bank debt inflows in 2011–2020 were dominantly in the form of bonds, in contrast to the 2001–2010 period when most bank debt inflows were in the form of loans. For ASEAN4, there was also a marked shift in government debt inflows from loans to bonds in 2011–2020, but for other emerging and developing Asia and Pacific economies, most government debt inflows were loans.

Fifth, volatilities of nonresident capital inflows in Asia and the Pacific have gone down in 2011–2020, compared with 2001–2010, which is partly explained by the “great moderation” of capital flows, particularly from advanced economies in the post-global financial

crisis period (McQuade and Schmitz 2017). Moreover, policy measures that address capital flow volatility may have also contributed to its decline in 2011–2020 (CGFS 2021). The relative volatilities of gross capital inflows across types of investments remained consistent over the last 2 decades (Figure 4.26a). Other investment inflows, which include loans, currency and deposits, and trade credits, remained the most volatile capital flows, followed by portfolio flows and then FDI flows. The same patterns were previously noted by Mercado and Park (2011) for developing Asia economies from 1980 to 2009. Across the Asia and Pacific subregions, the PRC had the most volatile nonresident capital inflows in 2011–2020, followed by ASEAN4 and NIEs (Figure 4.26b). Among sectors, public sector inflows (central bank and general government) as well as other financial corporate inflows were more volatile in both periods, compared with banks and nonfinancial corporates (Figure 4.26c).

**Figure 4.26: Nonresident Capital Flows Volatility—Asia and the Pacific, 2001–2020 (% GDP, coefficient of variation)**



ASEAN = Association of Southeast Asian Nations, FDI = foreign direct investment, GDP = gross domestic product, NIE = newly industrialized economy, OI = other investment, PRC = People's Republic of China.

Notes:

- (i) ASEAN4 includes Indonesia, Malaysia (beginning 2002), the Philippines and Thailand. NIEs include Hong Kong, China; the Republic of Korea; Singapore; and Taipei, China. Other advanced Asia includes Australia, Japan, and New Zealand. Other emerging and developing Asia includes Afghanistan (beginning 2008), Armenia, Azerbaijan (beginning 2002), Bangladesh, Bhutan (beginning 2006), Cambodia, Fiji, Georgia, Kazakhstan, Kiribati (beginning 2006), the Kyrgyz Republic, the Lao People's Democratic Republic, Maldives, Mongolia, Nepal, Pakistan, Samoa (beginning 2004), Solomon Islands, Sri Lanka, Tajikistan (beginning 2002), Timor-Leste (beginning 2006), Tonga (beginning 2003), Tuvalu, Uzbekistan (beginning 2010), and Vanuatu.
- (ii) Figure 4.26a includes ASEAN4, India, NIEs, other advanced Asia, other emerging and developing Asia, and the PRC.
- (iii) Figure 4.26c includes Armenia, Australia, Georgia, Indonesia, India, Kazakhstan, Japan, Malaysia, Mongolia, New Zealand, Pakistan, the People's Republic of China, the Philippines, the Republic of Korea, and Thailand.
- (iv) The coefficient of variation is the ratio of the standard deviation to the mean, multiplied by 100.

Sources: ADB calculations using data from CEIC Data Company; International Monetary Fund (IMF). Balance of Payments and International Investment Position Statistics. <http://data.imf.org/IIP>; IMF. World Economic Outlook October 2021 Database. <https://www.imf.org/en/Publications/WEO/weo-database/2021/October> (both accessed October 2021); Lepers and Mercado (2021); and national sources.

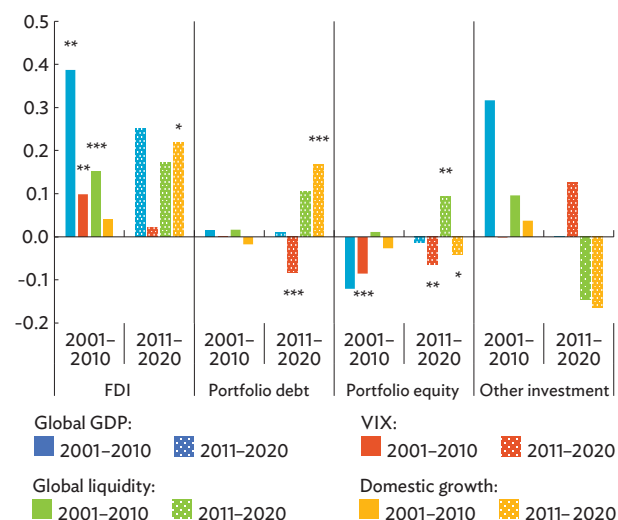
## The changing patterns of foreign capital inflows into Asia and the Pacific reflect the varying relevance of global and domestic factors.

More recent studies show that global and domestic economic growth, investor risk appetite, domestic macroeconomic risks, trade and financial openness, quality of governance, and domestic financial depth are the relevant drivers of foreign capital inflows (Ahmed and Zlate 2014; Byrne and Fiess 2016; Fratzscher 2012; Ghosh et al. 2014; Giordani et al. 2017; Li, de Haan, and Scholtens 2018; Mercado 2018a; and Mercado and Park 2011). Other drivers have also been identified. CGFS (2021) highlighted the significance of the institutional infrastructure of the global financial system through which capital flows ultimately move, known as “pipes” as an important determinant of the magnitude of capital inflows; while Mercado (2018b and 2020) found that gravity factors such as bilateral trade and distance drive bilateral capital flows. But the significance of these drivers change over time. For example, CGFS (2021) stressed that the changes in capital flow pipes have become the most important driver of capital flow patterns in the post-global financial crisis period.

