

## 3. Drivers of Financial Integration: Implications for Asia

### Introduction and Main Findings

Since the Asian financial crisis, Asian policymakers have encouraged greater financial cooperation and integration within the region. Important steps taken include regional liquidity support arrangements through the Chiang Mai Initiative Multilateralization, the Asian Bond Fund, the Asian Bond Market Initiative, and financial forums such as the Association of Southeast Asian Nations Plus Three and the Executives' Meeting of East Asia–Pacific Central Banks.<sup>1</sup> The Association of Southeast Asian Nations (ASEAN) has also outlined plans to foster capital market integration, including by building capital market infrastructure and harmonizing regulations (Almekinders and others 2015).<sup>2</sup>

While not an end in itself, regional financial integration is being pursued because it is expected to bring important benefits to Asia (Box 3.1). Financial integration promises higher productivity and living standards, not least by improving the allocation of savings and investment. In particular, it could help direct the large savings of aging populations in some countries toward high-return projects in dynamic economies with significant investment needs. Deeper financial integration may also foster financial inclusion (Box 3.2). Nevertheless, further regional financial integration also carries risks, including of heightened

vulnerability to contagion, which would result in larger output volatility.

That said, the empirical evidence thus far indicates that Asian economies maintain stronger financial links with the rest of the world than with other economies in the region (Borensztein and Loungani 2011; Eichengreen and Park 2004; Garcia-Herrero, Yang, and Wooldridge 2008; Pongsaparn and Unterberdoerster 2011). And Asia's financial integration with the remainder of the world lags behind trade integration within Asia (April 2014 *Regional Economic Outlook: Asia and Pacific*).

This chapter takes a fresh look at the status of financial integration within Asia and at possible factors hindering progress. More specifically, it addresses the following questions: Has Asia's regional financial integration risen? How does it compare to that of other regions? What are the drivers of financial integration? And hence, what are the implications for Asian policymakers who want to achieve deeper financial integration within the region?<sup>3</sup>

The main findings are the following:

- The degree of financial integration within Asia has increased but remains relatively low, especially when compared with Asia's high degree of trade integration. While about 60 percent of Asia's exports and imports go to, or originate from, elsewhere within the region, only 20 percent to 30 percent of cross-border portfolio investment and bank claims are intraregional.
- Financial linkages within Asia are less strong than those within the euro area and the

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Note: The authors of this chapter are Nasha Ananchotikul and Edda Zoli (lead). Shi Piao provided research assistance. The analytical underpinnings to this chapter are presented in Ananchotikul, Piao, and Zoli (forthcoming).

<sup>1</sup> See Jee-young (2008) for an overview of all these regional initiatives.

<sup>2</sup> For example, in January 2007, ASEAN leaders affirmed their commitment to the creation of the ASEAN Economic Community by 2015 and “to transform ASEAN into a region with free movement of goods, services, investment, skilled labor, and freer flow of capital” (ASEAN 2008, p. 2).

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<sup>3</sup> The focus is on intraregional integration since this is part of Asian policymakers' agenda. The chapter does not assess whether policymakers should pursue deeper financial integration within the region or with the rest of the world.

European Union, but tighter than those in Latin America. Financial integration—as measured by cross-border portfolio transactions—is stronger among ASEAN members than among other Asian economies.

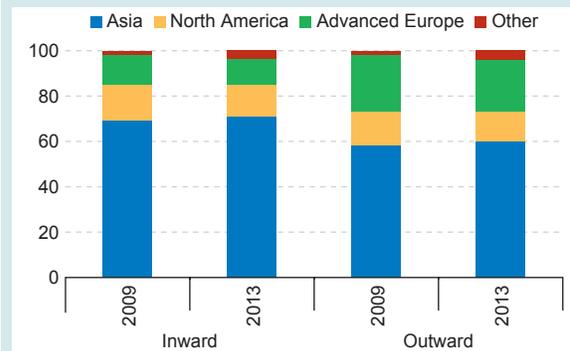
- Intraregional financial flows within Asia have risen much faster than regional GDP over the past decade, reflecting the region’s strong investment activity and high savings. In contrast, intraregional financial flows within the European Union and Latin America have grown more slowly relative to GDP.
- Home bias—that is, the tendency to invest more in one’s home country than abroad—is particularly strong in Asia, limiting cross-border financial transactions within the region.
- Cross-border portfolio investment assets and bank claims increase with the size and sophistication of financial systems and the extent of trade integration. Restrictions on foreign asset holdings, informational asymmetries, barriers to foreign bank entry, and differences in regulatory and institutional quality create obstacles to financial integration.
- Therefore, initiatives to advance Asian policymakers’ agenda toward deeper regional integration could include steps to further promote financial market development and trade linkages, while reducing informational asymmetries through increased financial disclosure and reporting requirements. Lowering regulatory barriers to capital movements and foreign bank entry, as well as harmonizing regulation, especially for investor protection, contract enforcement, and bankruptcy procedures, appear particularly important.

## Regional Financial Integration in Asia: Recent Trends

Data on cross-border portfolio investment and bank claims suggest that Asia’s intraregional financial integration has deepened since the early 2000s. Nevertheless, Asian economies’ cross-border

Figure 3.1

### Asia: Foreign Direct Investment (Percent of total foreign direct investment to and from Asia)



Sources: IMF, Coordinated Direct Investment Survey database; and IMF staff calculations.

financial linkages are stronger with economies outside the region than within the region, especially when the roles of Hong Kong Special Administrative Region (SAR) and Singapore in intermediating inflows from the rest of the world are taken into account.

