Asian Capital Market Development and Integration

Challenges and Opportunities

Korea Capital
Market Institute

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Foreword

A decade ago, finance ministers from the Association of Southeast Asian Nations (ASEAN), the People's Republic of China, Japan, and the Republic of Korea—a grouping collectively referred to as the "ASEAN+3" countries—met for the purpose of devising ways to avoid a recurrence of the Asian financial crisis. At this meeting, a consensus emerged that it was a lack of well-developed capital markets and domestic financial systems within the region that allowed the Asian financial crisis to occur. As a result, the best way to avoid a recurrence of the crisis would be to accelerate development of the region's capital markets and financial systems. Conversely, as long as Asian economies continued to rely on short-term foreign-currency-denominated debt to finance long-term domestic investment, the region would remain vulnerable to future financial shocks, including those that originated both within the region and beyond.

Since bond markets are key vehicles for channeling investible funds into domestic investments, the meeting acknowledged the central role of well-functioning bond markets in both avoiding and containing future financial crises. More specifically, the meeting agreed that efficient, liquid domestic bond markets would facilitate channeling of the region's excess savings into regional investments rather than into investments outside the region, thereby reducing Asia's vulnerability to financial shocks. A major output of the meeting was thus an agenda for developing domestic bond markets within the region, the first concrete step in implementing this agenda being the Asian Bond Markets Initiative.

During the 10 years since that initial meeting, Asia's capital markets have developed considerably. Indeed, the total capitalization of the region's bond markets has expanded at a rate three times that of the advanced economies. Further, intra-regional capital flows have increased dramatically over the same period. For example, while inflows into the region's capital markets originating from within the ASEAN+3 economies comprised only 14% of total inflows into the region in 2003, they now account for nearly a third of all of such inflows.

This relatively rapid development of the region's bond markets is welcome for a number of reasons. First, sustaining the ongoing rapid expansion of the ASEAN+3 economies will require substantial investment in infrastructure—

physical infrastructure in particular. According to recent studies performed by Asian Development Bank, the region's annual infrastructure financing requirements over the period 2010–2020 will on the order of $750 billion a year. The role of the region's capital markets in meeting such massive investment requirements is thus critical, particularly in light of the impressive savings and current account surpluses that numerous Asian economies have accumulated over the past decade.

Second, the global financial crisis of 2008 attuned policymakers to the necessity of further developing the region's capital markets. While the global financial crisis originated outside Asia, the systemic risk it precipitated impacted financial markets throughout the region, though fortunately, most Asian economies weathered the crisis fairly well. Nevertheless, the global crisis made policymakers keenly aware of the necessity of deepening domestic capital markets as a means of insulating Asian economies from the impacts of future crises. The mechanism by which such insulation occurs is that deepening the region's domestic capital markets facilitates borrowing denominated in domestic rather than foreign currency, as well as borrowing at longer maturities than would otherwise be possible. This in turn decreases the dependence of the domestic economy on loans denominated in foreign currency, thereby insulating it from the damaging impacts of financial crises.

As Asia's capital markets continue to develop, it is inevitable that they will become more interconnected with the global market. This will in turn increase their vulnerability to financial shocks that originate outside the region. Prior to the global financial crisis, few of the region's policymakers were aware of the degree of systemic risk posed by "toxic assets" such as the mortgage-backed securities that originated in the United States, or for that matter, their impact on capital markets in regions outside North America. However, their experience with the Asian financial crisis had demonstrated to them the speed with which non-performing assets in one sector could engulf an entire banking system, then an entire economy, then an entire region, and ultimately, the global economy.

As a result of this experience with the Asian financial crisis, many of the region's policymakers had already begun to view distressed financial assets from a systemic perspective. This in turn made them aware of the importance of the financial safety-net aspects of well-developed domestic and regional capital markets. These policymakers were similarly aware of the risks posed by Asian economies continuing to rely on bank credit for meeting their domestic financing requirements. As a result, policymakers within the region were keen on developing stable, resilient economies as a primary defense against the negative impacts of future financial crises.

This book is a companion publication to "The Dynamics of Asian Financial Integration: Facts and Analytics" (Routledge, February 2011). This latter work assesses the degree of regional and global financial integration achieved thus far in Asia, as well as the factors that drive such integration. In sum, this work found that capital market integration is an important feature of developing stable, efficient, and liquid financial systems, since it (i) facilitates product and service innovation, (ii) lowers the price of financial services through increased competition, (iii) facilitates cross-border capital flows because it encourages harmonization of financial-sector regulations and performance standards, and (iv) increases the degree of efficiency with which the region's savings can be channeled into investments within the region.

Such findings suggest that maximizing the gains from financial integration requires appropriate strategies for continuing the process of financial deregulation, and for further integrating the region's financial markets. To support development of such strategies, this book explores the path that capital market development has taken in the period following the global financial crisis, particularly with regard to Asian currency, bond, and equities markets. It also emphasizes the safety-net and macroprudential aspects of capital market development.

The present publication grew out of formal collaboration between Asian Development Bank and Korea Capital Market Institute regarding the preparation, publication, and dissemination of "a book that will discuss issues relating to the development and integration of Asia's capital markets...", this collaboration being memorialized in an agreement jointly signed on 8 September 2011.

The authors of the chapters that comprise the book met twice to present their ideas to one another and to discuss each other's drafts, with officials from Asian Development Bank, Korea Capital Market Institute, and the Peterson Institute for International Economics likewise attending. The first of these meetings was convened in April 2012 at the Peterson Institute for International Economics in Washington, DC, while the second meeting took place in October 2012 in Seoul. Following these two meetings, the draft chapters were revised, and then underwent further review and editing by experts in financial integration.

The tripartite collaboration referred to above complements a relatively recent focus of Asian Development Bank, which is to provide its developing member countries with assistance that has come to be known as "Finance++". Such assistance employs a combination of the financial resources of Asian

Development Bank and those of other donor organizations, along with technical knowledge for assisting Asian developing countries in accelerating development of their respective financial sectors to the greatest extent possible. A major contribution of this book is thus its addition to such technical knowledge. In this regard, we are confident that the present publication is a worthwhile addition to the body of knowledge pertaining to development of the financial sector overall.

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CHAPTER 2
Capital Markets as Financial Safety Nets[1]

Iwan J. Azis

Introduction

Financial crises stem from vulnerabilities and spread through one or more channels. But there is no assurance that these do not change or evolve over time. In fact, future financial crises can come from completely new or unforeseen vulnerabilities—or transmitted through as yet unknown channels. So these fuses lurk in the background until they are lit—and a crisis ignites (Acemoglu, 2009). In the end, what ultimately drives financial market behavior can never be defined with certainty—either the events themselves or how investors and markets react.

Financial safety nets are designed to minimize—or at least dampen—the damage caused by future financial crises. But with the uncertainty of what ignites a crisis or how it spreads, whether any safety net is big enough or can be activated soon enough is just as uncertain. No matter how well prepared, no country or region is immune. Asia is no exception; neither is ASEAN+3.[2]

ASEAN+3 has a financial safety net—the $240 billion Chiang Mai Initiative Multilateralization (CMIM). However, it is far from adequate given its inconsistencies and limited deployable resources in case of future crises (Azis, 2012). Nonetheless, substantial foreign-exchange reserves (much of it accumulated since the 1997/98 Asian financial crisis) and the existence of many bilateral swap agreements could provide sufficient liquidity in a future credit crunch. In short, a regional safety net should complement—not substitute for—prudent domestic financial policy.

In Asia, largely dependent on bank financing, financial contagion can occur when the flow of bank credit is disrupted.[3] Furthermore, financial openness—which allows banks to obtain outside funding (much of it wholesale and short-term)—can lead to volatile and procyclical credit flows. They tend to expand rapidly in good times and contract during economic downturns (Azis, 2013; Forbes and Warnock, 2012; CIEPR, 2012; and Bruno and Shin, 2012). The recent deleveraging by European creditors is a prime example of this volatility and procyclicality, as it constrained the ability of banks to provide long-term financing. Thus, relying on banks to act as a domestic safety net during periods of financial turmoil is extremely risky.

Our main argument is that strengthening Asia's regional capital market would provide a far more robust collective financial safety net. Excessive reliance on the region's banking subsector is not only risky, but in fact makes it more difficult to establish effective domestic safety nets.

This chapter first summarizes current growth trends in Asia's capital markets and in cross-border bond holdings, and evaluates the position of the region's capital markets relative to those of other groups of emerging economies. Then we discuss how bond markets provide an additional financial safety net for the region. The chapter concludes with some policy recommendations regarding regional financial safety nets. While the chapter occasionally refers to "Asia," most of the examples provided refer to ASEAN+3.