Focusing on a sample of Asia and Pacific economies between 2001–2010 and 2011–2020, the conditional correlations between various types of gross capital inflows and global and domestic factors show that the significant negative correlation between portfolio equity flows and VIX have declined between the two periods (Figure 4.27), while the positive conditional correlation between portfolio debt inflows and domestic GDP growth has increased and became significant in 2011–2020, compared with the previous period. This implies that foreign investors have become responsive to domestic economic growth in deciding whether to hold Asia and Pacific portfolio debt. These findings remain the same when additional domestic covariates are considered. In addition, the positive and significant correlation between domestic capital account openness and domestic financial depth with FDI inflows have increased in the second period; while the positive and significant correlation between domestic governance quality and other investment inflows likewise increased in 2011–2020, compared with 2001–2010. Again, these

results suggest that foreign investors have become more responsive to domestic factors in Asia and the Pacific in deciding whether to invest in the region.

**Figure 4.27: Regression Coefficients of Capital Flows Covariates—Selected Asian Economies**



FDI = foreign direct investment, GDP = global domestic product, VIX = volatility index.

Notes:

- (i) The change in the effect of push and pull factors, between 2001–2010 and 2011–2020 was analyzed by using a panel regression with economy fixed effects. The analysis highlights basic correlations (not causal relationships).
- (ii) The dependent variables are gross capital inflows to economy  $i$  in year  $t$  scaled by GDP.
- (iii) Global liquidity refers to total international banks' claims on all sectors as % of GDP. Domestic growth refers to the year-on-year growth of each economy's annual GDP.
- (iv) The asterisks denote significance levels. \*\*\* at 1%, \*\* at 5%, and \* at 10%.

Sources: ADB calculations using data from Bank for International Settlements Global Liquidity Indicators. <https://www.bis.org/statistics/gli.htm> (accessed August 2021); Bloomberg; International Monetary Fund (IMF). Balance of Payments and International Investment Position Statistics. <http://data.imf.org/IIP>; and IMF. World Economic Outlook Database. <https://www.imf.org/en/Publications/WEO/weo-database/2021/October> (both accessed October 2021); and methodology by Committee on Global Financial System (2021).

## Asia and Pacific economies experienced marked periods of large nonresident capital inflows and outflows over the last 2 decades.

Foreign capital inflows peaked in 2007 for most economies in the region before capital flow reversals during the global financial crisis of 2008–2009. Nonresident capital flows in the region also peaked around 2013–2014, before reversals in 2015. Such

episodes of large nonresident capital inflows or “surges” and outflows (reversals) or “stops” are caused by various domestic and global factors, such as investor risk appetite, contagion effects, among others (Caballero 2016; Calderon and Kubota 2013; Calvo 1998; Calvo, Leiderman, and Reinhart 1993 and 1996; Calvo, Izquierdo, and Mejia 2008; Cavallo and Frankel 2008; Forbes and Warnock 2012a and 2012b; Ghosh et al. 2014; Levchenko and Mauro 2007; Magud, Reinhart, and Vesperoni 2014; Mercado 2018a and 2019; Milesi-Ferretti and Tille 2011; Reinhart and Reinhart 2009; and Rothenberg and Warnock 2011).

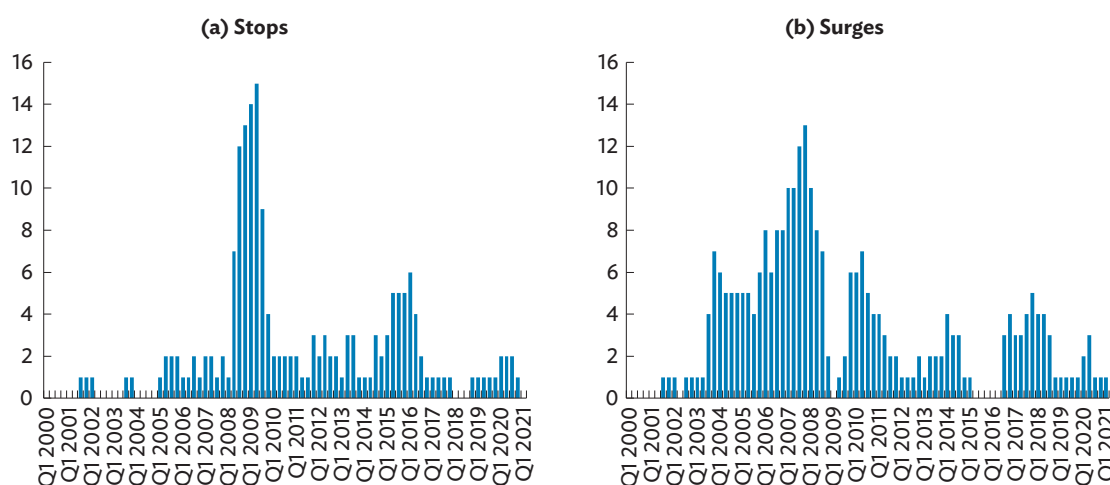
Consequently, identifying episodes of nonresident capital flow surges and stops is important in undertaking macrofinancial surveillance. Knowing “how large” nonresident capital inflows and outflows should be needs consideration before assessing what policy tools or combination thereof would be best in managing capital flow surges and stops. Annex 4b discusses commonly used methods in identifying capital flow stops and surges.

Applying the capital flow surge and stop definition of Forbes and Warnock (2012a and 2021) to selected Asia and Pacific economies from 2000 to 2020 reveals two

noteworthy observations (Figure 4.28). First, surges and stops are rare occurrences. On average, around 10% of the Asia and Pacific sample experience extreme episodes per quarter. Second, stops and surges may occur in ripples or waves. More than a third of the sample experienced surges in 2007 and stops in 2008 and 2009, whereas occurrences of these two extreme episodes were significantly less for other periods.