## Portfolio Asset Holdings

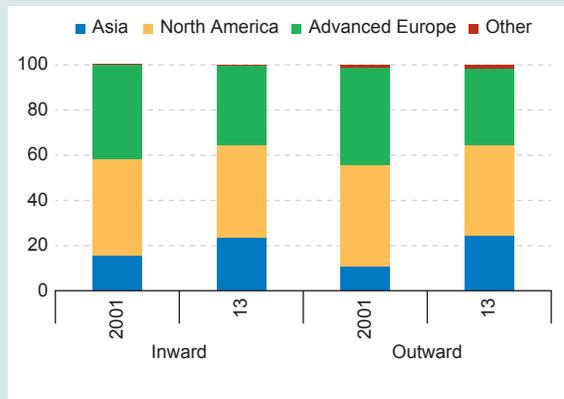
Available information indicates that in contrast to foreign direct investment (FDI), most of Asia’s portfolio investment still originates from, or is directed, outside the region (Figures 3.1 and 3.2).<sup>4</sup> Between 60 percent and 70 percent of Asian FDI is intraregional—with transactions between China and Hong Kong SAR accounting for nearly half the total. Conversely, most portfolio investment coming into Asia originates from the United States

<sup>4</sup> Data on FDI are from the IMF Coordinated Direct Investment Survey on bilateral investment positions. Data on bilateral cross-border portfolio investment are from the IMF’s Coordinated Portfolio Investment Survey. The latter provides information on bilateral international portfolio holdings, that is, bilateral foreign asset and liabilities stocks. These data are subject to limitations. Country coverage is incomplete, since participation in the surveys is voluntary. Also, information on ultimate investors or ultimate recipients is not included in the surveys.

Figure 3.2

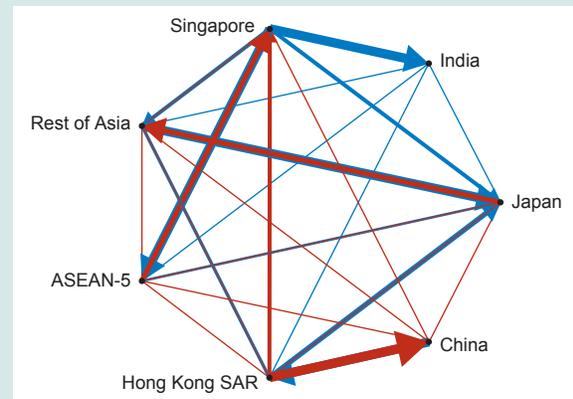
**1. Asia: Foreign Portfolio Investment**

(Percent of total foreign portfolio investment to and from Asia)



**2. Foreign Portfolio Investment Assets**

(Percent of total foreign portfolio investment assets of the source country or region)



Sources: IMF, Coordinated Portfolio Investment Survey database; and IMF staff calculations.  
 Note: ASEAN-5 = Indonesia, Malaysia, the Philippines, Singapore, and Thailand.

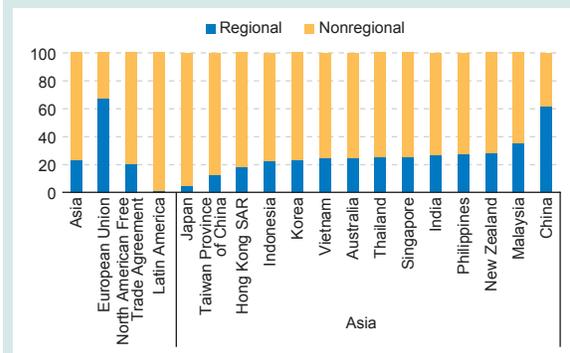
and Europe’s advanced economies, although the share of Asian origin increased from about 15 percent in 2001 to about 23 percent in 2013. This is consistent with domestic financial market deepening and large savings, as suggested by the region’s current account surpluses. Regional outward portfolio investment grew from 10 percent to 24 percent over the same period, but North America and advanced Europe remained the main destinations. However, the shares of intraregional portfolio investment are higher when Japan—the largest portfolio investment source and destination country in Asia—is excluded, reaching 30 percent to 40 percent in 2013.

The portion of inward portfolio investment originating from within the region is fairly homogeneous across Asian economies, with China and Japan being the main outliers (Figure 3.3). For China, the high intraregional share reflects transactions between the mainland and Hong Kong SAR. The share of intraregional inward portfolio investment in Asia is only about one-third the European Union intraregional share, reflecting the European Union’s single market for financial services. On the other hand, Asia’s intraregional inward portfolio investment is significantly higher than Latin America’s. In regard to intraregional

Figure 3.3

**Sources of Portfolio Inward Investment**

(Percent; end-2013)

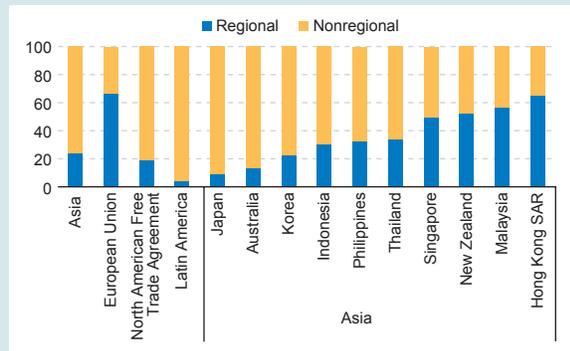


Sources: IMF, Coordinated Portfolio Investment Survey database; and IMF staff calculations.

outward portfolio investment, shares differ considerably across Asian economies (Figure 3.4). But overall, shares are lower than in the European Union and higher than in Latin America.

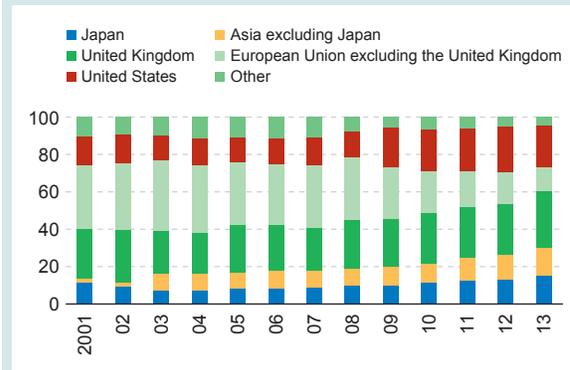
Hong Kong SAR and Singapore are two important financial centers, enhancing financial integration within Asia. Their foreign portfolio assets are about 270 percent and 200 percent of GDP, respectively, much higher than the average of only 20 percent in the rest of Asia. Hong Kong SAR

Figure 3.4  
**Destinations of Portfolio Outward Investment**  
 (Percent; end-2013)



Sources: IMF, Coordinated Portfolio Investment Survey database; and IMF staff calculations.

