1 Overview of Financial Development and Cooperation in ASEAN+3

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1.1 Introduction

Asian financial systems have achieved significant development and integration over the past decades. From mostly state-funded and bank-dominated during the period of industrialization in the 1970s and 1980s, the region's financial systems have become more diversified and market-based. While most Asian financial systems remain bank-dominated, the scope of financial products and services has broadened and new corporate financing sources are proliferating.

Fundamental changes and reforms are often triggered by large shocks or episodes of financial crisis. The Asian finance sector's experience is no different. Indeed, it was not until the Asian financial crisis that the region's economies embarked on major reforms to restructure, strengthen, and diversify their financial systems. For the ASEAN+3 economies—the 10 members of the Association of Southeast Asian Nations (ASEAN), plus its main trading partners, the People's Republic of China (PRC), Japan, and the Republic of Korea—reforms went hand-in-hand with a conscious effort to promote financial cooperation and hence reduce the risks of repeating a crisis.

Highlights of financial cooperation include the introduction in 2010 of a multilateral currency swap arrangement, the Chiang Mai Initiative Multilateralization (CMIM), and the creation of the ASEAN+3 Macroeconomic Research Office (AMRO) which was accorded legal status as an international organization in 2016. These have given a fillip to financial cooperation among ASEAN+3 economies. Rather than retreat from global financial markets, the economies recognized the need to become more connected with them, while trying to do so in a manner

that minimizes disruption. The region's financial systems held up relatively well during the United States (US) taper tantrum in 2013, and again in the turmoil of March 2020 at the height of panic over the coronavirus disease (COVID-19) pandemic, thanks in part to the post-Asian financial crisis reforms and policy lessons that led to improved macrofinancial surveillance, strengthened financial regulations, and enhanced regional financial safety net arrangements and institutions.

This volume explores the present state of affairs of financial cooperation and development in the region since the global financial crisis. It takes the story forward from the first volume, which offered useful historical context to financial development since the Asian financial crisis struck in 1997.[1] Much has been achieved in the past 25 years, yet a great deal still needs to be done to make the region's finance sectors more inclusive and safer for society. This includes developing market structure to expand and build a more liquid financial system and finding innovative ways to finance the real sectors and reach people excluded from the formal financial system. It also means continuous strengthening of financial resilience and safeguarding stability amid the rapid economic and financial development driven by advances in technology.

This first chapter sets the scene for how regional efforts can continue to improve financial systems in Asia. It starts by offering some theory about and evidence of financial integration and its opportunities and challenges, and goes on to review the evolution of ASEAN+3 financial systems with a focus on the growing internationalization of the ASEAN+3 banking system and the development of local currency bond markets over the past 2 decades. A comprehensive picture of challenges ahead cannot ignore the shock of COVID-19 on regional financial systems, nor the looming risks to debt sustainability and the revolutionary impact of digital transformation on financial services. To gauge the region's resilience to financial contagion, the chapter examines sides to the debate around the capacity of flexible exchange rates to insulate from global shocks, especially in the context of growing US dollar borrowing and its dominance in pricing for international trade. It also touches upon the role of international reserves as a self-help mechanism and revisits actions being taken to improve regional monetary cooperation. While aiming to put issues facing ASEAN+3 policy makers into sharp focus, the chapter concludes with suggestions of steps that can be taken as a region to build more resilient financial systems.

[1] Published by ASEAN+3 Macroeconomic Research Office, the first volume, *Trauma to Triumph—Rising from the Ashes of the Asian Financial Crisis*, weaves together the recollections of key decision-makers on how they tackled critical issues during the Asian financial crisis and the 2007–2008 global financial crisis.

1.2 Financial Openness and Growth: Theory and Evidence

Financial openness and integration is a complex concept with many dimensions, including *de jure* capital account openness, how financial institutions can better operate across jurisdictions, and the extent to capital can flow across borders (i.e., *de facto* openness). Several studies, beginning with the influential works of McKinnon (1973) and Shaw (1973), have argued that a movement away from "financially repressive" policies can bring growth benefits by eliminating credit controls, deregulating interest rates, and allowing banks to compete with each other. While the initial McKinnon-Shaw analysis focused on domestic financial liberalization, a burgeoning literature has since extended the discussion to external aspects. The general conclusion is that financial development combined with proper sequencing of liberalization could spur economic growth through efficient allocation of capital across borders and transfer of best practices in technological know-how and management, complemented by increased production specialization and better risk management (Bekaert, Harvey, and Lundblad 2005, Williamson and Mahar 1998).[2]

However, a large body of literature building on Stiglitz (2004) has cautioned that information asymmetries stemming from a lack of transparency in financial institutions could lead to inefficient allocation of capital, generating maturity mismatches that contribute to costly financial crises (Stiglitz and Weiss 1981). The empirical literature does not establish conclusively that financial openness has had any discernible positive impact on growth (Eichengreen 2001, Contessi and Weinberger 2009, Kose et al. 2009). While the growth effects of financial openness are contested, it can be said with certainty that where liberalization fails to take place in a well-sequenced and timed manner—such as development of the domestic financial market and regulatory system before financial openness, and openness to long-term capital before short-term capital—episodes of severe financial instability and distress may result (Bird and Rajan 2001, Cobham 2002, Prasad and Rajan 2008).[3] Similarly, Kose, Prasad, and Taylor (2011) find the indirect benefits of international financial integration on growth, such as developing domestic financial markets and improving corporate and public governance, may be more important than direct benefits. They also note that for countries to reap some of these benefits, they require a certain "threshold" of domestic financial and institutional development, without

[2] Jafarov, Maino, and Pani (2019) include recent empirical evidence on how financial repression negatively affects economic growth.

[3] For a discussion on the consequences of ill-sequenced or perverse financial liberalization, see Auerbach and Willett (2003).

which financial liberalization may be accompanied by unintended risks, including financial crises.[4]

In summary, financial integration offers potential benefits but also poses risks and costs. Past literature points to a broad set of indirect "collateral benefits" of financial openness. However, in some cases the benefits, such as of local financial sector development, institutional development, better governance, and macroeconomic discipline, may be enjoyed only if "threshold conditions" related to financial market development, institutional quality, governance, macroeconomic policies, and the like are met. This suggests that there may be bidirectional causality. For instance, although enhanced financial openness encourages efficient financial markets, whenever existing financial markets are underdeveloped, the gains from openness may be limited and it may fail to attract capital or the "right" form of capital. Countries below the threshold may fall into a 'financial globalization trap' (Prasad et al. 2003), something that the low- and middle-income members of ASEAN+3 have to pay attention to.[5]

Experiences with the Asian financial crisis and subsequent crises have underscored the importance of sequencing market-oriented reforms with financial liberalization (McKinnon 1991), focusing on improvements in regulation and supervision, transparency, and contract enforcement (Beck, Demirgüç-Kunt, and Levine 2003; La Porta et al. 1997). The global financial crisis further highlighted the risk from deeply entwined financial networks that allow fast and wide transmission of shocks across markets and borders. It also cast doubt on the ability of financial regulators to properly monitor overly complex financial products and transactions amid rapid globalization or innovation.

Viewing financial globalization through the narrow prism of global capital flows, cross-border capital surged remarkably in the years prior to the global financial crisis, with overall gross capital inflows peaking at $12.0 trillion in 2007, or about 19% of global gross domestic product (GDP). Following a sharp decline in gross capital inflows to ASEAN+3 in 2008 and 2009, the region attracted significant capital in bouts between 2010 and 2013, with gross capital inflows touching $1.0 trillion in 2013, surpassing levels in 2007

[4] Also see Aizenman, Jinjarak, and Park (2015) for a discussion on the possible nonlinear relationship between financial development and output growth.

[5] Financial globalization trap refers to a low-level stable equilibrium (Cassimon and Van Campenhout 2006). Higher-income countries that avoid this trap could still experience sharp reversals in capital flows and accompanying adverse effects from time to time and may need to safeguard against such capital account shocks.

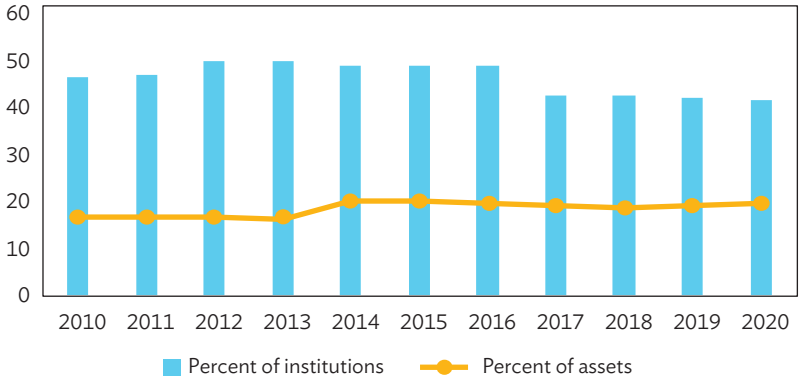
(IMF, Balance of Payments Statistics). Such record capital inflows consisted mostly of relatively short-term bank-related and other private flows (Balakrishnan et al. 2012).

Another important dimension of financial integration is foreign bank presence and cross-border banking activities. Foreign banks could contribute to overall financial sector development by helping reduce cost structures; improving operational efficiency; and by introducing new technologies and banking products, marketing skills and management, and corporate governance structures. They could also make financial services more accessible for households and firms.[6] Based on available data for ASEAN+3, as Figure 1.1 captures, the average share of foreign banking institutions in the total number of banks has steadily risen from 2010 to 2013, but has declined since to about 42% in 2020. In comparison, the average share of banking assets owned by foreign banks appears to have not changed much in the last 10 years.[7] The foreign bank participation rate in the ASEAN+3 economies is also lower than other regions such as sub-Saharan Africa and Latin America and the Caribbean (Figure 1.2).

[6] See Levine (1996) for an early discussion of these issues. Also, see Rajan and Gopalan (2015) for a discussion on the macroeconomic and financial implications of foreign bank presence in emerging markets.