Periods of large nonresident capital inflows and outflows tend to coincide with improving or deteriorating domestic macroeconomic and financial indicators, suggesting their policy relevance. Figures 4.29a to 4.29f trace the patterns of several macrofinancial indicators before, during, and after years of large nonresident capital inflows (surges) and outflows or reversals (stops) for selected Asia and Pacific economies from 2000 to 2020. Using annual capital flows data sourced from the Balance of Payments data set of the International Monetary Fund (IMF) and national sources, large nonresident capital inflows or surges are defined as the largest positive nonresident capital inflow reported by each economy in the sample from 2000 to 2020. In contrast, large nonresident capital outflows or stops or reversals are distinguished as the largest negative nonresident capital flows reported by each economy in the sample from 2000 to 2020.

**Figure 4.28: Frequency of Capital Inflows Stops and Surges**



Q = quarter.

Note: Asia and the Pacific includes Armenia; Australia; Azerbaijan; Bangladesh; Cambodia; Fiji; Georgia; Hong Kong, China; India; Indonesia; Japan; Kazakhstan; the Kyrgyz Republic; the Lao People's Democratic Republic; Malaysia; Mongolia; Myanmar; Nepal; New Zealand; Pakistan; Papua New Guinea; the People's Republic of China; the Philippines; the Republic of Korea; Singapore; Solomon Islands; Sri Lanka; Taipei, China; Thailand; Vanuatu; and Viet Nam.

Sources: ADB staff calculations using data from International Monetary Fund, Balance of Payments and International Investment Position Statistics. <http://data.imf.org/IIP> (accessed October 2021); and methodology by Forbes and Warnock (2021).



The years with the largest nonresident inflows and outflows are noted as time (t). Then, the median values of macrofinancial variables are taken, including GDP growth, current account balance, equity price, among others, across the sample of Asia and Pacific economies at time t as well as those 3 years before and 3 years after the identified large episode of nonresident capital flows at time t, following Reinhart and Reinhart (2009).

Several key observations are noted. First, GDP growth declines during and after large nonresident capital outflows (stops or reversals), before recovering 2 years following the stop episode (red line in Figure 4.29a). Output growth is often weaker during foreign capital flow reversals as they are often associated with economic slowdowns or output drops. GDP growth also appears weaker following episodes of large nonresident capital inflows or surges (blue line in Figure 4.29a). Second, the current account balance of selected Asia and Pacific economies tends to deteriorate before and during large nonresident capital inflows (blue line in Figure 4.29b). In contrast, the current account balance improves when large nonresident capital outflows (stops) occur, due to weaker domestic demand (red line in Figure 4.29b). Third, the Asia and Pacific region accumulates official reserves during surges and decumulates reserves during stops (Figure 4.29c). Fourth, real exchange rate usually depreciates during and 1 year after large nonresident capital flow reversals (Figure 4.28d). Fifth, fiscal balance worsens during surges but slightly improves during stops (Figure 4.29e). Last, equity prices usually rise before and during surges but decrease after. They decrease during large nonresident capital flow reversals and remains depressed 1 year after (Figure 4.29f).<sup>37</sup>

### **The Asia and Pacific economies used various policy measures to address the adverse impacts of large and volatile capital flows.**

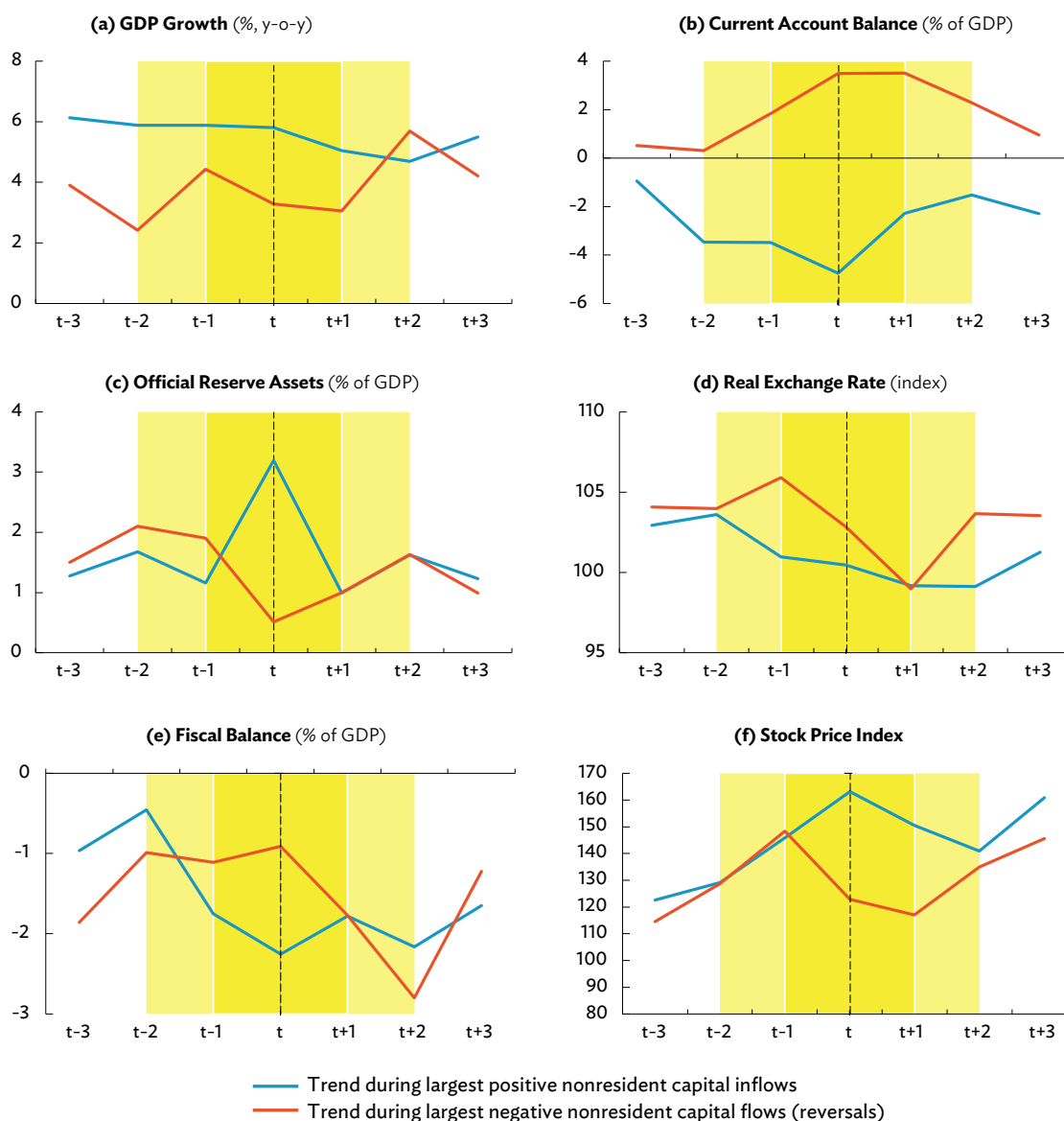
Although capital inflows provide substantial direct and indirect benefits to emerging and developing economies,