Figure 3.5  
**Sources of Foreign Bank Claims on Asia**  
 (Consolidated data; percent; end of period)



Sources: Bank for International Settlements; and IMF staff calculations.

is often referred to as the “gateway” to China, while Singapore is considered the regional financial center for Southeast Asia (Le Leslé and others 2014). The share of Singapore’s foreign portfolio liabilities originating in Asia almost doubled from 13 percent in 2001 to 25 percent in 2013, with the share of portfolio assets in the rest of the region originating from Singapore increasing from 39 percent to 49 percent. For Hong Kong SAR, the rise in inward portfolio investment from Asia (excluding China) has been modest—from 15 percent to 18 percent—while portfolio assets from Hong Kong SAR to Asia (excluding China) have remained roughly stable at around 30 percent.

The portfolio asset data set discussed here includes only holdings of the private sector. Foreign portfolio assets in the official sector (central banks, sovereign wealth funds, state-owned entities) in Asia are large, given the size of Asia’s official reserves. No information is available on how these assets are allocated, however, although it seems plausible that intraregional allocations have risen over time. Large public sector foreign asset holdings could be seen as a partial substitute for private holdings in terms of risk diversification and therefore may be a factor in Asia’s more limited private cross-border portfolio holdings relative to those of other regions.

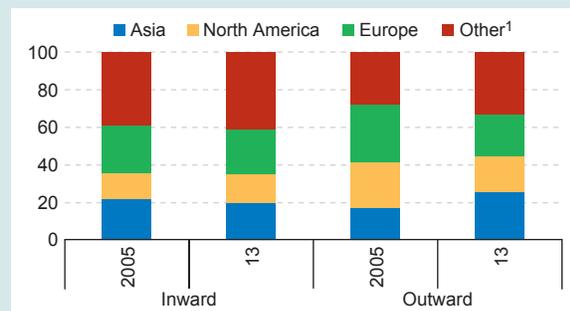
## Bank Claims

Asia’s cross-border banking linkages remain stronger between Asian economies and economies outside of Asia than among economies within the region, although intraregional foreign bank claims have increased. The share of foreign bank claims originating from within the region more than doubled, from 13 percent in 2001 to 30 percent in 2013, according to Bank for International Settlements (BIS) consolidated data (Figure 3.5).<sup>5</sup> This surge reflects the expansion of Japanese and Australian banks in the region, especially after the global financial crisis, when European banks retrenched (April 2015 *Global Financial Stability Report*, Chapter 2; Lam 2013). BIS locational data point to a similar degree of intraregional banking linkages.<sup>6</sup> According to this metric, about

<sup>5</sup> Cross-border bank claims on a consolidated basis include all contractual lending to local borrowers by head offices and all their branches and subsidiaries, net of interoffice transactions. For example, claims of Japanese bank branches and subsidiaries operating in Korea on local borrowers are counted as Japanese claims on Korea.

<sup>6</sup> Locational banking statistics categorize banks by location, consistent with the balance-of-payments residency principle. Data on locational cross-border banking claims were obtained from the BIS on a confidential basis.

Figure 3.6

**Asia: Foreign Bank Claims***(Locational data; percent of total foreign bank claims to and from Asia)*

Sources: Bank for International Settlements; and IMF staff calculations.  
<sup>1</sup> Includes remaining regions, unallocated locations, and offshore centers.

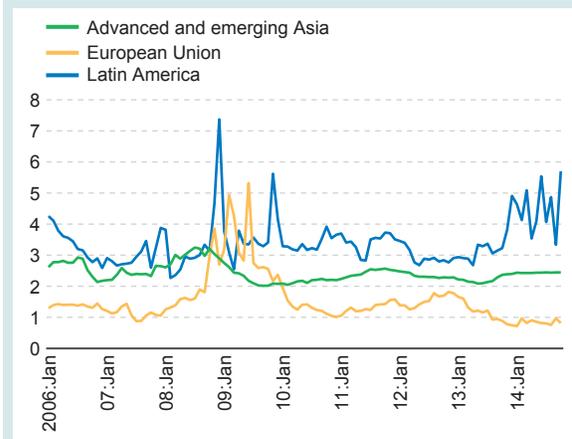
20 percent of foreign claims originated within the Asian region in 2013, and about 25 percent of Asia's foreign bank claims were directed to the rest of that region (Figure 3.6).

## Convergence of Interest Rates

Price-based indicators of financial integration point to evidence similar to that revealed by quantity measures of cross-border portfolio holdings and bank claims.<sup>7</sup> Interest rate dispersion across Asian economies remains higher than that in the European Union, but lower than that in Latin America. Indeed, in Asia's emerging market and advanced economies, the standard deviation of money market rates has declined in recent years, following a temporary increase during the global financial crisis, suggesting some convergence in interest rates (Figure 3.7). Similarly, in Asia's emerging market and advanced economies, the standard deviation of 10-year government bond yields has nearly halved since 2001.

<sup>7</sup> The literature uses a number of price-based indicators of financial integration, including cross-country standard deviation of money market and bond yields (Kim and Lee 2008) and stock return dispersion. For a survey and empirical evidence on Asia, see Kang-por Fung, Tam, and Yu (2008).

Figure 3.7

**Interest Rate Dispersion Comparison***(Percent)*

Sources: CEIC Data Company Ltd.; Haver Analytics; and IMF staff calculations.

Note: Standard deviation of money market rates across countries in each region.

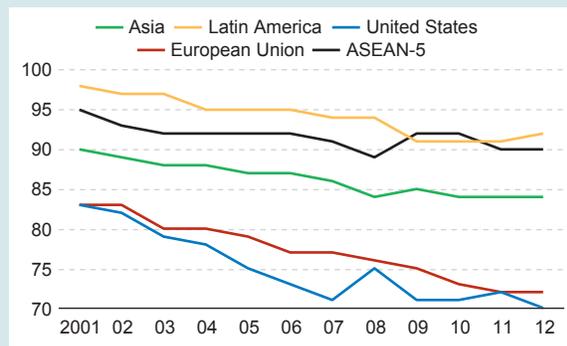
## Understanding the Drag on Deeper Regional Financial Integration: The Role of Home Bias

What accounts for the rather slow pace of regional financial integration in Asia, and why does it lag considerably behind trade integration? One explanation is that most of Asia's private financial investment remains within the domestic economy, rather than going abroad.<sup>8</sup> In fact, on average, Asian investors hold only 13 percent of their total equity portfolio in foreign markets. In contrast, European Union investors hold about 31 percent of their equity portfolio investment abroad and Latin American investors about 22 percent.