Current Growth Trends in Asia's Regional Capital Market

Asia's capital market has grown steadily since the 1997/98 Asian financial crisis. Major capital market reforms supported this growth, particularly in ASEAN's five largest economies (ASEAN-5).[4] For example, the Singapore Exchange opened in December 1999, a year later becoming the first publicly-held stock exchange in Asia and the Pacific. The Philippine Stock Exchange became a stock corporation in 2001, and was listed in 2003. In 2007, Indonesia's Jakarta and Surabaya stock exchanges merged. In Malaysia, capital controls were gradually lifted over the past decade, including controls on nonresident holdings of Malaysian securities. In Thailand, two capital market development plans were implemented—in 2002 for improving institutions and attracting more investors and issuers and in 2006 for corporate bond market development. As a result, market capitalization rose from a 1997

crisis low to a peak in 2007. While regional market capitalization dipped at the start of the 2008/09 global financial crisis, it quickly recovered in 2009.

Similar reforms were implemented in Asian countries outside ASEAN-5 over the past two decades. In 1992, India opened its capital markets to foreign institutional investors, giving local corporations access to a wider range of securities. External commercial borrowings and foreign-exchange-denominated bonds could now be used for both financing and risk management. Both deregulation and innovation in India's securities and debt markets led to a large increase in the number of market participants, transaction volumes, and market capitalization. Meanwhile, in 1993, the move toward a market-based exchange rate regime—including both current and capital account convertibility—greatly benefited the foreign-exchange market. Still, the pace of development has varied greatly across the various segments of India's capital market. In particular, equity market growth overshadowed all other market segments, particularly those with significant public sector presence.[5]

Similar to India's own capital market development, progress varies greatly across the region. For example, capital markets in Japan and the Republic of Korea have become relatively advanced, while the People's Republic of China (PRC) market continues to grow steadily. At the other end of the spectrum, markets in some of the region's smaller economies remain in their infancy, with some only now beginning to grow. For example, the Lao Securities Exchange began trading with just two listed companies in January 2011, and the Cambodia Stock Exchange opened in July 2011 after several years' delay.

Nonetheless, the reforms undertaken in nearly all Asian countries have led to larger overall market size. Market capitalization of the Viet Nam stock exchange, for example, reached 44% of gross domestic product (GDP) in 2007 when the Ho Chi Minh Stock Exchange replaced the Ho Chi Minh Securities Trading Center. While total capitalization fell during the global financial crisis, it recovered in 2009.

Compared with equity markets, the region's bond markets have provided pivotal financial safety nets during economic downturns—as bond markets generate economic stimulus during financial crises, regardless of whether derived from domestic or external financial shocks.

When the 1997/98 Asian financial crisis struck, the region's bond markets (and banks) faced simultaneous currency and maturity mismatches, so

depreciation and payment schedules exacerbated the crisis. To avoid a repeat and develop a regional bond market, ASEAN+3 established the Asian Bond Markets Initiative (ABMI) in 2002. It has contributed to steady growth in the region's domestic bond markets, particularly in corporate bonds, and more recently accelerated cross-border bond holdings, although much slower than in domestic bonds.

Asia's Bond Markets

Growth in several domestic bond markets has been dramatic. Indeed, some have grown from virtually zero prior to the Asian financial crisis to a level that allows investors to reduce their reliance on banks as a source of finance. Significantly, over the past few years, growth in corporate bond issues outstripped growth in government bonds.[6] In fact, the value of corporate bond issues in the PRC, the Republic of Korea, and Malaysia exceeded $100 billion, considered the threshold by the Bank for International Settlements for "deep and liquid markets."[7] In this regard, Malaysia's corporate bond holdings have made it the top bond holder among the ASEAN-5 economies. Further, its bond market is relatively more diversified than other ASEAN-5 markets, as it includes Islamic bonds (*sukuk*) alongside traditional bonds. Malaysia's cross-border investments have likewise grown from foreign-exchange market deregulation during the mid-2000s.

Similarly, Singapore's market benefited from early technological reforms that used an internet tendering system to lower information and transaction costs. In 2007, it launched its first 20-year government bonds. And in 2009, its first Islamic bond went to market. Thailand implemented its second capital market development plan in 2006, and in 2009 began offering sukuk. In Indonesia, the state budget was partially financed through the domestic bond market. Islamic bonds have played a significant role in of the country's capital market development, particularly with passage of the Islamic Shari'a Debt Bill in 2008. The Philippine bond market is also growing rapidly, in part because it is the only country in the region that issues *global bonds*—25-year peso-denominated bonds redeemable in US dollars. Global bond issuance has allowed the government to lengthen its overall debt maturity while reducing exposure to foreign-exchange risk.

The PRC bond market has grown rapidly in recent years as well, although corporate bond issuance remains relatively limited. Nonetheless, the recent introduction of offshore yuan deposit accounts should stimulate yuan-denominated corporate bond issuance. Financial-sector bond issues have

dominated the nongovernment bond market in recent years. But this is slowly changing, with nonfinancial sector bond issuance beginning to grow as well.

Relative to equity markets, the bond market in Hong Kong, China remains relatively small, even after corporate bonds, convertible bonds, and Exchange Fund Bills (EFBs) were allowed to be traded on the Hong Kong Stock Exchange (HKEx). The EFBs—the bulk of government bond issues—are used primarily for monetary policy. In the wake of the global financial crisis, enough EFBs were issued to surpass corporate bonds outstanding by March 2010.[8]

In the smaller economies, Brunei Darussalam entered the international market with a $250 million syndicated loan in 2002 and, since its first offering in 2006, the government now regularly issues sukuk. In Viet Nam, the ratio of domestic-currency bond market capitalization to GDP has increased steadily since 2000, with the only exception in 2009, when total capitalization decreased slightly following the global financial crisis. Similarly, the Lao PDR regularly issues treasury bills to finance the country's budget deficit, as well as arrears-clearance bonds, which helps clear government debt from the books of state-owned enterprises.[9]

Cross-Border Equity Investment Flows in Asia

Between 2001 and 2011, the intraregional equity transactions of Asians grew from $38 billion to $382 billion—or from 10.5% to 22.0% of their total investments globally (Tables 1 and 2). By comparison, the share of US investments in Asia to investments worldwide grew from 17.9% to 20.4% over the same period.[10] Within the region, investors from the more mature markets of Hong Kong, China; Japan; and Singapore showed the greatest interest in investing within the region. For example, almost half of Singapore-based investors held bonds issued within Asia.

In fact, only a handful of Asian countries accounted for the bulk of intraregional investment in absolute terms. Japanese investor holdings in Hong Kong, China and the PRC, and Malaysian holdings in Singapore stand out. Still, while large in absolute terms, Japanese intraregional investment was a mere 6.9% of the 2011 total, the second lowest percentage share behind Indonesia (4.1%). Interestingly, over 2001–2011, Asian investors found India's market attractive, increasing their exposure from $250 million in 2001 to nearly $22 billion by the end of 2011. In particular, Singapore investors found the market attractive (Table 2).

Table 1 Cross-Border Equity Investment in Asia by Investors in Various Economies, as of End-2001
($ millions)

	Investment from:										end-2001		
Investment	**Hong Kong, China**	**India**	**Indonesia**	**Japan**	**Korea, Republic of**	**Malaysia**	**Philippines**	**Singapore**	**Thailand**	**Total Asia**	**United States**	**EU-15**	**Total value of investment**
China, People's Republic of	5,449	...	–	789	15	8	...	1,044	4	7,310	2,370	3,083	13,307
Hong Kong, China	...	...	11	4,848	100	47	...	3,084	6	8,097	30,154	34,368	79,827
India	...	...	–	31	–	1	...	238	–	270	6,897	5,492	13,396
Indonesia	...	...	...	50	13	44	...	310	15	431	1,526	1,164	3,593
Japan	2,145	...	2	–	101	7	–	1,760	1	4,017	170,714	125,796	332,562
Korea, Republic of	1,311	...	–	381	–	8	...	1,107	–	2,808	29,537	15,406	51,942
Malaysia	604	...	...	339	124	...	...	4,670	–	5,737	2,578	3,168	12,257
Philippines	60	...	...	213	3	61	...	422	1	760	1,344	579	3,449
Singapore	1,403	...	2	924	1	461	2	...	8	2,801	21,376	9,223	36,185
Taipei,China	1,486	...	–	394	–	6	...	1,006	1	2,893	19,607	13,609	39,042
Thailand	488	...	–	290	20	15	1	1,527	–	2,340	1,916	3,088	7,797
Viet Nam	...	...	...	1	6	10	...	25	3	46	–	13	85
Total Asia (A)	**12,946**	**–**	**16**	**8,260**	**385**	**668**	**4**	**15,193**	**39**	**37,510**	**288,019**	**214,988**	**593,443**
Total value of investment (B)	**94,615**	**–**	**17**	**227,343**	**1,300**	**1,332**	**111**	**33,617**	**82**	**358,416**	**1,612,667**	**2,447,492**	**5,198,729**
Ratio of A to B	**13.7**	**–**	**95.3**	**3.6**	**29.6**	**50.1**	**3.2**	**45.2**	**47.6**	**10.5**	**17.9**	**8.8**	**11.4**

Notes:
The data are derived from the creditor side for both assets and liabilities. Figures may have changed from previous report.
– Indicates a zero value or a value less than $500,000.
.... Indicates an unavailable datum.
Source: Author's calculation based on data from IMF's Coordinated Portfolio Investments Survey (CPIS) as of 15 November 2012.