they also carry risks and pose a challenge to policy makers in the region. Specifically, the changing nature and varying significance of domestic and global factors require deeper understanding of the dynamics and evolution of nonresident capital flows. Moreover, large capital inflows and large capital flow reversals are often associated with either improving or deteriorating macroeconomic and financial conditions, thereby warranting appropriate policy responses, as shown in Figure 4.29.

In this regard, emerging and developing economies, including those in the Asia and Pacific region, have used an array of policy measures to address the adverse impacts of large and volatile capital flows, including capital flow management measures, foreign exchange measures, and macroprudential measures. Over the course of the last 2 decades most of these measures were loosened instead of tightened, as shown in Figure 4.30. For example, capital flow management measures on nonresident capital inflows were mostly loosened in line with the trend toward greater capital account liberalization. In contrast, macroprudential measures were mostly tightened, more so in the past decade, to manage systemic risks from capital flows. The survey results conducted by the IMF in 2016 on capital flows shed more light on the concerns of policy makers. Most emerging and developing economies expressed concerns about capital flows, mainly due to their volatility as well as volume (IMF 2016). Among capital flow impacts, policy makers were mostly concerned with their impact on exchange rate followed by financial stability. Among policy measures, most used greater exchange rate flexibility, while others also used foreign exchange intervention and macroprudential measures. Empirical evidence on the effectiveness of these policy measures in addressing capital flow volatilities, surges, and stops has shown their usefulness under specific conditions (Eller et al. 2021; Lepers and Mehigan 2019; Frost, Ito, and Stralen 2020; Lepers and Mercado 2021; and Carvalho, Lepers, and Mercado 2021).

<sup>37</sup> Most of these patterns hold if the identified episodes of large nonresident inflows and outflows are restricted from 2003 to 2017 to completely capture patterns 3 years before and after the identified episode at time t.

Figure 4.29: Selected Macroeconomic and Financial Variables—Asia and the Pacific

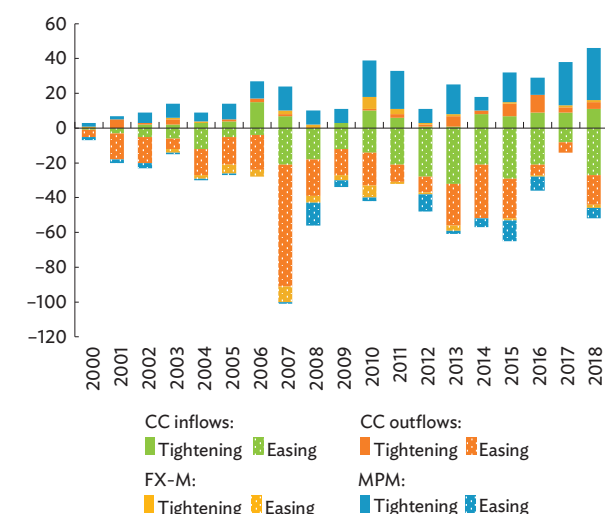


GDP = gross domestic product, y-o-y = year-on-year.

Notes:

- The red (blue) lines in Figures 4.29a to 4.29f show the median values of GDP growth, current account balance, official reserve assets, real exchange rate, fiscal balance, and equity price for selected Asia and Pacific economies 3 years before ( $t-3$ ,  $t-2$ , and  $t-1$ ), during ( $t$ ), and 3 years after ( $t+1$ ,  $t+2$ , and  $t+3$ ) large nonresident capital outflows (inflows) are identified at time  $t$ . Time  $t$  differs across sample economies, but data coverage across all economies is from 2000 to 2020. For red lines, time  $t$  refers to the year with the largest negative nonresident capital flows for each sample of economies, while for blue lines, time  $t$  refers to the year with the largest positive nonresident capital flows for each sample of economies.
- Asia and the Pacific includes Afghanistan; Armenia; Australia; Azerbaijan; Bangladesh; Bhutan; Brunei Darussalam; Cambodia; the Federated States of Micronesia; Fiji; Georgia; Hong Kong, China; India; Indonesia; Japan; Kazakhstan; Kiribati; the Kyrgyz Republic; the Lao People's Democratic Republic; Malaysia; Maldives; the Marshall Islands; Mongolia; Myanmar; Nauru; Nepal; New Zealand; Pakistan; Palau; Papua New Guinea; the People's Republic of China; the Philippines; the Republic of Korea; Samoa; Singapore; Solomon Islands; Sri Lanka; Taipei, China; Tajikistan; Thailand; Timor-Leste; Tonga; Tuvalu; Uzbekistan; Vanuatu; and Viet Nam.
- GDP growth refers to the year-on-year change of real GDP. Current account balance refers to all transactions other than those in financial and capital items. Official reserve assets are from the Balance of Payment Statistics in percentage of nominal GDP. Real exchange rate refers to the year-on-year change in real effective exchange rate rebased to 100 in  $t-4$ . An increase (decrease) denotes appreciation (depreciation). Fiscal balance refers to net government lending/borrowing in percentage of nominal GDP. Values for nominal stock price index were calculated as the year-on-year change in stock price index rebased to 100 in  $t-4$ .