The index of home bias in equity markets provides a measure of this preference among Asian investors. The index measures the gap between the share of portfolio investment held in the domestic market and the benchmark share predicted by the

<sup>8</sup> Nevertheless, foreign asset accumulation by central banks is an important counterweight to private sector home bias.

Figure 3.8

**Home Bias Index across Regions**

Sources: IMF Coordinated Portfolio Investment Survey database; and IMF staff calculations.

Note: ASEAN-5 = Indonesia, Malaysia, the Philippines, Singapore, and Thailand. The index range is from 0 to 100, with a higher number indicating greater home bias.

size of the domestic market capitalization in the world market.<sup>9</sup>

The average home bias in Asia—particularly in the ASEAN-5 economies (Indonesia, Malaysia, the Philippines, Singapore, Thailand)—according to the index is higher than that in the European Union and the United States, though it is lower than that in Latin America (Figure 3.8). Overall, there has been a clear downward trend in the home bias across all regions for much of the period since 2000, reflecting increased financial globalization. However, this trend decline stalled in most regions after the global financial crisis, when international capital flows retrenched. Only for European Union members has home bias continued to decline since the global financial crisis, as domestic investors have moved out of their domestic stock markets amid market corrections and significant uncertainties over the economic and financial outlook.

Why is the home bias in equities larger in certain economies, including some in Asia? Empirical analysis of a panel of 50 countries from different regions indicates that the home bias is greater in economies with lower economic and financial development and economies in which foreign capital

<sup>9</sup> The home bias index ranges from 0 to 100, with a higher number indicating greater home bias.

flow restrictions are more pronounced. In Asia, in particular, the home bias index is even higher than that predicted by the level of economic and financial development, and capital account openness—with the unexplained residual being almost twice as high as the European Union's. This points to the important role of other factors in contributing to Asian economies' observed low equity investment abroad, including within the region. To some extent, the home bias may reflect foreign companies' decisions to be listed as local firms for buying financial assets to avoid often-higher transaction costs and income taxes on nonresidents.

## Drivers of Financial Integration

To better understand the main factors driving cross-border financial integration between two countries, a gravity model is estimated on a large sample of source and destination countries worldwide, using annual data over 2001–12.<sup>10</sup> The dependent variable is either the source country's portfolio asset holdings or its bank claims in the destination country (using both consolidated and locational data on bank claims).<sup>11</sup>

Explanatory variables comprise measures of market size, a set of factors affecting expected returns on asset holdings (such as interest differential), GDP per capita, indicators of financial market sophistication, and proxies for transaction costs and frictions on financial asset trading. The latter include the distance between the two

<sup>10</sup> Other empirical studies using gravity models to assess bilateral cross-border financial flows in Asia include Eichengreen and Park (2004), Garcia-Herrero, Yang, and Wooldridge (2008), and Lane (2011).

<sup>11</sup> Sample size depends on data availability. In regressions on portfolio asset holdings, the data set includes 63 source and 140 destination countries, with over 330 intra-Asia pairs. In regressions with locational cross-border banking claims, the sample covers 140 source and destination countries, with 273 intra-Asia pairs. When consolidated banking statistics are used, the data sample is somewhat smaller, with a total of over 3,000 pairs, 90 of which are intra-Asia. Portfolio asset holdings and bank claims are expressed in millions of U.S. dollars.

countries, absence of a common language, and explicit restrictions on foreign asset holdings.<sup>12</sup> Explanatory variables also include bilateral differences in regulatory and institutional quality, such as differences in securities market regulation, the degree of investor protection, the quality of the insolvency law, and auditing and accounting standards.<sup>13</sup> The model also tests whether a strong foreign bank presence in a country—or limited restrictions on foreign bank penetration—supports financial integration, by reducing informational asymmetry and costs in cross-border financial transactions.<sup>14</sup> Tests are also conducted to determine whether there is an additional intra-Asian effect.<sup>15</sup>

<sup>12</sup> As shown in Portes and Rey (2005), informational asymmetries are proxied well by the distance between the two countries and the absence of a common language, because these factors hinder the interaction among economic agents and, hence, the exchange of knowledge about market structures, corporate culture, and other information that may be important for investment decisions. Time zone difference—as measured by difference in longitude—was not found to be statistically significant.

<sup>13</sup> Indicators of financial regulations include the financial and banking regulation index from the International Institute for Management Development's World Competitiveness Survey and the regulation of securities exchange index from the World Economic Forum's *Global Competitiveness Report*. Measures of accounting standards, auditing standards, and capital regulation are constructed from the Bank Regulation and Supervision Survey conducted by the World Bank. Indicators of strength of bankruptcy law and credit reporting systems are from the World Bank's Doing Business database.

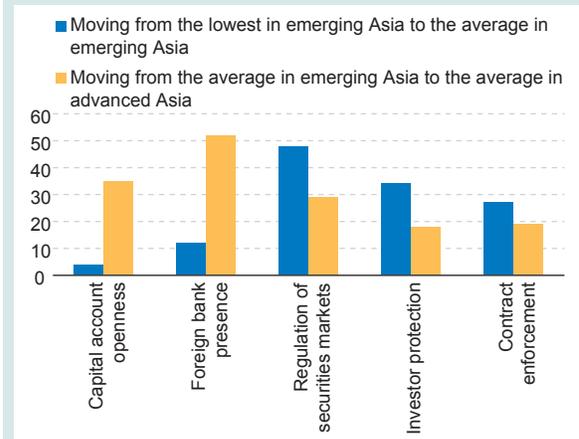
<sup>14</sup> All equations include time dummies. To check for robustness, different econometric techniques are used, including pooled ordinary least squares, destination country fixed effects, country pair fixed effects, and the Hausman-Taylor estimator.