Table 2 Cross-Border Equity Investment in Asia by Investors in Various Economies, as of End-2011
($ millions)

Investment from: **end-2011**

Investment	Hong Kong, China	India	Indonesia	Japan	Korea, Republic of	Malaysia	Philippines	Singapore	Thailand	Total Asia	United States	EU-15	Total value of investment
China, People's Republic of	112,075	–	13	10,113	6,662	388	1	58,822	190	188,263	74,727	89,008	372,514
Hong Kong, China	–	69	17	12,448	4,830	1,870	1	11,005	222	30,462	112,274	82,721	247,218
India	383	...	1	3,528	1,572	37	–	16,298	23	21,842	55,056	45,348	196,004
Indonesia	–	41	...	3,389	402	679	–	6,152	36	10,700	27,168	22,690	63,377
Japan	5,067	18	–	...	4,122	376	...	30,339	14	39,936	391,341	211,163	724,880
Korea, Republic of	1,160	25	3	4,685	–	355	2	21,080	1	27,311	116,656	80,739	241,652
Malaysia	775	...	–	1,678	275	...	–	11,539	8	14,275	20,763	18,078	56,957
Philippines	160	1	–	267	109	20	...	1,716	2	2,275	9,264	5,786	17,991
Singapore	3,432	19	–	6,774	689	7,860	13	...	410	19,198	47,987	31,471	109,877
Taipei,China	2,571	15	2	2,431	697	412	–	13,371	–	19,500	71,800	51,008	150,843
Thailand	667	58	2	1,516	312	326	1	4,938	–	7,819	21,293	22,353	54,427
Viet Nam	–	...	–	106	247	16	–	336	9	713	687	703	2,148
Total Asia (A)	**126,291**	**245**	**39**	**46,935**	**19,916**	**12,340**	**18**	**175,597**	**913**	**382,295**	**949,016**	**661,068**	**2,237,888**
Total value of investment (B)	**581,742**	**1,057**	**947**	**678,481**	**86,697**	**25,050**	**19**	**399,947**	**4,753**	**1,778,693**	**4,646,908**	**6,621,423**	**15,712,644**
Ratio of A to B	**21.7**	**...**	**4.1**	**6.9**	**23.0**	**49.3**	**91.2**	**43.9**	**19.2**	**21.5**	**20.4**	**10.0**	**14.2**

Notes:
The data are derived from the creditor side for both assets and liabilities. Figures may have changed from previous report.
– Indicates a zero value or a value less than $500,000.
.... Indicates an unavailable datum.
Source: Author's calculation based on data from IMF's CPIS as of 15 November 2012.

During 2001–2011, intraregional debt holdings by Asian investors grew from $53 billion to $324 billion, or from 4.2% to 9.4% of the total. Of this, short-term debt instruments were more popular than long-term debt.[11] Over the same period, Japanese investors' share of intraregional debt investments to the total remained 1.3%. In contrast, the share of investors from the Republic of Korea fell from 21.1% to 7.1% (Tables 3 and 4). But investors from Thailand bought more cross-border Asian debt, their share rising from 29.2% to 55.4% over the period.

In 2011, the share of debt investments in the region compared with total investment holdings of US and EU-15 investors was below the corresponding share for equity investments. Nevertheless, the absolute magnitude of total investment in Asia by both US and EU-15 investors far exceeded that of regional investors. By the end of 2011, total investment in Asian equity markets by US and EU-15 investors nearly reached $1 trillion and $0.7 trillion, respectively. Asian investors accounted for $382 billion. In debt markets, US investors held $190 billion and EU-15 investors held $434 billion, as opposed to $324 billion held by Asian investors. Given the significant size of investment holdings in the region by EU-15 investors, deleveraging during the Eurozone financial crisis created a shock in several local-currency bond markets, particularly Indonesia.

Finally, most cross-border debt investment within the region is long-term, with Hong Kong, China; Japan; and Singapore investors dominating. For short-term debt, Singapore and Thailand investments in the Republic of Korea dominate. In general, non-Asian investors also hold more long-term than short-term debt.

Asia's Capital Markets as Financial Safety Nets

Size matters, particularly in terms of capital markets acting as safety nets during financial crises. Comparing the size of Asia's collective capital market with other emerging-market groupings tells an interesting story. To do this, we constructed a pooled regression model that includes a regional dummy variable. The sample comprised 228 observations from 19 economies, including all ASEAN+3 members, plus India and Hong Kong, China (the "ASEAN+3HI" economies).[12] The model's first three specifications were private credit, stock market capitalization, and private bond market capitalization, using 1998–2009 data (Table 5). This allowed the degree of ASEAN+3HI collective capital market development to be compared with capital market

Table 3 Cross-Border Debt Investment in Asia by Investors in Various Economies, as of End-2001
($ millions)

Investment from: **end-2001**

Investment	Hong Kong, China	India	Indonesia	Japan	Korea, Republic of	Malaysia	Philippines	Singapore	Thailand	Total Asia	United States	EU-15	Total value of investment
China, People's Republic of	2,967	...	...	880	142	...	...	561	–	4,550	634	1,412	7,178
Hong Kong, China	...	...	96	1,268	306	28	25	1,684	119	3,527	1,893	9,717	16,872
India	...	...	...	166	66	6	...	382	–	620	301	834	2,125
Indonesia	...	...	...	108	63	8	3	476	–	657	315	422	1,873
Japan	7,103	...	1	–	75	15	5	7,299	–	14,498	27,125	75,170	208,238
Korea, Republic of	3,789	...	...	5,454	–	3	7	2,659	–	11,911	4,938	7,360	25,397
Malaysia	1,817	...	2	2,200	329	...	9	2,180	–	6,536	1,680	1,733	10,294
Philippines	1,179	...	...	1,347	106	41	...	954	–	3,628	2,671	1,926	9,497
Singapore	1,282	...	38	1,209	151	10	59	...	98	2,847	1,442	8,151	14,508
Taipei,China	609	...	...	82	8	15	13	431	–	1,158	253	677	2,165
Thailand	659	...	...	748	159	21	...	888	–	2,476	782	765	4,265
Viet Nam	...	...	...	30	15	...	...	...	–	45	21	37	106
Total Asia (A)	**19,405**	**--**	**137**	**13,492**	**1,419**	**147**	**121**	**17,514**	**217**	**52,452**	**42,055**	**108,205**	**302,519**
Total value of investment (B)	**110,985**	...	**701**	**1,062,403**	**6,735**	**947**	**2,024**	**78,669**	**743**	**1,263,206**	**690,936**	**3,555,740**	**7,520,680**
Ratio of A to B	**17.5**	**--**	**19.5**	**1.3**	**21.1**	**15.5**	**6.0**	**22.3**	**29.2**	**4.2**	**6.1**	**3.0**	**4.0**

Notes:
The data are derived from the creditor side for both assets and liabilities. Figures may have changed from previous report.
– Indicates a zero value or a value less than $500,000.
.... Indicates an unavailable datum
Source: Author's calculation based on data from IMF's CPIS.