Sources: ADB calculations using data from CEIC Data Company; International Monetary Fund (IMF). Balance of Payments and International Investment Position Statistics. <http://data.imf.org/IIP> (accessed October 2021); IMF. International Financial Statistics. <http://data.imf.org/IFS>; and IMF. World Economic Outlook April 2021 Database. <https://www.imf.org/en/Publications/WEO/weo-database/2021/April> (both accessed August 2021).

**Figure 4.30: Policy Measures of Selected Asia and Pacific Economies (count)**

CC = capital controls, FX-M = currency-based measures, MPM = traditional macroprudential measures.

Note: Asia and the Pacific includes Australia, India, Indonesia, Japan, Malaysia, Mongolia, New Zealand, the People's Republic of China, the Philippines, the Republic of Korea, and Viet Nam.

Sources: International Monetary Fund. Integrated Macroeprudential Policy Database. <https://www.elibrary-areaer.imf.org/Macroeprudential/Pages/iMaPPDatabase.aspx> (accessed 2019); and Lepers and Mehigan (2019).

### Given the volatile nature of capital flows and associated risks, several considerations are warranted.

First, the pattern and composition of capital flows need to be carefully monitored, as the US is edging toward policy normalization, while emerging and developing economies are still addressing the ongoing COVID-19 pandemic. In particular, understanding cross-border financial flows along sectoral lines is needed as

investment flows of nonfinancial corporations have become more complex, as emphasized in this chapter; and other financial corporates or nonbank financial institutions are now the main source of capital flows from advanced economies (Lepers and Mercado 2021). In addition, assessing the importance of domestic and global drivers, and more recently, “pipes” is required as changes in these factors will eventually determine the patterns and compositions of capital flows.

Second, large nonresident capital inflows and outflows could lead to deteriorating macroeconomic and financial conditions, and hence, can amplify risks and vulnerabilities. Moreover, earlier studies note that capital flow episodes transition from one to another, such as “surges” that are followed by “stops” (Efremidze et al. 2017; Mercado 2018a and 2019; and Sula 2010). Consequently, identifying these episodes is vital in deciding whether and when to use policy measures to help address these episodes of volatile capital flows (The SEACEN Centre 2019).

Third, the use of policy tools should be aligned with domestic situations and conditions. Yet, policy frameworks are a useful guide in deciding the appropriateness of policy tools.<sup>38</sup>

Fourth, as the patterns, compositions, and drivers of capital flows constantly evolve, the sharing of information and experiences among regional economies is helpful, specifically in identifying emerging trends as well as in the appropriateness and effectiveness of policy measures. In this regard, regional cooperation can offer a venue for sharing information and experiences in managing capital flows.

<sup>38</sup> The IMF published its Institutional View on capital flows in 2012 and, subsequently, the Integrated Policy Framework in 2020 as guide on the appropriate use of various policy measures in addressing capital flow surges and sudden stops (IMF 2012). The Committee on Global Financial System in its 2021 report concluded that there is no “one size fits all” on how these policy measures are best combined, as it will depend on economy conditions and contexts (CGFS 2021).

### Box 4.1: International Investment Position

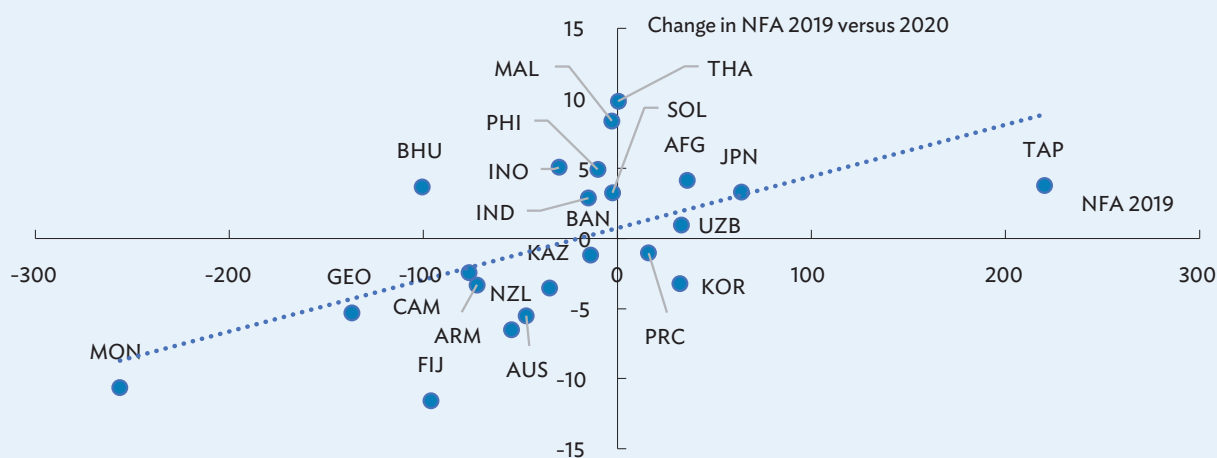
Figures 4.17 and 4.19 show the region's holdings of international investment assets and liabilities. The stylized facts drawn from these figures are based on underlying bilateral holdings data, where regional values are derived. Although the figures are informative and useful in understanding the proportion of external investment assets and liabilities held by regional versus non-regional economies, they do not provide the complete information as to the region's total external assets and liabilities, as bilateral source data are limited. To understand the region's external investment position, the International Investment Position is a useful statistic in tracking external adjustments and holdings. The compilation of the International Investment Position has improved over the last 2 decades, allowing policy makers more information on external debt assets and liabilities, as well as external equity investments. But information prior to 2000 is limited. Hence, long-term view of external adjustments and net international investment positions are constrained. This data gap has been addressed by Lane and Milesi-Ferretti (2007 and 2018) in their External Wealth of Nations Database.