<sup>15</sup> For this purpose, intraregional dummy variables are added to the baseline specification. For example, the Asia-intraregional dummy takes on the value of 1 if both source and destination countries are Asian and 0 otherwise. The estimated coefficient on this variable measures the difference in the degrees of integration between two countries from the same region, compared to the typical degree of integration between any two countries from different regions.

Figure 3.9

### Illustrative Impact of Explanatory Variables on Financial Integration

(Percent)



Sources: Chinn and Ito (2006); Claessens and van Horen (2014); World Economic Forum, *Global Competitiveness Report* (2014–15); World Bank, Doing Business database; and IMF staff calculations.

Note: Estimated increase in bilateral portfolio investments when a respective explanatory variable in the destination country increases from a lower to a higher level as specified (percentage change).

The estimations point to the following:

- Bilateral financial integration increases with the depth and sophistication of financial markets of both the source and destination countries.
- Bilateral financial integration is stronger between countries with greater capital account openness—that is, with fewer restrictions on foreign capital transactions—as measured by the Chinn-Ito (2006) index.<sup>16</sup> To illustrate the quantitative impact of this factor, consider a case in which the destination country raises its capital account openness from the Asian emerging market average to the average for Asian advanced economies, all other things being equal. This change alone would lift cross-border portfolio investment stock by 30 percent (Figure 3.9).
- Trade integration buttresses financial integration, possibly because financial flows are

<sup>16</sup> Furthermore, estimates suggest that regulatory impediments to capital outflows have a larger adverse impact on cross-border investment than do restrictions on capital inflows.

a complement to trade in goods and services, which could also help alleviate informational asymmetries and, hence, transaction costs. An increase of 10 percent in goods trade between two countries is found to raise bilateral portfolio holdings by 4 percent to 7 percent.

- Differences in financial regulation between countries are important determinants of financial integration, as investors may be reluctant to carry out financial transactions with entities in countries whose regulations and institutions are very different from their own. For example, consider a case in which the source country scores at the average level of the securities market regulation metric for Asian emerging market economies and the destination country has the weakest metric among those economies. If the destination country upgraded its regulations to close the gap with the source country, then cross-border portfolio investments between the two could increase by more than 40 percent.
- There are indications that differences in accounting standards, auditing standards, capital regulation, and strength of bankruptcy law and credit reporting systems between source and destination countries discourage bilateral banking flows. For example, estimates suggest that closing the gap in accounting standards between the two Asian countries that score the lowest and highest in the sample on measures of accounting standards could help boost their bilateral bank claims by over 15 percent.
- Foreign bank presence in a country—as measured by the total amount of foreign assets or number of foreign financial institutions in the domestic system—supports cross-border portfolio investment. Besides this, restrictions on foreign ownership of domestic banks discourage cross-border banking flows. Estimates from this chapter’s research suggest that a 10 percent increase in foreign banks’ asset share in a host country’s domestic banking sector is associated with roughly a 20 percent increase in cross-border portfolio investments in the host country.
- Cross-border portfolio investment within Asia does not appear to be driven by a risk diversification motive, as bilateral portfolio investment is strong between economies with synchronized business cycles. However, there is evidence of search for yield, in that the return differential is a significant factor in driving bilateral portfolio investment.
- The extent of financial integration within Asia is heterogeneous, with higher bilateral cross-border portfolio holdings among ASEAN economies than between economies in the rest of the region. Indeed, an intraregional dummy for ASEAN economies has a positive and statistically significant sign, but the dummy for Asian economies outside of ASEAN is negative and nonsignificant.

## Implications for Asia

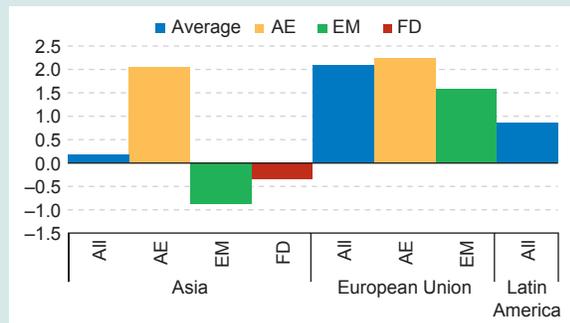
How does Asia score on the variables that are empirically found to have a significant impact on cross-border portfolio and banking transactions? And hence, what are the implications for Asian economies wanting to step up regional financial integration?

A finding of the gravity model estimation is that fewer restrictions on cross-border capital movements support financial integration. In this respect, Asia’s more limited capital account openness compared to other regions, especially in emerging market, frontier, and developing economies, could be an obstacle to further integration, including within the region (Figure 3.10).

The analysis also suggests that foreign bank penetration could help enhance bilateral financial transactions. From this point of view, statutory restrictions on foreign ownership of equity in the banking sector appear to be particularly prominent in parts of Asia, especially emerging markets (Figure 3.11). Indeed, foreign bank presence is quite limited in a number of Asian countries—although some exceptions stand out, and the share of regional assets more than doubled after the

Figure 3.10

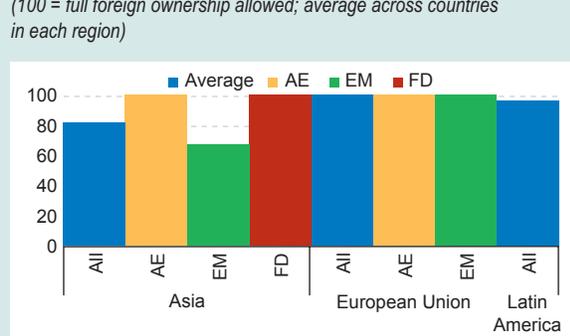
**Capital Account Openness Index**  
(Average across countries in each region)



Sources: Chinn and Ito (2006); and IMF staff calculations.  
Note: AE = advanced economies; EM = emerging markets; FD = frontier and developing economies. Data as of 2012.

