ASIA PROGRAM
FEDERAL RESERVE BANK OF SAN FRANCISCO

ASIA FOCUS

FRBSF | COUNTRY ANALYSIS UNIT | NOVEMBER 2017

CAPITAL FLOWS, BOND MARKETS, AND FINANCIAL STABILITY IN ASIA

BY NICHOLAS BORST

The 1997 Asian financial crisis was a landmark event and an important catalyst for financial transformation in the region. Throughout the first half of the 1990s, the developing Asian economies boomed and foreign capital poured into the region. At the time, these foreign inflows helped finance greater levels of investment and were seen as an important component of the region's economic success story. When the financial crisis occurred, reliance on foreign funding transformed into an acute weakness. Defaults on foreign debt skyrocketed as exchange rates depreciated and foreign capital flight contributed to a severe funding crunch.

After the crisis subsided, governments across Asia took steps to address weaknesses in their financial systems. A key aim of these efforts was to establish more resilient forms of financing so that the region would not be as reliant on volatile foreign capital flows. Asian policymakers embarked on a series of initiatives aimed at developing robust local currency bond markets.[1] In the years following the crisis, there has been a dramatic increase in the size of Asian bond markets, reflecting the success of these initiatives. However, much of the growth has been concentrated in a relatively small number of countries, and many Asian bond markets remain less liquid, less efficient, and more restricted than their global peers.

The growth of bond markets across Asia has helped the region as a whole reduce its reliance on foreign funding dramatically since the crisis. Yet, a gap has emerged between creditor economies that are able to maintain large external surpluses and self-insure against risk and debtor economies that continue to remain dependent on borrowing and are exposed to capital outflows. As such, the goal of creating of sustainable funding sources for Asian economies is still a work in progress.

I. Pre-Crisis Vulnerabilities

In the lead up to the crisis, Asian countries displayed a variety of interconnected financial vulnerabilities. The region's economy grew rapidly in the first half of the 1990s, inviting significant overseas capital inflows. Many Asian economies began running large current account deficits that were financed via external borrowing. Between 1993 and 1996, 87 percent of the deficits for the ASEAN-4 and South Korea were financed by external bank borrowing, much of it short-term in nature.[2] Local banks borrowed heavily from foreign financial institutions, often in the form of short-term loans of a year or less in maturity. Many policymakers at the time thought that capital inflows intermediated through the banking system would be more stable than foreign direct or portfolio investment. As a result, countries like South Korea allowed local banks to borrow, while maintaining restrictions on corporate borrowers.

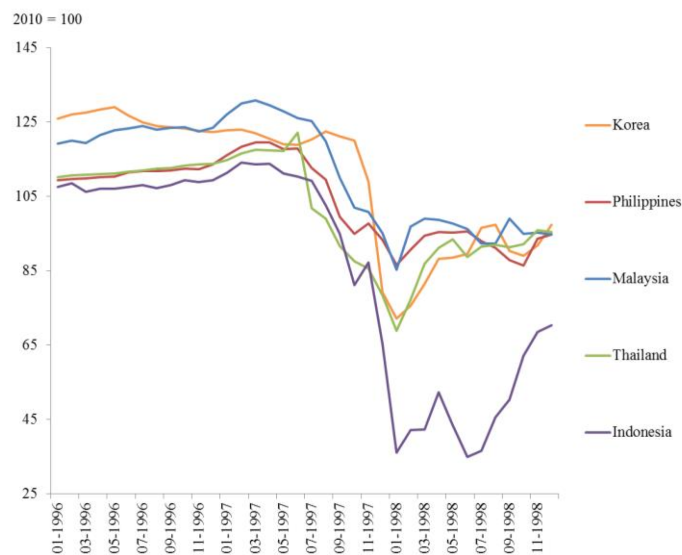
In conjunction with economic growth, credit expanded rapidly in Asian economies during the 1990s, fueling speculative bubbles in asset classes such as real estate. As often happens in periods of fast credit

Asia Focus is a periodic report issued by the Country Analysis Unit of the Federal Reserve Bank of San Francisco. The information contained in this report is meant to provide useful context and insight into current economic and financial sector developments in the Asia Pacific region. The views expressed in this publication are solely that of the author and do not necessarily represent the position of the Federal Reserve System.

growth, lending standards declined and paved the way for a deterioration in asset quality and an increase in non-performing loans. The proliferation of non-bank financial institutions at this time exacerbated problems when the crisis hit. These institutions were often subject to less stringent regulation than traditional banks and engaged in riskier lending practices. Regulators struggled to keep up with the growth of the financial sector, leading to weak supervision of many financial institutions. These factors all combined to produce significant vulnerabilities in Asian economies that could become problems during an economic downturn.

Adding to Asia's financial risks were the fixed exchange rate regimes of several economies in the region. Indonesia, South Korea, Hong Kong, Malaysia, the Philippines and Thailand all had tightly managed floats or pegs versus the U.S. dollar. When the dollar began to appreciate in 1995, these economies faced pressure in maintaining their exchange rates. Efforts to raise interest rates to support the exchange rates weakened Asian economies that were already facing a decline in export competitiveness, driven by the depreciation of the Japanese yen. As economic conditions began to deteriorate, Asian central banks continued to defend their exchange rates aggressively. This decision drained foreign exchange reserves and sparked investor panic when many central banks were ultimately forced to abandon their peg. *Figure 1* shows the significant exchange rate depreciation of several Asian economies during the crisis. In the wake of depreciation, capital flows out of the region accelerated, intensifying the credit crunch.