The International Investment Position data are useful in understanding global imbalance and external adjustments (Lane and Milesi-Ferretti 2012 and 2017); as well as tracking de facto financial integration measure (Park 2013). For

instance, Park (2013) noted that emerging Asia showed a steady uptrend in de facto financial integration from 1970 to 2010 despite the declines in de jure financial integration measure using the Chinn-Ito database (Chinn and Ito 2008), highlighting the substantial divergence between de facto and de jure measures of financial openness and integration. These studies show the importance and usefulness of International Investment Position data in understanding external positions and financial integration trends.

In addition, the statistic is valuable in understanding the improvement or deterioration of the net foreign asset position at the outset of the COVID-19 pandemic in 2020. Comparing the change in net foreign asset position between 2019 and 2020 for selected Asia and Pacific economies, the net foreign asset position of several economies including Armenia, Australia, Fiji, Georgia, Kazakhstan, Mongolia, and New Zealand further declined in 2020 as these economies have negative net foreign asset position in 2019, as shown in the figure. In contrast, the net foreign asset position of Bhutan, India, Indonesia, Malaysia, the Philippines, and Solomon Islands improved in 2020 despite these economies also having a negative net foreign asset position in 2019. In fact, for the latter group of economies, the improvement in net foreign asset position in 2020 coincided with the improvement of the current account balance.

### Change in Net Foreign Assets, 2019–2020



AFG = Afghanistan; ARM = Armenia; AUS = Australia; BAN = Bangladesh; BHU = Bhutan; CAM = Cambodia; FIJ = Fiji; GEO = Georgia; IND = India; INO = Indonesia; JPN = Japan; KAZ = Kazakhstan; KOR = Republic of Korea; MAL = Malaysia; MON = Mongolia; NFA = net foreign asset; NZL = New Zealand; PHI = Philippines; PRC = People's Republic of China; SOL = Solomon Islands; TAP = Taipei, China; THA = Thailand; UZB = Uzbekistan.

Source: ADB calculations using data from International Monetary Fund (IMF). Balance of Payments and International Investment Position Statistics. Accessed from CEIC Data Company; and IMF. World Economic Outlook April 2021 Database. <https://www.imf.org/en/Publications/WEO/weo-database/2021/April> (accessed August 2021).

Source: Asian Development Bank.

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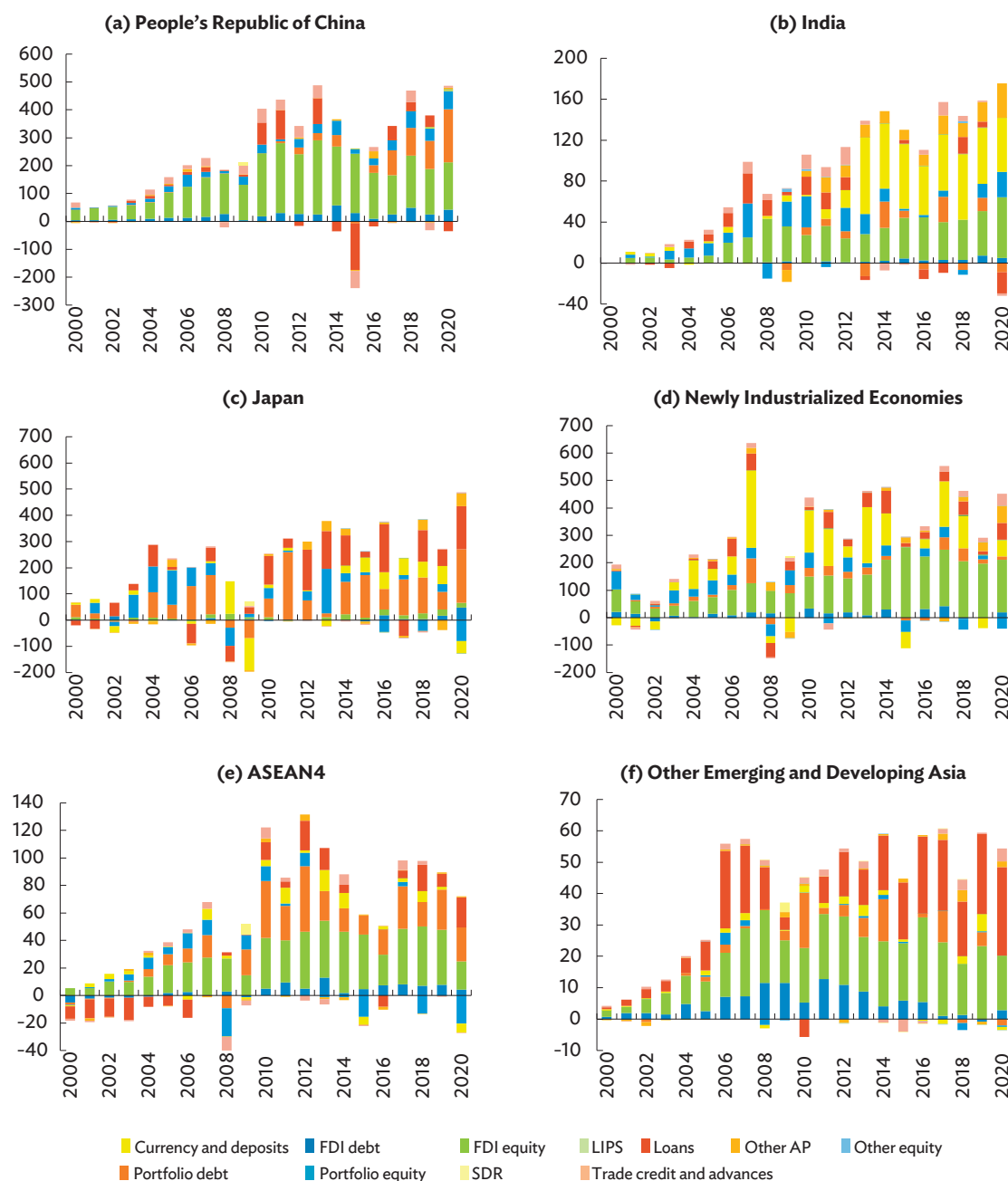
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## Annex 4a: Sectoral and Subregional Decomposition of Capital Flows