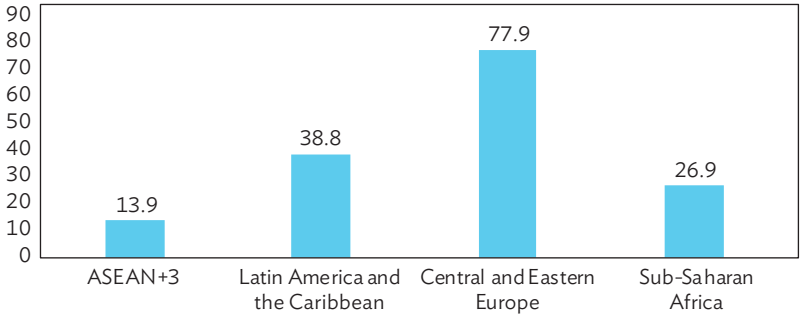
[7] A country-wise breakdown within the ASEAN+3 region reveals a very uneven picture in terms of foreign bank penetration across the region. For instance, while the average foreign bank share in banking sector's assets in Indonesia is less than 7% between 2010 and 2020, the corresponding figure is 56% in Cambodia (2014-2020) and over 21% in Malaysia (2010-2020).

Figure 1.1: Foreign Bank Presence in ASEAN+3



Note: The data pertain to simple averages of economy-level ratios covering economies with data. The definitions and coverage may vary across economies. The economy composition of each variable also differs. For assets, all ASEAN+3 economies are covered except those whose data are not publicly available. The data series of Cambodia and Viet Nam start in 2014 and 2012, respectively. For institutions, the data set includes Cambodia, the People's Republic of China, Indonesia, the Republic of Korea, the Lao People's Democratic Republic, the Philippines, Singapore, and Thailand. The data series for Cambodia and Indonesia start in 2012 and 2017, respectively.
Source: Authors, based on CEIC and national sources.

Figure 1.2: Foreign Bank Participation Rates
(average of the median rates by region, 2006-2020)



Note: The calculations follow the methodology of Ehlers and McGuire (2017). ASEAN+3 sample excludes the Lao People's Democratic Republic. Latin America includes Argentina, Brazil, Chile, Colombia, Mexico, and Peru based on Ehlers and McGuire (2017). Central and Eastern Europe includes Bulgaria, the Czech Republic, Estonia, Hungary, Lithuania, Poland, Slovenia, Slovakia, Romania, and Turkey based on Ehlers and McGuire (2017). Sub-Saharan Africa includes Angola, Benin, Botswana, Cote d'Ivoire, Kenya, Nigeria, Senegal, Seychelles, South Africa, and Uganda. For Argentina, due to data limitations, the participation rate from 2018 to 2020 is assumed to be equal to the rate in 2017. For Lithuania, the domestic credit data from 2006 to 2008 are based on the old compilation, data for 2009 is missing, and data from 2010 onward are based on the new compilation. Due to data limitations, the participation rate in 2009 is assumed to be equal to the participation rate in 2010.
Source: Authors, based on BIS consolidated and locational banking statistics and the IMF International Financial Statistics Database (accessed September 2021).

1.3 Evolution of Financial Systems in ASEAN+3

Financial systems in Asia have transformed from largely state-directed and predominantly bank-based systems during the industrialization period, to be more liberalized and market-based since the late 1980s and early 1990s. Through the experiences of the Asian and global financial crises, the region's financial systems now also have more robust regulatory frameworks, sound macrofinancial policies, and regional safety net arrangements, and are more resilient to shocks. While bank-based finance is still dominant in ASEAN+3, over the past several decades, equity and bond markets have grown markedly. Yet, capital market development varies greatly across ASEAN+3 economies—particularly with the large gap between Cambodia, the Lao People's Democratic Republic (Lao PDR), and Myanmar, and the rest of ASEAN. Cambodia, the Lao PDR, and Myanmar are the region's youngest markets, with smallest capitalization and fewer than 10 companies on their stock exchanges (OECD 2019). The domestic bond markets in these three countries are either underdeveloped or inactive. Given this, they are not covered in detail in the following sections.[8]

Post-Asian Financial Crisis Reforms: Improved Regulation, Diversification, and Resilience

The Asian financial crisis prompted a wave of reforms in financial systems across the region, with decisive steps in affected economies (e.g., Indonesia, the Republic of Korea, Malaysia, the Philippines, and Thailand) to improve bank supervision and regulation and corporate governance. Bank-based financial systems combined with fixed exchange rates were seen as posing systemic risk, as banks took a major role in corporate finance by channeling foreign-currency-denominated short-term borrowing from overseas to domestic-currency-denominated long-term loans. This in turn caused currency and maturity mismatches. A strong push followed the crisis to lessen dependence on banks and the implicit guarantees that governments offered those financial institutions, particularly through the development of local currency bond markets.

Strong regional efforts emerged to build more efficient and liquid domestic debt markets (Box 1.1). In 2003, regional central banks together launched the first Asian Bond Fund (ABF1), which invested pooled savings into sovereign and quasi-sovereign bond markets to improve market liquidity.

[8] Yaguchi (2018) discusses some of the challenges faced by these countries in bond market development.

While under ABF1, part of central bank reserves was invested in US-dollar-denominated bonds issued by the Executive Meeting of East Asia and the Pacific (EMEAP) member governments[9] with the aim of increasing demand for regional sovereign bonds; ABF2 in 2005 saw part of reserves invested in sovereign and quasi-sovereign bonds denominated in local currency. Simultaneously, ASEAN+3 economies introduced the Asian Bond Markets Initiative (ABMI) to identify and address critical issues hindering local bond market development (Park 2016). ABMI has been fostering local currency bond market development and integration in the region (Akamatsu and Puongsophol 2018).

Box 1.1: Policy Timeline for Local Currency Bond Markets in ASEAN+3

2002	Asian Bond Markets Initiative (ABMI) is launched under ASEAN+3 to develop a liquid and well-functioning local currency bond market.
2003	Asian Bond Fund 1 (ABF1) is launched by central banks of the Executives' Meeting of East Asia and the Pacific (EMEAP) members to invest pooled savings in the US-dollar sovereign and quasi-sovereign debt issued by eight member economies (the People's Republic of China; Hong Kong, China; Indonesia; the Republic Korea; Malaysia; the Philippines; Singapore; and Thailand). ABF1 pooled $1 billion of international reserves from the participating eight central banks.
2004	ABMI launches Asian Bonds Online as a one-stop data and information portal for institutional investors, policy makers, and researchers participating in local currency debt markets.
2005	Asian Bond Fund 2 (ABF2) extends the ABF1 concept with $2 billion invested in sovereign and quasi-sovereign issues denominated in local currencies in the same eight markets.
2008	ASEAN+3 ministers sign the New ABMI Road Map to set up task forces to address specific issues in local bond market development.
2010	ASEAN+3 establishes the Asian Bond Market Forum (ABMF) as a platform to foster standardization of market practices and harmonization of regulations relating to cross-border bond transactions in the region, including for corporate bonds.

continued on next page

[9] EMEAP comprises the central banks of 11 economies: Australia; the People's Republic of China (PRC); Hong Kong, China; Indonesia; Japan; the Republic of Korea; Malaysia; New Zealand; the Philippines; Singapore; and Thailand.

Box1.1 (continued)

2010	The Credit Guarantee and Investment Facility (CGIF) is launched as a trust fund within the Asian Development Bank (ADB) to provide credit enhancement to promote larger and cross-border corporate bond issues. CGIF starts operations in 2012, with authorized capital of $700 million.
2012	ABMF releases the ASEAN+3 Bond Market Guide, the first officially recognized publication of bond market regulations and settlement procedures in ASEAN+3 economies.
2013	ASEAN+3 establishes the Cross-Border Settlement Infrastructure Forum (CSIF) to help prepare a road map and implementation plan for the improvement of regional cross border settlement infrastructure. ABMF publishes the Sub-Forum 1 (SF1) Phase 2 Report: Proposal on ASEAN+3 Multi- Currency Bond Issuance Framework as a regionally standardized bond issuance framework, and the Sub-Forum 2 (SF2) Phase 2 Report: ASEAN+3 Information on Transaction Flows and Settlement Infrastructures.
2014	CSIF publishes the Basic Principles on Establishing a Regional Settlement Intermediary and Next Steps Forward: Cross-Border Settlement Infrastructure Forum.
2015	ABMF releases implementation guidelines for the ASEAN+3 Multi-Currency Bond Issuance Framework (AMBIF), which helps facilitate intraregional transactions through standardized bond and note issuance, and investment processes. ABMF releases two Phase 3 reports: Implementation of the AMBIF and Harmonization and Standardization of Bond Market Infrastructures in ASEAN+3.
2018	CSIF publishes the Common Understanding on Cross-Border Business Continuity Planning and Cybersecurity to support the development of Central Securities Depository (CSD) and Real-Time Gross Settlement (RTGS) linkages.

Source: Levinger and Li (2014), Park (2016), and ADB (2008, 2012, 2015, 2019).

Figure 1.3 reveals that the share of bank assets to GDP in ASEAN+3 has been rising gradually from 235% in 2007 to reach almost 300% of ASEAN+3 GDP in 2017. It tapered a little thereafter before surging to over 334% of GDP in 2020. Similarly, assets of nonbank financial institutions as a share of the region's GDP has been rising gradually since 2011, and was about 138% in 2019. While banks still dominate ASEAN+3 financial systems, both market

capitalization and the size of the local currency bond markets as a share of the region's GDP have increased markedly.[10] The market capitalization of listed domestic companies rose from a little over 49% of GDP in 2008 to about 97% in 2020, while the share of local currency bond markets increased markedly from around 98% in 2007 to over 125% in 2020.[11]

Developing a sophisticated and liquid corporate bond market is particularly important for the region in light of its massive long-term financing needs. Considering that bond markets provide long-term financing, they not only can facilitate infrastructure development but also offer a way to efficiently manage and channel excess savings (Shimizu 2018). A well-developed corporate bond market can also support financial stability by offering a viable alternative to bank loans.