Figure 3.11

**Allowed Foreign Ownership of Equity in the Banking Sector**  
(100 = full foreign ownership allowed; average across countries in each region)



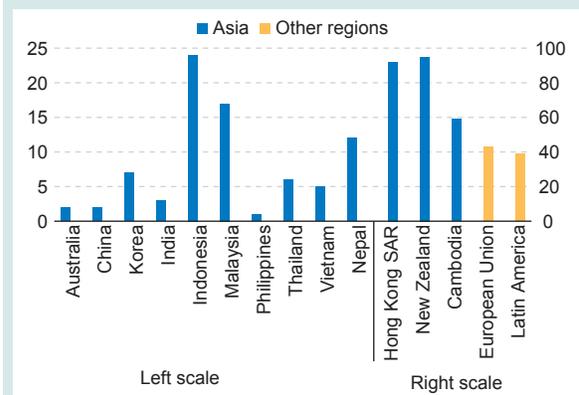
Sources: World Bank, Investing Across Borders database; and IMF staff calculations.  
Note: AE = advanced economies; EM = emerging markets; FD = frontier and developing economies. Allowed foreign ownership of equity in new investment projects (greenfield foreign direct investment) and allowed foreign acquisition of shares in existing companies (mergers and acquisitions). Data are latest available.

global financial crisis (Figure 3.12).<sup>17</sup> Hence, easing limits on foreign ownership of equity in banks could support financial integration. However, a

<sup>17</sup>The share of regional bank assets in Asian banking systems increased from about 10 percent in the mid-2000s, before the global financial crisis, to an average of 20 percent in 2008–13. Conversely, the share of domestic bank assets declined from 84 percent to 73 percent. These changes partly reflect the recent internationalization of Chinese banks (April 2015 *Global Financial Stability Report*).

Figure 3.12

**Foreign Bank Penetration**  
(Foreign bank assets in percent of total bank assets)



Sources: Claessens and van Horen (2014); and IMF staff calculations.  
Note: Data as of 2012.

stronger foreign bank presence could also weaken a country’s monetary policy independence by reducing the pass-through of domestic monetary policies to credit activity (see Box 1.13).

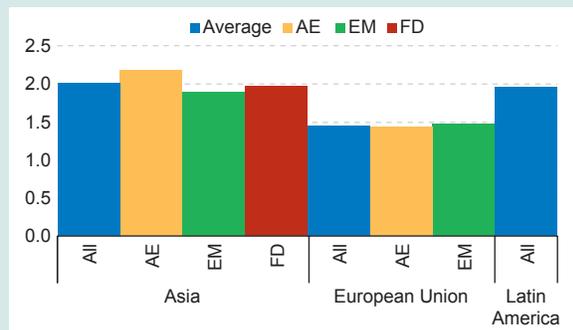
More specifically, the analysis also has some implications for intraregional financial integration. Evidence of complementarity between trade and financial integration suggests that advancing regional trade integration is associated with deeper financial linkages. Several initiatives are already under way in Asia, including regional free trade agreements such as the Regional Comprehensive Economic Partnership involving ASEAN and Australia, China, India, Japan, Korea, and New Zealand. Further progress on these initiatives and toward the goal of establishing the ASEAN Economic Community could help financial and trade integration.

Sizable regulatory differences remain within Asia, which may be hindering further regional financial integration. More specifically, differences in investor protection, the ability to resolve commercial disputes, and bankruptcy procedures appear more pronounced within Asia than in other regions (Figures 3.13 to 3.15). Policymakers in Asia pursuing deeper financial integration may therefore want to consider further harmonization in these areas.

Figure 3.13

**Difference in Investor Protection Index**

(Average across countries in each region)

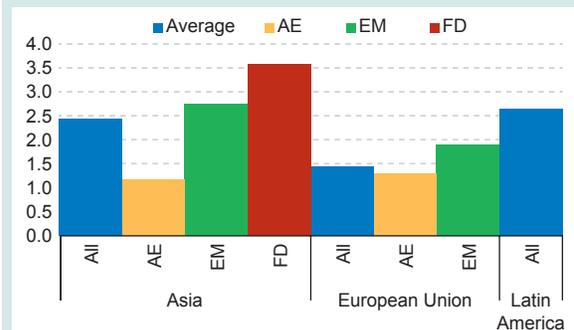


Sources: World Bank, Doing Business database; and IMF staff calculations. Note: AE = advanced economies; EM = emerging markets; FD = frontier and developing economies. Data are latest available.

Figure 3.15

**Difference in Resolving Insolvency Index**

(Average across countries in each region)

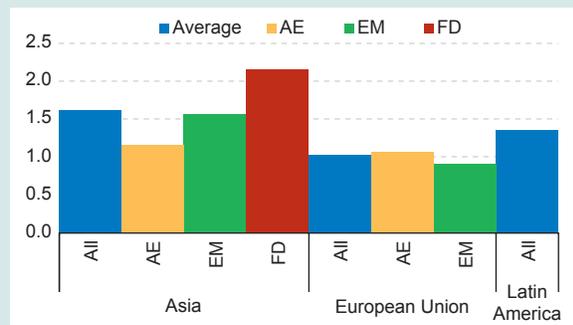


Sources: World Bank, Doing Business database; and IMF staff calculations. Note: AE = advanced economies; EM = emerging markets; FD = frontier and developing economies. Data are latest available.

Figure 3.14

**Difference in Contract Enforcement Index**

(Average across countries in each region)



Sources: World Bank, Doing Business database; and IMF staff calculations. Note: AE = advanced economies; EM = emerging markets; FD = frontier and developing economies. Data as of 2012.

Since financial linkages between countries and the extent of home bias depend on the depth and sophistication of financial markets, initiatives to foster domestic financial deepening would promote further integration. However, developing financial markets would also raise challenges, requiring

strong regulatory and supervisory frameworks to minimize financial stability risks.

Allowing greater participation of foreign investors in domestic markets would also support financial integration, but it would increase asset price sensitivity to global and regional financial conditions. In addition, it would reduce monetary policy independence, and economies could become more prone to capital flow volatility, which is often associated with asset price cycles. Macroeconomic policies, including monetary, fiscal, and exchange rate management, would need to play a key role in managing the macroeconomic and financial stability risks of volatile capital flows.

Appropriate macroprudential policies could also be used to boost resilience. Regional safety nets, including the Chiang Mai Initiative Multilateralization, would help mitigate the impact of capital flow volatility. Stronger international policy cooperation and cross-border supervision would be needed to mitigate stability risks from deeper foreign bank presence.