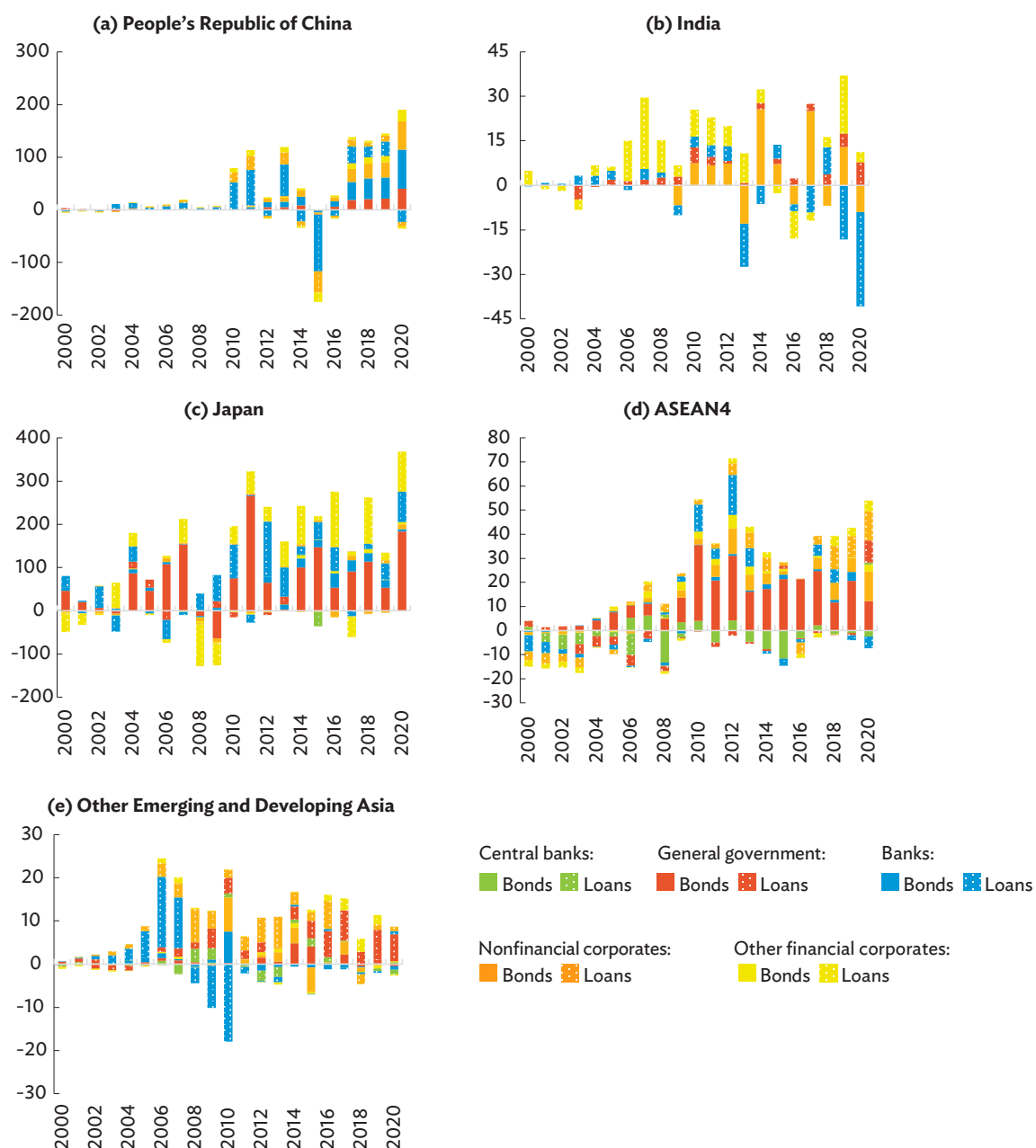
**Figure 4a.1: Nonresident Capital Flows—Selected Asian Economies and Subregions, by Investment Type (\$ billion)**



AP = accounts payable; ASEAN = Association of Southeast Asian Nations; FDI = foreign direct investment; LIPS = loans, insurance, pension, and standardized guaranteed schemes; SDR = special drawing rights.