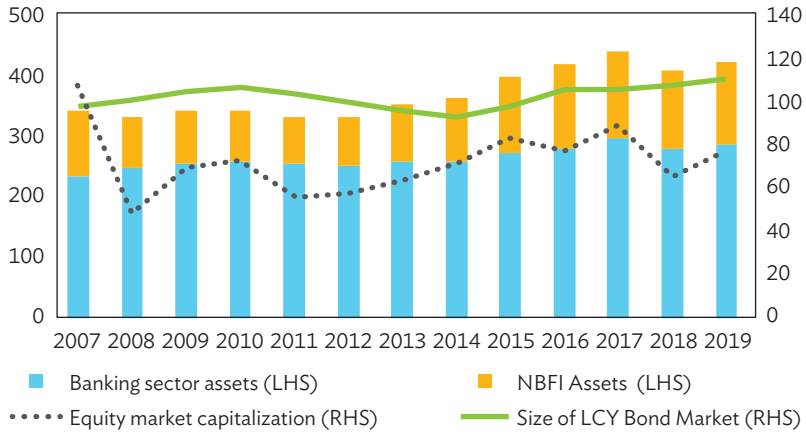
Improvements in the bank regulation and supervision framework and financial diversification likely contributed to the resilience of Asian economies during the global financial crisis and the sovereign debt crisis in the euro area that followed a few years later. Most Asian economies recovered rather quickly afterward. But some consider that such resilience also partly reflected the continued segmentation and underdevelopment of the region's capital markets from global financial markets and networks.[12]

[10] While arguably most efforts have been placed on development of regional bond markets considered here, some policy efforts have supported the development of equity markets in the region, including the ASEAN Capital Market Forum (ACMF) created in April 2004 to improve regional market infrastructure and connectivity. For details on ACMF and Asian equity market development and integration in general, see OECD (2019).

[11] For market capitalization, all ASEAN+3 economies have data in 2020 except Brunei Darussalam, which does not have an equity market, and the Lao People's Democratic Republic (Lao PDR) whose data are only until 2019 as of this writing. The sources and calculations are indicated in the note of the Figure 1.3.

[12] This was also the observation for ASEAN countries made by Lee and Park (2008), Park (2011), and Gochoco-Bautista and Remolona (2012).

Figure 1.3: Financial Structure in ASEAN+3
(% GDP)



GDP = gross domestic product, LCY = local currency, LHS = left-hand scale, NBFI = nonbank financial institutions, RHS = right-hand scale.
Note: The Association of Southeast Asian Nations (ASEAN)+3 aggregated data per variable pertain to the ratio of the sum of the assets and GDP covering ASEAN+3 economies with available data.
The banking sector assets data are from the CEIC, the IMF International Financial Statistics Database, and national sources (accessed August 2021). The data refer to the assets of *other depository corporations*, *domestic money banks*, or domestic banking sector. For Singapore, the data refer to the sum of assets under domestic banking units and Asian currency units. For Viet Nam, the data series starts in 2008. The NBFI asset data are from the Financial Stability Board 2020 Global Monitoring Report on Non-bank Financial Intermediation Monitoring Dataset and the IMF International Financial Statistics Database (accessed August 2021). These data refer to NBFI assets or other financial corporation assets. The data series starts in 2013 for Cambodia and 2017 for the Philippines. The outstanding local currency bonds data are from AsianBondsOnline (accessed August 2021). The equity market capitalization refers to the capitalization of listed domestic companies. The data are from the World Bank, *World Development Indicators* (WDI) and national sources (accessed August 2021). Brunei Darussalam is not included in the calculation since it does not have a stock exchange as of this writing. The stock exchanges of Cambodia, the Lao PDR, and Myanmar were respectively established in 2012, 2010, and 2015. For Viet Nam, the data series starts in 2008. The GDP levels data used to calculate the ratios are from the IMF World Economic Outlook April 2020 Database and AsianBondsOnline for the outstanding local currency bond ratio (accessed August 2021). In 2020, the banking sector assets in ASEAN+3 is more than 334% of GDP, the market capitalization of domestic companies is about 97% of GDP (excluding the Lao PDR whose data are only until 2019), and the size of the local currency bond market is more than 125% of GDP. The data for NBFI assets, as a proportion of GDP, are only until 2019.
Source: Authors, based on AsianBondsOnline; CEIC; Financial Stability Board 2020 Global Monitoring Report on Non-bank Financial Intermediation Monitoring Dataset; IMF International Financial Statistics Database; the IMF World Economic Outlook April 2020 Database; national sources; and World Bank, *World Development Indicators* (accessed August 2021).

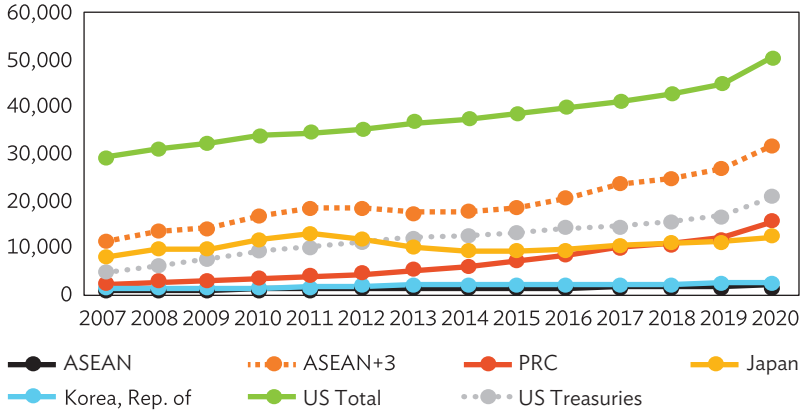
Global Financial Crisis: Rapid Credit Growth, Dollar Dominance, Potential Risks

Deep and liquid domestic capital markets should offer the corporate sector more diversified financing solutions and improve the availability of long-maturity and local currency options. Capital markets also help mitigate

foreign exchange exposure and contribute to financial stability. Studies suggest local currency bond issuance may not be as strongly procyclical as bank lending, at least based on evidence from advanced economies (Adrian, Colla, and Shin 2012; Becker and Ivashina 2014; Kashyap, Stein, and Wilcox 1993).

Local currency bond markets in ASEAN+3 have grown considerably in size over the past few decades. In absolute terms, aggregate local currency bonds outstanding were close to $32 trillion in 2020, surpassing the $21 trillion US Treasury market, though still less than the aggregate US local currency market, which was worth about $51 trillion (Figure 1.4). The expansion has been driven by remarkable growth in the market for yuan-denominated bonds in the PRC. The PRC's bond market has surpassed Japan's in 2017, where volumes declined between 2011 and 2015 before recovering in recent years.

Figure 1.4: Size of Local Currency Bond Markets in ASEAN+3
($ billion)

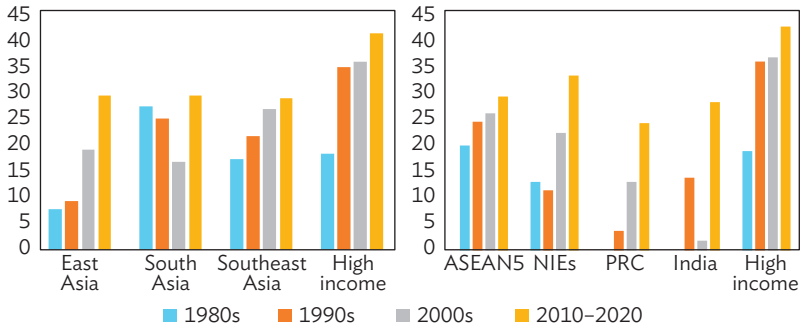


PRC = People's Republic of China, US = United States.
Note: Data for ASEAN include Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Viet Nam.
Source: AsianBondsOnline and SIFMA US Fixed Income Securities Statistics August 2021 (accessed August 2021).

The region also witnessed strong increases in domestic public and private debt issuance in the last few years, notwithstanding some episodes of financial market downturns (Figures 1.5 and 1.6). The ASEAN economies, however, pulled back somewhat in their issuance of offshore private debt since 2010, in contrast to the trend in East Asia and high-income Asian economies (Figure 1.7).

Figure 1.5: Outstanding Domestic Public Debt Securities, 1980s to 2010s

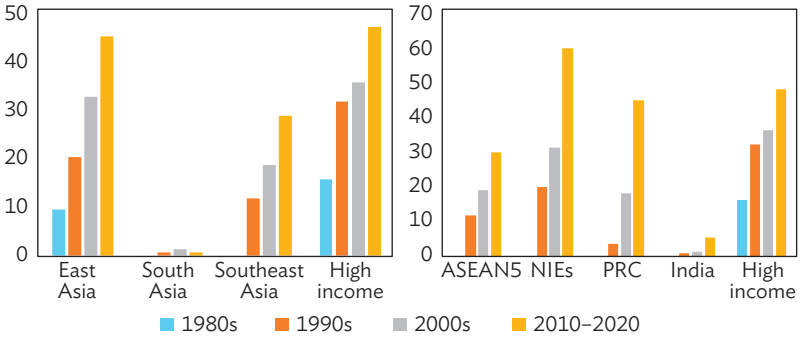
(% GDP)



ASEAN5 = Indonesia, Malaysia, the Philippines, Thailand, and Viet Nam; GDP = gross domestic product; NIEs (newly industrialized economies) = Hong Kong, China; the Republic of Korea; Singapore; and Taipei,China; PRC = People's Republic of China.
Note: The data refer to decade averages. The subregional groupings follow ADB definition though not all economies have data. The global high-income economy aggregation is based on World Bank definition.
Source: ADB, based on BIS Debt Securities Statistics; CEIC; International Monetary Fund (IMF) International Financial Statistics; IMF World Economic Outlook April 2021 Database; World Bank Global Financial Development Database; and World Bank, *World Development Indicators* (all accessed September 2021).

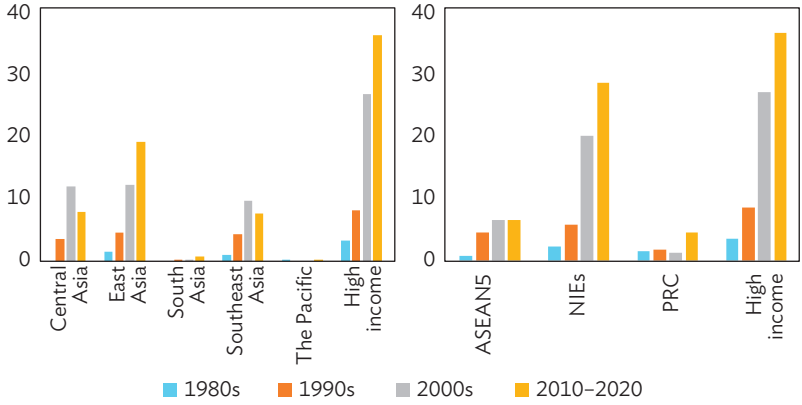
Figure 1.6: Outstanding Domestic Private Debt Securities, 1980s to 2010s

(% GDP)



ASEAN5 = Indonesia, Malaysia, the Philippines, Thailand, and Viet Nam; GDP = gross domestic product; NIEs (newly industrialized economies) = Hong Kong, China; the Republic of Korea; Singapore; and Taipei,China; PRC = People's Republic of China.
Note: The data refer to decade averages. The subregional groupings follow ADB definitions though not all economies have data. The high-income economy aggregation is based on World Bank definition.
Source: ADB, based on BIS Debt Securities Statistics; CEIC; International Monetary Fund (IMF) International Financial Statistics; IMF World Economic Outlook April 2021 Database; World Bank Global Financial Development Database; and World Bank, *World Development Indicators* (all accessed September 2021).

Figure 1.7: Outstanding International Private Debt Securities, 1980s to 2010s
(% GDP)

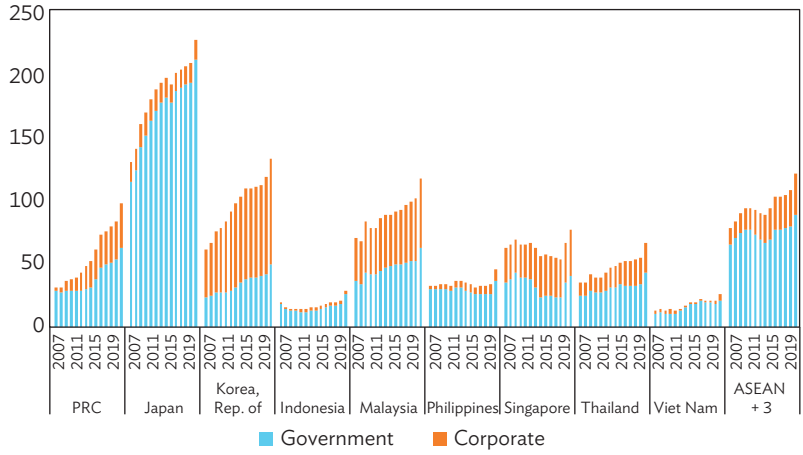


ASEAN5 = Indonesia, Malaysia, the Philippines, Thailand, and Viet Nam; GDP = gross domestic product; NIEs (newly industrialized economies) = Hong Kong, China; the Republic of Korea; Singapore; and Taipei,China; PRC = People's Republic of China.
Note: The data refer to decade averages. The subregional groupings follow ADB definitions though not all economies have data. High-income economy aggregation is based on World Bank definition.
Source: ADB, based on BIS Debt Securities Statistics; CEIC; International Monetary Fund (IMF), *International Financial Statistics*; IMF World Economic Outlook April 2021 Database; World Bank Global Financial Development Database; and World Bank, *World Development Indicators* (all accessed September 2021).

As corporate bond markets have grown at a healthy pace since the global financial crisis, the share of corporate bonds outstanding to GDP in ASEAN+3 more than doubled from 14% in 2007 to 33% in 2020, while the corresponding share of government bonds to GDP in ASEAN+3 rose from 66% to 91%. Nevertheless, local currency corporate bond markets must deal with structural development issues, such as narrow investor profiles, the relatively short maturity profile of local currency corporate bonds, the low trading volume in secondary markets, and limited issuer participation with significant concentration of corporate bond issuers (Figures 1.8 to 1.11).

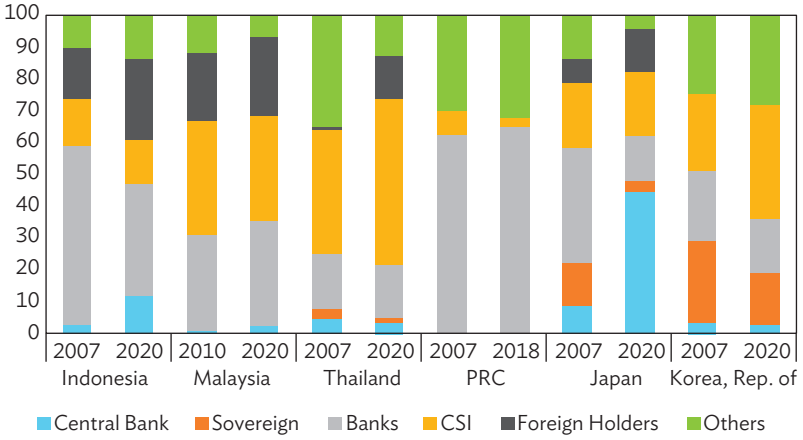
The years of local currency bond market expansion in ASEAN+3 attracted growing foreign investment although its share has declined in the last few years, presumably exacerbated by the pandemic in 2020. Figure 1.12 shows the share of foreign holdings in local currency government bonds in 2019 was nearly 40% in Indonesia, around 25% in Malaysia, about 17% in Thailand, and more than 10% in the Republic of Korea. However, while the foreign share continued to rise in the +3 (the PRC, Japan, and the Republic of Korea) economies in 2020, it fell in all ASEAN economies where data are available.

Figure 1.8: ASEAN+3 Local Currency Bond Markets, 2007–2020
(% of GDP)



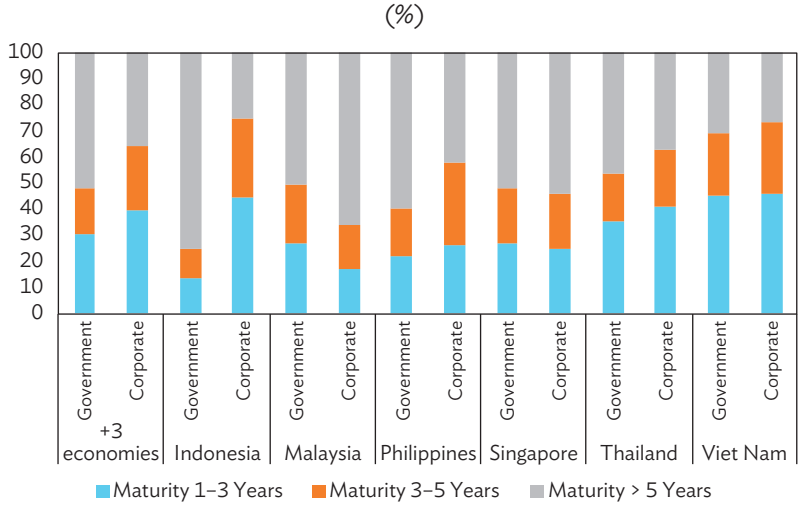
GDP = gross domestic product, PRC = People's Republic of China.
Note: Government bonds exclude central bank bonds. The ASEAN+3 aggregated values pertain to the ratio of the sum of the local currency bonds and GDP covering countries with available data.
Source: AsianBondsOnline (accessed August 2021).

Figure 1.9: Investor Profile of Local Currency Government Bonds in ASEAN+3
(%)



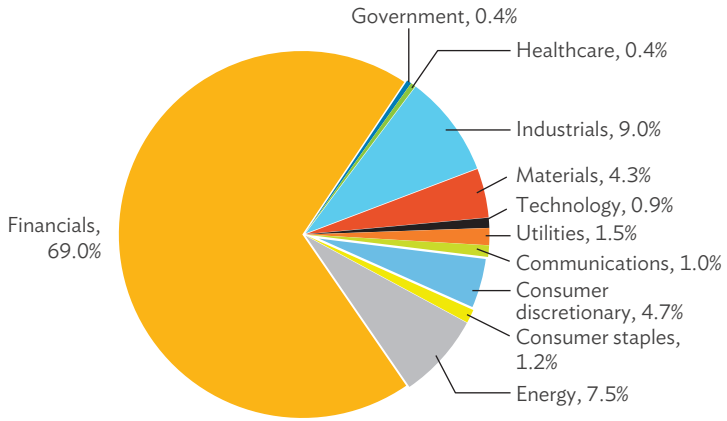
CSI = contractual savings institutions, LCY = local currency, PRC = People's Republic of China.
Note: CSIs include contractual savings funds and insurance companies. The disaggregation of the data for PRC and the Republic of Korea does not include foreign holders. For Thailand, foreign holders refer to nonresidents.
Source: Authors, based on AsianBondsOnline (accessed August 2021).

Figure 1.10: Average Maturity of ASEAN+3 Local Currency Bonds, 2008–2020



LCY = local currency.
Note: +3 economies = Japan, the People's Republic of China, and the Republic of Korea. As for Japan's data, the breakdown is available for government securities, but not for corporate securities. The available corporate bonds data series starts in 2009 for Indonesia and 2010 for Malaysia. For the Republic of Korea, the available data series is from 2010 to 2018.
Source: Authors, based on AsianBondsOnline (accessed August 2021).

Figure 1.11: Sector Breakdown of ASEAN+3 Corporate Bond Issuance, 2005–2020

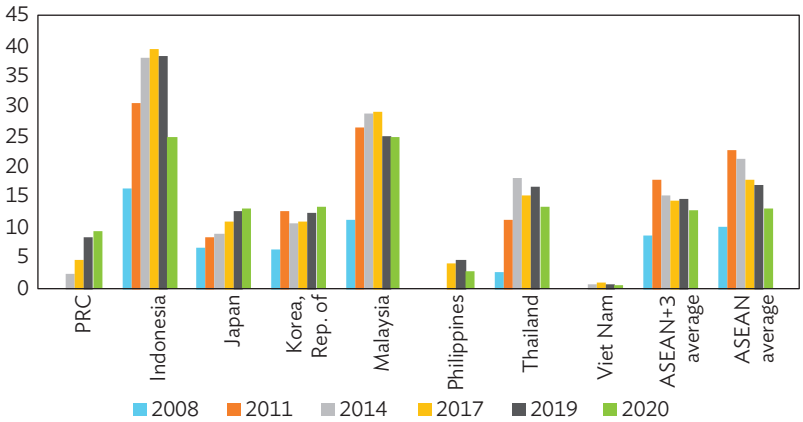


Note: The data are based on Bloomberg Industry Classification Standard Level 1. Financials include real estate. The economies included in the calculations are Indonesia, Malaysia, the People's Republic of China, the Philippines, the Republic of Korea, Singapore, Thailand, and Viet Nam.
Source: Authors, based on data compiled by Bloomberg L.P. (accessed August 2021).

The average foreign holdings of local currency government bonds in ASEAN+3 was about 15% in 2019 and 13% in 2020, up notably from less than 9% in 2008. While keeping the costs of funding low, foreign exposure may leave countries in the region vulnerable to sharp capital flow reversals. As IMF (2020) notes, higher foreign participation in local currency bond markets could increase the volatility of bond yields in emerging market economies with limited depth.[13]

Figure 1.12: Degree of Internationalization of Bond Markets in ASEAN+3

(%)

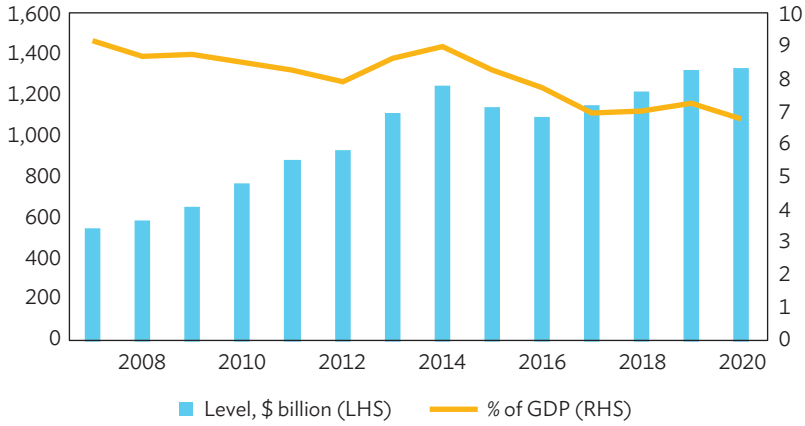


PRC = People's Republic of China.
Note: The data capture the proportion of local currency government bonds held by foreign investors relative to the amount of local currency government bonds outstanding in a specific market. The ASEAN and ASEAN+3 aggregated values pertain to simple averages of economy-level ratios covering economies with data for the period. The Philippines does not have data in 2008, 2011, and 2014. The PRC and Viet Nam do not have data in 2008 and 2011.
Source: Authors, based on AsianBondsOnline data (accessed August 2021).

The gradual transition from bank to capital market financing has also corresponded to a sharp increase in international bond issuance by nonfinancial corporations in emerging markets, including in Asia. Dollar-denominated corporate bond issuance increased sharply in ASEAN+3 economies after the global financial crisis, owing to their good growth, favorable yields, and expected currency appreciations. Figure 1.13 shows that, in absolute terms, nonfinancial corporate debt denominated in US dollars doubled from the global financial crisis, from less than $553 billion in 2007 to more than $1.3 trillion in 2020.

[13] In particular, conditional on domestic factors, when the size of foreign investor bond holdings exceeds about 40% of the country's international reserves, the volatility of yields is found to increase by about 15% (IMF 2020).

Figure 1.13: US-Dollar-Denominated Nonfinancial Corporate Debt in ASEAN+3



LHS = left-hand scale, RHS = right-hand scale, US = United States.
Note: Data available only for the People's Republic of China, Indonesia, Malaysia, the Republic of Korea, Singapore, and Thailand. For ASEAN+3, values as a percentage of gross domestic product (GDP) pertain to the ratio of the sum of nonfinancial corporate debt and GDP of economies with data.
Source: Authors, based on Institute of International Finance Global Debt Monitor Database (accessed August 2021).

The strong rise in foreign currency bond issuances of some Asian firms, however, raises concerns about currency mismatches, especially for firms that lack natural hedges against exchange rate exposure (such as in real estate and construction).[14] The seeming inability of firms to borrow onshore in local currencies suggests that the "original sin redux" featured in Eichengreen and Hausmann (1999, 2005), and Eichengreen, Hausmann, and Panizza (2007) is still relevant for regional corporate bond markets, if not government bond markets. Examining 5,500 firms in seven Asian emerging economies (Hong Kong, China; Indonesia; Malaysia; the Philippines; Singapore; Taipei,China; and Thailand) between 2002 and 2013, Mizen et al. (2018) find that less seasoned firms may start issuing bonds overseas before moving onshore as markets develop. However, they also note that as capital accounts open up further and hedging instruments start developing, more seasoned firms may again start to issue bonds overseas in foreign currency, motivated by opportunities for gains from cost/interest differentials.

[14] Additionally, foreign currency corporate bonds issued by emerging markets are more likely to be driven by global factors rather than domestic macro fundamentals and are therefore vulnerable to global cycle turns and sudden capital outflows (Ayala, Nedeljkovic, and Saborowski 2017).

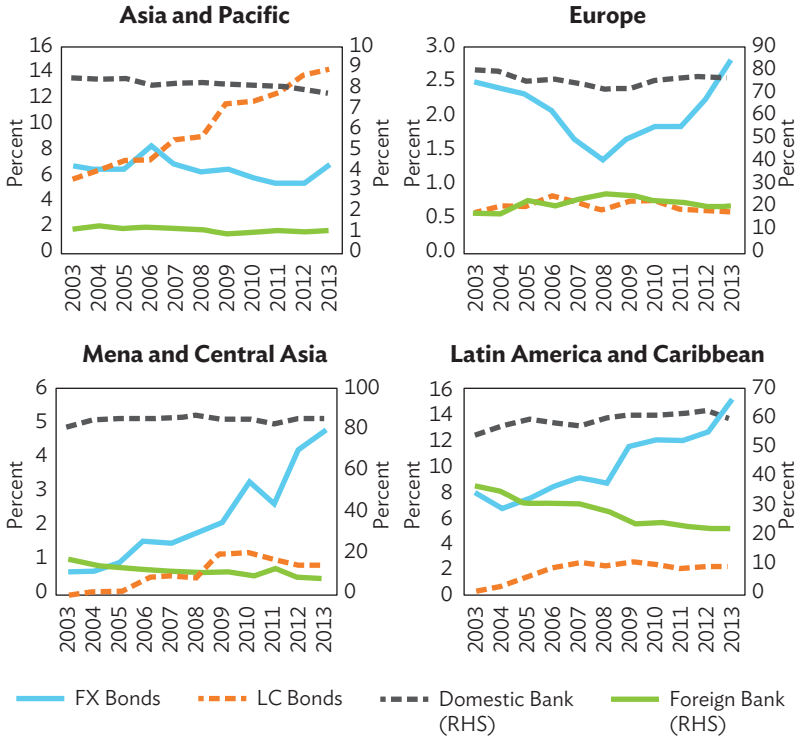
Carstens and Shin (2019) note that the development of local currency bond markets may not fully protect emerging market economies from exchange rate shocks. This is the hypothesis of the original sin redux: borrowing in local currency from foreign lenders does not remove the currency mismatch, it simply shifts the problem from the balance sheets of borrowers to lenders. The lenders to emerging market economies tend not to hedge their local currency exposure. For those with obligations to beneficiaries or policyholders in their home countries, an emerging market currency depreciation would lower the value of their assets in emerging market economies in their own currency, tightening balance sheet constraints. This may trigger massive selloffs or hedging and widen bond spreads due to the exit of foreign investors.[15] One possible solution is to broaden the domestic investor base to make bond markets less sensitive to currency valuation changes (Hofmann, Patel, and Wu 2021; Hofmann, Shim, and Shin 2019).[16]

The different forms and channels of international debt issuance reflect their financial systems' development and integration with global markets (Figure 1.14). But increased sophistication of international financing activities also suggests hidden sources of external vulnerability (McCauley, McGuire, and Sushko 2015). For example, 93% of the PRC's dollar (nonfinancial) corporate bonds are offshore issuances by affiliates and may not be visible in the country's external debt statistics. Similarly, borrowing in dollars by Korean manufacturers through forward sales (in exchange for won) is an exposure not easily tracked. Growth in indirect dollar credit has been adequately managed by Korean regulators mainly through macroprudential measures. These examples imply that while the region has managed to emerge from the global financial crisis relatively unscathed, anchoring financial stability amid rapid financial innovation and strong capital flows remains a serious challenge.

[15] Hofmann, Shim, and Shin (2019) elaborate on the links between exchange rates and bond market risk premia in emerging economies.

[16] Other solutions include sterilized foreign exchange intervention to reduce exchange rate volatility and establishing prudential measures to curtail foreign bond inflows (Hofmann, Patel, and Wu 2021; Hofmann, Shim, and Shin 2019). Chapter 2 of this volume includes a brief discussion on the corporate bond market.

Figure 1.14: Debt Composition of Nonfinancial Corporations in Emerging Markets



FX = foreign exchange, LC = local currency, RHS = right-hand scale.
Note: The charts show the averages by region. Regional groupings follow International Monetary Fund definitions.
Source: Ayala, Nedeljkovic, and Saborowski (2017).

1.4 The Impact of COVID-19 on Financial Systems

COVID-19 and its associated economic downturns again tested ASEAN+3 economies' financial resilience during the pandemic-induced crisis period. Given underlying structural weaknesses such as limited diversification in corporate financing sources and heavy reliance on the US dollar for increasingly internationalized business and financial activities, ASEAN+3 financial systems continue to be vulnerable to the sudden reversal of capital flows and exchange rate volatility. The pandemic also added financial challenges from sharp increases in fiscal spending, possible deterioration in bank asset quality, and the acceleration of digital transformation.

A Surge in Debt and Risks of Debt Sustainability

Immediate challenges brought by the pandemic relate to a surge in debt and risks of debt sustainability. The depth of the COVID-19 shock necessitates that countries undertake massive fiscal stimulus packages. Only a few countries in the region with strong fiscal positions like Singapore may be able to draw on their past reserve holdings to fund multiple fiscal packages close to 20% of GDP.[17] Many other countries in the region have had to raise funding through the sovereign bond market. Indonesia was among early movers, raising $4.2 billion from dollar-denominated "pandemic bonds" in April 2020. This was followed by the Philippines, which issued $2.4 billion in pandemic bonds in May 2020 (Table 1.1). As the fiscal needs of regional governments rise, one can expect more of these sovereign issuances.

Table 1.1: Sovereign Bonds Issuance to Address the Pandemic

Issuer	Coupon (%)	Issue Date	Tenor (Years)	Principal Currency	Amount Issued ($ billion)	Offered Yield to Maturity (%)	S&P Rating
Indonesia	4.45	4/15/2020	50	USD	1.0	4.50	BBB
Indonesia	4.20	4/15/2020	30	USD	1.6	4.25	BBB
Indonesia	3.85	4/15/2020	10.5	USD	1.6	3.90	BBB
Philippines	2.95	5/5/2020	25	USD	1.4	2.95	BBB+
Philippines	2.46	5/5/2020	10	USD	1.0	2.46	BBB+

USD = United States dollar.
Source: Lopez (2020), based on Refinitiv data.

The development of regional bond markets has been important in facilitating the aggressive fiscal responses to the pandemic in many ASEAN+3 economies. However, once the pandemic is contained, the unwinding of COVID-19-related debt has to be managed carefully. The ASEAN+3 community needs strong leadership to avoid a debt debacle. Otherwise, this risk could unfold as soon as the US Federal Reserve (Federal Reserve) starts normalizing its ultra-easy monetary policy, which may lead to tighter global credit conditions, and an unwinding of large-scale stimulus packages in the region begins without proper planning and management. The focus of financial markets could easily turn to the issue of size of fiscal debt and deficits. If this happens, borrowing costs could climb and cause financial upheaval (AMRO 2020a).

[17] However, the acute fiscal shock due to COVID-19 along with structural fiscal pressures due to aging demographics has led the Singapore government to recently pass easing of legislation that would allow the government to issue long-term bonds in the future to finance large-scale infrastructure projects (Yuen-C 2021).

Another concern is a potential surge in nonperforming loans due to sharp economic slowdowns and a deteriorating business environment. The massive rise in debt and bankruptcies among firms and households could destabilize the banking and financial system, if not properly managed during the recovery phase. And such financial stress could also spill over to other economies through cross-border banking networks.

AMRO (2020a) highlights concerns about financial distress among the region's highly interconnected banks reverberating through the region's financial systems causing significant credit losses and collateral damage. Park and Shin (2020) investigate the impact on banking flows of a rise in bank nonperforming loan ratios in both lender and emerging market borrower countries and find that a rise in the nonperforming loan ratios of both lender and borrower countries is positively associated with increased banking capital outflows from emerging market economies. An emerging market economy with higher nonperforming loans may be particularly vulnerable to such portfolio rebalancing and deleveraging of globally active banks in advanced economies. For example, major global lenders may account for souring loans by adjusting their international portfolio assets and reducing lending to emerging markets.

The scale of interdependencies means that regional financial cooperation should not be overlooked. The most salient development on regulatory cooperation is Basel 3, which was introduced after the global financial crisis to strengthen global regulatory standards on bank capital adequacy (which now requires a larger countercyclical capital buffer), stress testing, and market liquidity. To address more fundamental issues of nonperforming loans in increasingly interconnected financial systems, countries should focus on international stabilization and reform efforts, particularly in developing national and regional resolution mechanisms and a well-functioning secondary market for nonperforming loans.

Rapid Digital Transformation and the Changing Financial Landscape

COVID-19 has given a big impetus to e-payments and digital banking and financial services (lending, remittances, insurance, trade finance, and so on) combined with new technologies such as artificial intelligence, blockchains, and cloud computing.[18] On a positive note, an increase in digital financial services could enhance financial efficiency and inclusion. However,

[18] See ADB (2021) for a more general discussion of rise of digitalization in Asia.

concerns have been raised that the rapid rise in fintech adoption in the post-pandemic era may unsettle financial stability.

As Aizenman (2020) notes, an increase in the supply of fintech credit could result in the emergence of 'shadow intermediaries' and redirect financial intermediation from the regulated banking sector, creating unintended consequences. While the fintech revolution pressures traditional banks to offer faster, cheaper, and more effective financial services, it could also complicate monetary transmission. Further, as Boot et al. (2020) show, the disintermediation of financial supply chains could generate concerns about regulatory arbitrage as the risks are subsumed into complex network structures. Accelerated digital transformation could have a significant bearing on the financial landscape and regional cooperation for financial efficiency and stability.

Moving forward, it is important to strike a balance between managing financial innovation and change (including fintech and emerging trends such as digital currency) to boost financial efficiency while still maintaining financial stability. The region needs to find ways to further deregulate and promote digitalization of financial services industries without unduly exposing them to excessive risk.

Narrowing the Gap in Financial Inclusion

A growing consensus among global policy makers suggests that developing economies should place financial inclusion at the top of the agenda given its significant benefits for people and firms. A study by Ayyagari and Beck (2015) presents a list of benefits, but finds that although developing Asia has more banking sector depth than other developing regions, the picture on access to financial services is bleak as fewer than 27% of adults have an account in a formal financial institution and only 33% of enterprises report having a credit line or loan from a financial institution. Biggest barriers identified by the authors include cost and geographical access, which policy makers in the region could attempt to resolve.

Fintech or the use of digital technology to broaden access to finance could also play an essential role in expanding financial inclusion. According to some estimates, digital financial solutions can fill about 40% of unmet demand for payment services and 20% of the credit requirements of poor

households and small businesses in Asia.[19] While helpful in closing the financial inclusion gap, fintech entails both risks to financial stability and regulatory challenges, with consumers of digital finance needing protection against a plethora of issues about data governance (related to how data are accessed, used, and stored), which mostly concern data privacy and safety and consumer protection (ADB 2018).

1.5 An Unfinished Agenda: Lessons Learned and the Way Forward

Booms and busts in capital flows remain a significant source of financial risk in ASEAN+3 economies. During the COVID-19 pandemic, a sharp reversal in portfolio flows was again primarily related to the bond market and consequent impacts on currency. It would therefore be important to reassess where regional economies stand with regard to the use of exchange rate flexibility as a shock absorber. At a time of increased financial uncertainty raising credit risks, global and local banks alike can experience liquidity shortfalls in international credit markets. Emerging market economies with sizable external liabilities are vulnerable to sudden shifts in investor sentiment. That these liabilities are denominated in local currency terms does not shield them from the flight to safety, as reflected in the "original sin redux" hypothesis.

Exchange Flexibility and US Dollar Dominance

Data from the exchange rate arrangements for the broader Asian region as reported in the IMF's Annual Report on Exchange Arrangements and Restrictions (AREAR) for 2020 are shown in Table 1.2.[20] While most emerging markets have transitioned to floating exchange rate regimes (Cavoli, Gopalan, and Rajan 2019), countries that have adopted inflation targeting continue to use foreign exchange intervention as a prominent policy instrument. This can be partly explained by their ongoing concern that excessive exchange-rate volatility may amplify rather than absorb shocks (Hofmann, Shim, and Shin 2020; Patel and Cavallino 2019).

[19] This is based on a study commissioned by ADB on accelerating financial inclusion in Southeast Asia through digital finance (Oliver Wyman and MicroSave 2017).

[20] This discussion partially draws on and updates the discussion in Cavoli, Gopalan, and Rajan (2019).

More generally, there is a growing recognition that the insulating powers of exchange rates (as shock absorbers) may be waning (Rey 2013, 2016).[21] This is especially true in countries where the US dollar is dominant as the invoicing currency for trade—the so-called Dominant Currency Pricing (DCP) paradigm. With nearly 80% of ASEAN+3's exports over the past 2 decades being invoiced (and settled) in US dollars (Figure 1.15),[22] studies have shown that the DCP weakens the ability of countries to benefit from currency depreciation spurring economic recovery in the short-term, thereby limiting the role of exchange rates in cushioning external shocks (Adler et al. 2020, Gopinath 2016, Gopinath et al. 2020).[23] While some regional surveys suggest a gradual move toward invoicing in local and regional currencies, US dollar dominance remains firmly entrenched (Shimizu et al. 2019).[24]

Adler et al. (2020) further point out that DCP may also be closely related to the paradigm of Dominant Currency Financing (DCF), which broadly refers to firms relying on US-dollar funding through both the banking system and the bond market, as discussed previously (also see Bruno and Shin 2015; Hofmann, Shim, and Shin 2020). The nexus between DCP and DCF remains under-researched. More to the point, is the use of US dollar as a DCP because of its ready and cheap financing given its established role as a DCF? Or is the US dollar's role as DCP (for historical reasons, having been the largest export market for the region's final goods after World War II; commodities invoiced in exports, historical fixed exchange rates, high transaction costs of regional currency exchange, and so on) the reason behind firms choosing US dollars as a natural hedge and central banks holding on to US dollars as a safe asset?

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[21] We are alluding here to the so-called Trilemma versus Dilemma debate in international finance. There have been a number of critiques and nuances to the dilemma hypothesis, including Obstfeld, Ostry, and Qureshi (2018, 2019), Klein and Shambaugh (2015), and Eichengreen et al. (2020), who argue that the conventional wisdom regarding Impossible Monetary Trilemma remains relevant especially for emerging economies (i.e., exchange rate flexibility does have insulation powers). Also see Cheng and Rajan (2020) and Han and Wei (2018) who suggest that there may exist a 2.5 lemma between the Dilemma and Trilemma. This remains an area of ongoing debate.

[22] Countries for which data are available include Cambodia, Indonesia, Japan, Malaysia, the Republic of Korea, and Thailand. Among the +3 countries, it is pertinent to note that the corresponding average share of exports from Japan invoiced in US dollars was only 50% between 1990 and 2020, while it was quite high for the Republic Korea at 85%. Chapter 3 of this volume includes more on this.

[23] Participation in regional and global value chains also makes trade less exchange rate elastic in general, even with local currency pricing (de Soyres et al. 2018).

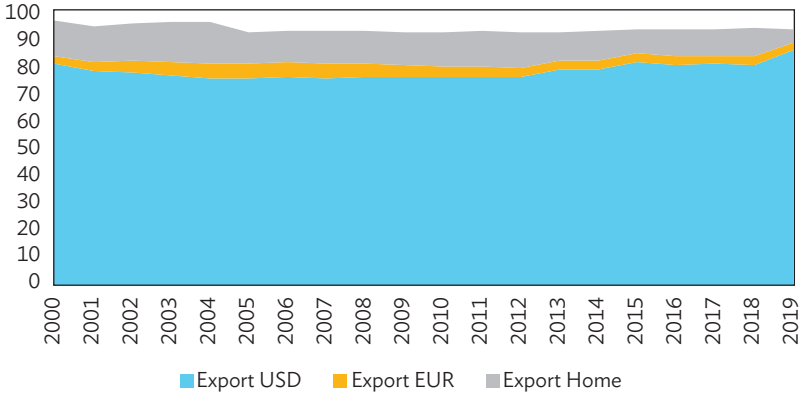
[24] For the specific case of growing share of local currency use for Japanese exports to Asia, see Ito et al. (2018).

Table 1.2: Classification of Exchange Rate Arrangements for Selected Asia and Pacific Economies, 2020

Exchange rate arrangement (number of countries)	Monetary Policy Framework						
	Exchange rate anchor				Monetary aggregate target	Inflation targeting framework	Other
	US dollar	Euro	Composite	Other			
No separate legal tender	Timor-Leste; Marshall Islands; Federated States of Micronesia; Palau			Kiribati; Tuvalu			
Currency board	Hong Kong, China			Brunei Darussalam			
Conventional peg			Fiji	Bhutan; Nepal			Solomon Islands
Stabilized arrangement	Maldives		Viet Nam			Sri Lanka (4/19)	
Crawl-like arrangement	Cambodia (3/19)		Singapore		Bangladesh; Papua New Guinea		Mongolia (1/19)
Other managed arrangement					PRC		Tonga (1/19); Vanuatu; Pakistan
Floating						Indonesia; Korea, Rep. of; Philippines; Thailand; New Zealand	Malaysia
Free floating						Australia; Japan	

PRC = People's Republic of China.
Note: If a country's *de facto* exchange rate arrangement was reclassified by the IMF during the reporting period, the date of change is indicated in parentheses (month, year).
The de facto classification is based on IMF's assessment in its AREAR. https://www.elibrary-areaer.imf.org/Documents/Exchange%20Rate%20Classification%20Methodology/ExchangeRateClassificationSystemDefinitions_2008.pdf.
Source: IMF AREAER (2020).

Figure 1.15: Export Invoicing Currencies for ASEAN+3
(% total exports)



EUR = euro, USD = United States dollar.
Note: Data for ASEAN+3 is the simple average of percentage shares of export invoices in US dollars, euro, and the home currency. Countries for which data are available include Cambodia, Indonesia, Japan, Malaysia, the Republic of Korea, and Thailand.
Source: Boz et al. (2020).

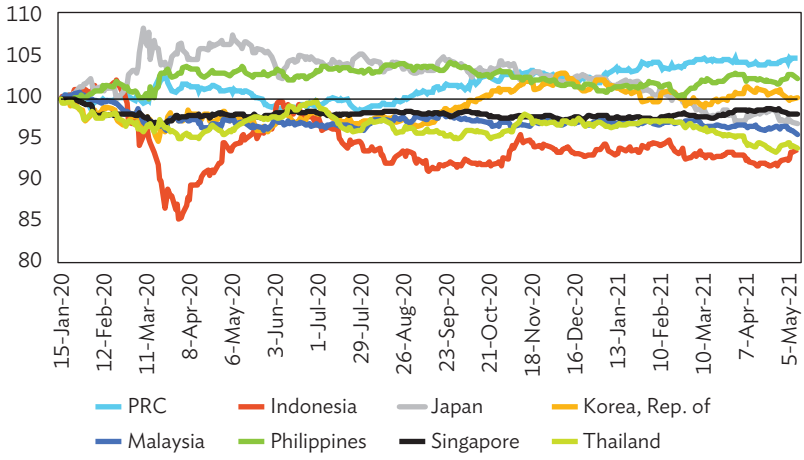
While this is an open area of research, from a policy perspective,[25] the combination of DCP and DCF aggravates the negative impact of exchange-rate depreciations on such firms and more generally blunts the insulating effects of exchange-rate flexibility.[26] These concerns are particularly relevant in the context of the pandemic, which led to significant exchange rate and reserves pressures in many emerging markets, including in ASEAN+3 (Figure 1.16).[27]

[25] The work by Gopinath and Stein (2020) is one of the few papers that has looked at the US dollar's role jointly as a DCF and DCP from a theoretical perspective and they conclude the following: *(T)here is a fundamental connection between the dollar's role as the currency in which non-US exporters predominantly invoice their sales, and its prominence in global banking and finance. Moreover, these two roles feedback on and reinforce each other. Going in one direction, a large volume of dollar invoicing in international trade creates an increased demand for safe dollar deposits, thereby conferring an exorbitant privilege on the dollar in terms of reduced borrowing costs. Going in the other direction, these low dollar-denominated borrowing costs make it attractive for non-US exporters to invoice their sales in dollars, so that they can more easily tap the cheap dollar funding. The end result of this two-way feedback can be an asymmetric entrenchment of the dollar as the global currency of choice, even when other countries are roughly similar to the US in terms of economic fundamentals such as their share of overall world-wide imports.*

[26] While DCP has been about trade and DCF about capital flows, Bruno and Shin (2018), and Bruno, Kim, and Shin (2018) link the two by considering the case where bank-intermediated trade financing is denominated primarily in US dollars.

[27] See ADB (2021) for a discussion on policy responses to the pandemic among regional economies.

Figure 1.16: Exchange Rate Movements in ASEAN+3, January–May 2021
(Index, 15 Jan 2020 = 100)



PRC = People's Republic of China.
Note: Nominal effective exchange rate (broad index), rebased at 15 Jan 2020 = 100. An increase indicates an appreciation of the economy's currency against a broad basket of currencies.
Source: Authors, based on BIS *Effective Exchange Rate Indices* (accessed May 2021).

The persistent and widespread use of the US dollar as an invoicing and financing currency remains a significant source of financial vulnerability and points to the need to reinvigorate the debate on reform of the international reserve system to include multiple international currencies (Park, Rosenkranz, and Tayag 2020).[28] For their part, regional economies must continue to support the development of a local currency settlement framework among themselves to reduce the extent of US dollar invoicing.[29] While these are medium- and longer-term structural policies, many regional economies have developed a practical and eclectic toolkit to manage exchange rate and balance of payments pressures through a combination of sterilized foreign exchange intervention and active use of macroprudential and capital flow management measures (Carstens 2019, Cheng and Rajan 2020, Ghosh, Ostry, and Qureshi 2017, Hofmann, Patel, and Wu 2021).[30] A clear conceptual framework is lacking for policy makers to understand

[28] It remains an open question whether the rise of the PRC central bank digital currency, private digital currencies especially stable coins such as the Diem could challenge the US position as the DCF (Rajan and Cheng 2020).

[29] Important steps in this regard among regional economies are explained in Chapter 3.

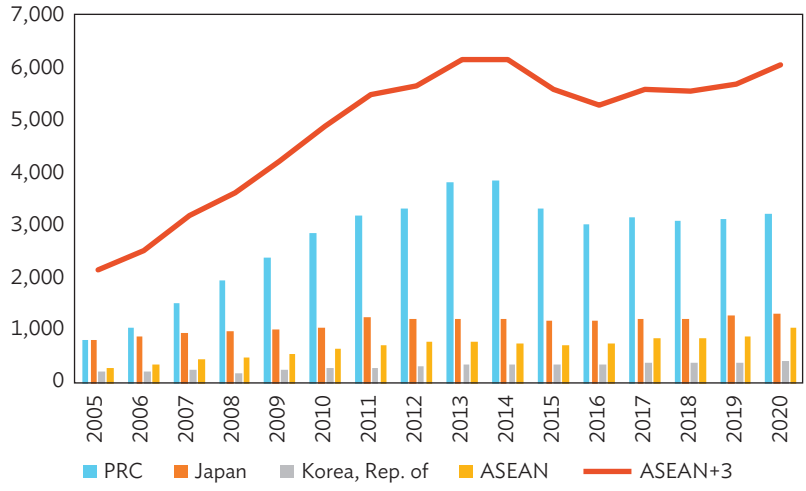
[30] Carstens (2019) describes emerging economy central banks' policy reaction function "as a multi-instrument reaction function responding to multiple-indicator variables, including the exchange rate."

how to use multiple tools in a manner that improves policy tradeoffs. That said, the IMF's Integrated Framework (Basu et al. 2020, Adrian et al. 2020) is an important first step, though scope exists for further discussion about making the framework more relevant to ASEAN+3, if necessary by incorporating region-specific considerations.

Reserve Accumulation and Regional Monetary Cooperation

Without a reliable lender of last resort, countries in the region have resorted to accumulating foreign exchange reserves, and continued to do so even in the aftermath of the global financial crisis, at least up until 2013. Foreign exchange reserves in ASEAN+3 as a whole have more than doubled from $3 trillion in 2007 to over $6 trillion in 2013. The level marginally declined from 2013 to 2016, which coincided with the taper tantrum episode as countries tried to defend their currencies from sharp depreciations, capital flight and the PRC's decline in reserves between mid-2014 and mid-2016.[31] Reserve accumulation in the region resumed after, and reserves stood at over $6 trillion in 2020 (Figure 1.17).

Figure 1.17: Foreign Exchange Reserves in ASEAN+3
($ billion)

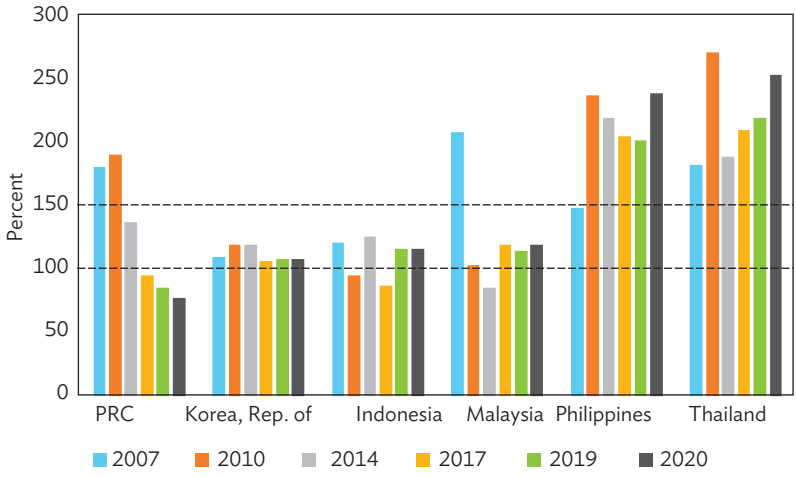


PRC = People's Republic of China.
Note: The measure excludes gold.
Source: Authors, based on World Bank, *World Development Indicators* (accessed August 2021).

[31] There was also likely a currency valuation effect from US-dollar appreciation against other reserve currencies. See Ito and McCauley (2019) for a discussion on the currency composition of reserves.

The size of reserves held by the countries in the ASEAN+3 region appears to be broadly adequate for precautionary purposes, based on the conservative estimates of the IMF's Assessing Reserve Adequacy Emerging Markets (ARA EM) metric which considers trade, short-term debt, size of the monetary base, and portfolio liabilities (IMF 2013). Countries that have reserves within the 100% to 150% of this composite metric were considered broadly adequate as of 2019. Most ASEAN+3 countries are within this range, with the PRC the sole exception in the last few years (Figure 1.18).

Figure 1.18: Foreign Exchange Reserves in ASEAN+3
(% of IMF's ARA EM Metric)



ARA EM = Assessing Reserve Adequacy Emerging Markets, IMF = International Monetary Fund, PRC = People's Republic of China.
Source: IMF, Assessing Reserve Adequacy Database (accessed May 2021).

Although countries in the region continue to hold the largest buffers of reserves in the world, this self-insurance mechanism has been recognized for some time as costly and in need of being complemented by a credible regional reserve pooling arrangement (Bird and Rajan 2003).[32] Following the global financial crisis, ASEAN+3 made some significant institutional advancements with regard to regional financing arrangements built on the Chiang Mai Initiative Multilateralization (CMIM) and the ASEAN+3 Macroeconomic Research Office (AMRO).

[32] See Arslan and Cantú (2019) for a wider-ranging discussion of motives for reserve accumulation and measures of reserve adequacy in emerging economies more generally.

While CMIM is expected to play an important role in the global financial safety net, doubt remains about its operability because it has yet to be drawn upon in times of crisis.[33] To improve market confidence, ASEAN+3 members have improved flexibility and operational readiness, including amending the CMIM Agreement and CMIM Operational Guidelines from June 2020 (AMRO 2020b). ASEAN+3 members have also adopted an information-sharing mechanism between the CMIM and its partner the IMF, and conducted test runs to better understand operational risks and enhance readiness. Test runs highlighted issues emanating from assistance provisions, such as incompatibility between CMIM's shorter repayment periods and program length and the IMF's longer-term financing arrangements, and the need for the two institutions to take a shared view on the policy adjustment path, financing needs, and policy conditionality for a recipient country (IMF 2017).

At the 23rd ASEAN+3 Finance Ministers and Central Bank Governors' Meetingon 18 September 2020, finance ministers and central bank governors announced a plan to "institutionalize voluntary and demand-driven, for both requesting and providing parties, local currency contributions in the CMIM." This reflected suggestions that allowing for local currency contributions to the CMIM may spur local/regional currency invoicing, settlement, and financing to reduce the region's excessive dependence on the US dollar (Kim 2019, Lu 2019, and Sussangkarn 2019).

While the motivation for the proposed plan is apparent given the region's US dollar vulnerabilities, the suggestion is not without concerns. The main aim of CMIM is to manage liquidity concerns in the region which in turn are often due to dislocations and shortages in US dollar funding markets. Requiring the CMIM to use local currencies may in some ways hinder its effectiveness as a regional financing facility, while also leading to mission creep. This should be of particular concern given that the CMIM itself remains unutilized even as ASEAN+3 economies have had to deal with sudden changes in market conditions for US dollar funding. Instead, some economies (the Republic Korea and Singapore) have been able to access temporary bilateral swap lines with the Federal Reserve. However, most economies in the region remain excluded from Fed swaps, leaving them vulnerable to supply shocks in the US dollar market.[34]

[33] Some would counter that the region has not needed to draw on the CMIM as of now as the economies have been by and large fundamentally sound.

[34] On 31 March 2020, the Federal Reserve also announced the establishment of a temporary repurchase agreement facility for foreign and international monetary authorities (FIMA Repo Facility), whereby FIMA account holders—central banks and other international monetary authorities with accounts at the Federal Reserve Bank of New York—could enter into repurchase agreements with the Federal Reserve. (Government of the United States, Board of Governors of the Federal Reserve System 2020).

As a consequence, many regional economies have begun to pursue bilateral swaps and local currency settlements to reduce the US dollar's structural dominance while also employing their ability to act as liquidity backstops to help promote financial stability. Bilateral swap agreements may be better placed than the CMIM to develop the use of local currency and support development of local currency settlement frameworks among regional economies.[35] As the network continues to grow, concerns may emerge about how to better integrate these bilateral swaps with the CMIM. Greater attention is needed on the collaborative use of bilateral swaps and multicurrency swap mechanisms offered by the CMIM (see Han 2021 and Chapter 7 of this volume).

1.6 Conclusion

In a post-pandemic world, as Asia starts to focus on the recovery and rebuilding for greater economic resilience and sustainability, it is critical that ASEAN+3 economies formulate collective responses to handle global shocks. While invariably some will call for regional cooperation to be envisioned on a much grander scale, it is important to keep in mind that financial and monetary cooperation in Asia does not have a long history and only started to take shape after the Asian financial crisis. As was highlighted in the ASEAN+3 vision document *Strategic Directions of Finance Process:* "The year 2019 mark[ed] the 20th anniversary of ASEAN+3 Financial Cooperation. Along with the tides of regional economic integration, the ASEAN+3 Finance Process has been making great progress in enhancing regional economic and financial stability during the past two decades" (AMRO 2019).

Overall, financial cooperation is essential for safeguarding financial stability by increasing financial interconnectedness, promoting borderless digital finance, and rebalancing the region's continued dependence on the US dollar and international financial networks. Cooperation has been strengthened in the areas of monitoring (and surveillance) of macroeconomic conditions, capital flows and financial systems, information and expertise sharing, and development of financial safety nets. A clearer understanding of countries' motivations for regional cooperation would further improve the design of institutions providing financial safety nets (such as AMRO and CMIM) and the structure of emergency arrangements (CMIM, bilateral currency swaps,

[35] The PRC is using the Belt and Road Initiative to further promote the regional and global use of the yuan. Japan has also been promoting the yen for international transactions and the development of direct exchange markets between the yen and other ASEAN+3 currencies.

and the relationship with the IMF). This would be a step closer to achieving long-lasting financial stability in the region.

In the past few decades, the ASEAN+3 region has seen a host of regional initiatives to support growing intraregional interdependencies and to help buffer the region against currency and financial market volatility. On the financial cooperation side, as discussed in this chapter, the policy focus has been on building financial stability and resilience by reinforcing regional financial safety nets and developing markets for local currency bonds and long-term capital. As noted, financial openness (broadly encompassing cross-border banking and financial activities with all types of capital flows) has driven domestic financial market development. Yet, growing internationalization of banking and the emergence of local currency bond markets (attracting foreign investors and participation) has also brought additional risks, notably with regard to global shocks and vulnerability to fluctuations in the US dollar.

The COVID-19 pandemic has reset the spotlight on the vulnerability of emerging markets to sudden stops in volatile capital flows and acute exchange-rate and balance-of-payments pressures. This is also down to deeply entrenched structural weakness in the region's financial systems, such as dollar dominance, and the need to further diversify corporate financing sources and reform the banking system, especially given the rise in shadow funding, including nonbank financial institutions. In addition, the dominant role of the US dollar for international invoicing and financing casts doubt on the current capacity of the region's foreign exchange and reserve management to absorb external shocks.

While bond markets these days spur far greater regional financial intermediation compared to 2 decades ago, the region's financial systems remain heavily bank-based. In the context of the rise of regional systemically important banks, this is one facet of a complex picture that this volume explores in detail. Chapter 2 explores the issue of regional bank flows using data from the BIS Consolidated Banking Statistics. Its focus is on the concentration risks from cross-border lending activities by large, interconnected global and regional banks, which being few in number make the region susceptible to systemic risks through a "common lender" effect that could be a source of financial contagion and related domestic credit supply disruptions.

Chapter 3 explores the dominance of the US dollar as an international currency in general and takes stock of the usage of regional currencies for trade, investment, financial transactions, and exchange rate management among ASEAN+3 economies. With growing trade, investment, and financial integration, extensive use of the US dollar in intraregional transactions has caused concern as the economies have been especially susceptible to sudden squeeze in US dollar liquidity or sharp appreciations in the greenback, as happened in the early stages of the COVID-19 pandemic in 2020 and during the global financial crisis in 2007–2009 and the taper tantrum episode of 2013. The chapter contrasts the US dollar's preeminence with the limited roles played by regional currencies, including the Japanese yen and the PRC yuan, and highlights factors that impede regional currencies' use in cross-border transactions—even as some ASEAN+3 economies have taken significant steps to internationalize their currencies. It also presents some policy suggestions for enhancing the regional use of local currencies in the ASEAN+3 region.

Chapter 4 reviews the main developments of digital finance and fintech in the region and discusses their implications for financial inclusion and financial stability at the microfinancial and macrofinancial levels as well as in the design of monetary policy. The safe distancing and lockdown measures imposed by countries due to COVID-19 have provided a fillip to the ongoing move toward digitalization in finance and other areas within and among the ASEAN+3 economies. Digital finance and fintech have the ability to lower costs of financial intermediation and accelerate access to finance and will likely become an important driver of regional financial cooperation going forward. Since fintech service providers pose regulatory challenges not always adequately captured by bank-centered regulatory frameworks, the chapter also discusses how regional cooperation can realize fintech's potential while mitigating its risks.

The medium- and longer-term growth prospects of ASEAN+3 will be hindered unless the region plugs massive infrastructure gaps highlighted by ADB (ADB 2017). To date, infrastructure investments have been mostly funded from public sector budgets rather than the private sector.[36] However, it will be crucial to increase private sector participation in development finance given the vast financing gap and limited public sector financing since aggressive responses to the COVID-19 pandemic and rising debts are further reducing the fiscal space for action. While infrastructure

[36] According to ADB (2017), around 81% of investments in ASEAN (Southeast Asia) are public sector investments, while 19% are private investment.

financing to support rapid urbanization, regional growth, and poverty reduction in ASEAN+3 is crucial, it is equally important to proceed in an environmentally sound manner. The issue of innovative approaches to sustainable infrastructure financing, including utilizing regional capital markets to engage private financing more effectively, is the broad focus of Chapter 5. The chapter also explores how spillover effects of infrastructure investments might generate positive effects on tax revenues and improve the bankability of infrastructure projects, which in turn could attract private investors.

While demography is not destiny, it is well known that ASEAN+3 economies (especially in the +3 economies, along with Singapore, Thailand, and even Viet Nam) are rapidly aging because of a combination of low and declining fertility rates and rising life expectancies. Chapter 6 examines the impact of aging on the macroeconomy, with specific focus on labor force participation, savings, growth and productivity. It also offers a discussion on the diverse regional pension landscape and looks at the pension challenges that spring from population aging and the advent of the digital revolution. It also explores areas of regional cooperation, including the scope for investing in "alternative" assets such as infrastructure, and the portability of pensions across regional economies to match the mobility of workers.

The final chapter of this volume on ASEAN+3 regional financial cooperation summarizes key policy challenges, priorities, and recommendations. It draws attention to policy initiatives pertaining to financial and monetary cooperation and pulls together the main messages from preceding chapters. This provides important context and support for the priorities that ASEAN+3 finance and central bank officials identified in their Strategic Directions of Finance Process vision document.

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