Figure 1 – Effective Exchange Rates for Asian Currencies



Source: Bank for International Settlements

Double Mismatch – Currency and Maturity

The growing reliance of Asian borrowers on short-term and foreign currency-denominated loans helped create a "double mismatch" problem. When Asian central banks devalued their currencies in the face of market pressure, the real burden of foreign-currency debt increased significantly and lenders refused to rollover short-term loans, which were frequently used to finance long-term projects. A combination of weak domestic banks and the sudden departure of foreign funds created a financing crunch in many Asian economies that helped turn a recession into a more severe financial crisis.

FEDERAL RESERVE BANK
OF SAN FRANCISCO

Foreign borrowing in Asia was driven by a desire to take advantage of lower interest rates available abroad. Long periods of exchange rate stability had led many borrowers to overlook the riskiness of foreign debt and not hedge against currency risk. Foreign financial institutions were eager to lend to the rapidly growing region for higher yields, especially if loans were in U.S. dollars or Japanese yen, since their own exchange rate risk was eliminated. Banks also looked favorably on short-term loans as a risk mitigation measure. The loan could not be rolled over if the borrower's financial situations deteriorated. *Table 1* shows the deteriorating net foreign currency position for several Asian economies during this period.[3] The years immediately prior to the crisis witnessed a strong increase in the proportion of foreign and short-term debt held by Asian borrowers.

Table 1 - Net Foreign Currency Assets (USD BN)

	1994	1995	1996	1997	1998	1999
Indonesia	-13.5	-14	-14.5	-27.8	-19.8	-11.5
Malaysia	17.1	14.3	9.6	-4.5	8.9	16.1
Philippines	3.4	1.9	-3.8	-12.2	-9.1	-9.3
Thailand	-5.8	-15.2	-23.5	-33.4	-17.8	-0.6
South Korea	-3.2	-10.7	-36.8	-58.4	-23.9	16.4

Source: Goldstein and Turner, 2004

The growth of foreign and short-term lending meant that Asian borrowers faced both a currency and maturity mismatch. Foreign borrowing was being used primarily to fund domestic investments. The revenues of Asian borrowers were in the local currency, while their interest payments were in dollars or yen. When Asian currencies began to depreciate significantly versus the dollar, the real debt burden of the overseas loans increased dramatically. Adding to these difficulties, short-term loans were being used to fund long-term investments, meaning that project cash flows did not match interest payment schedules. As Asian borrowers began to struggle to make payments, overseas lenders pulled out of the region. Loan defaults began to skyrocket across the region as companies were unable to meet interest payments and rollover existing short-term loans.

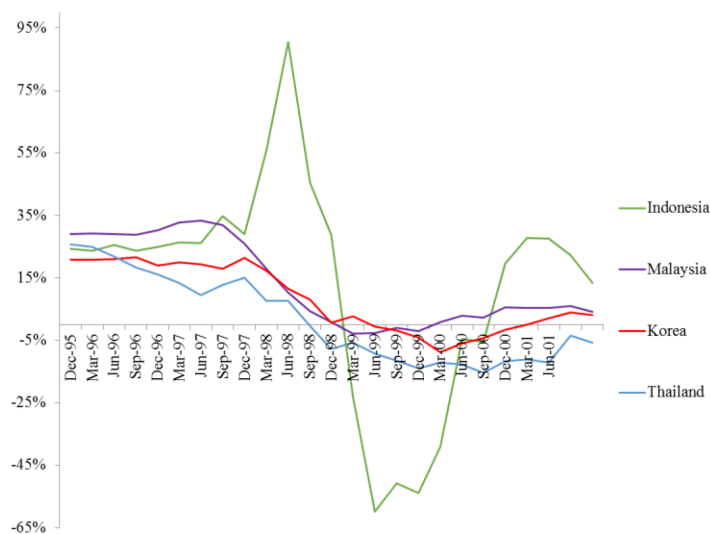
Asia's Missing "Spare Tire"

The Asian financial crisis was made worse by Asia's overreliance on banks as opposed to capital markets. As the crisis crippled banking systems throughout the region, the economic effects were particularly damaging because banks played a much larger role in capital allocation than stock and bond markets.[4] The outsized importance of banks in financing is partially due to the recent development of many Asian economies. Capital markets tend to develop as economies mature, a process commonly referred to as financial deepening.[5] At early stages of financial development, banks are better positioned to mobilize the savings of households and corporations. Bond and stock markets require higher levels of financial infrastructure and trust among parties to be successful. Another factor contributing to the bank-centric nature of Asian financial systems is the prevalence of government-owned banks and banks connected to large business conglomerates. These entities tend to limit bond market development because loans to related-parties—often large, prime borrowers—eliminate the need to seek funding in the capital markets.

In a famous speech given in 1999 after the crisis had subsided, Federal Reserve Chairman Alan Greenspan remarked that "East Asia had no spare tires."[6] The comment referred to the fact that when Asian banks were damaged by the crisis, the region lacked capital markets that could offset the slowdown in bank lending. The intermediation of savings was channeled almost entirely through the banking system. Capital markets were underdeveloped and closely linked to the banking system, making them poorly situated to act as a substitute for bank lending during the crisis.