**Box 3.1****The Benefits and Risks of Further Regional Financial Integration in Asia**

Greater financial integration can benefit countries substantially by improving the allocation of savings and investment across regions, allowing more international risk sharing and promotion of financial sector competitiveness. But it may also heighten a country's vulnerability to contagion, reversals of capital flows, stronger output comovements across countries, and higher growth volatility. The gaps in countries' financial and institutional infrastructure magnify the risks of deeper financial integration (IMF 2007, 2012).

**Benefits**

By reducing obstacles to financial transactions in foreign markets, financial integration should allow investors to allocate their funds to the most efficient and productive projects. In Asia, greater regional financial integration in particular could help relocate savings from countries with aging populations toward fast-growing economies with large infrastructure investment needs (Ding, Lam, and Peiris 2014).<sup>1</sup>

Financial integration is also expected to promote competition, and hence efficiency, among financial intermediaries, reducing intermediation costs. This greater efficiency can stimulate demand for financial services and enhance participation from both local and foreign investors, contributing to financial deepening. Furthermore, the integration process typically involves improvements in financial regulation to bring it in line with best practice, which, in turn, can foster financial development by reducing informational asymmetry and supporting investor participation (Giannetti and others 2002). Financial development could then support growth (Levine 1997).

Increased efficiency in financial intermediation, improvements in regulation, and a larger availability of funds from financial integration are also expected to result in lower borrowers' costs for both the private and public sector. Tighter sovereign and corporate spreads could therefore be an important channel through which deeper financial integration and development could support infrastructure financing in Asian emerging economies (Ding, Lam, and Peiris 2014). In Asia, there is also the perception that regional investors could provide a more stable basis for funds than investors from outside the region.

Economic theory suggests that financial integration also gives consumers more opportunities to share risk and to smooth consumption intertemporally. Indeed, financial openness allows residents to enjoy relatively stable consumption streams despite fluctuations in domestic output and returns, as it enables residents to hold financial assets in other countries with different return patterns than the domestic economy. A simple way to measure potential risk-sharing gains from financial integration with a group of other countries is to compare an individual country's consumption volatility with the volatility of group-wide output. If a country's individual consumption volatility is much higher than it would be under full financial integration within the group, then potential risk-sharing gains are relatively large (IMF 2007).

The potential risk-sharing benefits—as measured by a reduction in consumption volatility—from full financial integration within Asia are large: the standard deviation of Asia's output growth is 1.7 percentage points, much lower than the median standard deviation of consumption growth for individual countries (3.7 percentage points—Table 3.1.1). Similarly, the potential risk-pooling benefits for ASEAN-3 economies (China, Japan, Korea) are also substantial. For comparison, benefits from further risk sharing in the European Union and euro area are much smaller, because these regions are already highly integrated.

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Prepared by Edda Zoli.

<sup>1</sup> The most comprehensive estimate of Asia's total infrastructure investment needs, in Asian Development Bank (2009), put them at \$8 trillion over 10 years.

(continued)

## Box 3.1 (continued)

Table 3.1.1 Potential Gains from Risk Sharing Among Countries (percent)

	Median Standard Deviation of Consumption Growth in Individual Country	Standard Deviation of Income Growth in Whole Group
Asia	3.7	1.7
ASEAN+3	3.7	1.8
European Union	2.7	1.8
Euro area	2.4	1.8
Latin America	3.5	1.9

Sources: World Bank, World Development Indicators database; and IMF staff calculations.

Note: ASEAN+3 comprises Cambodia, Indonesia, Lao P.D.R., Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam, plus China, Japan, and Korea.

**Risks**

Deeper regional financial integration could amplify shock propagation and synchronization in the region, threatening financial stability. Indeed, the vast literature on contagion stresses how financial shocks can be spread through financial linkages, via different channels (Forbes 2012). For example, a shock to one country's financial sector (such as a sharp increase in nonperforming loans or a deposit run) can cause banks to reduce the supply of credit to other economies as well. Also, idiosyncratic shocks to the value of investors' portfolios in one country may force them to sell assets in other countries to meet margin calls or cash requirements.

Financial integration can then result in stronger output comovements across countries, with the transmission of output growth slowdowns or contractions in one economy across borders. In fact, empirical studies find that financial integration increases business cycle synchronization during crises. But deeper financial linkages are found to induce greater output divergence during tranquil periods, since, with financial integration, capital can move to where it is most productive (Duval and others 2014; Kalemli-Ozcan, Papaioannou, and Perri 2013; Kalemli-Ozcan, Papaioannou, and Peydro 2013; October 2013 *World Economic Outlook*). The impact of increased bilateral cross-border bank claims on output comovements can be fairly large. Estimates based on 63 countries suggest that if banking flows between two countries were to move from the 25th to the 75th percentile of the distribution in the sample—which is similar to the increase in bilateral cross-border bank claims that Singapore and India have experienced in the past 10 years, for instance—the correlation of the growth rate between the two countries would increase by some 0.25 during crises. This is compared with a correlation of  $-0.02$  during normal times (Duval and others 2014).

Deeper financial integration is generally more beneficial and less risky if countries have reached certain levels of financial and institutional development (IMF 2012). Evidence also suggests that, for countries with relatively higher institutional quality, well-developed domestic financial systems, and sound macroeconomic policy frameworks, significantly higher macroeconomic volatility has not accompanied greater integration. For countries without those conditions in place, volatility has tended to increase with greater openness (IMF 2007).