Table 4 Cross-Border Debt Investment in Asia by Investors in Various Economies, as of End-2011
($ millions)

	Investment from:										end-2011		
Investment	**Hong Kong, China**	**India**	**Indonesia**	**Japan**	**Korea, Republic of**	**Malaysia**	**Philippines**	**Singapore**	**Thailand**	**Total Asia**	**United States**	**EU-15**	**Total value of investment**
China, People's Republic of	81,242	...	298	537	232	28	254	3,640	367	86,599	2,072	8,665	103,621
Hong Kong, China	–	...	148	2,065	693	505	168	8,978	1,246	13,804	3,370	9,635	30,630
India	5,528	...	15	1,632	104	299	–	21,805	373	29,756	3,538	17,526	58,803
Indonesia	–	...	–	2,631	85	701	939	12,660	35	17,051	11,944	16,573	48,018
Japan	30,696	17	23	–	745	62	43	24,670	128	56,383	101,115	268,655	691,756
Korea, Republic of	17,535	...	191	17,595	–	1,930	152	25,068	6,710	69,181	29,550	41,165	155,147
Malaysia	6,851	...	40	2,731	243	...	31	10,185	51	20,133	14,964	23,553	59,690
Philippines	621	18	2	2,563	23	245	...	2,746	–	6,217	8,591	9,576	31,252
Singapore	5,188	2	508	5,428	89	2,822	104	...	356	14,498	11,565	23,078	59,381
Taipei,China	1,125	...	2	31	24	–	–	4,201	—	5,382	346	9,002	14,827
Thailand	633	...	12	884	102	165	41	3,334	–	5,171	1,874	5,875	13,301
Viet Nam	–	...	1	35	—	–	–	148	–	184	681	1,028	1,938
Total Asia (A)	**149,420**	**37**	**1,240**	**36,132**	**2,340**	**6,756**	**1,734**	**117,433**	**9,266**	**324,358**	**189,610**	**434,332**	**1,268,365**
Total value of investment (B)	**347,219**	**290**	**7,040**	**2,709,395**	**31,478**	**13,728**	**5,421**	**330,492**	**16,711**	**3,461,774**	**2,314,217**	**11,794,114**	**24,732,900**
Ratio of A to B	**43.0**	**....**	**17.6**	**1.3**	**7.4**	**49.2**	**32.0**	**35.5**	**55.4**	**9.4**	**8.2**	**3.7**	**5.1**

Notes:
The data are derived from the creditor side for both assets and liabilities. Figures may have changed from previous report.
– Indicates a zero value or a value less than $500,000.
.... Indicates an unavailable datum.
Source: Author's calculation based on data from IMF's CPIS.

groupings outside the region. The fourth specification—public bonds issued by the Ministry of Finance—used 1998–2010 data. This specification included a dummy variable for the ASEAN-4 markets—Indonesia, Malaysia, the Philippines, and Thailand. All specifications net out the effects of the Asian financial crisis by means of a dummy variable for 1998.

Table 5 Specifications Used in the Analysis of Asia's Collective Capital Market As Compared to the Capital Market of Other Economy-Groupings

Variable/ coverage	Private credit/ GDP	Stock market capitalization/ GDP	Private bond market capitalization/ GDP	MOF-issued public bonds/ GDP
Period	**1998–2009**	**1998–2009**	**1998–2009**	**1998–2010**
Economies included in the analysis	16 economies; ACI data excludes PRC; non-ACI excludes Chile and Taipei,China	18 economies; non-ACI excludes Chile	18 economies; non-ACI excludes Chile	17 economies; non-ACI excludes Hungary and South Africa
Observations	192	214	208	190

Note: ACI = ASEAN; PRC; India.

As mentioned, the behavior of the four variables—private credit, stock market capitalization, private bond capitalization, and the total value of government (public) bonds—was evaluated during the period after the 1997/98 Asian financial crisis. All four variables were expressed as a ratio to GDP, and calculated by using a deflation method. The independent variables were real per capita GDP (expressed in purchasing power parity terms) in log form, the log of trade openness lagged by 1 period, the 3-year standard deviation of the relevant consumer price index, public and private bond market capitalization/GDP, and a set of institutional factors that capture government effectiveness—regulatory quality, the degree rule of law applies in the country concerned, and control of corruption. The change in the exchange rate over time is also included, as it appears to impact investor decision making when investing in government bonds. Two dummy variables are also included. The first relates to the ASEAN+3HI countries, where capital markets are relatively well-developed. The other denotes when government bond issuance began to accelerate (in some countries, government bonds were not issued prior to the Asian financial crisis).

Table 6 Regression Results: Asia's Stage of Capital Market Development as Compared to the Capital Market of Emerging-Economy Groupings Outside Asia

Variable	Expected sign	Ordinary least squares			
		Private credit/ GDP	Stock market capitalization/ GDP	Private bond market capitalization/ GDP	MOF-Issued Public Bonds/ GDP
Log real GDP PPP per capita[1]	+	0.111**	0.208	0.253***	
		(2.78)	(1.25)	(12.21)	
1 lag of the log of trade openness	+	0.138***	-0.0181	-0.0454***	0.0767**
		(3.61)	(-0.24)	(-5.19)	(2.61)
1 lag of the log of trade openness	+		1.961***		
* Republic of Korea			(5.18)		
Year dummy for Asian financial crisis in 1998	-		-0.476**		0.0978
	+a		(-3.20)		(0.96)
Public bond market capitalization/GDP	+/-	-0.353***	-1.231***	0.182***	
		(-4.21)	(-3.73)	(5.78)	
Private bond market capitalization/GDP	+/-				0.3**
					(-3.15)
CPI, 3-year moving standard deviation	-	-0.0184***	0.0269	-0.00894***	
		(-3.58)	(1.56)	(-3.91)	
Governance[2]	+	0.096*	0.708***	-0.156***	0.0945**
		(1.82)	(4.12)	(-7.50)	(2.17)
ASEAN+3HI[3]	+	0.273***	0.499**	0.248***	
		(5.75)	(2.39)	(10.28)	
ASEAN-4 (INO, MAL, PHI, THA)	+/-				-0.112**
					(-2.30)
Log of foreign exchange rate (LCY/US$)	-				-0.0148*
					(-1.93)
Government Expenditure to GDP ratio	+				0.0206***
					(6.2)
Constant	+/-	-0.342	-1.575	-2.293***	0.0339
		(-0.85)	(-1.00)	(-11.59)	(0.31)
Period		1998–2009	1998–2009	1998–2009	1998–2010
Number of observations		192	214	208	190
R^2		0.706	0.509	0.62	0.331

CPI = consumer price index, GDP = gross domestic product, INO = Indonesia, LCY = local currency, MAL = Malaysia, PHI = Philippines, PPP = purchasing power parity, THA = Thailand, US = United States.

Note: The numbers in parentheses are *t*-statistics, * significant at 10%, ** significant at 5%, *** significant at 1%.

[a] Expectation of a positive sign for the MOF-issued public bonds equation.

[1] The log of real GDP PPP per capita was instrumented by its own lag by 1 period to address the issue of endogeneity with the dependent variable.

[2] This variable includes four World Bank governance indicators, which were averaged using weights from factor analysis.

[3] Region = 1 if a member of ASEAN-10; the People's Republic of China; Hong Kong, China; India; Japan; and the Republic of Korea. Region = 0 if otherwise. Non-ACI region includes Brazil; Chile; Colombia; Egypt; Hungary; Mexico; Peru; Russian Federation; South Africa; Taipei,China; and Turkey.

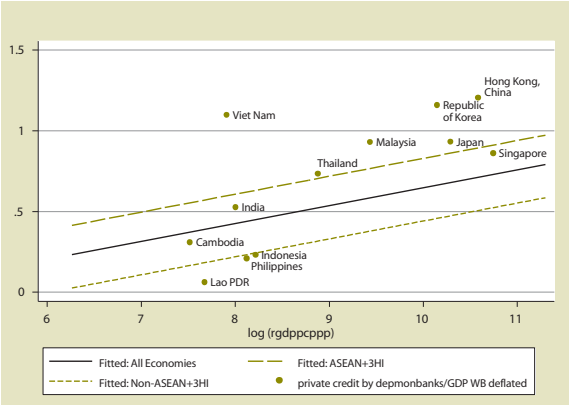
To address the endogeneity problem, the log form of real per capita GDP (measured in purchasing power parity terms) was lagged 1 period. Table 6 presents the results of the analysis, and Figures 1–6 graphically depict the results for Asia relative to other emerging-economy groupings.

The fitted lines of the four variables in Figures 1–6 depict the average trend for all emerging-market groupings, both Asian and non-Asian, against the log of real per capita GDP (expressed in purchasing power parity terms). Figure 3 is identical to Figure 2, except that it excludes Hong Kong, China—a statistical outlier. Similarly, Figure 6 is identical to Figure 5, except that it excludes Japan.

All but one of the coefficients are significant, and all have the expected sign.[13] The results show that in general, the degree of financial sector development is positively correlated with economic development, as measured by real per capita GDP. However, the relationship is bi-directional, as the explanatory variable—real per capita GDP—is determined endogenously. Moreover, the degree of financial sector development is positively associated with trade openness and negatively correlated with price volatility.

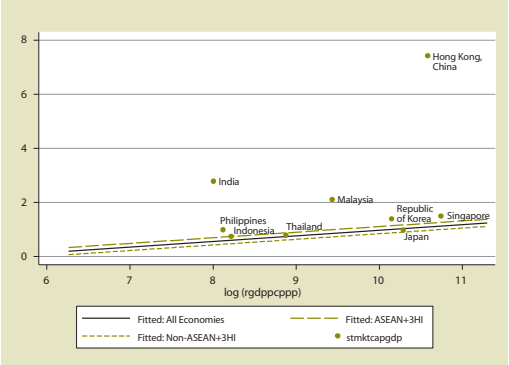
The results indicate that the degree of Asia's financial development across the four asset classes significantly exceeds the average for all emerging markets. However, Figures 5 and 6 show that government bonds are an exception, even when Japan—a country with significant government bond issues—is included. In fact, many non-Asian emerging markets—notably those in Latin America—began issuing government bonds much earlier than most Asian economies.

Figure 1 Private Credit/GDP



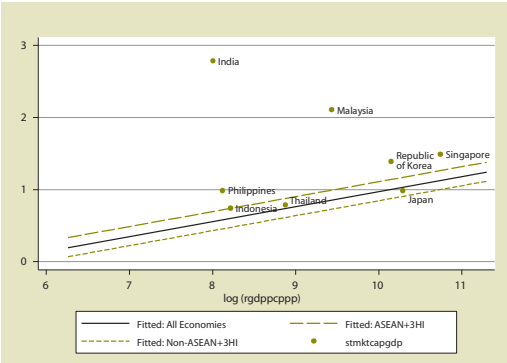
ASEAN+3HI = ASEAN+3, plus India and Hong Kong, China

Figure 2 Stock Market Capitalization/GDP



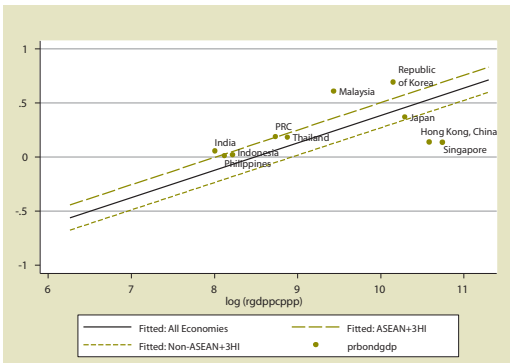
ASEAN+3HI = ASEAN+3, plus India and Hong Kong, China; stmktcapgdp = stock market capitalization/GDP

Figure 3 Stock Market Capitalization/GDP (excluding Hong Kong, China)



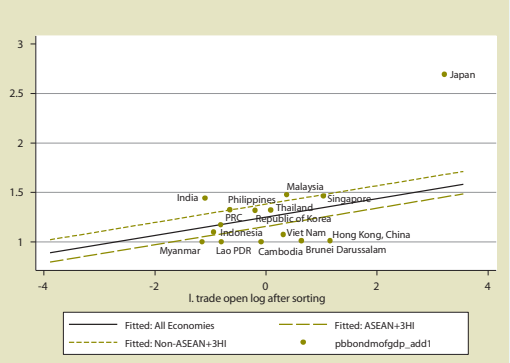
ASEAN+3HI = ASEAN+3, plus India and Hong Kong, China; stmktcapgdp = stock market capitalization/GDP

Figure 4 Private Bond Market Capitalization/GDP



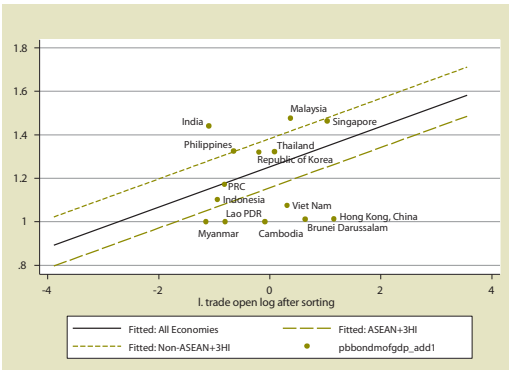
ASEAN+3HI = ASEAN+3, plus India and Hong Kong, China; PRC = People's Republic of China; prbondgdp = private bond market capitalization/GDP

Figure 5 MOF-Issued Public Bonds/GDP



ASEAN+3HI = ASEAN+3, plus India and Hong Kong, China; pbbondmofgdp_add1 = MOF-issued public bond/GDP

Figure 6 MOF-Issued Public Bonds/GDP
(excluding Japan)



ASEAN+3HI = ASEAN+3, plus India and Hong Kong, China; pbbondmofgdp_add1 = MOF-issued public bond/GDP

Yet, it is precisely government bond market development that works best in providing a financial safety net, particularly as bank lending tends to be procyclical rather than counter-cyclical as mentioned earlier. As for the stock market, asset values tend to fluctuate relatively widely, making it less useful as a financial safety net during times of financial turmoil. The question then is to what degree bond markets can act as financial safety nets?

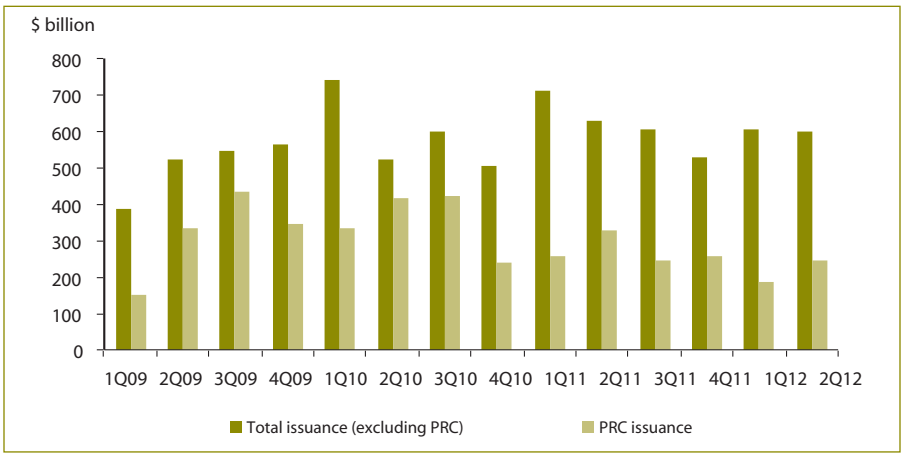
In ASEAN+3, excess investment prior to the Asian financial crisis gave way to excess saving afterwards. In addition to its potential in financing infrastructure development, excess savings in ASEAN+3 economies could also be used as a financial safety net. Regardless of whether excess savings

are used for infrastructure or act as a financial safety net, the bond market is important in both economic development and financial policymaking.

The most obvious way bond markets can be used as a financial safety net is by providing additional financing to help mitigate the negative impacts of a financial crisis. During both the 1997/98 Asian financial crisis and the 2008/09 global financial crisis, many Asian countries financed their economic stimulus programs by issuing bonds. This allowed them to dampen the recessionary impact. Given healthy fiscal positions, this was a relatively low-risk policy choice, and an inexpensive way to stimulate the national economy. At the same time, it boosted domestic bond market growth.

During the Eurozone crisis, total bond issuance in emerging East Asia economies reached $875 billion during the second quarter of 2012—equivalent to a 12.0% quarter-on-quarter increase (Figure 7). Much of the increase was driven by Treasury issuance and other government debt, as authorities used bond proceeds to finance economic stimulus. From the first quarter of 2009 through the second quarter of 2012, the PRC's volume and growth of government bond issuance contributed most to the subsequent upturn.[14]

Figure 7 Total Value of Asian Local-Currency Bond Issues, First Quarter of 2009–Fourth Quarter of 2012



PRC = People's Republic of China, SOE = state-owned enterprise.
Note: In the PRC, government issuance (including SOE issuance) includes policy bankbonds, local government bonds, and savings bonds.
Source: ADB's *AsianBondOnline*.

In June 2012, the Republic of Korea's Ministry of Strategy and Finance (MOSF) said economic reforms would best minimize the adverse effects of the global financial crisis, while at the same time support the working class. The policy would focus on seven important actions: (i) effectively addressing the ongoing global financial turmoil, (ii) continuing fiscal stimulus by raising budgetary spending and providing supplementary budgets, (iii) establishing a facility investment fund for supporting these investments, (iv) keeping consumer price inflation at or near 2.0%, (v) generating 400,000 jobs within the year, (vi) promoting microfinance and housing support programs, and (vii) nurturing specified sectors as future growth engines. Bond issuance would help finance these actions.

Singapore responded to the global financial crisis in 2009 with S$20.5 billion in fiscal stimulus—bringing the fiscal deficit to S$8.67 billion, or 3.5% of GDP. Financed partly through bonds, the stimulus program focused on supporting small- and medium-scale enterprises, skills development, research and development programs, and tax rebates for middle-income groups.[15]

Similarly, in the early 2000s, the recession and Severe Acute Respiratory Syndrome (SARS) epidemic caused a significant contraction in tourism and services in Hong Kong, China. The unemployment rate soared to 8.7% and the economy suffered deflation. With a fiscal deficit of 5% in 2001–2003 and 0.25% in 2004, bond issuance was a significant source of financial support in addressing the crisis.[16]

Financial Policy and Cross-Border Capital Flows

The regional bond market can better act as a financial safety net if its market infrastructure is strengthened, and rules and regulations are harmonized across countries. Outside investors like predictability, and Asian investors like the ease of moving funds around. While the region's bond market remains relatively small, it continues to grow steadily. Further inflows improve market liquidity, no matter whether they come from within or outside the region. And liquidity is what makes markets thrive.

Yet it is clear that external inflows can be more volatile. What happened during the second quarter of 2012 demonstrated this well. While outside investments in Asia's debt markets rose markedly since the global financial crisis, the subsequent Eurozone crisis led to a sell-off by foreign investors. For

example, in the Republic of Korea, net foreign purchases of domestic bonds were $0.7 billion during the second quarter of 2012, while in the third and fourth quarters, they totaled $0.2 billion and $2.3 billion, respectively. Cross-border inflows from within Asia were less volatile than external inflows, as shown by capital outflow data for both the PRC and Japan during the global financial crisis.

As mentioned, Asia's excess savings can potentially be channeled into the region's bond markets. And doing this depends in part on harmonizing domestic bond market rules and standards. Asia has ample *excess* savings to help avoid maturity and currency mismatches. But the region's bond markets can also be used for long-term investment and infrastructure development. Thus, the more diversified the market, the greater it can act as a financial safety net.

Improving the quality of the region's domestic bond markets could also stimulate growth. Following the Asian financial crisis, several Asian countries began issuing longer maturity bonds. This was done not only for financing stimulus programs, but also to set benchmark yield curve for corporate bonds.[17] So yield curves tend to become flatter and shift downward when monetary policy is loosened (such as in response to the Eurozone crisis). Rules to ease bond issuance have been set, including issuance by local governments and public utilities in the PRC, Indonesia, the Philippines, and Viet Nam—along with other revenue-generating sectors. This boosts the number of bond issuers, adding to market development.

Some countries like Malaysia and Thailand encourage foreigners to issue bonds denominated in domestic currency, and foreign ownership of domestic companies increased markedly as a result.[18] Several countries also attract foreign investors by strengthening corporate governance, improving transparency (by upgrading listing and disclosure rules), and adopting internationally accepted accounting and auditing standards.

To encourage cross-border investment, the ABMI is working on several fronts. The quality of domestic rating agencies has gradually improved, as international best practices are adopted and rating practices harmonized. ASEAN+3 standards are used for registration requirements. Some countries are also considering using International Financial Reporting Standards and International Standards on Auditing for cross-border offerings, and compliance with International Organization for Securities Commissions principles.

To better understand what determines the extent of cross-border bond holdings, we use a set of gravity equations. The first equation is:

$$\ln FI_{sdt} = \beta_0 + \beta_1 \ln GDP_{st} + \beta_2 \ln GDP_{dt} + \beta_3 \ln Devtech_{sd} + \beta_4 Language_{sd} + \beta_5 Border_{sd} + \beta_6 Colony_{sd} + \varepsilon_{sdt} \quad (1)$$

where FI_{sdt} is cross-border holdings of source-country debt securities issued by destination country d at time t. GDP_{st} and GDP_{dt} refer to GDP in the source and destination economies, in turn representing the force of attraction between point masses. Costs are typically represented by "distance," whether defined in geographic or cultural terms, associated with transactions costs arising from information asymmetries. In equation (1) $Devtech_{sd}$ is technological distance, measured by the number of telephone lines in the destination country (ease of communication). $Language_{sd}$, $Border_{sd}$, and $Colony_{sd}$ are dummy variables that take on a value of unity if the partners share a common language, a common border, or if the destination country was once a colony of the source country, respectively.

Another equation used by the analysis is specified as

$$\ln FI_{sdt} = \beta_0 + \beta_1 \ln GDP_{st} + \beta_2 \ln GDP_{dt} + \beta_3 \ln Distance_{dt} + \beta_4 Language_{sd} + \beta_5 Border_{sd} + \beta_6 \ln Trade_{sdt} + \beta_7 FinOpen_{st} + \beta_8 FinOpen_{dt} + \beta_9 Yield\_Spread_{dst} + \beta_{10} ExpER\_App(1)_{dst} + \beta_{11} Yield\_Volatility_{dt} + \beta_{12} BAS_{dt} + \varepsilon_{sdt} \quad (2)$$

where $Trade_{sdt}$ is trade openness, measured by the sum of exports and imports between partner countries at time (t). $FinOpen_t$ is the Chinn-Ito financial openness index of the source/destination country at time (t), computed on the basis of information from the International Monetary Fund's *Annual Report on Exchange Arrangements and Exchange Restrictions*.

The risk-return profile of assets is also an important consideration in investment decisions. Asset return is indicated by $Yield\_Spread_{dst}$, defined as the difference between the 5-year local-currency bond yields in the destination and source countries. $ExpER\_App(1)_{dst}$ is the expected degree of appreciation of the destination-country currency relative to the source-country currency over a 1-year period. This reflects the return from holding a particular currency when expected appreciation of the destination-country

currency increases its asset value, thus making the latter relatively more attractive. $Yield\_Volatility_{dt}$ is the degree of volatility in the destination country, computed using the 12-month rolling standard deviation. It can also be treated as a measure of valuation risk.

The importance of a liquid bond market in cross-border investment is widely understood. Liquid markets tend to attract investors as they are assured of a vibrant market able to handle their demand for transactions.[19] Here we use BAS_{dt}, the bid-ask spread prevailing in the bond market of destination country, with a large spread indicating an illiquid market.

Next is the size of the market itself—as mentioned, an important factor in attracting foreign investors to assets denominated in local currency (Eichengreen and Luengnaruemitchai, 2004). Market size in the source country may also support the investor base in the destination country. Thus, in the third equation, we replace GDP with bond market size:

$$\ln FI_{sdt} = \beta_0 + \beta_1 \ln Size_{st} + \beta_2 \ln Size_{dt} + \beta_3 \ln Distance_{dt} + \beta_4 Language_{sd} + \beta_5 Border_{sd} + \beta_6 \ln Trade_{sdt} + \beta_7 FinOpen_{st} + \beta_8 FinOpen_{dt} + \beta_9 Yield\_Spread_{dst} + \beta_{10} ExpER\_App(1)_{dst} + \beta_{11} Yield\_Volatility_{dt} + \beta_{12} BAS_{dt} + \varepsilon_{sdt} \quad (3)$$

where $Size_{st}$ and $Size_{dt}$ denote the value of domestic bonds outstanding in the source and destination countries, respectively.

Finally, a variation of equation (3) includes the role of equity markets—whether they complement or crowd-out bond market participants—and removes some of the right-hand side variables:

$$\ln FI_{sdt} = \beta_0 + \beta_1 \ln Distance_{dt} + \beta_2 \ln Trade_{sdt} + \beta_3 FinOpen_{st} + \beta_4 Yield\_Spread_{dst} + \beta_5 ExpER\_App(1)_{dst} + \beta_6 Yield\_Volatility_{dt} + \beta_7 BAS_{dt} + \beta_8 MCap\_GDP_{dt} + \varepsilon_{sdt} \quad (4)$$

where $MCap\_GDP_{dt}$ is the stock market capitalization in the destination country.

Given the model's large number of cross-sections, a random-effects panel is applied, where changes in the intercept across sections are assumed to be driven by idiosyncratic variables and not correlated to the regressors.

The Appendix describes how the expected exchange rate is calculated, and lists the sources of data used in the analysis. The results of the four gravity equations appear in Table 7.

Table 7 Results from the Gravity Model

Dependent variable: Log of Long-term debt securities				
	Model Specification			
	(1)	(2)	(3)	(4)
Log of GDP (Source Country)	1.266 (8.611)+	0.261 (1.715)		
Log of GDP (Destination Country)	0.533 (3.610)+	0.119 (0.729)		
Technical Distance	0.034 (3.402)+	0.030 (3.479)+	0.032 (3.506)+	0.020 (2.424)++
Language	3.074 (4.077)+	1.696 (3.790)+	1.715 (3.952)+	
Colony	-1.064 -(0.693)	-0.791 -(0.980)	-1.034 -(1.226)	
Border	-0.075 -(0.081)	-1.015 -(1.934)	-0.862 -(1.601)	
Log of Trade		1.048 (4.953)+	0.945 (4.483)+	1.174 (8.278)+
Financial Openness (Source Country)		0.121 (1.351)	0.081 (0.897)	0.149 (1.693)
Financial Openness (Destination Country)		-0.298 -(2.925)+	-0.270 -(2.607)+	
Yield Spread		0.126 (4.864)+	0.099 (3.780)+	0.147 (5.519)+

continued on next page

Table 7 *continued*

Dependent variable: Log of Long-term debt securities				
	Model Specification			
	(1)	(2)	(3)	(4)
Yield Volatility		-0.442 -(2.346)+	-0.356 -(1.874)	-0.422 -(1.973)++
Expected Currency Appreciation		0.088 (5.330)+	0.082 (4.962)+	0.079 (4.747)+
Bid-ask Spread		-0.007 -(1.916)	-0.007 -(1.880)	-0.010 -(2.854)+
Log of Stock Market Capitalization (as of of GDP)				0.186 (1.285)
Log of Bond Market Size (Source Country)			0.453 (3.656)+	
Log of Bond Market Size (Destination Country)			0.003 0.022	
Constant	-6.940 -(7.674)	-0.403 -(0.313)	-0.568 -(0.601)	1.715 (3.922)
R^2 Adj R^2	0.264465 0.256091	0.315451 0.290594	0.329045 0.304681	0.265545 0.248947
Unweighted R^2	0.075297	0.49463	0.470189	0.450527

Notes: + and ++ indicate signficance at the 1% and 5% levels of significance, respectively. *t*-statistics are in parenthesis
Source: ADB estimates.

The results confirm that bilateral asset holdings are significantly affected by the return on assets, indicated by the significant positive relationship between yield spreads and cross-border long-term bond holdings. This partly explains why in some Asian countries, the share of foreign ownership in the local-currency bond market has been on the rise. Other significant determinants include market liquidity and volatility, market transaction and information costs, and cross-market relationships. The expected appreciation of the destination country's currency also has a positive and significant coefficient. Thus, on average, investor holdings of foreign debt assets respond positively to two types of returns: (i) returns on assets denominated in the currency of the destination country, and (ii) returns originating in exchange-rate gains. Table 7 also shows that market liquidity and stability are important factors in cross-border long-term bond holdings, as indicated by the significant and positive coefficient of BAS_{dt}, and the negative coefficient of $Yield\_Volatility_{dt}$.

Capital controls and trade barriers hinder intraregional investment, given that most Asian financial markets are still developing. Trade openness therefore plays a significant role in fostering financial linkages. On the one hand, it can be linked to increased demand for external finance, thereby encouraging greater financial flows between partners. On the other hand, it promotes outward investment. Either way, it encourages bilateral financial linkages. This is evident from the positive coefficient of $Trade_{sdt}$. The size of the destination country's stock market appears to help encourage cross-border bond holdings, suggesting that investor interest in foreign markets is enhanced when the target market is relatively large.

These results support national and regional initiatives that encourage Asians to invest in each other's markets. And, to the extent regional market integration helps improve resilience in the face of external shocks, these initiatives strengthen the region's financial safety nets. Nonetheless, developing and strengthening the local market should be prioritized over regional integration. Although helpful, over reliance on external capital inflows risks periodic swings in capital flows—whether caused by a return of risk-aversion, global deleveraging, or other factors. Forbes and Warnock (2012) find that during 1980–2009, the vast majority of episodes of extreme capital flows were debt-led (about 80% of inflow episodes and 70% of outflow episodes). Equity-led episodes occur relatively infrequently. In Asia, gross capital flow volatility is also caused by sudden shifts in debt flows (80% for surges in inflows, 67% for shifts in flows caused by capital flight). The source of volatility itself can originate in global variables (global risk) and contagion effects (financial and trade linkages).

Indeed, after the global financial crisis, capital flows into emerging Asia have been unprecedented—both in size and volatility. Given the push factors—like low returns and dim prospects in industrial countries—little can be done except strengthening macroprudential policy. The crisis demolished the view that financial markets are self-correcting and can police themselves. The frequency of financial crises is on the rise. Even for resilient Asia, the financial system remains vulnerable to excessive capital flows. As mentioned, a first-order priority must be to engineer robust financial regulation and supervision—creating effective macroprudential policy.[20] The challenge is how to implement these policies without reducing the effectiveness of monetary policy. Macroprudential policy affects macroeconomic performance, and monetary policy may impact investor incentives for risk-taking.[21] So monetary policy must take into account any macroeconomic effects resulting from macroprudential policy—and vice versa.

The time is right for strengthening macroprudential policy. There is growing recognition of the need to switch from a "first-best" to "second-best" approach to financial deregulation. Deregulating capital accounts, for example, has its problems, as episodes of financial crisis have become more frequent in the wake of capital flow deregulation. Even in advanced economies, where requisite institutional factors are already in place—often stated as a precondition for successful financial and capital account deregulation—the first-best approach does not always work and disappoints its own proponents (Azis, 2013). In emerging Asia, countries with deregulated systems have begun imposing some form of capital controls (introducing new frictions to offset existing ones)—to avoid possible instability caused by a torrent of "hot money."[22] These controls are very much a component of macroprudential policy.

However, capital controls have their own downside—often with spillover effects. Benefits accruing to those imposing controls may have a costly impact on other countries. Improved policy coordination can help ameliorate this. Unfortunately, Asia does not have a very good track record here. There has been little formal coordination or cooperation in managing capital flows—or on any macroeconomic issues for that matter. The trend toward closer integration in Asia has always been market-driven, supported by unilateral policies. Cooperation or coordination has been an afterthought. Information-sharing is the exception, and grounds for further development. It is currently Asia's only significant form of cooperation and coordination—exemplified by the ASEAN+3 Economic Review and Policy Dialogue (ERPD) process. Efforts to harmonize rules and regulations have gradually emerged,

as in the case of local-currency bond markets under ABMI. However, joint or common enforcement still seems a long way off. Sharing losses—as usually occurs in a federal state—remains a theoretical pipe dream.

In short, given that cross-border flows within Asia—in support of the region's capital markets—have been less volatile than external flows, efforts at strengthening domestic capital markets should remain the priority, while market and capital account deregulation should be safeguarded by effective macroprudential policy.

Conclusion

As the risk of contagion from external shocks increases, Asia needs to strengthen its financial safety net. However, given the limitations of global and regional safety nets, adequate domestic safety nets remain the most important priority. They are prerequisites for cooperation and, if desired, eventual integration. Along with macroprudential policies and other measures for preventing financial crises, this chapter argues that capital market development can play a critical role in supporting financial safety nets. Overreliance on banking as a financial safety net is terribly risky, as its ability to provide financing under stress is increasingly limited. Further, banks suffer from procyclicality as well as volatility.

For capital markets to effectively support financial safety nets, they must become more liquid, deep, and more efficient. Of all asset classes, bonds are the most relevant, as bond markets are useful for precautionary fiscal support during a crisis. Even for countries with fiscal surpluses, evidence shows that bond markets help finance economic stimulus in times of crisis.

Yet, bond markets remain largely underdeveloped in most Asian countries. Limited market liquidity is a major constraint. Removing remaining obstacles and introducing harmonized standards and rules can help increase cross-border bond holdings. With the current "double-track growth" in the world economy—and low interest rates likely to persist in industrial countries—market liquidity can be enhanced by capital inflows. Indeed, the results of the gravity model presented in this chapter show that yield spreads along with expected currency appreciation are among the most important determinants of bond holding. However, because excessive inflows can be risky, effective macroprudential policy must act as a safeguard. Its design should be compatible with monetary policy, and it should avoid prematurely dampening

the much-needed growth of the capital market. Nonetheless, at the end of the day, strengthening and enlarging the domestic investor base remains key to developing a more robust bond market that can bolster financial stability and support financial safety nets.

Notes

1 Edited by Guy Daniel Sacerdoti.
2 ASEAN+3 comprises the 10 Association of Southeast Asian Nations (ASEAN) members (Brunei Darussalam, Cambodia, Indonesia, the Lao People's Democratic Republic, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Viet Nam) plus the People's Republic of China (PRC), Japan, and the Republic of Korea.
3 In some countries, based on flows-of-funds data, increases in bank credit have been accompanied by a rising share of "non-core" liabilities. This suggests that there is a limit beyond which further increases in lending weaken a bank's risk position.
4 ASEAN-5 includes Indonesia, Malaysia, the Philippines, Singapore, and Thailand.
5 Another reason for the widely varying pace of development across market segments is restrictions on financial products—for example, commodity options—which limit market participation in banking and insurance.
6 In some countries, government bond issuance has been intentionally reduced, as this is consistent with lowering the level of public debt. Indonesia provides a notable example of this.
7 In recent years, the PRC financial authorities have gradually begun to allow local governments to issue bonds. For example, in recent years, the municipal governments of Jiangsu, Shanghai, and Zhejiang, and the provincial government of Guangdong province have been allowed to issue bonds up to a value of 25 billion yuan, these being divided equally between 3- and 5-year tenors.
8 The total value of Hong Kong, China's renminbi-denominated bonds increased dramatically since China Development Bank (financial institution in the PRC) issued its first bond in July 2001. By October 2011, CNY233 billion were outstanding, most issued by Caterpillar Corporation, McDonald's, and the PRC government. Subject to approval by relevant mainland PRC authorities, the funds raised from renminbi-denominated issuance outside the PRC mainland can be remitted to mainland-based entities as shareholder loans or equity injections. They can also be used for other purposes outside the mainland.
9 At the time of this writing, Cambodia has no government bond market. However, as part of preparations for establishing a money market, the government began issuing treasury bills and recapitalization bonds in 2002.
10 EU-15 equity investment in Asia accounted for approximately 10% of total investment by the EU-15 countries.
11 Survey-based analysis also shows a lack of regional bias among Asian bond investors (Azis and Mitra, 2012).
12 "ASEAN+3HI" includes five ASEAN countries (Indonesia, Malaysia, the Philippines, Singapore, and Thailand); plus the PRC; Japan; the Republic of Korea; Hong Kong, China; and India. "Non-ASEAN+3HI" economies included in the sample comprise Brazil; Chile; Colombia; Hungary; Mexico; Peru; South Africa; Taipei,China; and Turkey. Emerging markets outside Asia include Brazil, Chile, Colombia, Egypt, Hungary, Mexico, Peru, the Russian Federation, South Africa, and Turkey.

13 The coefficient of the governance indicator is unexpectedly negative. One possible explanation is that poor governance helps the elite transact business. The results also show that while public bond market capitalization complements private bond market development, it substitutes for stock market development.

14 Treasury bond issuance in the PRC in the 2nd quarter of 2012 was $200 billion (70.3% quarter-on-quarter growth), compared with the region-wide total of $300 billion. The next largest issuers of treasury and other government bonds were Singapore ($50 billion), the Republic of Korea ($21 billion), Malaysia ($9 billion), and Thailand ($8 billion). Although the total amount of Thailand's issuance was relatively modest, Treasury bond growth in the 2nd quarter of 2012 was substantial (quarter-on-quarter growth of 25.5%). Issuance of Hong Kong Special Administrative Region bonds by Hong Kong, China's monetary authority rose dramatically by 200% quarter-on-quarter during the 2nd quarter of 2012 to reach HKD15 billion ($2 billion).

15 The government also tapped its ample reserves to help fund the stimulus package, based on a special risk-sharing initiative for stimulating bank lending and ensuring that the broader segment of companies had credit access. Singapore monetary policy does not use interest rates or monetary aggregates as its primary policy tool, instead using a trade-weighted exchange-rate index.

16 This is despite the fact that the primary purpose of the bond market has been always to support the currency board system.

17 Over the past few years, many ASEAN+3 countries developed benchmark yield curves for corporate bonds. They also changed the tenor of benchmark bond issuance to make it consistent with market demand. For example, Thailand changed the tenor of its benchmark bond issuance from 7–10 years to 5–10 years, and issued government bonds with a 30-year maturity. Indonesia has also issued government bonds with a similar maturity.

18 However, foreign fund inflows also occur because of increased market volatility and uncertainty in the global economy, implying that Asia is increasingly viewed as a safe-haven for investment.

19 Market liquidity has three general dimensions: tightness, depth, and resiliency. As these are typically correlated, this chapter uses an indicator of tightness to measure liquidity. Tightness refers to "how far transaction prices (bid or ask prices) diverge from the mid-market price," or the general costs incurred regardless of market price. See Committee on the Global Financial System (1999).

20 While many macroprudential policy tools are similar to microprudential policies (the latter essentially addressing restrictions or incentives relating to financial firms' balance sheets), macroprudential policies are intended to protect the financial system as a whole, and by extension, the broader economy. Macroprudential policies counter the procyclical nature of credit and leverage, leaning against the wind when systemic risk accumulates. In addition, they stem risks relating to interconnections and spillovers in the financial system.

21 In the area of surveillance, for example, one must keep a close eye on broad credit and asset market conditions. This may include monitoring variations in risk and term spreads of bonds and other securities relative to historical norms, as narrow risk spreads and risk premiums can be a harbinger of excessive risk-taking.

22 In export-oriented countries, ensuring a competitive exchange rate is another reason for intervention.

Appendix

Three models can be used to estimate the expected exchange rate—the structural model, the expectations model, and the random walk model. The structural model uses structural relationships between exchange rates and other macro variables. The expectations model can be based on either adaptive expectations or rational expectations—adaptive expectations using past values of the variable concerned to forecast future values, and rational expectations using all information available to arrive at a forecast. The random walk model assumes that the path of the series for each period—or changes in the series value—is random, where the (log) level of the nominal exchange rate is predicted to stay at the current log level, and the forecast is one of "no change" in the exchange rate; see Engel, Mark, and West (2012). In this chapter, we use an adaptive expectations model. To determine the optimal lag length in the formation of expectations, the Akaike Information Criterion (AIC) is applied, and a 2-period lag length is used in forming the forecasts. The expected rate of appreciation is given by the rate of change in the 1-period forecast.

In constructing source–destination pairs for holdings of long-term debt securities, the source economies include Hong Kong, China; Indonesia; Japan; the Republic of Korea; Malaysia; the Philippines; Singapore; and Thailand. The PRC is included as a destination country. Annual data from 2001 to 2011 are used.

Information on cross-border holdings of long-term debt securities was obtained from Coordinated Portfolio Investment Survey (CPIS) published by the International Monetary Fund (IMF). Long-term securities have an original term to maturity of more than 1 year, and include instruments such as bonds, debentures, and notes. The national survey is conducted by each participating country. The survey collects data on the type of instrument and the residence of issuer (each country reports its outward investments to each destination country on the asset side). The data used in the estimation were obtained from the derived liabilities tables of the IMF's CPIS. These tables show, from the perspective of the economy issuing the securities, the value of securities held by nonresidents as "derived" from information reported by the holders of the securities (from creditor information).

Size is the total value of local-currency bonds outstanding in source and destination countries, obtained from *AsianBondsOnline*. Bid-ask spreads are obtained from the Annual Liquidity Survey of *AsianBondsOnline*, and refer to

the difference between the highest price a buyer is willing to pay for a security and the lowest price a seller is willing to accept for it. Financial openness is the index computed by Chinn and Ito (2008), which is based on information from the IMF's *Annual Report on Exchange Arrangements and Exchange Restrictions*. Data on the index of financial trading barriers are based on the barrier index for five major trading barriers identified by the Group of Experts (GoE) established under the Asian Bond Markets Initiative in 2008. We use the barriers relating to market infrastructure that cover account management and settlement concerns.

Yields on 5-year local currency–denominated bonds refer to period-average values and were obtained from Bloomberg LP. The exchange rate and domestic credit data used in the analysis were obtained from the IMF's *International Financial Statistics*. Data on stock market capitalization were obtained from Bloomberg LP, and GDP data were sourced from the IMF's *World Economic Outlook* database.

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