One of the key factors that froze lending during the Asian financial crisis was the loss of access to overseas funding. Foreign capital flows into Asia encountered a "sudden stop," abruptly switching to large net outflows after years of inflows.[7] Banks faced a sudden deterioration in liquidity as well as a weakening of their own balance sheets, as heavily indebted borrowers began to default in high numbers. Credit conditions for businesses were further worsened by outside policy advice that encouraged Asian economies to significantly raise interest rates to support their currencies. *Figure 2* shows the decline in the growth of bank lending of several of the countries most affected by the crisis. Credit slowed rapidly in these countries, dipping into negative territory for several years and recovering slowly. Underdeveloped bond and equity markets were unable to offset the sharp decline in credit available.

Figure 2 - Bank Credit to the Private Sector Growth (year-on-year)



Source: Bank for International Settlements, author's calculations

The Asian financial crisis also helped to highlight the different degrees of volatility associated with various types of foreign capital flows. Foreign inflows are typically divided into several categories, including foreign direct investment (FDI), portfolio investment into debt and equity securities, and other investment such as bank loans. While portfolio inflows have always been viewed as potentially volatile, inflows via short-term bank loans were also revealed to be problematic, contrary to common belief at that time. The pre-crisis strategy of many Asian economies – of intermediating foreign inflows via the domestic banking system – proved to be susceptible to the same sort of capital flight that had affected bond and equity markets in previous emerging markets crises.

II. Financial Reforms after the Crisis

Following the Asian financial crisis, countries across the region underwent significant financial reforms. Many of these changes were focused on immediate fixes such as strengthening the regulation of banks and non-bank financial institutions and enacting tighter controls over borrowing by corporations. Other reforms aimed to address long-standing structural issues present in Asian financial systems. Many countries changed their exchange rate regimes, relaxing their tight link to the dollar. Across the region, there was a broad consensus that Asian countries needed to promote the development of local currency bond markets in order to allay many of the vulnerabilities stemming from an overly bank-dominated financial system and reliance upon foreign capital inflows.

Creating robust local currency bond markets was deemed to have two beneficial effects. First, the growth of bond markets would reduce the reliance on banks for financial intermediation, providing a much-needed “spare tire” during periods of financial instability. Second, promoting local currency bond market development, as opposed to foreign currency borrowing, would reduce the impact of shifting exchange rates on the real debt burden facing domestic borrowers.

To promote the development of local currency bond markets, policymakers undertook efforts at both the multilateral and national levels. One of the key multilateral efforts was the Asian Bond Markets Initiative (ABMI), spearheaded by the Asian Development Bank and the ASEAN+3 Group of nations.[8] Launched in 2002, the ABMI aimed at strengthening Asian financial systems by developing local currency bond markets as an alternative to short-term, foreign currency bank loans. The ABMI took steps to expand cross-border coordination for bond transactions, helped Asian countries develop plans to improve their own domestic market infrastructure and regulatory frameworks, and made information on Asian bond markets available to the public.

In addition to the ABMI, multilateral groups in Asia have established several funds to bolster the growth of local currency bond markets. The Executives’ Meeting of East Asia Pacific Central Banks (EMEAP) launched the Asian Bond Fund Initiative, which created two bond funds to support the development of local currency bonds. The first fund, the Asian Bond Fund 1 (ABF1), was established in 2003 and invests in U.S. dollar bonds sovereign and quasi-sovereign issuers in Asia. The second fund, the Asian Bond Fund 2 (ABFI2), was established in 2005 and invests in local currency bonds in Asian countries. The Credit Guarantee and Investment Facility (CGIF) was established in 2010 to provide credit enhancement for Asian firms seeking to issue local currency bonds and long maturity bonds. Also in 2010, the ASEAN+3 Bond Market Forum (ABMF) was established to promote standardization of market practices and regulatory harmonization for cross-border bond transactions in the region. In 2013, the Cross-Border Settlement Infrastructure Forum (CSIF) was established to improve the process of cross-border settlement in the region.[9]

In addition to multilateral initiatives, Asian countries took steps at the national level to bolster their bond markets. Following the crisis, Thailand formed an interagency Domestic Bond Market Development Committee in 1998 to guide the development of the country’s bond markets. The Thai government subsequently issued a Domestic Bond Market Development Plan (2000-2004), a follow-up plan stretching from 2005-2014, and the Capital Market Development Master Plan in 2009.[10] In 1998, the Korean government announced the Government Bond Market Stimulus Plan that established several critical

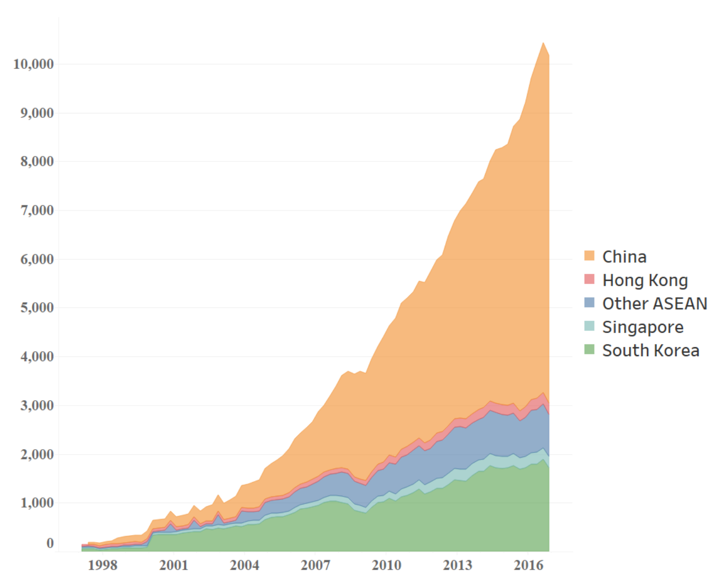
FEDERAL RESERVE BANK
OF SAN FRANCISCO

pieces of bond market infrastructure, including a primary dealer system and government bond futures.[11] In 1999, Malaysia established the National Bond Market Committee, composed of the country's senior financial officials, to promote the development of the national bond market.[12] China passed the Securities Law in 1998, which set forth the rules for the development of the corporate bond and stock exchanges. In the years following the crisis, the People's Bank of China also took steps to expand the participants in the interbank market, allowing both non-bank financial institutions and non-financial institutions to join. In subsequent years, the State Council began actively promoting the development of direct finance (bond and stock markets) as a way to improve financing conditions for companies.

III. Growth of Local Currency Bond Markets

Asian bond markets have developed quickly since the Asian financial crisis, driven in part by the regional and government initiatives outlined above. As shown in *Figure 3*, Asia's local currency bond markets have grown tremendously and are now more than 16 times larger than they were immediately after the crisis. As the chart makes clear, much of the growth can be attributed to China and South Korea. However, even the bond markets of the ASEAN countries, small in terms of the regional comparison, have increased rapidly since the early 2000s. The local currency bond markets of Asia are on track to soon surpass those of Japan, a significant milestone for the region.

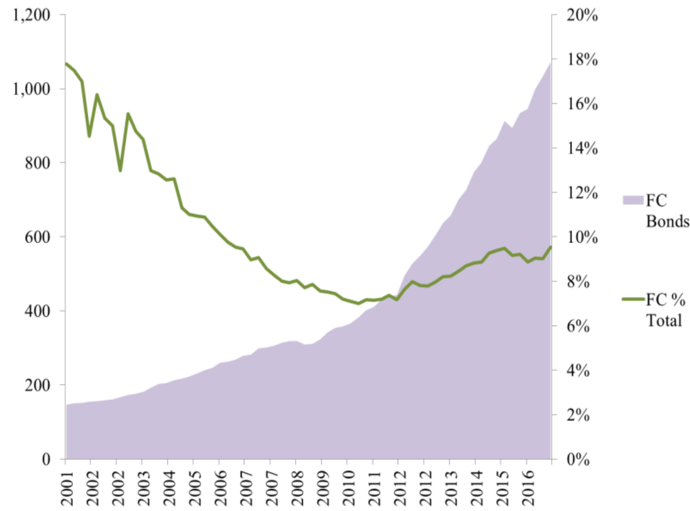
Figure 3 – Local Currency Bond Market Growth (USD BN)



Source: Asian Development Bank

The growth of foreign currency bond markets has also been impressive, though it has lagged behind the expansion of local currency bonds. *Figure 4* shows the growth of the foreign currency bond market in Asia since the early 2000s. Although the market has increased by more than a factor of seven over this period, the share of the Asian bond market occupied by foreign currency bonds has fallen considerably, a testament to the strong growth of local currency bonds.

Figure 4 – Foreign Currency Bond Market Growth (USD BN)

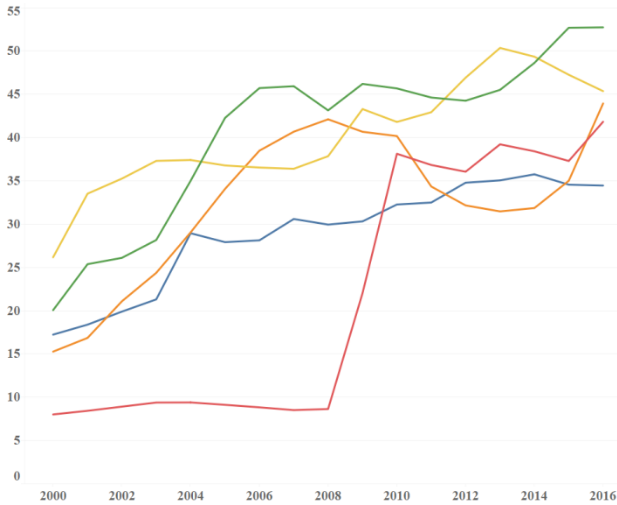


Source: Asian Development Bank, author's calculations

Uneven Development

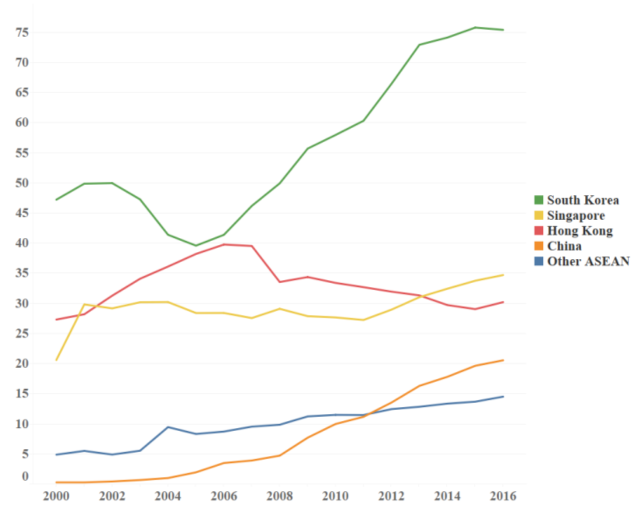
Although Asia's local currency bond markets have grown rapidly, the progress has not been uniform across the region. Additionally, a clear distinction can be drawn between government bond markets and corporate bond markets. While the growth of local currency government bond markets has been considerable and widespread among economies in the region, corporate bond market development has been more mixed. The headline growth numbers for both government and corporate bond markets are considerable. *Figure 5* shows government bonds as a percent of GDP for several regional economies. Not only have local currency government bond markets shown steady growth since the Asian financial crisis, but the growth has also been widespread, with most regional economies reporting a steady expansion over the past two decades.

Figure 5 - Local Currency Government Bonds (% GDP)



Source: Asian Development Bank

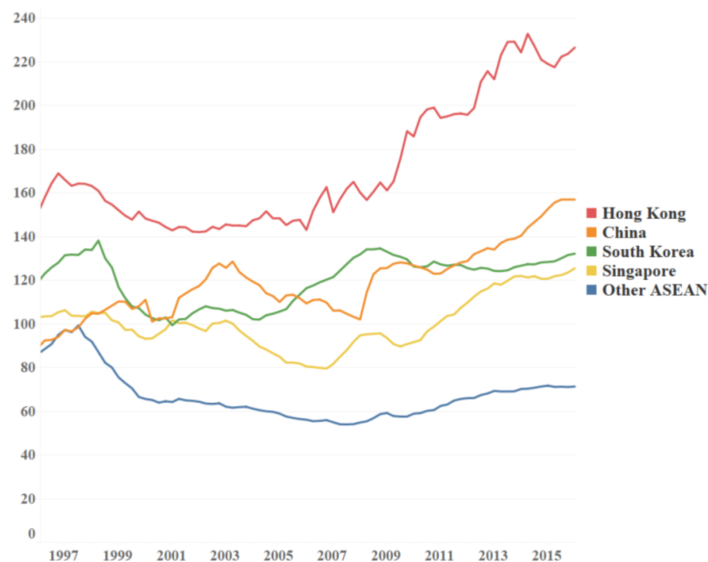
Figure 6 - Local Currency Corporate Bonds (% GDP)



Source: Asian Development Bank

The development of corporate bond markets contrasts sharply with that of government bonds. *Figure 6* shows local currency corporate bond markets relative to GDP for economies throughout the region. Certain markets, such as South Korea, have seen impressive growth and now boast large and well-developed corporate bond markets. Other markets, such as Hong Kong, Singapore, and the other ASEAN countries have seen more modest progress, with some markets on a flat or declining trend relative to GDP. The corporate bond market in China has grown rapidly since 2008, following efforts to stimulate credit growth after the global financial crisis. Still, corporate bond issuance in China is dominated by state-owned entities and most of the bonds are purchased and held by state-owned financial institutions. In this respect, the Chinese corporate bond market does not yet function as an independent source of financing that is separate from the banking sector.

Figure 7 - Bank Credit to the Private Sector (% GDP)



Source: Bank for International Settlements

A useful benchmark of the importance of the corporate bond market is to compare it to the amount of credit provided by banks. *Figure 7* shows bank credit to the private sector after the Asian financial crisis. In comparison to the corporate bond market, bank funding to the economy remains significantly larger in each economy. In several economies, the ratio of the corporate bond market to the banking sector has plateaued or even declined since the mid-2000s.

Unreliable Spare Tire

Despite their tremendous growth, whether Asian bond markets are acting as a buffer for financial stability in the region is still unclear. During the 2008 financial crisis and the 2013 Taper Tantrum, Asian bond markets saw a spike in yields and a fall in trading volumes. During both events, the yield volatility lasted longer in the less developed Asian economies. Even the more developed bond markets in the region saw much higher levels of volatility compared to Japan, indicating that they still lack the safe harbor status of that country. However, the volatility soon subsided without inflicting lasting economic damage on the region.

Evidence shows that economies with more developed local currency bond markets fared better during the Taper Tantrum. A study by the Asian Development Bank examined the growth of local currency bond markets between the global financial crisis in 2008 and that event.[13] It found that countries that experienced faster growth of their local currency bond market during this period suffered less currency depreciation during the Taper Tantrum, a metric often used as a proxy for financial stability.

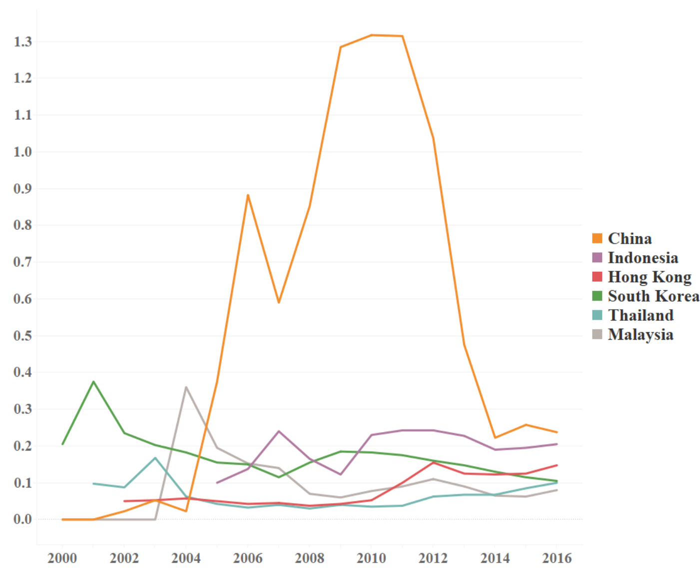
One area where local currency bond markets largely appear to be serving their function is government financing. The growth of local currency government bond markets has created an environment where many Asian governments are able to satisfy their financing needs by borrowing in local currency. Even riskier sovereign borrowers are able to borrow at relatively moderate spreads compared to the strongest regional borrowers. Asia has made significant progress towards creating large and robust local currency government bond markets that reduce reliance on foreign currency debt.

For Asian corporate bond markets, the level of progress is less clear. During the global financial crisis, many large Asian corporations shifted issuance away from global to local currency bond markets and were able to raise significant amounts of funds domestically.[14] This represents progress towards creating alternative financing channels for Asian corporations. Yet, the overall growth of many Asian local currency corporate bond markets has been flat relative to GDP, and markets across the region exhibit a host of different problems, namely a lack of diversity in terms of issuers and purchasers and limited amounts of liquidity.

In many other Asian markets, bond issuance is dominated by government-affiliated enterprises or large conglomerates, with limited participation by smaller firms. In China, which is Asia's largest corporate bond market, state-owned enterprises issued an estimated 84 percent of corporate bonds in 2015.[15] In many Asian bond markets, the distribution of credit ratings is skewed towards highly-rated issuers compared to other emerging markets and advanced economy bond markets.[16] The proportion of highly-rated borrowers, AAA to AA, is in excess of 80 percent in many markets. The lack of borrower diversity is driven by institutional and regulatory barriers that make it difficult for less well-established firms to issue bonds. Implicit government support is another factor that skews the distribution of local bond ratings, improving the perceived creditworthiness of state-owned enterprises and other politically connected companies.

Liquidity also remains a significant issue for many Asian bond markets. Local currency corporate bonds are significantly less liquid than government bonds. The development of secondary markets has been hindered by buy-and-hold investors, often banks or other financial institutions. Liquidity is highly skewed towards large issuers, particularly those that are highly rated.[17] Although overall trading volume has increased over time, it has only kept pace with the overall growth of the bond market. As a result, as *Figure 8* shows, the turnover ratio for Asian corporate bond markets has largely been flat over the past decade and has actually declined in recent years in some markets such as China. The relative underdevelopment of hedging instruments and repo markets, which help facilitate market makers, remains a barrier to improving corporate bond liquidity in many Asian economies.

Figure 8 – Corporate Bond Market Turnover Ratio



Source: Asian Development Bank

Asia has seen rapid growth of both local currency government and corporate bond markets. For government bonds, the development of local currency bonds appears to have fulfilled the original goal set forth by Asian policymakers after the crisis. Local currency government bond markets are large, relatively well-distributed, and act as an effective financing vehicle for government borrowing. On the corporate side, market deficiencies continue to hold back these markets from serving as robust and efficient sources of financing. Even with these limitations, Asian economies have not experienced disruptions on the scale of the Asian financial crisis, despite the global financial crisis and the turbulent years that followed.

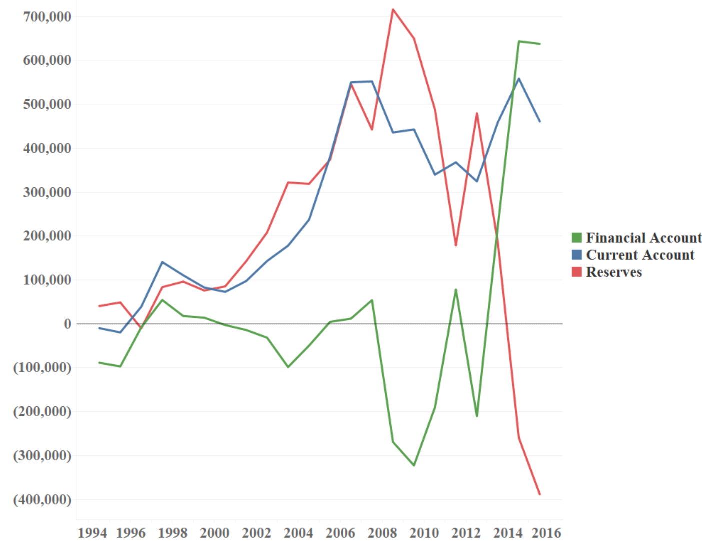
IV. Asia's Creditors and Debtors

While the development of local currency bond markets may have prevented some financial volatility faced by Asian economies, it may not be the most important development in this regard. Instead, Asia's strengthening external financial position relative to the rest of the world has provided the region with large buffers against financial turbulence and done much to reduce the need for foreign financing. Many of Asia's largest bond markets now overwhelmingly serve as a channel for domestic savings rather than a mechanism to reduce the risk of foreign inflows.

Prior to the Asian financial crisis, many Asian economies ran large current account deficits, relied upon foreign borrowing, and had relatively small stockpiles of foreign exchange reserves. In the years following the crisis, this situation changed dramatically. Economies across the region produced large trade surpluses and began rapidly accumulating foreign exchange reserves. *Figure 9* shows balance of payment flows for the region as a whole. The massive increase in current account surpluses can be seen clearly during the mid-2000s as well as the growth of foreign exchange reserves. Correspondingly, Asia as a whole began exporting capital and the region emerged as a large net creditor to the rest of the world.

FEDERAL RESERVE BANK
OF SAN FRANCISCO

Figure 9 - Asia Balance of Payments Flows (USD MN)



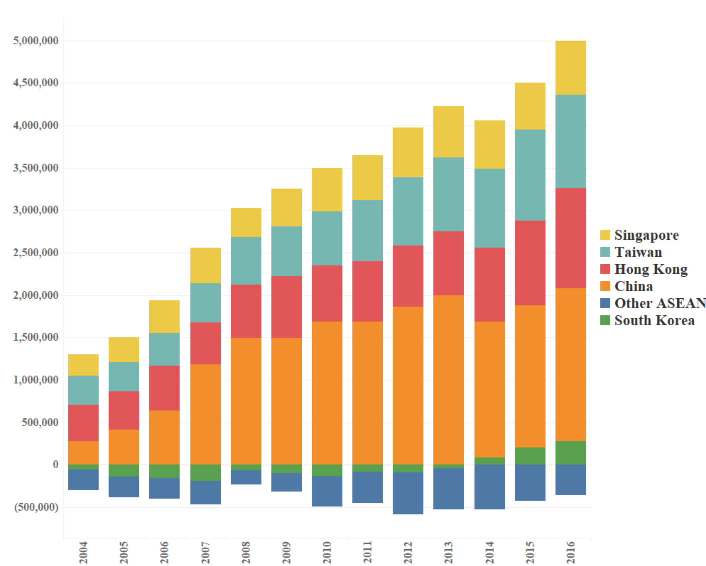
Source: International Monetary Fund, author's calculations

With these large external buffers, Asia has dramatically reduced the persistent problem of reliance on foreign funding. As a whole, the region is much less reliant on outside capital to fund its development. Hot money foreign inflows and outflows in the region remain large and volatile, but these flows lack the potency of the 1990s. Foreign financing has simply become less important to many Asian economies. This has contributed to the region's ability to bounce back quickly from the various economic shocks of the past two decades.

Whether this financial transformation emerged naturally or as the result of policy design is a matter of intense controversy. As economies develop and financial markets become deeper, it typically follows that reliance on foreign funding diminishes. However, critics have alleged that Asian policymakers have artificially increased the trade surpluses of their economies via exchange rate interference, holding down the value of their domestic currency relative the U.S. dollar in order to make exports more competitive. Other protectionist policies, such as limits on foreign investment and subsidies for domestic producers, are also cited as artificial contributors to Asia's surpluses. Many economists have highlighted the paradox of relatively poor Asian countries exporting large amounts of capital to wealthy Western countries, a reversal of the typical pattern of economic development.

Importantly, the emergence as a large creditor to the rest of the world has not been uniform throughout the region. As *Figure 10* shows, China, Hong Kong, Taiwan, and Singapore have large net international investment positions, meaning these economies have larger claims on the rest of the world than liabilities. South Korea has typically run a small negative net international investment position, although it switched to a small surplus in recent years. In contrast, the other ASEAN countries as a whole have run a persistent negative balance. Financial volatility for these countries, which were among those most affected by the Asian financial crisis, remains significantly higher than for the Asian economies with positive net international investment positions.

Figure 10 - Net International Investment Position (USD MN)



Source: International Monetary Fund, CEIC

The long-term effects of maintaining large external buffers against financial instability are hotly contested. While having a large positive net international investment position helps ensure resiliency, it can entail significant costs for an economy. Controlling the exchange rate to generate surpluses can lead to a host of economic distortions, by favoring companies in the export sector at the expense of the rest of the economy and suppressing domestic consumption through higher import prices. Policies that have limited the amount of foreign portfolio inflows in Asia may be responsible for some of the inherent problems in regional bond markets. Foreign investors can add much needed diversity to the investor base, something missing in many Asian bond markets. The accumulation of large foreign exchange reserves by many Asian countries has led to new complications. The need to invest these reserves has led Asian central banks to become large players in foreign debt markets and create sovereign wealth funds whose investments often invite scrutiny.

Even large external buffers are not a guaranteed solution to the problem of financial instability. For example, prior to the global finance crisis in 2008, South Korea had nearly a quarter of a trillion dollars in reserves, an amount that exceeded the commonly used rule of thumb for reserve sufficiency. However, these reserves were still insufficient to ward off market pressures after the collapse of Lehman Brothers. South Korea was forced to seek out swap arrangements with foreign central banks to bolster its currency.

China experienced an even more extreme version of this phenomenon. China began to shed foreign exchange reserves in 2014 and 2015 concurrent with a slowdown in the overall economy. The drop in foreign exchange reserves contributed to the deterioration in investor sentiment towards the country and put further pressure on the currency. This was despite the fact that even after the drawdown China still possessed the largest foreign exchange stockpile in the world and far exceeded most metrics for assessing the adequacy of reserves. Market participants had become so accustomed to China's large and growing external position that the reversal of this trend itself became a source of concern. Economies can become locked into maintaining large external buffers for fear that even moderate reductions can trigger adverse

reactions from market participants, who frequently adjust their benchmark for what constitutes an adequate level of reserves.

V. Conclusion

The Asian financial crisis was a profound shock for the region. The region's economies were exposed to a sudden stop in financing as foreign capital exited. At the same time, depreciating local currencies made foreign debts more expensive. In the wake of the crisis, policymakers undertook a series of steps to promote the development of local currency bond markets as a way to establish more stable sources of financing and avoid a reoccurrence of these issues.

By many measures, these efforts were successful. Local currency government bond markets expanded rapidly in the years after the crisis. The growth of corporate bond markets was more mixed, with some markets developing rapidly, while others failed to take off. However, even some of the larger Asian corporate bond markets face significant impediments in terms of issuer diversity and market liquidity.

The region as a whole did move away from reliance on foreign funding via the transformation of many Asian economies to large net creditors. These economies constructed considerable financial buffers, but in the process attracted significant outside criticism and created domestic economic distortions. Additionally, not all Asian economies made this transition. Several of the economies most impacted by the financial crisis remain net debtors, opening up a gap within the region between those reliant on foreign funding and those with large external assets.

Twenty years after the Asian financial crisis, the goal of establishing robust and stable sources of finance for Asian economies remains incomplete. Revitalizing efforts to establish robust and efficient bond markets remains essential for achieving more resilient Asian financial systems.

Endnotes

[1] This article will focus on the emerging East Asian economies of the time, including China, Taiwan, South Korea, Malaysia, Indonesia, Thailand, and the Philippines. Japan is excluded from most analysis in this report, because it was already an advanced economy by the time of the Asian financial crisis and was able to borrow in its own currency.

[2] Sheng, Andrew. *From Asian to Global Financial Crisis: An Asian Regulators View of Unfettered Finance in the 1990s and 2000s*. New York: Cambridge University Press, 2009.

[3] Net foreign assets are defined as the net foreign assets of the monetary authority and depository institutions plus foreign currency assets of non-banks minus foreign currency liabilities of non-banks and international debt securities denominated in foreign currency outstanding. See Goldstein, Morris, and Philip Turner. *Controlling Currency Mismatches in Emerging Markets*. Washington, DC: The Peterson Institute for International Economics, 2004.

[4] Bhattacharyay, Biswa Nath. "Determinants of bond market development in Asia." *Journal of Asian Economics.* 24 (February 2013): 124-37. Accessed October 11, 2017.

[5] Ratna, Sahay, Martin Čihák, and Papa N'Diaye,. "Rethinking Financial Deepening: Stability and Growth in Emerging Markets." IMF Staff Discussion Note. International Monetary Fund. May 2015. Accessed October 18, 2017. https://www.imf.org/external/pubs/ft/sdn/2015/sdn1508.pdf.

[6] Greenspan, Alan. "Do Efficient Financial Markets Mitigate Financial Crises?" Federal Reserve Board. October 1999. Accessed October 11, 2017. https://www.federalreserve.gov/boarddocs/speeches/1999/19991019.htm.

[7] Villafuerte , James, and Josef T. Yap. "Managing Capital Flows In Asia: An Overview Of Key Issues." The Asian Development Bank. ADB Economics Working Paper Series. November 2015. Accessed October 11, 2017. https://www.adb.org/sites/default/files/publication/176836/ewp-464.pdf.

[8] ASEAN+3 consists of the members of the Association of Southeast Asian Nations (ASEAN) as wells as the People's Republic of China, Japan, and the Republic of Korea.

[9] "The Asian Bond Markets Initiative: Policy Maker Achievements and Challenges ." The Asian Development Bank. 2017. Accessed October 11, 2017. https://www.adb.org/sites/default/files/publication/322536/asian-bond-markets-initiative.pdf.

[10] "ASEAN 3 Bond Market Guide 2016: Thailand." The Asian Development Bank. 2016. Accessed October 11, 2017. https://www.adb.org/sites/default/files/publication/198606/asean3-bond-market-guide-2016-tha.pdf.

[11] Developing Bond Markets in APEC: Towards Greater Public-private Sector Regional Partnership: Report of a Joint Conference Organized by the APEC Business Advisory Council, the Asian Development Bank Institute, and the Pacific Economic Cooperation Council, 21-22 June 2005, Tokyo, Japan

[12] Akamatsu, Noritaka, and Kosintr Puongsophol. "Good Practices in Developing Bond Market: With a Focus on Government Bond Market." Asian Development Bank. March 2017. Accessed October 11, 2017. https://asianbondsonline.adb.org/documents/abmi_good_practices_developing_bond_market_draft.pdf.

[13] "Asia Bond Monitor: June 2017." Asian Development Bank. June 2017. Accessed October 11, 2017. https://asianbondsonline.adb.org/documents/abm_jun_2017.pdf?src=spotlight.

[14] Chan, Eric, Michael Chui, Frank Packer, and Eli Remolona. "Local currency bond markets and the Asian Bond Fund 2 Initiative." Bank for International Settlements. 2012. Accessed October 11, 2017. http://www.bis.org/publ/bppdf/bispap63f.pdf.

[15] Lardy, Nicholas. "State Resurgence in China ." The Peterson Institute for International Economics. Edited by Adam Posen and Jiming Ha. June 2017. Accessed October 11, 2017. https://piie.com/system/files/documents/piieb17-1.pdf.

[16] Amstad, Marlene, Steven Kong, Frank Packer, and Eli Remolona. A Spare Tire for Capital Markets: Fostering Corporate Bond Markets in Asia. Bank for International Settlements. June 29, 2016. Accessed October 11, 2017. http://www.bis.org/publ/bppdf/bispap85.htm.

[17] "Asia Bond Monitor: November 2016." Asian Development Bank. November 2016. Accessed October 11, 2017. https://asianbondsonline.adb.org/documents/abm_nov_2016.pdf.