Notes: ASEAN4 includes Indonesia, Malaysia (beginning 2002), the Philippines, and Thailand. Newly Industrialized Economies include Hong Kong, China; the Republic of Korea; Singapore; and Taipei, China. Other emerging and developing Asia includes Afghanistan (beginning 2008), Armenia, Azerbaijan (beginning 2002), Bangladesh, Bhutan (beginning 2006), Cambodia, Fiji, Georgia, Kazakhstan, Kiribati (beginning 2006), the Kyrgyz Republic, the Lao People's Democratic Republic, Maldives, Mongolia, Nepal, Pakistan, Samoa (beginning 2004), Solomon Islands, Sri Lanka, Tajikistan (beginning 2002), Timor-Leste (beginning 2006), Tonga (beginning 2003), Tuvalu, Uzbekistan (beginning 2010), and Vanuatu.

Sources: ADB calculations using data from CEIC Data Company; International Monetary Fund. Balance of Payments and International Investment Position Statistics. <http://data.imf.org/IIP> (accessed October 2021); and national sources.

**Figure 4a.2: Nonresident Capital Flows—Selected Asian Economies and Subregions, by Sector (\$ billion)**

ASEAN = Association of Southeast Asian Nations.

Note: ASEAN4 includes Indonesia, Malaysia, the Philippines, and Thailand. Other emerging and developing Asia includes Armenia, Georgia, Kazakhstan, Mongolia, and Pakistan.

Source: ADB calculations using data from Lepers and Mercado (2021).



## Annex 4b: Identifying Capital Flow Surges and Stops

Various methods are used in the literature to identify capital inflow surges and stops. For surges, they are usually defined to imply more than the usual increase in capital inflows. However, there are various approaches in measuring “more than usual.” For instance, more than usual could refer to one or two standard deviations from historic mean, filtered trend, or relative size of capital inflows. For example, Forbes and Warnock (2012a and 2021) and Mercado (2018a and 2019) used two standard deviations from historic mean. In addition, surges can also be identified based on some threshold percentile. For instance, Reinhart and Reinhart (2009) used the top 20th percentile as threshold, while Ghosh et al. (2014) used the top 30th percentile as threshold.

For “stops,” Calvo, Izquierdo, and Mejia (2008) defined “sudden stops” as a sharp fall in *net* capital inflows. A “sharp fall” pertains to a one standard deviation drop of the year-on-year change of the 12-month moving sum of net capital inflows relative to its historic mean, provided it drops two standard deviations within the episode. In contrast, Forbes and Warnock (2012a and 2021) defined “stops” as a sharp decline in nonresident capital flows, instead of net capital inflows as used by Calvo, Izquierdo, and Mejia (2008). A sharp decline pertains to a one standard deviation drop of the year-on-year change of the 12-month moving sum of gross capital inflows relative to its 5-year rolling historic mean, provided it drops two standard deviations at some point within the episode.

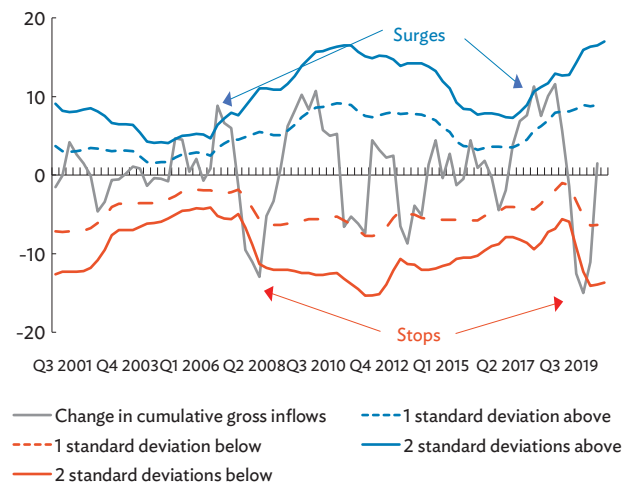
In this chapter, surges and stops are derived using quarterly nonresident capital inflows sourced from the International Monetary Fund’s Balance of Payments and International Investment Position Statistics. To state, “surge” is defined as an episode where nonresident capital inflows increase more than one standard deviation above its historic mean provided that (i) the entire episode lasts more than one-quarter; (ii) there are at least 5 years of data to calculate the historic mean; and (iii) it reaches at least two standard deviations above at some point within that episode. Specifically, we let  $C_t$  be the four-quarter moving sum of gross capital inflows (GINFLOW) and derive annual year-on-year changes in  $C_t$ :

$$C_t = \text{GINFLOW}_t + \text{GINFLOW}_{t-1} + \text{GINFLOW}_{t-2} + \text{GINFLOW}_{t-3}$$

$$\Delta C_t = C_t - C_{t-3}$$

Rolling average and standard deviations of  $\Delta C_t$  are computed over the last 20 quarters. A “surge” episode is defined to start at the first month  $t$  when  $\Delta C_t$  increases more than one standard deviation above the rolling mean. But in order for an entire episode to qualify as “surge” there must be at least one quarter  $t$  when  $\Delta C_t$  increases at least two standard deviations above its mean. A “stop” episode is defined using the same approach but pertains to the opposite direction, i.e., a large decrease in nonresident capital flows. “Normal” episodes are defined as the absence of either surges or stops for a given quarter. Annex Figure 4b.1 provides an illustrative example in defining surges and stops using quarterly data for the Philippines. The figure shows that the Philippines had a surge and then stop episode before and during the global financial crisis of 2008, and a stop episode in the first quarter of 2020 at the start of the COVID-19 pandemic.

**Figure 4b.1: Capital Flow Surges and Stops in the Philippines**



Q = quarter.

Sources: ADB calculations using data from International Monetary Fund, Balance of Payments and International Investment Position Statistics. <http://data.imf.org/IIP> (accessed October 2021); and methodology by Forbes and Warnock (2021).