## Box 3.2

### Does Financial Integration Enhance Financial Inclusion?

Can deeper financial integration enhance financial inclusion—that is, improve access to financial services? By fostering credit and capital market development and boosting competition and efficiency in financial intermediation, financial integration could improve access to financial services. Indeed, financial inclusion and cross-border banking integration—as measured by the size of cross-border bank assets and liabilities in percent of GDP—appear to be correlated (Figure 3.2.1).<sup>1</sup>

To assess whether there is a causal relationship between cross-border banking integration and financial inclusion, a regression model is estimated on a panel of 150 countries over 2001–12, using alternative measures of financial inclusion as the dependent variable. The explanatory variables include lagged cross-border bank claims and several controls, namely, indicators of quality of financial infrastructure, measures of financial depth (such as the bank-credit-to-GDP ratio), banks' stability, banking sector concentration and competition (the Herfindahl index and Boone indicator, for example), and level of education as a proxy for financial literacy.<sup>2</sup>

The results indicate that, in middle- and high-income countries, cross-border banking integration has a positive effect on financial inclusion, even after other factors are controlled for (Figure 3.2.2). On the other hand, banking integration is not a significant variable in explaining financial inclusion in a larger sample that also includes low-income countries, possibly because the increase in banking integration in those countries during the sample period considered was relatively small. This finding is also consistent with the possibility of threshold effects, with the impact

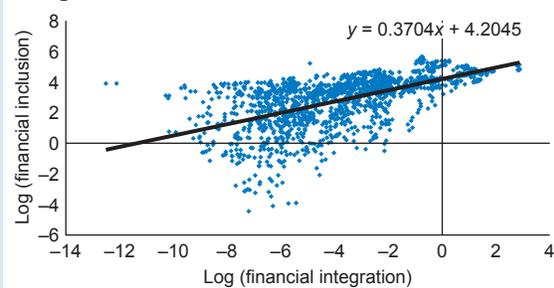
Prepared by Dulani Seneviratne.

<sup>1</sup> Several alternative indicators of financial inclusion (such as number of automated teller machines per capita, bank accounts per capita, and bank branches per capita) point to the same evidence. This box focuses on the number of automated teller machines per capita as an indicator of financial inclusion, given the better country coverage, consistent with the World Bank's *Global Financial Development Report on Financial Inclusion*. However, the findings presented here are confirmed when other indicators of financial inclusion are used instead.

<sup>2</sup> A country's cross-border bank claims are measured using two different approaches: the country's cross-border banking assets plus liabilities in percent of GDP, and as a share of the world's total cross-border banking assets and liabilities. Data are from the Bank for International Settlements' locational statistics database. All controls are entered with one lag. Time and country fixed effects are also added.

Figure 3.2.1

#### Financial Inclusion and Cross-Border Banking Integration



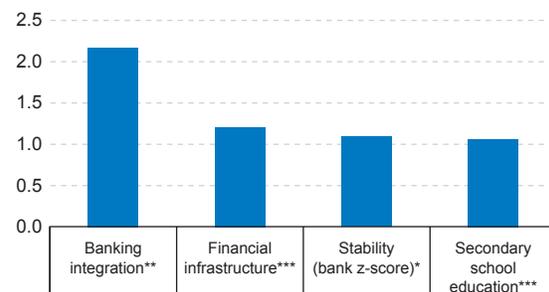
Sources: Bank for International Settlements, International Banking Statistics database; IMF, Financial Access database; World Bank, Global Financial Development database; and IMF staff calculations.

Note: Financial inclusion is measured by automated teller machines/100,000 adults.

Figure 3.2.2

#### Illustrative Impact on Financial Inclusion of Moving from 25th Percentile to 75th Percentile in Explanatory Variable

(Increase in ATMs/100,000 adults)



Source: IMF staff estimates.

Note: ATM = automated teller machine. Financial inclusion is measured by ATMs/100,000 adults. Median ATMs/100,000 adults is about 16 ATMs/100,000 in this sample, which includes middle- and high-income economies only. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

(continued)

**Box 3.2 (continued)**

of integration on inclusion becoming statistically significant only once financial sector development is above a certain level.<sup>3</sup>

While the results suggest a positive impact of deeper financial integration with the rest of the world on financial inclusion, does *regional* integration also improve individual access to financial services? The effect of regional cross-border banking integration on financial inclusion is assessed using a similar framework by regressing financial inclusion on *regional* banking integration—measured by bilateral banking claims relative to other countries in the same region.<sup>4</sup> Controls similar to those in the baseline panel regression model described earlier are included as explanatory variables in addition to regional banking integration. The results suggest that:

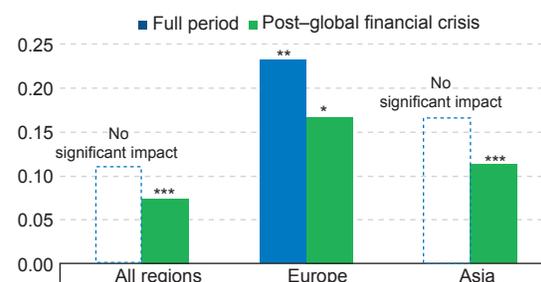
- For the whole sample, *regional* banking integration is not a statistically significant variable in explaining financial inclusion over the entire period 2001–12, when other factors affecting financial inclusion are controlled for (Figure 3.2.3).
- However, regional financial integration is a statistically significant determinant of financial inclusion in Europe, in addition to financial deepening and other control variables.
- Furthermore, in Asia, regional cross-border banking integration has become a significant determinant of financial inclusion since the global financial crisis, with other determinants controlled for.<sup>5</sup> This suggests that the increase in regional cross-border banking integration and in regional banks since the crisis may have increased the availability of banking services to segments of the population. One reason could be that, as Asian economies' financial development increases, they reach the thresholds for financial inclusion, in which the impact of integration on inclusion becomes significant.

<sup>3</sup> Indeed, the interaction term between financial integration, financial development, and level of education is positive and statistically significant.

<sup>4</sup> The sample includes only middle- and high-income countries based on availability of Bank for International Settlements confidential location data. The impact of regional financial integration on inclusion by region, and in the post–global-financial-crisis period, is also assessed by introducing interaction terms with relevant regional and time dummy variables. As a robustness check, regressions are performed on the subsamples of Europe and Asia only.

<sup>5</sup> Similarly, using microlevel data, Beck (2014) finds that the increasing importance of regional foreign banks in Africa over 2006–09 helps explain improvements in financial inclusion in Africa over that period.

Figure 3.2.3

**Effect of Regional Banking Integration on Financial Inclusion**

Source: IMF staff estimates.

Note: Estimating coefficients of regressing financial inclusion (automated teller machines/100,000 adults) over banking integration within the region after controlling for other factors. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .