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Abstract

This paper examines the current situation pertaining to trade and financial integration in East Asia from various approaches and discusses potential linkages between intra-regional trade and financial integration. This paper also offers policy suggestions based upon its analyses that take full account of the post-global crisis policy landscape. The main conclusions drawn from this study are as follows: (i) the overall degree of intra-regional trade and financial integrations in East Asia still remain insufficient, as the region's financial integration lags far behind its trade integration; (ii) inter-regional links appear stronger than intra-regional links in East Asian economies; and (iii) intra-regional trade and portfolio investment flows in East Asia generally show positive correlations. Developing East Asia would benefit from wider regional mechanisms with the enhancement of intra-regional trade and financial integration. Since East Asia is at a critical turning point, this paper suggests that East Asian countries strive to strengthen the regional mechanisms with smoothly functioning, integrated regional markets while effectively controlling its risks. They should focus especially on enhancing trade policy cooperation, expediting capital market development, effectively managing cross-border portfolio investments, and strengthening regional safety networks. The three major countries in the region—Japan, China, and Korea—should take the lead in facilitating the integration process.

Keywords: Trade and Financial Integration; Cross-Border Investment and Settlement; Trade-Finance Linkage; Free Trade Agreements; Asian Bond Market; East Asia; Global Economic and Financial Crisis

JEL Classification: E44, F15, F42, F59, G01, G15

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Contents

I. Introduction

The global financial and economic crisis that originated in the United States in 2007 marked—along with the Asian financial crisis in 1997–98—a turning point in the financial and economic development of East Asia. In the wake of the 2007–09 global crisis, the consensus in East Asian countries has shifted to support economic rebalancing away from the dominant focus on exports to developed markets such as the United States and Europe toward a more balanced economic structure, supported by domestic and regional financial development for effective resource mobilization within the region.

Following the Asian financial crisis, the consensus held that financial integration in Asia lagged intra-regional trade integration and that liquid and well-regulated capital markets were essential to effectively allocate the region's savings and to strengthen the region's resilience to domestic and external shocks. Since then, East Asian countries have accordingly strengthened inter-governmental cooperation to promote regional financial integration[1] to forestall future crises. Steady progress has been achieved, especially under the framework of the ASEAN+3, such as the Chiang Mai Initiative (CMI), the Asian Bond Market Initiative (ABMI), and the Economic Review and Policy Dialogue (ERPD). Central banks of the EMEAP economies have also worked together to develop regional bond markets by establishing two Asian Bond Funds (ABFs). Trade integration in East Asia has also proceeded quickly over the last 20 years, despite the fact that governments in the region have not been particularly active in promoting regional cooperation initiatives in trade integration until recently. During the last decade, Asian governments have embraced the substantial shift away from the unilateral liberalization approach in favor of bilateral and plurilateral free trade and investment agreements in the region.

The recent global financial and economic crisis has highlighted critical weaknesses in East Asian economies related to financial regulation and supervision, and

[1] Financial integration is a process, driven by market forces, in which separate national financial markets gradually enter into competition with each other and eventually become one financial market, characterized by converging prices, product supply and converging efficiency/profitability among the financial services providers. Several distinct and parallel channels can further financial integration, namely, cross-border ownership, establishment or cross-border service provision (European Commission [2005]).

limitations of export-led growth and dependence on developed Western markets. The global crisis made clear the need to address a range of issues across the region related to finance, such as enhancing financial stability, promoting financial sector development and intra-regional integration, and reforming the international financial architecture from Asia's perspective. In particular, the global crisis revealed the need to further financial integration and cooperation to strengthen the safety-net mechanism and promote financial markets in the region. During the spread of the recent global financial crisis, the CMI—a regional liquidity support mechanism for ASEAN+3 countries—did not significantly assist Asian countries. Financial markets in many Asian countries still remain quite underdeveloped. The global crisis also accentuates the need to reform regional trade policies with an emphasis on intra-regional trade integration, since East Asian economies were affected via trade and investments.

East Asian governments are each making multifaceted efforts to further strengthen regional economic integration and cooperation in the financial and trade sector since the global financial crisis. The recent global crisis acted as the trigger for the further promotion of regionalism, and it is expected that the process will accelerate in the near future.[2] East Asian countries agree that regional economic integration and cooperation are imperative to rebalance growth and sustain stable development in the region in the post-global crisis era. Considering the current situation and increasing importance of the East Asian economies in the global economy,[3] economic integration in the region is an important and challenging issue for the stable economic growth of the region and the world. The integration of national financial markets in particular will help facilitate the mobilization of regional savings for regional investment. The three major economies in the region—Japan, China, and Korea—are expected to play substantial roles in promoting regional economic integration.

[2] The Asian financial crisis marked the beginning of significant economic and financial regionalism in East Asia. Regarding recent economic regionalism in Asia, Chia (2010b) argues that Asia's regionalism has developed differently from Europe's and has taken on a different structure, even though the media, as well as some official announcements, refer to a "Europe-type" regionalism. In addition, Mahbubani (2010) argues that the Asian integration model can better serve as a model for regionalism in the world because it is pragmatic, just, and workable across messy boundaries and civilizations. He describes the strengths of Asian regionalism as follows: (i) the Asian model is more applicable to the world because it is a multi-civilization model; (ii) Asia has experienced no wars in recent years; and (iii) the Asian cooperation model is pragmatic in the sense that agreements follow actions, unlike in the European Union (EU), where actions follow agreements; thus, the Asian model is more flexible.

[3] In terms of purchasing power parity GDP, the collective economic size of the ASEAN+3 countries accounted for about one-quarter of the world economy in 2008.

As Winkler (2010) asserts, the global financial and economic crisis should serve as a wake-up call for further progress on financial development and integration in the region. East Asian countries must redirect the previous basis of growth from exports to the United States and Europe to regional and domestic demand, which emphasizes the importance of the region-wide free trade agreements (FTAs)/economic partnership agreements (EPAs) for trade integration. The authorities in the region should also pay special attention to the potential linkages between intra-regional trade and financial sector development and integration, considering the expected positive correlations between the trade and financial flows. A number of studies[4] argue that trade and finance are closely linked, even though the data available for analysis are limited. This paper examines the current situation in trade and financial integration in East Asia from these various perspectives, and discusses potential linkages between intra-regional trade and financial integration. The analysis of the financial integration is complicated by limited bilateral data on cross-border financial flows. The paper therefore applies various approaches such as quantity-based, price-based, and institutional/regulatory approaches to measure the degree of financial integration. The overall results of the analyses show that although Asian countries have made remarkable strides toward economic integration over the years, the degree of integration is still insufficient, with financial integration lagging behind real economy integration. Inter-regional links are apparently stronger than intra-regional links in East Asian countries. Intra-regional trade and portfolio investment flows in Asia generally show positive correlations.

The paper also makes policy suggestions to maximize benefits from enhanced regional integration based on the assessment of the economic integration in East Asia and the post-crisis policy landscape, with a focus on deepening financial development and integration in the region. East Asian countries should strive to increase the various benefits of the regional mechanisms with smoothly functioning integrated regional markets by concentrating on the following areas: enhancement of trade policy cooperation, expediting capital market development (in particular, bond market development), effective management of cross-border portfolio investments, strengthening of the regional safety networks, and active engagement of the three major countries in the region—China, Japan, and Korea.

[4] Detailed discussions are in Chapter III.

The paper is organized as follows: (i) a review of the recent progress and salient features of trade and financial integration in the region; (ii) a review of the related literature, theoretical background, and various empirical studies; (iii) an examination of the current situation of trade and financial integration in the region with empirical analyses including a discussion of potential linkages between the two, and a review of institutional/regulatory barriers to financial integration focused on capital markets; (iv) an assessment of trade and financial integration in the region and a discussion of its policy implications, including suggestions on future directions to deepen financial development and integration in the region; and (v) concluding remarks that highlight critical issues for further study.

II. Promotion of Economic Integration in East Asia

The integration of the East Asian region into the world economy has been largely driven by market forces, particularly by private foreign direct investment (FDI) and rising intra-industry trade (ADB, [2006]). In this chapter, we review the progress and some salient features of the trade and financial integration and cooperation in East Asia.

A. Trade Integration in East Asia

Trade integration in East Asia has proceeded rapidly over the last 20 years. Until recently, however, governments in the region were not particularly active in promoting regional cooperation initiatives in trade integration, because they had achieved substantial progress through unilateral liberalization efforts or multilateral negotiations under the General Agreement on Tariffs and Trade (GATT)/World Trade Organization (WTO) framework.

Prior to the Asian crisis, ASEAN economic cooperation represented by the ASEAN Free Trade Area (AFTA)—the first major initiative in the region, started in 1992—was the most prominent regional accord. Most early agreements in ASEAN's history were merely nominal and political.[5] The AFTA is already in effect in the original countries, but transitional ASEAN countries (Vietnam, the Lao PDR, Myanmar, and Cambodia) have been granted additional time to put it into effect. ASEAN has also made significant strides in investment cooperation, for example, in the form of ASEAN "one-stop investment centers" and the ASEAN Investment Area (AIA). These collective industrial efforts have essentially been designed with the same goal in mind as the AFTA: to reduce transaction costs associated with intra-regional economic interaction (Plummer and Wignaraja [2007]).

In November 2002, the ASEAN Heads of Government meeting in Phnom Penh proposed that the region should consider the creation of an "ASEAN Economic Community" (AEC) by 2020 (expedited to 2015 in 2007), which would transform ASEAN "into a region with free movement of goods, services, investment, skilled labor, and free flow of capital" through implementation of the ASEAN Economic Community Blueprint (AECB).[6] ASEAN has promoted trade integration based on the AECB, which is the principal document defining the scope, modalities, and timeline of achieving economic integration.

During the last decade, however, Asian governments have embraced a substantial shift away from the approach of unilateral and multilateral liberalization in favor of bilateral and plurilateral free trade and investment agreements.[7] The surge in economic trade, investment cooperation, and integration agreements over the last few years reflects this change in the political and economic landscape as well as the intra-regional and extra-regional dynamics. East Asian economies are attempting to use FTAs to aggressively pursue their individual and collective trade strategies. As Table

[5] For example, the Preferential Trading Agreement (PTA) was a positive-list approach to trade liberalization with small margins of preference and limited product coverage, expanded somewhat during the 1980s but with no real impact on trade. Industrial cooperation, such as the ASEAN Industrial Project (AIP) system, never really got off the ground (Plummer and Wignaraja, [2007]).

[6] The AECB is comprehensive plan that lists many specific priority actions and policies (176 in total) to be taken in four biannual periods: 2008–09, 2010–11, 2012–13, and 2014–15. (Mikic, [2009]).

[7] Kawai and Wignaraja (2010), and Chia (2010a) identify the main factors of the recent spread of free trade agreement (FTA) initiatives in East Asia: (i) market-driven economic integration through trade, FDI, and the formation of East Asian production networks and supply chains; (ii) European and North American economic regionalism, including the expansion of the EU into central and eastern Europe as well as the Baltic countries, the creation of a European monetary union, and the success of the North American Free Trade Agreement (NAFTA) and its planned move toward the Free Trade Area of the Americas; (iii) the 1997–98 Asian financial crisis, which made it clear that East Asia needed to address common challenges in the areas of trade and investment in order to sustain growth and stability; and (iv) slow progress in the WTO Doha Development Round negotiations, which encouraged countries to consider FTAs as an alternative approach.

II-1 shows, the number of FTAs that ASEAN+3 countries have either concluded (120) or are currently negotiating (51) has increased to 171, with 56 proposals for new agreements in June 2010. China, Japan, and Korea—East Asia's largest economies—have initiated the expansion of FTAs and become key hubs, while their smaller neighbors have occasionally emerged as spokes (Kawai and Wignaraja [2010]).[8] The FTA among China, Japan, and Korea has until now achieved no progress. The three nations have only recently begun taking steps to promote FTAs among themselves.[9]

Table II-1: Free Trade Agreement Status in East Asia, by Country (June 2010)

	Proposed	Under negotiation	Concluded (signed/in effect)	Total
Brunei Darussalam	4	1	8	13
Cambodia	2	1	6	9
Indonesia	6	2	8	16
Lao PDR	2	1	8	11
Malaysia	3	6	10	19
Myanmar	2	2	6	10
Philippines	4	1	7	12
Singapore	5	8	21	34
Thailand	6	7	11	24
Vietnam	2	2	7	11
ASEAN	**36**	**31**	**92**	**159**
China	8	6	10	24
Japan	4	5	11	20
Korea	8	9	7	24
ASEAN+3	**56**	**51**	**120**	**227**

Source: Author's compilation, drawing on the Asia Regional Integration Center Database, Asian Development Bank.

[8] They indicate that the development of FTA hubs and spokes can be attributed to a country's economic size, per capita income, level of protection, and economic geography, as well as the production network strategies of multinational companies.

[9] Leaders from China, Korea, and Japan agreed "to complete a joint research task by 2012 on the feasibility on grouping the three nations into a free trade zone" at the trilateral summit held on Jeju Island, Korea in May 2010.

B. Financial Integration in East Asia

Financial integration and policy cooperation in East Asia have been promoted under the initiatives of the governments and central banks in the region since the Asian financial crisis.[10] In this sense, the progress of financial integration and policy cooperation in the region has been following a path somewhat opposite to the one of trade and FDI, which have focused on market-driven integration and cooperation (Capannelli and Filippini [2009a]). There are many regional initiatives for financial integration initiated by governments and central banks in the region centered on the ASEAN+3 Initiatives:[11] the Chiang Mai Initiative (CMI), the Initiatives for Bond Market Development—the Asian Bond Market Initiative (ABMI) and two Asian Bond Funds (ABFs)—and the Regional Economic Surveillance System. In this section, we review the objectives and progress of these three major endeavors.

1. The Chiang Mai Initiative (CMI): A Regional Safety Network

One of the most noteworthy outcomes of the Asian financial crisis is the initiation of regional financial cooperation by the East Asian economies to cope with future crises. The CMI is a landmark safety network, a liquidity support facility in East Asia developed since the Asian crisis, which is intended to deter currency speculation and manage currency crises or contagion.

After the Asian financial crisis, East Asian countries recognized a common need to promote regional financial cooperation. The Japanese government initially proposed the creation of an Asian Monetary Fund (AMF) as a framework for promoting financial cooperation and policy coordination in the region at the Group of Seven (G7)-IMF meetings in Hong Kong on September 25–27, 1997. However, the proposition of building a regional monetary fund had not been accepted due to the opposition of the United States, the European Union (EU), and the IMF on the

[10] Before the Asian financial crisis broke out in 1997, few would have seriously argued for the creation of new regional financial cooperation system (Zhao and Kim [2009]).

[11] Leaders of the 10 ASEAN member countries along with China, Japan, and Korea initiated the ASEAN+3 process in 1997, which focused on macroeconomic and financial issues initially and was later expanded to include many other issues: in foreign affairs; economy and trade; environment; energy; health; labor; science and technology; and social welfare, among others. The group's finance ministers have been particularly active on regional financial cooperation, including the launch of the CMI as the region's liquidity support arrangement, the ERPD as the region's economic surveillance mechanism, both in May 2000, and the ABMI as the region's project for local-currency bond market development in August 2003 (Kawai [2009]).

grounds of moral hazard and duplication of effort. Other initiatives such as the "Manila Framework" [12] (November 1997) and the temporary "New Miyazawa Initiative"[13] (October 1998) had been promoted following the Japanese government's proposal to create an Asian Monetary Fund. The "Manila Framework," a mechanism for regional surveillance, did not carry out a substantial role. In contrast, the "New Miyazawa Initiative," a short-term financing facility, was successful.

The idea of an AMF was revived at the ASEAN+3 Finance Ministers' Meeting (AFMM+3) held in May 2000 in Chiang Mai, Thailand. At that meeting, the finance ministers agreed to establish a regional financial arrangement, a system of swap arrangements within the group that became the CMI. The CMI comprises (i) a network of bilateral swap agreements (BSAs) among China, Japan, and Korea, and between one of these Plus-3 countries and the original five ASEAN members and (ii) the ASEAN Swap Arrangement (ASA). The total amount under the bilateral swap agreements reached US$90 billion—with 16 BSAs—and the total ASA stood at US$2 billion as of April 2009 (Appendix II-1).

Since May 2005, the ASEAN+3 Finance Ministers have been working to improve the functioning of the ERPD and the CMI and multi-lateralizing of the CMI. A "self-managed reserve pooling" arrangement, governed by a single contractual agreement, has been introduced as a form of the CMIM. Its total size has been set at US$120 billion. Member contributions and borrowing limits have been decided; Japan and China (including the mainland and Hong Kong) are to contribute 32 percent each, Korea 16 percent, and ASEAN 20 percent (Appendix II-2). A decision has been reached to establish an independent "surveillance unit" to "monitor and analyze regional economies and support CMIM decision-making" as well as an "advisory panel of experts" to "work closely with the Asian Development Bank (ADB) and the ASEAN Secretariat to enhance the current surveillance mechanism in order to lay the

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[12] In November 1997, the East Asian economies, together with the United States, Canada, Australia, and New Zealand, agreed to establish the Manila Framework Group to develop a concerted approach to restoring financial stability in the East Asia. The Manila Framework undertook an initiative to create a mechanism for regional surveillance complementary to the global surveillance by the IMF. The Manila Framework terminated its function in November 2004 after 12 meetings. The failure of the Manila Framework was commonly attributed to the lack of mutual trust and lack of a professional secretariat.

[13] In October 1998, Japan pledged US$30 billion to assist Asian countries in overcoming their economic difficulties and to contribute to the stability of international financial markets, of which US$15 billion was for the medium- to long-term financial needs for economic recovery in Asian countries and another US$15 billion was for their potential short-term capital needs during the process of implementing economic reform.

surveillance groundwork for the CMIM" (Joint Media Statement of the 12th ASEAN+3 Finance Ministers' Meeting, May 2009). The CMIM is advancing toward a more institutionalized structure that operates with the support of a surveillance unit and under the guidance of an advisory panel of experts.

Box II-1: Major Progress on the CMI/CMIM

- Decision to use the ASEAN+3 framework to facilitate the exchange of consistent and timely data and information on capital flows. Agreement to promote the CMI (May 2000)
- Agreement to undertake further review of the CMI (the second phase of the CMI review) to explore ways to enhance its effectiveness (May 2004)
- Raising of the ceiling for withdrawal without an IMF program in place from 10 percent to 20 percent of the total (May 2005)
- Adoption of the collective decision-making procedure for CMI swap activation, as a step toward multi-lateralizing the CMI (May 2006)
- Agreement in principle on a self-managed reserve pooling arrangement governed by a single contractual agreement as an appropriate form of CMI multi-lateralization (CMIM) (May 2007)
- Agreement on the total size of the CMIM to be at least US$80 billion and on the proportion of contribution coming from ASEAN countries and the Plus-3 countries to be 20:80 (May 2008)
- Increase in the total size of the CMIM from US$80 billion to US$120 billion, establishment of an independent surveillance unit, and a potential increase in the IMF de-linked portion above the current limit of 20 percent (February 2009)
- Agreement on all the main components of the CMIM—including the individual country contributions, borrowing accessibility, and the surveillance mechanism—and the implementation of the CMIM before the end of 2009, including the establishment of an advisory panel of experts in addition to an independent surveillance unit (May 2009)

Sources: Kawai (2009), ASEAN+3 Finance Ministers' Meeting Statements, various years.

An important feature of the CMI is that a crisis-affected member requesting short-term liquidity support could immediately obtain financial assistance for the first 20 percent of the BSA amount, and that the remaining 80 percent would be provided to the requesting member under an IMF program. Linking the CMI to an IMF program and its conditionality was designed to address the concern that the liquidity shortage of a requesting country might be due to fundamental policy problems rather than the mere panic (i.e., herd behavior) of investors or genuine external shocks.[14] Linking the CMI to an IMF program, especially the small IMF de-linked portion, is now regarded as an impediment to countries with liquidity problems in approaching CMI for financial support. In fact, during the present financial crisis, the CMI did not significantly assist Asian countries.[15] The agreement on country contributions, particularly among the Plus-3 countries, was a momentous achievement in that the CMIM is now designed as a U.S. dollar liquidity support and has a more inclusive arrangement.[16]

2. Initiatives for Bond Market Development

Since the Asian financial crisis, Asian countries have actively pursued the development of their bond markets[17] in collaboration with each other. The promotion of the bond market development was initiated by governments and central banks in the region through diverse initiatives such as the ABMI and the ABFs.

(A) Asian Bond Markets Initiative: Supply Side

The ABMI was agreed on at the ASEAN+3 Finance Ministers' Meeting in August 2003 in Manila. Since then, ABMI Working Groups, established to address key bond

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[14] The basic idea is that the CMI, as a crisis lending facility, should require conditionality. The potential creditors under the CMI, including Japan and China, seem to believe that the region's inability to formulate and enforce effective adjustment programs in times of crisis should require the CMI to be linked to IMF programs (Kawai [2009]).

[15] For example, Korea did not choose to go to its ASEAN+3 peers for liquidity support under the CMI, given the stigma associated with the "IMF crisis" in 1997–98, even though its financial market was hit hard by the external shocks following the collapse of Lehman Brothers in September 2008.

[16] Hong Kong, China (hereafter Hong Kong) was allowed to join the CMIM without becoming a formal member of the ASEAN+3 finance ministers' process.

[17] It is well known that there are two reasons why the development of bond markets has been regarded as one of the most important policy goals in the region since the Asian financial crisis. First, the major cause of the Asian financial crisis was excessive dependence on bank-intermediated financing and foreign short-term financing, which led to currency and maturity mismatch. Second, in Asia, mobilization of the region's accumulated savings and foreign reserves in the region is needed. The development of bond markets in the region is a very effective and efficient means of resolving such problems; reducing the double mismatches in regional financing, and facilitating the mobilization of the accumulated capital in the region.

market development issues, have actively promoted the ABMI to meet the regional needs for medium- and long-term financial resources and to enable further economic development.

The ABMI aims to develop efficient and liquid bond markets in Asia, to promote increased circulation of Asian investment within the region. The ABMI mainly focuses on (i) facilitating access to bond markets for a wider variety of issuers, and (ii) building and enhancing the market infrastructure necessary to foster bond markets in the region. To further develop Asian bond markets, at the 10th ASEAN+3 Finance Ministers' Meeting in May 2007 in Kyoto, Japan, finance ministers endorsed undertaking studies in the following new areas: (i) exploring new debt instruments for infrastructure financing; (ii) promoting securitization of loan credits and receivables; and (iii) developing an Asian medium-term note (MTN) program.

In May 2008, ASEAN+3 member countries endorsed a New ABMI roadmap to further advance liquid and smoothly functioning bond markets and effectively channel the region's abundant savings to increase regional investment needs. They found it crucial to ensure countries' voluntary efforts in developing their local currency-denominated bond markets. In this regard, member countries are encouraged to develop "references for self-assessment," which will serve as their benchmarks.[18]

Given the complexity of the issues and the varying levels of bond market development, in particular, to implement the New ABMI Roadmap, the ASEAN+3 countries established the working structure (Appendix II-3);[19] a Steering Group,[20] four Task Forces (TFs),[21] a Technical Assistance Coordination Team (TACT),[22] and an *ad*

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[18] Through the self-assessment process and a kind of peer pressure, it is expected that each country will be more motivated to make voluntary efforts toward bond market development based on the stage of development of its financial market and economy.

[19] At the initial stage, six voluntary working groups were formed to address six areas. From May 2005, the six working groups were reorganized into four working groups and an *ad hoc* Support Team for the Focal Group, plus a Technical Assistance Coordination Team (TACT), and in May 2008 these four working groups and two teams were then changed to four task forces and two teams.

[20] The main roles of the Steering Group are as follows: (i) to set, review, and revise the ABMI Roadmap; (ii) to oversee and provide guidance to the activities of the Task Forces, the TACT, and Working Team; (iii) to formulate strategies to promote public awareness of the ABMI; (iv) to monitor the progress of studies by the Task Forces; (v) to assign tasks to the appropriate Task Forces or, if necessary, create a Working Team; and (vi) to promote exchanges of information among member countries on the developments of local currency-denominated and regional bond markets. The Steering Group reports to the ASEAN+3 Finance Deputies' Meeting (AFDM+3), which in turn reports to the ASEAN+3 Finance Ministers' Meeting (AFMM+3).

[21] Specifically, the four Task Forces are charged with identifying and addressing the major issues in four key areas: (TF1) promoting the issuance of local currency-denominated bonds (supply-side); (TF2) facilitating the demand for local currency-denominated bonds (demand-side); (TF3) improving

hoc Working Team.[23] The four Task Forces, the TACT, and the Working Team report to the Steering Group. Through this ABMI working structure, ASEAN+3 policymakers are promoting local-currency bond markets.

In May 2009, the ASEAN+3 Finance Ministers' Meeting agreed to establish a Credit Guarantee and Investment Mechanism (CGIM)[24] to promote the development of domestic and regional bond markets by improving companies' access to bond markets. Since then, the ABMI Task Force 1 (TF1), which addresses the issues of promoting issuance of local currency-denominated bonds, has supported the establishment of the mechanism. The main purpose of the CGIM/Credit Guarantee and Investment Facility (CGIF) is to provide credit guarantees to domestic and cross-border issuers seeking to meet their funding needs in local currencies. The ASEAN+3 countries are also undertaking studies on the possibility of creating a regional clearance and settlement system. The ABMI established the ABMF (Asian Bond Market Forum) in September 2010 to discuss various bond market issues to further develop liquid and smoothly functioning bond markets, and effectively channel the region's abundant savings toward its increasing investment needs.[25]

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the regulatory framework; and (TF4) improving the related infrastructure.

[22] The main role of the TACT is to supply the technical assistance to decreasing the disparities in bond market development levels among member countries.

[23] An *ad hoc* Working Team can be set up if necessary to execute a specific Steering Group recommendation.

[24] At the Minister of Finance and Central Bank Deputies' Meeting held in November 2009, ASEAN+3 member countries agreed to change the name of the CGIM to the Credit Guarantee and Investment Facility (CGIF) to give a better indication of the CGIM functions. Its role is to address market failures and fill a gap in the market by enhancing investment grade issuers' access to debt markets, which means that it will offer financial services not currently available in the market, and complement products currently offered by financial institutions (ADB [2009]). The CGIF, as a trust fund of the ADB with initial capital of US$700 million, will be launched soon..

[25] The ABMF will provide ASEAN+3 officials with the viewpoints and recommendations of the regions' bond market experts on issues that will be adopted by Task Force 3 (TF3) of the ABMI. The ABMF will (i) provide in-depth analysis of bond markets in the region and make intra-regional comparisons in order to identify national differences and target the market characteristics required for harmonization and standardization; (ii) explore issues to promote harmonization of bond standards to facilitate cross-border issuance and investment; and (iii) prepare a strategy and road map for the harmonization of regulations and market practices, and integration of bond markets across the region.

Box II-2: Major Progress on ABMI

- Agreement on the Asian Bond Markets Initiative (ABMI) (August 2003)
- Launch of the Asian Bonds Online Website (ABW) (May 2004)
- Provision of credit guarantees by the Japan Bank for International Cooperation (JBIC) for bonds issued by an Asian multinational company in Thailand (June 2004)
- Issuance of cross-country primary collateralized bond obligations (CBOs) (named "Pan-Asia Bonds") by Korea and Japan (December 2006)
- Issuance of ringgit-denominated bonds by the ADB and the International Finance Corporation (IFC) in Malaysia (December 2004)
- (1) Introduction of the ABMI Roadmap, proposing (i) a new framework enabling information on bond market development to be gathered and shared in an integrated manner, (ii) regular self-assessment by member countries regarding impediments to investment pointed out by market participants, and (iii) launch of a study on an Asian currency basket bond
  (2) Commencement of study of "Asian Bond Standards," to explore development of international bond markets in Asia
  (3) Adoption of voluntary "practical alternatives" for treatment of withholding tax related to bond holding (May 2005)
- Agreement on diversification of issuers and types of local currency-denominated bonds, and endorsed studies in the following new areas: (i) exploring new debt instruments for infrastructure; (ii) promotion of securitization of loan credits and receivables; (iii) promotion of an Asian MTN program (May 2007)
- (1) Endorsement of a New ABMI Roadmap aimed at (i) promoting issuance of local currency-denominated bonds, (ii) facilitating demand for local currency-denominated bonds, (iii) improving regulatory frameworks, and (iv) improving bond market-related infrastructure
  (2) A Steering Group has been established to monitor and coordinate the activities of the four Task Forces in charge of these areas (May 2008).
- Agreement on establishment of the Credit Guarantee and Investment Mechanism (CGIM) with initial capital of US$500 million (May 2009)
- Establishment of the Asian Bond Market Forum (ABMF) (September 2010)

Source: ASEAN+3 Finance Ministers' Meeting Statements, various years.

(B) Asian Bond Funds (ABFs): The Demand Side

Members of the Executives' Meeting of East Asia-Pacific Central Banks (EMEAP)[26] have sought to develop regional bond markets through the ABFs.[27] The EMEAP contributed US$1 billion to the first Asian Bond Fund (ABF1) and US$2 billion to the second Asian Bond Fund (ABF2) to invest in bonds issued by Asian entities. Central banks were to set aside a certain portion of their foreign reserves for investment in the ABFs.

(1) ABF1

In June 2003, the EMEAP announced the launch of ABF1, which initially amounted to approximately US$1 billion. ABF1 invests in a basket of U.S. dollar-denominated bonds issued by sovereign and quasi-sovereign Asian issuers in eight EMEAP economies[28] (China, Hong Kong, Indonesia, Korea, the Philippines, Malaysia, Singapore, and Thailand). The ABF1 initiative marked a milestone in cooperation among regional central banks: not only did the launch of ABF1 send a strong message to financial markets that regional authorities were committed to stepping up cooperative efforts to promote bond market development, it also paved the way for the development of ABF2. The boon to development provided by ABF1 consists of more than the first-round effect of the central banks' US$1 billion[29] investment. The Bank for International Settlements (BIS) manages ABF1 in a passive style in accordance with a specific benchmark.

(2) ABF2

[26] The EMEAP has been set up for the purpose of strengthening cooperation among its 11 members; the Reserve Bank of Australia, the People's Bank of China, the Hong Kong Monetary Authority, Bank Indonesia, the Bank of Japan, the Bank of Korea, Bank Negara Malaysia, the Reserve Bank of New Zealand, Bangko Sentral Ng Pillipinas, the Monetary Authority of Singapore, and the Bank of Thailand.
[27] Participating members of the EMEAP have established three working groups within EMEAP addressing three major issues: payment and settlement systems, financial markets, and banking supervision. The working group on financial markets has studied the feasibility of establishing an Asian bond fund, with the objectives of (i) acting as lead investor and thus serving as a catalyst to attract private investors and boost investment in Asian issues, and (ii) diversifying investment of the foreign currency-denominated assets held at central banks and monetary authorities away from U.S./ European securities and into Asian bonds.

[28] This excludes three countries (Japan, Australia, and New Zealand) with developed bond markets from the original 11 EMEAP member countries.
[29] In view of its small size, market participants believe that ABF1 may have little effect on the market for East Asian sovereign dollar bonds (Kim and Yang [2010]).

In December 2004, faced with the criticism that ABF1 could not solve the mismatch problem since it invested in U.S. dollar-denominated Asian bonds, the EMEAP established another fund, ABF2,[30] as an extension of the ABF concept. Implemented in April 2005, ABF2 invests in local currency bonds issued by sovereign and quasi-sovereign issuers in eight EMEAP economies. The objective of ABF2 is to further the impact of ABF1 and exert a stronger lasting influence on regional bond market development.

ABF2 consists of two components: a Pan-Asian Bond Index Fund (PAIF) and a Fund of Bond Funds (FoBF) (Appendix II-4). The PAIF is a single-bond index fund investing in sovereign and quasi-sovereign local currency bonds issued in eight EMEAP economies. The FoBF has a two-tiered structure, with a parent fund investing in eight single-market funds, each of which in turn invests in local currency sovereign and quasi-sovereign bonds issued in their respective markets. The PAIF and the FoBF are passively managed by private fund managers against benchmark indexes, including local currency bonds issued by sovereign and quasi-sovereign entities in the eight EMEAP economies. The PAIF, with an allocation of US$1 billion, is managed by State Street Global Advisors. Another US$1 billion is allocated to the eight single-market funds, which invest in sovereign and quasi-sovereign local currency-denominated bonds in their respective markets.

3. The Economic Surveillance System

ASEAN+3 member countries launched the ERPD, a rudimentary regional economic surveillance system, in 2002.[31] This system was designed to protect irregularities and provide opportunities for the authorities to take remedial policy action as preventive measures and to enable swap-providing countries to make swap-activation decision. Member countries were expected to implement better macroeconomic and financial sector policies and institutional reform through the ERPD. Its initial function was to facilitate economic and financial analysis of global, regional, and individual national economies; monitor regional capital flows, and

[30] Creation of ABF2 has been controversial, as there is no shortage of demand for high-quality Asian bonds denominated in Asian currencies.
[31] The ERPD was launched and developed through the informal AFDM+3: the ERPD was held at the Deputies' level twice a year to discuss economic and financial developments in the region and reported to the ASEAN+3 Finance Ministers' Meeting, which is held annually.

financial market developments; assess and effectively manage vulnerabilities and risks; and promote joint actions on issues affecting the region. Although the ERPD process has gradually improved over time, it has not been as effective as initially expected due to the insufficient supporting infrastructure for such surveillance.[32]

The recent global financial and economic crisis prompted authorities to establish a new regional surveillance unit in Singapore. The decision was reached to create the ASEAN+3 Macroeconomic Research Office (AMRO) under the CMIM to monitor and analyze the regional economies and support the CMIM mechanism. The AMRO shares objectives similar to those of the ERPD: early detections of risks, and swift implementation of policy measures and effective decision making of the CMIM. The soon-to-be-launched AMRO is expected to report on overall macroeconomic conditions and financial assessment of the ASEAN+3, including those of individual member countries. It will also deliver a consolidated surveillance report with overall and financial assessment of all individual member economies and the region as a whole during the ERPD process of the ASEAN+3.

III. Related Literature on Financial Integration

A. Theoretical Background

In theory, financial integration can produce many benefits as well as some costs. The benefits and costs of financial integration can be viewed from the perspective of sovereigns, individuals, corporate, and financial institutions.[33] It is argued that the benefits of domestic financial integration are hardly contested (Mohan [2005]).[34]

[32] Kawai (2009) indicates that one problem has been the lack of a secretariat in charge of the ERPD process, and another is the absence of central bank governors in the process. Sussangkarn (2010) also indicates that the resources available to support the mechanisms are very limited, and the officials involved in these processes only carry out the tasks on a part-time basis alongside many other regular jobs.

[33] With regard to the sequencing in the financial integration, Sundararajan et al. (2003) argue that domestic financial market integration comes first in the hierarchy, followed by global and regional integration. They also indicate that the goal of orderly sequencing is to safeguard monetary and financial stability during financial liberalization and market development with the suggestion of the hierarchical order of domestic financial markets.

[34] Mohan (2005) argues that domestic financial markets constitute a critical pillar of a market-based economy as they mobilize savings, allocate risk, absorb external financial shocks, foster good governance through market-based incentives and contribute to more stable investment financing and thus, higher economic growth, lower macroeconomic volatility and greater financial stability. Prasad et

International financial integration can provide various benefits, and much economic literature is dedicated to this subject.[35] Major benefits are risk-sharing and efficiency in resource allocation, which depend on size, composition, and quality of capital flows. Theoretical models have identified a number of direct and indirect channels through which international financial integration can help enhance economic growth (Prasad et al. [2003]). The primary theoretical channel of attaining benefits from international financial integration is improved risk sharing,[36] and the second major channel proposed to attain benefits is the alleviation of capital scarcity[37] (Obstfeld [2008]). Portfolio diversification allows the sharing of idiosyncratic risks across countries, facilitating the insurance of income against country-specific shocks, thereby smoothing consumption over time (Garcia-Herrero et al. [2008]). Overall, financial integration can help a country develop its financial sector by making resource allocation more efficient and building the economy's resilience.

Financial market integration also poses some serious risks. A major risk is that of contagion, which normally works through two channels. The real channel relates to the "domino effects" potential of real exposures on participants operating in other segments, and the information channel relates to contagious withdrawals due to lack of accurate and timely information. Increased domestic and international integration accentuates the risk of contagion, as problems in one market segment can readily be

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al. (2003) argues that development of local financial markets reduces the risks associated with excessive reliance on foreign capital, including currency and maturity mismatches.

[35] For example, Caprio and Honhan (1999) argue that financial openness may increase the depth and breadth of domestic financial markets and lead to an increase in the degree of efficiency of the financial intermediation process by lowering costs and excessive profits associated with monopolistic and cartelized markets, thereby lowering the cost of investment and improving the resource allocation. Agénor (2001) also argues that analytical arguments supporting financial openness revolve around main considerations such as the benefits of international risk sharing for consumption smoothing, the positive impact of capital flows on domestic investment and growth, enhanced macroeconomic discipline and increased efficiency as well as greater stability of the domestic financial system associated with financial openness. Levine (2001) argues that International financial integration can positively affect total factor productivity, and promote economic development by encouraging improvements in the domestic financial system. Edison et al. (2002), and Kose et al. (2006) argue that international financial integration / financial globalization, by facilitating the allocation of capital to its most productive use, should foster economic growth.

[36] In principle, countries can use equity or derivatives markets to trade the risks of income fluctuations with foreigners. This risk-sharing process, in principle, could reduce the level of consumption relative to output volatility.

[37] This effect may work by lowering the cost of capital and, perhaps transitionally, adding to the rate of growth.

transmitted to other markets and potentially cause systemic instability. In the context of globalization, conceivable costs include the high degree of concentration of capital flows and their misallocation which may hamper economic growth and exacerbate domestic distortions; the loss of macroeconomic stability; the pro-cyclical nature of short-term capital flows and the risk of abrupt reversals; the high volatility of capital flows, which relates in part to herding and contagion effects;[38] and risks associated with foreign bank penetration (Dadush et al. [2000]). Kose et al. (2006) argue that contagion and reversals of capital flows could result in higher output volatility and even lower average growth for a certain time period, although the evidence is inconclusive.

There are corresponding interactions between the trade and financial openness and integration. This channel, however, is uncertain and complicated. Most of the trade models from Dornbusch et al. (1977) to Backus et al. (1992), predict that trade openness results in a narrowing non-traded sector, and thereby an inter-dependence of the economy. Financial integration also increases the inter-dependence of the individual economy to regional and global economies. Transactions in both financial assets and traded goods in internationally integrated markets would directly and indirectly affect the cross-country synchronization of the business cycle.

In sum, international financial integration entails costs as well as benefits. It can help financial sector development and economic growth, but also raise risks of contagion in periods of crisis. Contagion risks accentuate the importance of appropriately sequencing the liberalization process and balancing the risks and benefits of integration. Today it is widely recommended that policymakers examine the pros and cons of financial integration precisely by taking full account of the real and financial situation as well as the economic climate including business cycles and financial crises.[39]

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[38] Volatility of capital flows translates into exchange rate instability (under flexible exchange rate) or large fluctuations in official reserves (under a pegged exchange rate regime) and sometimes currency crises as was observed in the East Asian crisis. For instance, nominal exchange rate volatility may hamper expansion of exports if appropriate hedging techniques are not available to exporters. Large capital inflows could also lead to rapid monetary expansion (due to the difficulty and cost of pursuing aggressive sterilization policies), inflationary pressures (resulting from the effect of capital inflows on domestic spending), real exchange rate appreciation and widening of current account deficits

[39] Stiglitz (2010) argues that we need to determine the optimal degree and form of financial integration considering benefits and costs, and that full integration is not in general optimal. Focusing on risk, he has just touched the surface of the complexities of optimal financial architectures. Even ignoring issues

B. Empirical Studies

Most popular studies on international financial integration are related to financial crises. Major empirical studies undertaken since the Asian financial crisis can be classified into the three broad categories: (i) examination of the degree of financial integration, and identification of its determinants; (ii) analysis of the impacts of financial integration; and (iii) examination of potential links between intra-regional trade and financial integration. Here we review the empirical studies from these three perspectives.

A number of approaches have been developed to evaluate the degree of financial integration in economic literature. These approaches are generally divided into three categories:[40] quantity-based measures, price-based measures, and institutional and regulatory measures. From a policy perspective, specific indicators of financial integration can be classified into *de jure* and *de facto* measures. The most frequently used *de jure* indicators are the existence of legal restrictions on trade and capital flows across border as well as the market segment. *De facto* indicators of financial integration are usually based on either prices[41] or quantities.

Most of these studies claim that the degree of financial integration in Asia still remains low compared to that of Europe. Jeon et al. (2005)[42] find that the degree of financial integration in East Asia increased during the post-Asian crisis, but East Asia has shown more financial integration with global economies than with regional economies. Garcia-Herrero and Wooldridge (2007) also assert that Asian region is

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raised by learning, information asymmetries, and institutional coordination, he has shown that full integration may be less desirable than previously thought.

[40] The quantity-based measures include measurements of openness and restrictiveness in trade and financial transactions, capital flows, output correlation, savings-investment correlation and consumption correlation. (A greater degree of openness/a lesser degree of restrictiveness is associated with greater economic integration.) The price-based measures consist of tests derived from price differentials in goods and financial markets. Variables including interest rates, price indices and asset prices have been used to assess integration. (A greater degree of economic integration is implied by a smaller price differential.) The institutional/regulatory measures include institutional and regulatory changes in the financial system and financial markets.

[41] The commonly used price-based measures for gauging price equalization and convergence of market segments include cross-market spreads, correlations among various interest rates, tests of common trend in the term structure of interest rates and volatility transmission (Reserve Bank of India [2006]).

[42] They analyzed data on cross-border bilateral holdings of financial assets and liabilities, real interest rate differentials, and consumption risk sharing using volume and price-based and international risk-sharing approaches.

financially globalized but less progress has been made towards financial integration within the region. Kim et al. (2007) estimate the degree of international capital mobility in East Asia using the saving-investment correlation originated in Feldstein and Horioka (1980). They reach a conclusion that the saving-investment correlation in East Asia steadily decreases over time but higher than that of the OECD countries, which implies that capital mobility in East Asia is lower than that in the OECD countries.

Other studies such as Kim et al. (2006), and Kim and Lee (2008) examine international risk sharing of properties of East Asia. These studies show that international risk sharing of East Asian countries is very low and far from complete: Kim et al. (2006) estimate the degree of consumption risk sharing and analyze the channels of risk sharing among the ten East Asian countries. Kim and Lee (2008) examine the real and financial integration of East Asian economies, comparing the degree of real versus financial integration, the degree of global versus regional integration, and the extent of integration before versus after the Asian financial crisis in East Asian countries. They make policy suggestions on enhancing regional financial development and integration based on their observations.[43] Jung et al. (2004) reach a similar conclusion by assessing development in financial market integration in the north East Asian countries, –Korea, China, and Japan– they analyze the institutional environment and empirical evidence of price-based measures.

Cowen et al. (2006)[44] examine trends in the intra-regional flow of goods and capital and explores linkages between the real and financial integration, and suggest institutional and regulatory reforms needed to reap the benefits while containing the

[43] Kim and Lee (2008) suggest that (i) there is a significant increase in real integration within East Asia; (ii) real-side integration based on output linkage increased substantially after the Asian crisis, both regionally and globally; (iii) although financial integration increased somewhat after the crisis, the cross-country consumption relation did not change much; (iv) the degree of regional financial integration within Asia is far smaller than the degree of global financial integration, based on the consumption-based measure; and (v) financial integration lags real integration, especially for regional integration within Asia.

[44] They show that (i) inter-regional links appear to be stronger for Asian countries than intra-regional links, suggesting that regional policymakers need to further strengthen economic ties to garner the full benefits of increased globalization and regional integration; (ii) steps to further develop domestic and regional markets, improve oversight, and strengthen mechanisms for financial sector cooperation and coordination would foster a more integrated Asian financial system; and (iii) policies which hold out the hope of fostering regional integration are also the ones that promise strong economic performances in each country, that is, national interests and regional interest seem inextricably bound together.

risks of financial integration in Asia. They also consider the implications of economic integration for the choice of the exchange rate regime and the conduct of macroeconomic policies. Zhao and Kim (2009) investigate the extent of global and regional integration in East Asia using stock price index as a measure of economic performance. They indicate that despite years of liberalization and regional integration, East Asian economies remain dissimilar and are subject to asymmetric shocks compared to European countries.

Many studies focus on proving the positive effects that financial integration has on GDP growth. Imbs (2004) shows evidence that risk-sharing is better achieved through global financial integration, all the more so the more specialised the countries are. He asserts that the EU is probably the best example of regional financial integration reinforcing economic integration. Ahn and Lee (2007) analyze the experience of East Asia's economic growth with data at aggregate-economy and micro-firm levels, focusing on the role of international integration through trade and direct investment. They show that trade openness and FDI inflows particularly in the 1970s and 1980s have a positive effect on GDP growth,[45] whereas FDI outflows appears to have a negative effect. They also suggest that the relationship between FDI outflows and productivity growth depends on the characteristics of the recipient economy.[46]

Similar studies such as Bonfiglioli (2008), and Kose et al. (2008) analyze the effects of financial integration using a large sample of countries. Bonfiglioli (2008) asserts that financial integration has a direct positive effect on productivity, while it does not directly affect capital accumulation. She also considers two types of the indirect effects, positive and negative effects of the financial integration.[47] Kose et al. (2008) find that *de jure* capital account openness has a robust positive effect on total factor productivity (TFP) growth. They also find strong evidence that FDI and portfolio equity liabilities boost TFP growth while external debt is actually negatively correlated with TFP growth. They argue that the negative relationship between

[45] They also show that micro-level evidence based on manufacturing data in Korea confirms the positive effect of trade and investment integration on plant-level productivity growth.

[46] They find that FDI to the People's Republic of China tends to reduce productivity growth of firms in Korea, while FDI to the United States or Japan works in favor of productivity growth.

[47] First, financial integration negatively affects economic growth through an increase in the probability of financial crisis. Second, financial integration positively affects economic growth through its impact on the depth of domestic financial system.

external debt liabilities and TFP growth is attenuated in economies with higher levels of financial development and better institutions. In addition, De Nicolò and Juvenal (2010)[48] argue that financial integration appears to yield direct and indirect benefits in the form of improved risk-adjusted growth, growth opportunities and lower systemic risk by analyzing data for a large number of advanced and emerging economies during the last two decades and novel measures of financial integration and globalization.

Other studies argue that the effects of financial integration differ from case to case, depending on the economic situations and financial markets. Fujiki and Terada-Hagiwara (2007) examine the impacts of increasing integration into world financial markets on several key macroeconomic variables of selected East Asian economies (EMEAP countries) and draw three main conclusions: (i) casual two-way plots among macroeconomic variables do not support the theoretical prediction of reduction in relative consumption volatility; (ii) the saving-investment correlation is higher than those of the euro area economies; and (iii) degrees of smoothing of idiosyncratic shock by cross-holding of financial assets are lower than in the Euro area economies. Osada and Saito (2010) also argue that the effects of financial integration on economic growth differ considerably, depending on the type of external assets and liabilities as well as on the characteristics of the countries involved,[49] by analyzing large international panel data.[50] They also find that countries with good institutions and developed financial markets generally benefit more from financial integration, and countries in Western Europe and North America as well as those in East Asia are more likely to meet these conditions.[51] In addition, Obstfeld (2008) reviewed various existing studies on financial integration and opening and its economic effects in

[48] They showed that (i) advances in financial integration predict improvements in countries' risk-adjusted growth opportunities at a global and regional level as well; (ii) advances in financial integration and globalization predict higher risk-adjusted growth and a lower probability of systemic risk realizations, with this predictive power being stronger for emerging market economies; and (iii) advances in financial integration and globalization are mutually reinforcing, while financial integration Granger-causes financial development and improvements in the liquidity of equity markets.

[49] When external liabilities are broken down into FDI and equity liabilities and debt liabilities, the former has a positive impact on economic growth, while the latter, especially public debt, has a negative impact.

[50] The data are during the period of 1974–2007.

[51] They also consider whether the effects of financial integration have changed over time. Finally, they provide some evidence that financial integration has an additional, indirect effect on economic growth through its impact on other determinants of growth such as the volume of international trade and the development of domestic financial markets.

extensive detail, indicating that there is no reliable evidence that output volatility reductions by mean of risk-sharing have occurred in developing countries as a result of external financial liberalization.

Regarding to the linkages between trade and financial integration, a number of research papers also try to identify the linkages including causality. General available evidence show that trade integration and financial integration are closely linked. A number of studies argue that trade leads finance. Rose and Spiegel (2002) show that the pattern of cross-border borrowing favors the creditor with higher bilateral trade volumes with the debtor with empirical evidence, by analyzing bilateral trade and bank lending data. Forbes and Chinn (2004) find that bilateral bank lending and trade competition, but not bilateral FDI, are significant determinants of cross-country links. They investigate real-financial linkages by analyzing data in five large economies and 40 developed and emerging economies over the period of 1986–2000; they find that import demand appears to be the most important determinant in the model of cross-country linkages in both stock and bond markets, specifically relating to how stocks of the world's largest economies affect local financial markets. Eichengreen and Park (2004) also argue that finance follows trade through the case study of cross-border lending and investment activities of the national banking system. They suggest that Asia is less financially integrated than Europe because it has done less to promote the growth of intra-regional trade. They also suggest some policy implications for financial integration based on their observations.[52] In addition, Shin and Yang (2006) assert that trade relations foster financial integration between the two economies, which essentially implies that bilateral trade in goods and in assets are complementary.

In contrast, some studies indicate that trade follows finance. Fukao et al. (2003) find that FDI has a strongly positive impact on vertical intra-industry trade. They also find a significantly negative impact of the geographical distance on vertical intra-industry trade. Zhang et al. (2005) find that FDI plays an important role in determining intra-industry trade, especially vertical intra-industry trade. Other determinants include geographical distance, economic size, trade openness and trade composition. Ronci (2004) suggests that external financing helps determine trade,

[52] They indicate that controls on capital account transactions can have a lingering effect on the volume of cross-border claims, and the underdevelopment of financial markets and institutions in some potential lending countries also appear to be an impediment to financial integration in the region.

particularly during crises. He shows that disruptions to external trade financing explain the fall in trade flows during the periods of crisis. Osada and Saito (2010) also provide evidence that financial integration has an impact on the volume of international trade. They argue that an increase in FDI and equity liabilities stimulates international trade, and this in turn has a positive impact on economic growth.

Based on these studies, Cowen et al. (2006) attempt to establish a link between trade and financial integration for a set of Asian economies using the IMF's trade and financial flow data. They find a positive correlation between intra-regional levels of trade flows and portfolio investment in Asia, and it is unclear which leads which. They also find that the annual trade flows and financial flows (or change in financial assets) appear to have significantly lower positive correlation. In addition, Plummer and Wignaraja (2007), argue that the post-sequencing of economic integration in Asia is developing in such a way that trade agreements will ultimately complement the movement toward financial and monetary integration.[53] Capannelli et al. (2009) argue that as integrating economies develop closer links in trade and finance, their markets become increasingly important drivers of regional economic activity.

IV. Current Situation of Economic Integration in East Asia

A. Intra-Regional Trade Flows in East Asia

Asian (especially East Asian) economies have depended heavily on trade.[54] During 1985–2009, trade growth in Asia outperformed global trade by far—increasing 1,012.7 percent, averaging 10.7 percent a year (in U.S. dollars). In the ASEAN+3, trade also increased around 10 times during the same period. As a result, the region's share of world trade has risen substantially—as seen in Table IV-1, Asia's (ASEAN+3's) trade share in the world trade increased from 17.8 (15.0) percent

[53] They evaluate the economics of monetary/financial integration and various configurations of FTAs in Asia using a variety of empirical techniques, including the computational general equilibrium (CGE) model.

[54] With regard to the role of trade for growth in East Asian economies, see Takahashi (2002).

Table IV-1: Trade Share

(As a percentage of world trade)

	Exports				Imports				Trade			
	1985	1992	1999	2009	1985	1992	1999	2009	1985	1992	1999	2009
Asia	18.9	22.6	23.9	28.5	16.7	19.8	19.9	26.4	17.8	21.2	21.8	27.5
ASEAN+3	16.4	18.4	19.7	24.2	13.7	15.4	15.4	21.0	15.0	16.9	17.5	22.6
ASEAN	3.9	5.0	6.3	6.6	3.4	5.2	5.1	6.1	3.6	5.1	5.7	6.3
Japan	9.5	9.1	7.4	4.7	6.6	6.0	5.3	4.3	8.0	7.5	6.4	4.5
China	1.5	2.3	3.4	10.2	2.1	2.1	2.8	7.9	1.8	2.2	3.1	9.0
Korea	1.6	2.1	2.5	2.8	1.6	2.1	2.1	2.7	1.6	2.1	2.3	2.7
Hong Kong	1.6	3.2	3.1	2.6	1.5	3.2	3.1	2.7	1.6	3.2	3.1	2.6
Singapore	1.2	1.7	2.0	2.2	1.3	1.9	1.9	1.9	1.3	1.8	2.0	2.0
India	0.4	0.5	0.6	1.3	0.8	0.6	0.8	2.0	0.6	0.6	0.7	1.6
Europe	56.7	49.4	47.2	43.2	61.5	52.0	46.4	41.6	59.1	50.7	46.8	42.4
EU18	48.3	43.0	40.6	35.6	52.7	45.6	39.8	34.3	50.6	44.3	40.2	34.9
US	11.4	11.9	12.2	8.5	18.3	14.2	18.0	12.4	14.9	13.1	15.1	10.5
Rest of the world	13.0	16.1	16.7	19.7	3.5	14.0	15.7	19.5	8.1	15.0	16.2	19.6
World Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Note: EU18: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, the United Kingdom, the Czech Republic, Hungary, and Poland.
Source: IMF, *Direction of Trade Statistics* (DOTS).

Table IV-2: Trade Openness

(As a percentage of own GDP)

	Exports				Imports				Trade			
	1985	1992	1999	2009	1985	1992	1999	2009	1985	1992	1999	2009
Asia	14.8	14.7	18.0	24.4	13.8	13.4	15.4	23.6	28.6	28.1	33.4	48.0
ASEAN+3	15.3	13.7	17.3	24.4	13.5	11.9	13.8	22.0	28.8	25.6	31.1	46.4
ASEAN	29.3	42.3	63.7	55.3	26.7	45.4	53.2	53.0	56.0	87.7	116.9	108.3
Japan	13.1	9.0	9.6	11.5	9.7	6.2	7.1	10.9	22.8	15.2	16.7	22.4
China	8.9	17.5	18.0	25.6	13.8	16.8	15.3	20.8	22.7	34.3	33.3	46.4
Korea	30.8	22.9	31.2	41.1	31.5	24.5	25.9	42.2	62.3	47.4	57.1	83.3
Hong Kong	85.2	115.2	106.4	151.3	83.6	118.7	110.0	165.0	168.8	233.9	216.5	316.2
Singapore	130.5	127.9	138.9	153.0	147.9	145.2	134.5	138.9	278.4	273.0	273.4	291.9
India	3.7	6.8	8.2	12.9	7.4	8.3	10.9	20.5	11.1	15.1	19.1	33.3
Europe	N/A	23.5	29.8	32.8	N/A	25.7	30.1	32.9	N/A	49.2	60.0	65.7
EU18	31.5	20.2	26.3	27.6	36.2	22.2	26.5	27.7	67.7	42.4	52.8	55.2
US	5.1	7.1	7.4	7.4	8.6	8.7	11.2	11.2	13.6	15.8	18.6	18.7

Source: IMF, DOTS.

in 1985 to 27.5 (22.6) percent in 2009. Reflecting fast trade growth, trade openness, as measured by the ratio of goods and services trade to GDP, also increased in nearly all countries in the region. In Asia (ASEAN+3), trade openness increased from 28.6

(28.8) percent in 1985 to 48.0 (46.4) percent in 2009 (Table IV-2). In contrast, trade shares of Europe (EU18) and the United States decreased from 59.1 (50.6) and 14.9 percent to 42.4 (34.9) and 10.5 percent, respectively, during the same period. Trade openness in Europe and the United States, however, increased in recent years reflecting slower GDP growth compared to the trade increase in these regions.

Table IV-3: Intra-Regional Exports

(As a percentage of total exports)

From \ To	1985 – 91			1992 – 98			1999 – 07			2008 – 09		
	Asia	Europe	United States	Asia	Europe	United States	Asia	Europe	United States	Asia	Europe	United States
Asia	36.2	18.0	27.2	43.6	16.5	22.7	45.7	18.1	20.1	46.8	19.1	14.9
ASEAN+3	32.7	17.6	30.2	41.6	16.1	23.7	46.3	16.4	20.1	52.7	15.0	12.9
ASEAN	51.5	16.0	19.8	52.2	15.9	19.0	55.4	15.7	16.0	60.0	13.9	10.6
Japan	24.5	19.0	34.1	33.5	16.6	28.8	37.5	16.9	25.9	45.4	15.5	17.2
China	65.0	14.4	8.2	55.3	15.0	17.5	43.0	21.7	20.6	36.9	25.4	18.8
Korea	32.8	14.3	32.8	42.5	14.5	18.3	45.5	17.3	16.4	48.5	16.6	10.8
HK	42.3	17.0	25.5	49.1	15.5	22.4	56.3	14.9	18.8	64.9	13.7	12.2
Singapore	48.0	16.8	22.0	52.6	17.2	19.1	59.6	16.3	13.2	65.9	14.4	6.9
India	23.1	36.8	19.4	26.6	28.8	19.1	28.6	25.4	17.3	27.8	23.0	12.1
Europe	7.1	61.8	8.3	8.0	63.6	7.3	7.0	72.2	7.2	7.6	73.1	5.5
EU18[1]	7.0	61.3	8.8	8.0	62.6	7.6	6.8	72.0	7.3	7.1	73.1	5.8
United States	23.9	24.7		25.0	21.6		22.7	22.5		22.5	23.0	
Rest of the World	19.6	16.0	38.7	21.7	17.5	38.0	24.0	13.9	40.1	30.3	17.1	28.6

Note: 1.1985-2000: EU15: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom.

Source: IMF, DOTS.

Table IV-4: Intra-Regional Imports

(As a percentage of total imports)

To \ From	1985 – 91			1992 – 98			1999 – 07			2008 – 09		
	Asia	Europe	United States	Asia	Europe	United States	Asia	Europe	United States	Asia	Europe	United States
Asia	40.1	15.9	16.9	45.9	15.2	15.8	48.1	13.6	11.2	47.4	13.0	8.1
ASEAN+3	35.4	14.8	19.9	41.8	15.1	19.3	46.9	13.1	14.2	49.0	11.7	9.4
ASEAN	48.6	16.3	14.8	52.6	15.4	14.8	55.9	12.7	12.3	58.1	11.8	8.7
Japan	26.3	14.7	22.3	32.3	15.0	22.9	38.9	13.7	16.2	39.4	11.8	10.6
China	49.0	21.5	12.1	45.4	18.8	11.6	41.9	15.8	8.4	39.4	15.2	7.4
Korea	38.3	12.0	23.1	37.7	14.5	21.6	43.2	12.6	14.3	44.8	11.4	8.9
Hong Kong	65.4	10.1	8.2	68.2	10.5	7.6	73.2	8.8	5.9	75.2	7.9	5.2
Singapore	49.7	14.9	15.8	52.9	15.1	16.4	53.9	14.2	14.0	51.7	15.6	11.9
India	17.9	33.7	10.3	19.8	26.4	9.3	24.2	20.5	7.0	29.1	18.3	6.9
Europe	11.5	58.4	6.6	11.6	61.5	6.4	12.0	69.0	5.1	12.8	69.8	4.0
EU18[1]	11.9	57.6	6.8	12.2	59.5	6.5	12.3	68.0	5.1	12.5	69.3	3.8
United States	34.3	20.4		35.9	18.7		34.1	20.1		34.2	19.5	
Rest of the World	8.3	16.3	52.0	17.5	20.7	42.4	23.7	19.9	33.7	28.4	24.6	22.9

Note: 1.1985-2000: EU15

Source: IMF, DOTS.

Intra-regional trade has grown faster than inter-regional trade in Asia;[55] as shown in Table IV-3, the share of intra-regional exports (as a share of total exports) in Asia rose from an average of 36.2 percent during 1985–91 to 46.8 percent during 2008–09. Intra-regional imports in Asia also increased (as a share of total imports) from an average of 40.1 percent during 1985–91 to 47.4 percent during 2008–09 (Table IV-4). The trade growth in Asia has been particularly remarkable in the ASEAN+3 countries.

In the ASEAN+3, which accounts for more than 80 percent of the size of the Asian economy, the share of exports to Asia (as a share of total exports) rose from 32.7 percent to 52.7 percent over the same period. The share of imports to Asia (as a share of total imports) also rose from 35.4 percent to 49.0 percent over the same period. Although intra-regional trade flows in Asia increased significantly, the intra-regional trade share is still relatively small compared to that of Europe. In Europe, the share of intra-regional exports and imports (as a share of total exports and imports) maintains a high level, over 60 percent: the share of intra-regional exports rose from 61.8 percent during 1985–91 to 73.1 percent during 2008–09, and the share of intra-regional imports in Europe also rose from 58.4 percent during to 69.8 percent over the same period.

Table IV-5 (and Appendixes IV-1 and IV-2) shows the evolution of intra-regional trade interdependence, intra-regional trade share,[56] and intra-regional trade intensity.[57]

[55] The rise in intra-regional trade has been spurred by vertical integration of production networks and supply chains, especially reflecting the integration of China with the rest of the region and the world. This rise in intra-regional trade flows in Asia has been a hallmark of the region's rapid growth and greater interdependency over the past three decades (Athukorala [2010]).

[56] A more straightforward measure of interdependence, as it shows the relative importance of internal (intra-regional) versus external trade dependence (Capannelli et al. [2009]).

[57] A more sophisticated measure showing the region's bias for trading within itself by adjusting for the country or region's relative size, that is, among partners located within the region. An intra-regional trade intensity index of more than one indicates that trade flow within the region is larger than expected given the importance of the region in the world. Intensity tends to rise when the share of the region's trade within itself rises faster than its share of world markets, not simply because the region has a larger weight in the world economy and trade (Capannelli et al. [2009]).

Table IV-5: Intra-Regional Trade Shares and Intensity Indices

	1985	1992	1995	1998	2000	2005	2009
(Intra-regional trade share,[1] percent)							
Asia	36.4	42.4	46.2	43.0	45.5	48.0	48.0
ASEAN+3	27.6	28.3	32.5	28.9	32.0	33.7	33.1
ASEAN	17.9	18.5	21.0	21.0	22.7	24.9	26.1
Japan	20.3	23.1	29.9	25.6	30.8	36.8	40.6
China	36.2	23.6	33.7	31.7	33.1	30.0	25.2
Korea	26.7	33.4	35.4	31.8	36.6	41.4	42.0
Europe	57.1	61.7	61.4	66.2	65.4	71.9	70.9
EU18	50.5	56.0	54.3	55.9	73.1	63.8	62.9
(Intra-regional trade intensity[2])							
Asia	2.0	2.0	1.9	2.0	1.9	1.9	1.7
ASEAN+3	1.5	1.3	1.2	1.3	1.3	1.3	1.1
ASEAN	5.0	3.6	3.1	3.8	3.7	4.2	4.1
Japan	1.1	1.0	1.1	1.1	1.2	1.4	1.4
China	1.9	1.1	1.3	1.4	1.3	1.1	0.9
Korea	1.4	1.5	1.3	1.4	1.5	1.6	1.5
Europe	1.0	1.2	1.4	1.4	1.5	1.6	1.7
EU18	1.0	1.3	1.4	1.4	2.0	1.7	1.8

Notes:
1. Intra-regional trade share ($IT\ Share_i$) = $(X_{ii} + M_{ii}) / (X_{iw} + M_{iw})$
where $IT\ Share_i$ = intra-regional trade share of region i X_{ii} = exports of region i to region i
M_{ii} = imports of region i from region i X_{iw} = total exports of region i to the world
M_{iw} = total imports of region i from the world
2. Intra-regional trade intensity ($IT\ Intensity_i$) = $[(X_{ii} + M_{ii}) / (X_{iw} + M_{iw})] / [(X_{iw} + M_{iw}) / (X_{ww} + M_{ww})]$
where $IT\ Intensity_i$ = intra-regional trade intensity of region i X_{iw} = total exports of region i to the world
M_{iw} = total imports of the region i from the world X_{ww} = total world exports M_{ww} = total world imports
Source: IMF, DOTS.

Intra-regional trade shares (the percentage of intra-regional trade to total trade of the region) in Asia have risen steadily over the past two decades: in 2009, the share in Asia increased to 48.0 percent from 36.4 percent in 1985, and the share among ASEAN+3 members also increased from 27.6 percent to 33.1 percent. However, the intra-regional trade share in the Asian region is still small compared to that of Europe—the intra-regional trade share in Europe (EU18) increased from 57.1 (50.5) percent in 1985 to 70.9 (62.9) percent in 2009. Intra-regional trade intensities (the ratio of the intra-regional share to the share of world's trade with the region) among the countries in the Asian region have maintained relatively steady levels despite the overall decrease in recent years: the intensity index in Asia decreased from 2.0 in 1985 to 1.7 in 2009, and the intensity index among the ASEAN+3 countries decreased from 1.5 to 1.1 during the same period. This intensity index in Asia in 2009 (1.7) is the same level as that for Europe (1.7). The intensity index among the ASEAN+3 countries (1.1), however, is considerably lower.

Examining the share of the regional contribution to Asia's trade growth, we identify some prominent features (Table IV-6). First, the ASEAN+3 countries have played a major role in expanding intra-regional trade in Asia. For example, the share of the ASEAN+3's contribution to Asia's (ASEAN+3's) trade growth during 1992–2009 is 39.5 (39.0) percent on average. The greater part of the trade growth in ASEAN and all other individual countries in the region has also been attributed to the ASEAN+3. Second, among the ASEAN+3, the Plus-3 countries have contributed much to trade growth in Asia: the share of the Plus-3 countries' contribution to the Asia's (ASEAN+3's) trade growth is 25.4 (25.6) percent on average during 1992–2009. A large part of the Plus-3 countries' trade growth has also been attributed to inter-Plus-3 countries' trade. In contrast, ASEAN has played only a minor role:[58] the share of ASEAN's contribution to Asia's (ASEAN+3's) trade growth is 14.1 (13.5) percent on average during the same period. In addition, the Plus-3 countries and ASEAN contributed to ASEAN's trade growth 25.7 percent and 26.2 percent, respectively, on average during 1992–2009. However, the contribution of ASEAN to the Plus-3 countries' trade growth has been limited (especially in regard to China's trade growth) over the entire sampled period.

[58] Abraham and Van Hove (2005) argue that ASEAN has played only a minor role in expanding intra-East Asian trade.

Table IV-6: Share of the Contribution to the Asia's Trade Growth, by Region

(as a percentage of period to period growth)[1]

	1992-98									1999-2007									2008-2009								
	Asia	ASEAN+3	ASEAN	Japan	China	Korea	Hong Kong	Singapore	India	Asia	ASEAN+3	ASEAN	Japan	China	Korea	Hong Kong	Singapore	India	Asia	ASEAN+3	ASEAN	Japan	China	Korea	Hong Kong	Singapore	India
(Exports)																											
Asia	55.0	82.7	86.7	28.1	94.8	59.2	85.1	90.3	32.8	45.1	24.4	53.2	17.5	116.0	48.6	38.5	57.4	52.1	36.0	36.9	43.2	20.8	46.6	35.2	33.1	48.3	32.7
ASEAN+3	43.7	65.1	70.7	22.4	46.6	45.1	82.3	71.0	18.2	34.9	14.5	44.3	15.7	43.9	41.6	37.5	44.9	35.0	27.1	23.7	34.2	18.7	15.6	30.0	30.8	34.7	23.2
ASEAN	19.9	29.5	42.5	14.8	0.7	21.8	10.1	49.8	11.1	10.6	3.4	22.5	1.8	0.3	7.6	2.5	27.1	17.7	10.1	7.7	17.6	4.7	0.2	9.3	2.5	21.5	11.8
Japan	8.5	12.6	17.5		34.9	7.5	9.5	10.7	3.2	6.3	4.1	7.9		29.0	5.7	2.2	3.5	1.2	3.7	4.2	5.3		8.3	1.6	0.8	1.8	1.5
China	11.4	17.5	5.3	4.0		15.8	61.1	5.0	2.5	13.7	3.8	10.2	10.3		28.3	31.3	10.6	13.0	9.9	7.9	8.4	11.0		19.2	26.9	8.2	7.0
Korea	3.9	5.6	5.4	3.6	11.0		1.5	5.5	1.5	4.2	3.2	3.8	3.6	14.5		1.5	3.6	3.1	3.4	3.8	2.9	3.0	7.2		0.5	3.2	3.0
Other Asia	11.2	17.5	16.0	5.7	48.3	14.2	2.9	19.3	14.6	10.2	9.9	9.0	1.7	72.2	7.0	1.0	12.5	17.2	8.9	13.2	9.0	2.1	31.0	5.2	2.3	13.6	9.4
Rest of the world																											
Europe	16.4	25.9	26.1	7.1	28.9	17.1	23.2	28.5	23.8	18.6	11.0	13.1	5.6	74.4	20.1	7.0	11.8	38.9	15.4	16.2	7.6	3.5	39.0	10.4	4.3	7.8	26.0
EU18	15.6	24.4	25.1	7.5	27.1	12.0	22.2	26.6	28.7	15.7	8.8	12.4	4.6	60.2	15.6	6.7	11.8	35.2	11.3	11.7	6.4	1.7	29.1	5.0	3.7	7.1	22.6
United States	20.2	31.5	30.5	11.0	42.5	6.8	32.7	28.2	20.9	15.3	7.8	10.2	4.8	66.0	14.3	5.4	3.3	27.1	6.4	7.4	2.0	-2.9	24.6	1.7	-1.2	-1.0	9.9
Others	8.4	-40.1	-43.4	53.8	-66.3	16.8	-41.1	-46.9	22.5	21.0	56.8	23.4	72.2	-156.5	17.0	49.1	27.5	-18.2	42.2	39.5	47.1	78.7	-10.2	52.7	63.8	45.0	31.4
(Imports)																											
Asia	58.0	95.8	91.4	25.5	58.5	42.3	125.2	80.5	16.1	45.5	17.6	35.9	26.8	117.9	44.3	41.8	30.8	60.2	39.4	39.2	49.5	19.6	47.0	39.3	34.0	34.2	49.8
ASEAN+3	54.8	89.4	83.4	24.5	46.7	40.5	122.6	74.5	14.6	43.5	13.3	34.2	27.1	76.6	42.2	40.7	29.0	53.5	34.2	30.5	45.5	19.2	23.4	36.0	32.6	31.3	44.2
ASEAN	16.8	26.3	33.7	10.1	0.1	10.7	19.2	36.6	7.4	14.8	4.1	18.6	7.3	0.1	10.5	8.1	17.9	21.8	12.5	9.8	23.1	6.5	0.1	8.5	7.1	14.5	15.4
Japan	16.0	28.2	35.7		28.2	18.5	23.2	27.5	1.6	6.9	1.8	1.2		41.9	12.5	1.9	-2.2	3.7	5.6	6.4	4.9		12.8	8.2	2.2	2.3	3.8
China	15.9	25.8	5.2	12.0		11.3	71.6	4.5	3.1	15.6	3.3	11.2	17.4		19.1	28.5	10.5	21.5	11.9	9.5	12.8	11.6		19.2	22.2	8.9	20.5
Korea	6.1	9.1	8.8	2.4	18.5		8.6	5.9	2.6	6.1	4.1	3.2	2.4	34.7		2.1	2.8	6.6	4.3	4.8	4.7	1.1	10.5		1.0	5.6	4.4
Other Asia	3.2	6.4	8.0	1.0	11.8	1.8	2.6	6.0	1.5	2.0	4.3	1.7	-0.3	41.3	2.1	1.2	1.8	6.7	5.1	8.8	3.9	0.5	23.6	3.3	1.4	2.9	5.6
Rest of the world																											
Europe	16.6	27.4	24.6	9.5	23.1	19.1	19.2	22.3	11.7	10.1	4.0	3.9	5.0	42.8	8.6	2.0	6.4	38.6	10.6	10.6	9.2	4.3	18.5	8.9	2.9	12.7	26.8
EU18	15.3	25.2	23.5	8.9	17.7	16.0	18.4	21.2	14.7	8.2	2.6	3.3	4.1	33.7	6.5	2.0	5.6	33.6	8.2	8.2	7.4	2.7	14.5	6.6	2.7	10.4	21.4
United States	16.9	27.1	24.8	14.6	15.3	23.2	13.0	24.5	5.7	4.1	0.4	3.6	-0.5	20.5	3.4	0.7	4.4	13.2	4.4	4.4	4.1	0.9	8.5	3.1	1.8	6.8	10.8
Others	8.5	-50.3	-40.7	50.4	3.1	15.4	-57.3	-27.3	66.5	40.3	78.0	56.6	68.7	-81.2	43.8	55.4	58.4	-12.0	45.6	45.7	37.2	75.1	26.0	48.7	61.3	46.3	12.6
(Total Trade)																											
Asia	56.4	88.8	89.1	27.0	75.9	50.8	105.2	85.1	23.1	45.3	21.1	44.4	21.5	116.9	46.5	40.2	43.8	56.4	37.6	38.0	46.1	20.2	46.8	37.2	33.5	41.6	42.6
ASEAN+3	49.0	76.4	77.2	23.3	46.6	42.8	102.4	72.8	16.1	39.0	13.9	39.1	20.6	59.3	41.9	39.1	36.8	44.9	30.5	26.8	39.5	18.9	19.2	32.9	31.7	33.1	35.4
ASEAN	18.4	28.0	38.0	12.9	0.3	16.2	14.7	42.8	8.9	12.7	3.7	20.5	4.2	0.2	9.1	5.4	22.4	19.9	11.2	8.7	20.2	5.5	0.1	8.9	4.9	18.2	13.9
Japan	12.1	19.9	26.8		31.4	13.0	16.3	19.6	2.2	6.6	3.0	4.5		35.1	9.1	2.1	0.6	2.5	4.6	5.2	5.1		10.4	4.8	1.6	2.0	2.8
China	13.6	21.3	5.3	7.3		13.6	66.3	4.8	2.9	14.6	3.5	10.7	13.3		23.8	29.9	10.6	17.5	10.8	8.7	10.5	11.3		19.2	24.5	8.5	14.8
Korea	4.9	7.2	7.1	3.1	14.9		5.1	5.7	2.1	5.1	3.6	3.5	3.1	24.0		1.8	3.2	4.9	3.8	4.3	3.7	2.1	8.7		0.7	4.3	3.8
Other Asia	7.4	12.4	11.9	3.7	29.3	8.0	2.7	12.3	7.0	6.3	7.2	5.3	0.9	57.7	4.5	1.1	7.0	11.6	7.1	11.1	6.6	1.3	27.6	4.3	1.8	8.5	7.2
Rest of the world																											
Europe	16.5	26.6	25.3	8.1	25.9	18.1	21.2	25.2	16.7	14.5	7.6	8.4	5.3	59.6	14.4	4.4	9.0	38.7	13.1	13.6	8.4	3.9	29.5	9.6	3.6	10.1	26.5
EU18	15.5	24.8	24.3	8.1	22.2	14.0	20.3	23.8	20.6	12.0	5.8	7.7	4.4	47.7	11.1	4.3	8.6	34.4	9.8	10.1	6.9	2.2	22.3	5.8	3.2	8.7	21.9
United States	18.6	29.5	27.6	12.5	28.4	15.0	22.8	26.2	12.0	9.9	4.2	6.8	2.5	44.6	8.9	3.0	3.9	19.7	5.5	6.0	3.0	-1.2	17.2	2.4	0.3	2.7	10.4
Others	8.4	-44.8	-42.0	52.4	-30.2	16.1	-49.2	-36.5	48.2	30.3	67.0	40.4	70.7	-121.1	30.2	52.4	43.3	-14.9	43.8	42.4	42.5	77.1	6.5	50.8	62.5	45.6	20.5

Source: IMF, DOTS

Note 1: For 1992~98, measured from the period 1985~91; For 1999~2007, measured from the period 1992~98; For 2008~2009, measured from the period 1999~2007

When we focus on the intra-ASEAN+3 trades by group and country, the overall trades of ASEAN and its individual member countries have depended more on the Plus-3 countries. As seen in Table IV-7, ASEAN's weights of the intra-ASEAN exports (to own GDP, Asian exports, and global exports) accounted for the same level as those of ASEAN's exports to the Plus-3 countries during 1985–2009, while the weights in the individual countries differ across countries. In addition, the Plus-3 countries have been more dependent on them than the ASEAN: Korea's exports to China and Japan, for example, stood at more than 50 percent of the total exports to Asia.

Table IV-7: Intra-ASEAN+3 Exports

From \ To	1985 – 91				1992 – 98				1999 –2007				2008 – 2009			
	Asia	ASEAN +3	ASEAN	+3	Asia	ASEAN +3	ASEAN	+3	Asia	ASEAN +3	ASEAN	+3	Asia	ASEAN +3	ASEAN	+3
(As a percentage of own GDP)																
Asia	5.0	3.7	1.4	2.3	7.1	5.5	2.3	3.1	11.2	8.7	3.2	5.5	12.8	9.7	3.6	6.2
ASEAN+3	4.8	3.3	1.3	2.0	6.6	4.8	2.3	2.5	11.0	7.7	2.9	4.8	12.7	8.6	3.0	5.5
ASEAN	18.3	15.5	6.5	8.9	25.5	21.1	11.2	9.8	38.2	31.6	16.5	15.2	36.2	29.4	15.2	14.2
Myanmar	1.9	1.3	0.7	0.6	14.2	9.9	5.4	4.4	19.6	15.4	12.0	3.4	18.7	15.3	11.9	3.4
Lao PDR	3.4	3.3	2.1	1.2	9.1	8.5	7.3	1.1	14.1	14.1	12.4	1.7	17.9	17.9	13.4	4.4
Thailand	10.2	8.5	3.3	5.2	16.9	13.9	6.8	7.1	29.9	25.4	12.1	13.3	32.7	27.1	13.3	13.8
Cambodia	2.1	2.0	1.7	0.3	9.0	8.3	7.2	1.2	6.6	4.1	3.0	1.1	6.3	6.1	4.7	1.5
Vietnam	2.8	2.2	0.9	1.2	17.3	17.9	7.1	10.8	25.0	23.8	9.5	14.3	26.7	25.2	10.5	14.7
Philippines	6.4	5.5	1.4	4.1	9.6	9.5	3.8	5.7	21.5	18.0	7.0	11.0	16.3	13.3	4.5	8.8
Malaysia	34.7	30.9	16.1	14.8	42.2	37.4	22.5	14.9	54.1	45.1	25.3	19.8	52.5	43.7	22.9	20.9
Brunei Darussalam	60.8	60.8	13.4	47.4	69.6	66.6	16.5	50.0	46.1	45.3	13.7	31.6	62.8	60.3	20.0	40.3
Singapore	67.8	49.4	31.3	18.0	70.3	53.8	36.6	17.3	102.4	79.3	50.7	28.6	110.2	82.6	52.1	30.5
Indonesia	12.2	11.6	2.1	9.5	13.2	12.3	3.8	8.5	17.5	15.6	5.3	10.3	14.8	12.8	4.9	7.9
Japan	2.4	1.8	0.9	0.9	3.0	2.3	1.4	1.0	4.6	3.8	1.5	2.2	6.2	5.3	1.8	3.4
China	8.4	2.2	0.0	2.2	10.2	4.1	0.1	4.0	12.6	4.8	0.0	4.8	10.5	3.8	0.0	3.7
Korea	9.0	6.8	1.8	5.1	11.0	8.4	3.4	5.0	15.1	12.3	3.4	8.8	21.1	17.5	5.1	12.4
(As a percentage of the Asia's total exports)																
Asia	100.0	74.1	27.5	46.6	100.0	77.4	32.8	44.6	100.0	77.4	28.1	49.3	100.0	76.5	28.0	48.4
ASEAN+3	100.0	69.3	28.0	41.4	100.0	72.2	34.8	37.4	100.0	70.1	26.4	43.7	100.0	67.5	23.9	43.6
ASEAN	100.0	84.4	35.7	48.7	100.0	82.6	44.1	38.5	100.0	82.9	43.2	39.7	100.0	81.3	42.1	39.1
Myanmar	100.0	67.1	36.0	31.1	100.0	69.6	38.2	31.4	100.0	78.5	61.0	17.5	100.0	82.0	64.0	18.0
Lao PDR	100.0	97.9	63.6	34.3	100.0	92.7	80.3	12.4	100.0	99.8	87.9	12.0	100.0	99.6	74.8	24.8
Thailand	100.0	83.6	32.0	51.6	100.0	82.7	40.3	42.3	100.0	84.9	40.5	44.4	100.0	82.8	40.8	42.0
Cambodia	100.0	95.0	79.7	15.4	100.0	93.1	80.0	13.1	100.0	62.6	46.2	16.5	100.0	97.8	74.1	23.7
Vietnam	100.0	78.6	33.7	44.9	100.0	103.5	41.1	62.4	100.0	95.3	37.9	57.4	100.0	94.2	39.2	55.0
Philippines	100.0	85.6	21.7	63.9	100.0	98.8	39.6	59.2	100.0	83.9	32.8	51.1	100.0	81.5	27.4	54.1
Malaysia	100.0	88.9	46.2	42.7	100.0	88.6	53.3	35.3	100.0	83.5	46.8	36.7	100.0	83.4	43.6	39.8
Brunei Darussalam	100.0	100.0	22.0	78.0	100.0	95.6	23.7	71.9	100.0	98.3	29.7	68.7	100.0	96.0	31.8	64.2
Singapore	100.0	72.8	46.2	26.6	100.0	76.6	52.0	24.6	100.0	77.5	49.5	27.9	100.0	75.0	47.3	27.7
Indonesia	100.0	94.8	17.0	77.8	100.0	93.7	29.1	64.5	100.0	89.2	30.1	59.0	100.0	86.9	33.1	53.8
Japan	100.0	75.1	37.1	38.1	100.0	77.6	45.5	32.1	100.0	81.9	33.5	48.4	100.0	84.7	29.7	55.0
China	100.0	26.3	0.5	25.9	100.0	39.8	0.6	39.2	100.0	38.5	0.4	38.1	100.0	35.9	0.4	35.5
Korea	100.0	76.4	19.7	56.7	100.0	76.2	30.7	45.5	100.0	81.2	22.7	58.6	100.0	83.0	24.3	58.8
(As a percentage of the global total exports)																
Asia	36.2	26.8	10.0	16.9	43.6	33.7	14.3	19.4	46.0	35.6	12.9	22.7	46.8	35.8	13.1	22.7
ASEAN+3	36.0	25.0	10.1	14.9	43.6	31.5	15.2	16.3	45.7	32.0	12.1	20.0	46.3	31.3	11.1	20.2
ASEAN	51.5	43.5	18.4	25.1	52.2	43.1	23.0	20.1	56.1	46.5	24.2	22.3	60.0	48.8	25.3	23.5
Myanmar	59.6	40.0	21.4	18.6	56.3	39.1	21.5	17.7	69.8	54.7	42.6	12.2	85.9	70.4	54.9	15.5
Lao PDR	73.1	71.6	46.5	25.1	53.7	49.8	43.1	6.7	52.3	52.2	45.9	6.3	64.0	63.8	47.9	15.9
Thailand	39.4	32.9	12.6	20.3	46.1	38.1	18.6	19.5	51.1	43.4	20.7	22.7	54.0	44.7	22.0	22.7
Cambodia	64.7	61.5	51.5	9.9	50.7	47.2	40.6	6.7	16.1	10.1	7.4	2.6	16.8	16.4	12.4	4.0
Vietnam	35.4	27.8	11.9	15.9	49.3	51.0	20.2	30.8	44.1	42.0	16.7	25.3	41.3	38.9	16.2	22.7
Philippines	35.8	30.6	7.8	22.9	32.1	31.7	12.7	19.0	50.0	41.9	16.4	25.5	59.3	48.4	16.2	32.1
Malaysia	57.5	51.1	26.6	24.5	51.2	45.3	27.3	18.0	54.6	45.6	25.6	20.0	59.5	49.6	25.9	23.7
Brunei Darussalam	90.3	90.3	19.9	70.4	93.9	89.8	22.3	67.5	77.8	76.5	23.1	53.4	86.1	82.7	27.4	55.3
Singapore	48.0	34.9	22.2	12.8	52.6	40.3	27.4	12.9	60.7	47.0	30.1	17.0	65.9	49.4	31.2	18.2
Indonesia	63.1	59.8	10.7	49.1	55.0	51.5	16.0	35.5	60.0	53.5	18.1	35.4	61.6	53.5	20.4	33.1
Japan	24.5	18.4	9.1	9.3	33.5	26.0	15.2	10.8	38.4	31.5	12.9	18.6	45.4	38.5	13.5	25.0
China	65.0	17.1	0.3	16.8	55.3	22.0	0.3	21.7	42.3	16.3	0.2	16.1	36.9	13.2	0.1	13.1
Korea	32.8	25.1	6.5	18.6	42.5	32.3	13.0	19.3	46.0	37.3	10.4	26.9	48.5	40.2	11.8	28.5

Source: IMF, DOTS.

In term of imports, the ASEAN and the Plus-3 countries were both more dependent on the Plus-3 countries during 1985–2009 (Table IV-8). In ASEAN, Thailand, the Philippines, Malaysia, Singapore, and Indonesia have depended relatively more on the Plus-3 countries than ASEAN. In addition, the weights of Korean imports from China and Japan surpassed 70 percent of the total imports from Asia during the entire period.

Table IV-8: Intra-ASEAN+3 Imports

To \ From	1985-91				1992-98				1999-2007				2008-2009			
	Asia	ASEAN +3	ASEAN	+3	Asia	ASEAN +3	ASEAN	+3	Asia	ASEAN +3	ASEAN	+3	Asia	ASEAN +3	ASEAN	+3
(As a percentage of own GDP)																
Asia	5.0	4.4	1.4	3.0	6.9	6.3	2.0	4.4	10.7	10.1	3.3	6.8	12.4	11.3	3.9	7.4
ASEAN+3	4.3	3.6	1.3	2.3	5.7	5.0	1.7	3.2	9.5	8.2	2.6	5.6	11.3	9.3	2.9	6.4
ASEAN	18.0	16.6	5.8	10.8	26.9	24.6	9.5	15.1	33.5	31.2	14.1	17.1	33.7	31.2	14.9	16.3
Myanmar	3.1	3.0	1.0	1.9	38.8	37.7	20.3	17.4	28.1	26.5	14.4	12.1	22.4	21.4	12.0	9.4
Lao PDR	8.0	7.8	5.5	2.3	24.2	25.2	21.6	3.6	41.6	41.0	35.2	5.8	46.4	45.9	37.9	8.0
Thailand	17.3	16.1	4.5	11.6	21.5	18.7	5.3	13.4	30.9	29.2	9.7	19.5	32.3	30.5	10.4	20.2
Cambodia	3.2	2.9	2.1	0.8	32.0	27.5	21.0	6.5	37.0	29.4	19.4	10.0	60.8	54.7	40.6	14.1
Vietnam	2.6	2.1	1.2	0.9	25.2	25.4	12.5	12.8	44.9	41.3	17.2	24.1	52.6	47.0	20.0	27.0
Philippines	9.7	8.4	2.5	5.9	18.1	16.4	5.0	11.4	23.4	21.1	8.1	13.0	20.2	18.3	8.9	9.5
Malaysia	28.2	26.5	10.8	15.6	42.1	40.1	16.0	24.1	47.4	44.3	19.5	24.8	43.3	40.1	19.8	20.3
Brunei Darussalam	15.0	14.5	9.7	4.9	37.0	32.1	25.0	7.1	15.7	14.9	12.1	2.8	16.6	16.2	13.0	3.2
Singapore	79.0	72.3	28.5	43.8	74.4	68.6	31.2	37.4	82.0	76.1	39.2	37.0	80.1	74.0	36.6	37.3
Indonesia	6.5	6.2	1.5	4.7	8.2	7.6	2.3	5.3	9.6	9.1	4.6	4.5	15.7	14.6	8.1	6.5
Japan	1.9	1.7	0.9	0.7	2.1	2.0	1.0	1.0	4.0	3.8	1.5	2.4	5.2	5.0	1.9	3.2
China	6.9	3.1	0.0	3.0	7.4	4.7	0.0	4.7	10.6	6.9	0.0	6.9	9.0	5.1	0.0	5.1
Korea	10.4	9.8	1.9	7.9	9.6	9.1	2.1	7.0	13.3	12.7	3.1	9.6	20.0	18.7	4.5	14.2
(As a percentage of the Asia's total imports)																
Asia	100.0	87.8	28.0	59.7	100.0	91.8	28.6	63.2	100.0	93.6	30.6	63.1	100.0	90.6	31.1	59.5
ASEAN+3	100.0	83.7	30.8	52.9	100.0	88.0	30.8	57.2	100.0	86.5	27.0	59.5	100.0	82.4	26.0	56.4
ASEAN	100.0	92.3	32.5	59.9	100.0	91.7	35.4	56.3	100.0	93.1	42.0	51.1	100.0	92.6	44.2	48.4
Myanmar	100.0	96.7	33.7	63.0	100.0	97.2	52.4	44.8	100.0	94.6	51.4	43.1	100.0	95.5	53.5	42.0
Lao PDR	100.0	98.0	69.2	28.9	100.0	104.0	89.0	15.1	100.0	98.6	84.7	13.9	100.0	98.8	81.7	17.1
Thailand	100.0	92.9	26.0	67.0	100.0	87.0	24.7	62.3	100.0	94.7	31.6	63.2	100.0	94.6	32.1	62.5
Cambodia	100.0	88.2	64.3	23.9	100.0	86.0	65.8	20.2	100.0	79.5	52.4	27.1	100.0	90.1	66.8	23.3
Vietnam	100.0	79.8	45.6	34.3	100.0	100.4	49.7	50.7	100.0	91.9	38.2	53.7	100.0	89.4	38.1	51.3
Philippines	100.0	85.9	25.8	60.1	100.0	90.4	27.4	63.0	100.0	90.2	34.8	55.4	100.0	90.9	43.9	47.0
Malaysia	100.0	93.8	38.4	55.4	100.0	95.2	38.0	57.2	100.0	93.4	41.2	52.2	100.0	92.6	45.7	46.8
Brunei Darussalam	100.0	97.3	64.8	32.5	100.0	86.8	67.7	19.1	100.0	94.5	76.7	17.8	100.0	97.9	78.6	19.3
Singapore	100.0	91.5	36.1	55.4	100.0	92.2	41.9	50.2	100.0	92.9	47.8	45.1	100.0	92.3	45.7	46.6
Indonesia	100.0	95.6	22.8	72.8	100.0	92.8	28.2	64.7	100.0	94.4	47.3	47.1	100.0	93.4	51.8	41.6
Japan	100.0	89.8	50.2	39.7	100.0	92.8	45.0	47.9	100.0	96.6	37.0	59.6	100.0	97.0	35.7	61.3
China	100.0	44.6	0.4	44.2	100.0	63.8	0.2	63.5	100.0	64.6	0.1	64.5	100.0	56.7	0.1	56.6
Korea	100.0	94.4	18.5	75.9	100.0	95.1	22.0	73.0	100.0	95.2	23.0	72.2	100.0	93.5	22.4	71.1
(As a percentage of the global total imports)																
Asia	40.1	35.2	11.2	23.9	45.9	42.1	13.1	29.0	48.4	45.3	14.8	30.5	47.4	43.0	14.8	28.2
ASEAN+3	37.1	31.1	11.5	19.6	42.3	37.2	13.0	24.2	45.8	39.6	12.4	27.3	45.6	37.5	11.9	25.7
ASEAN	48.6	44.9	15.8	29.1	52.6	48.2	18.6	29.6	56.5	52.6	23.7	28.9	58.1	53.9	25.7	28.2
Myanmar	65.8	63.6	22.2	41.5	84.5	82.2	44.3	37.8	89.6	84.7	46.1	38.6	93.2	89.0	49.9	39.1
Lao PDR	83.4	81.7	57.7	24.1	75.9	78.9	67.5	11.4	90.6	89.3	76.7	12.6	91.3	90.2	74.6	15.7
Thailand	52.2	48.5	13.6	35.0	54.1	47.1	13.3	33.7	54.9	52.0	17.3	34.7	55.2	52.2	17.7	34.5
Cambodia	59.9	52.8	38.5	14.3	82.7	71.1	54.4	16.7	81.3	64.6	42.6	22.1	88.3	79.5	59.0	20.6
Vietnam	20.0	15.9	9.1	6.8	58.5	58.7	29.1	29.7	67.4	61.9	25.7	36.2	59.7	53.3	22.7	30.6
Philippines	40.6	34.9	10.5	24.4	46.9	42.4	12.9	29.6	52.3	47.2	18.2	29.0	56.8	51.6	24.9	26.7
Malaysia	52.1	48.9	20.0	28.9	54.3	51.7	20.7	31.1	58.5	54.6	24.1	30.6	61.5	57.0	28.1	28.8
Brunei Darussalam	59.0	57.4	38.2	19.2	64.3	55.8	43.5	12.3	67.8	64.1	52.0	12.1	81.2	79.5	63.8	15.7
Singapore	49.7	45.4	17.9	27.5	52.9	48.8	22.2	26.6	54.3	50.4	25.9	24.5	51.7	47.8	23.6	24.1
Indonesia	44.1	42.2	10.1	32.1	47.4	44.0	13.3	30.6	55.3	52.2	26.1	26.0	67.3	62.9	34.8	28.0
Japan	26.3	23.6	13.2	10.4	32.3	29.9	14.5	15.4	39.7	38.4	14.7	23.7	39.4	38.2	14.1	24.2
China	49.0	21.9	0.2	21.7	45.4	29.0	0.1	28.9	41.6	26.9	0.0	26.9	39.4	22.4	0.1	22.3
Korea	38.3	36.2	7.1	29.1	37.7	35.9	8.3	27.6	44.0	41.9	10.1	31.8	44.8	41.9	10.0	31.9

Source: IMF, DOTS.

B. Intra-Regional Financial Flows in East Asia

Financial integration is measured using a number of approaches outlined in the economic literature, which are generally divided into three categories: quantity-based measures, price-based measures, and institutional/regulatory measures. This section investigates evidence based on the following three measures: (i) recent trends in portfolio investments as quantity-based measures; (ii) co-movements of various financial market rates with the uncovered interest parity (UIP) condition and causalities of the stock market returns among the selected countries in East Asia as price-based measures; and (iii) cross-border investment and settlement regulations in East Asia as institutional and regulatory measures.

1. Quantity-Based Measures

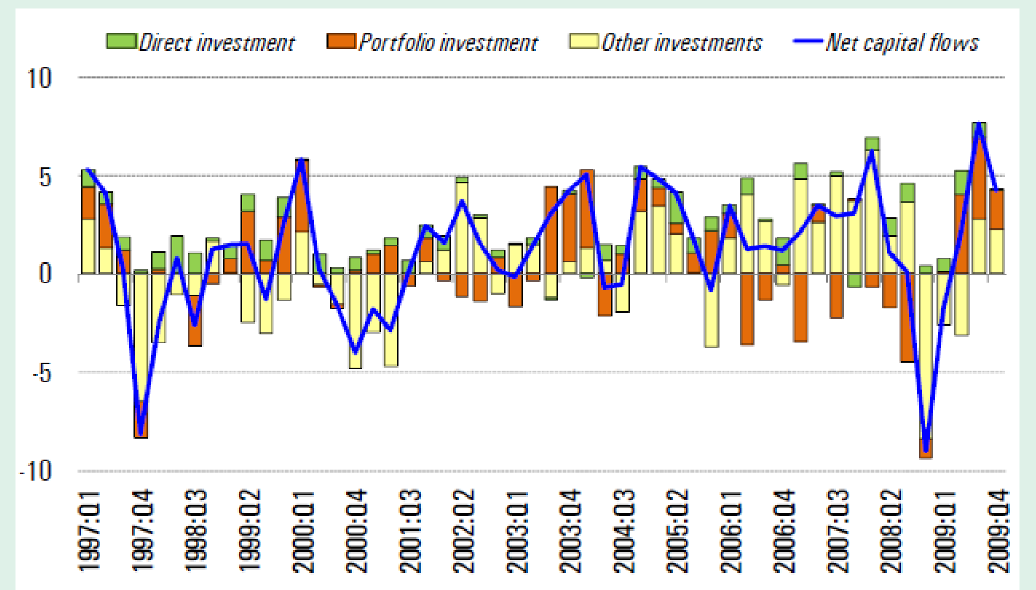
Here, we analyze the recent trends in cross-border portfolio investments and banks' borrowing and lending using the data from the IMF and the BIS.[59] In terms of overall financial flows, Asia has generally benefited from the surge in net capital flows to emerging markets, with substantial foreign investment[60] until the recent outbreak of the global crisis. Although the net capital inflow trend showed a sharp flight of capital from emerging Asia in 2008 and early 2009 during the spread of the global crisis, net capital inflows recently bounced back to a historic high[61] (Figure IV-1). As shown in Figure IV-2, the Asian region recently received more than half of the global supply of capital flows.

[59] Available data from these institutions have limitations such as limited bilateral financial flows and stock data, with gaps in both time and country coverage. Thus, it is complicated to assess the degree of financial integration at a regional level.

[60] Following the Asian financial crisis, FDI remained at around the same level even though there was a dramatic decrease in bank loans in East Asian countries (Takahashi [2002]).

[61] According to the analysis of the IMF (2010), the turnaround was quicker and larger than in previous instances of reversal of capital inflows, largely due to the rapid normalization of global financial conditions, undoubtedly helped by very low policy rates in the advanced countries. In particular, portfolio and cross-border bank flows rebounded sharply after the steep retrenchment in late 2008 and early 2009. IMF (2010) also indicated that the two most important factors driving net capital inflows to the region are growth differentials relative to the United States and the degree of global risk aversion. A somewhat smaller role is also played by relatively higher interest rates in Asia, although expectations of exchange rate appreciation of Asian currencies may have boosted carry trade flows to the region.

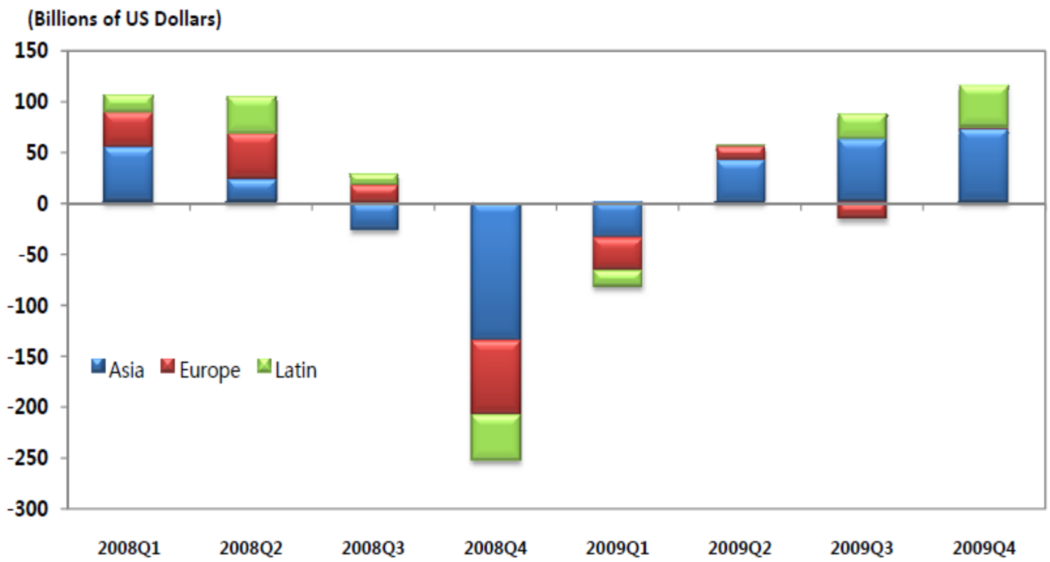
Figure IV-1: Selected Emerging Asia—Net Capital Inflows
(As a percentage of GDP)



Sources: CEIC Data Company Ltd.; and IMF, *Balance of Payments Statistics*.
[1] Does not include China and Vietnam due to data limitations, and the financial centers, Hong Kong SAR and Singapore.

Sources: IMF, *Regional Economic Outlook*, April 2010.

Figure IV-2: Global Capital Inflows[1] to Emerging Markets



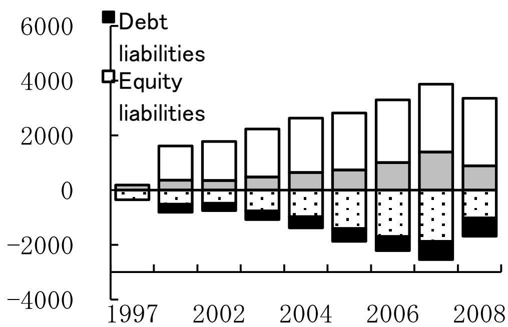
Note: 1: Changes in foreign portfolio investment and bank loans.
Sources: Choi (2010).

According to the IMF's *Coordinated Portfolio Investment Survey* (CPIS), foreign portfolio investment liabilities in selected countries[62] in Asia rose by 241.2 percent during 1997–2008 to US$1.9 trillion (3.1 percent of the global total or 13.6 percent of Asia's GDP), although there was a sharp decrease in 2008 with the spread of the global crisis (Figure IV-3). When we divide liabilities by type, equity liabilities amount to around 70 percent of the total liabilities. When we review the debt liabilities by period, short-term debt liabilities are smaller compared to long-term debt liabilities (Figure IV-4).

During the same period, Asia became a major portfolio investor in the global market. Asia's cross-border portfolio investment assets increased 256.9 percent to US$3.36 trillion (5.5 percent of the global total or 24.0 percent of Asia's GDP) from 1997 to 2008, although there was some decrease in 2008 with the spread of the global crisis (Figure IV-3). In terms of the composition of assets by type, debt assets—composed mostly of long-term debt assets—amounted to the greater part of total assets, in contrast to the ratio of debt liabilities to total liabilities. Although Asia's equity securities increased relatively faster than debt securities, they accounted only for approximately 30 percent of the total portfolio investment assets.

Figure IV-3: Asia's Foreign Portfolio Investment Assets and Liabilities, by Type

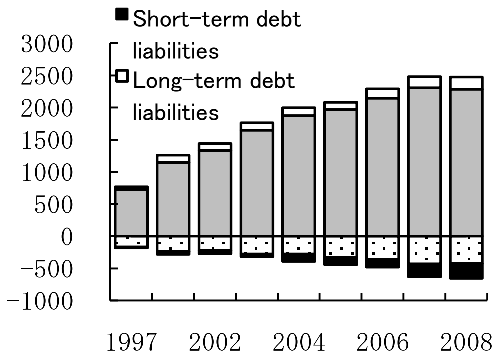
(Billions of U.S. dollars)



Source: IMF, CPIS.

Figure IV-4: Asia's Foreign Portfolio Investment Debt Assets and Liabilities, by Period

(Billions of U.S. dollars)



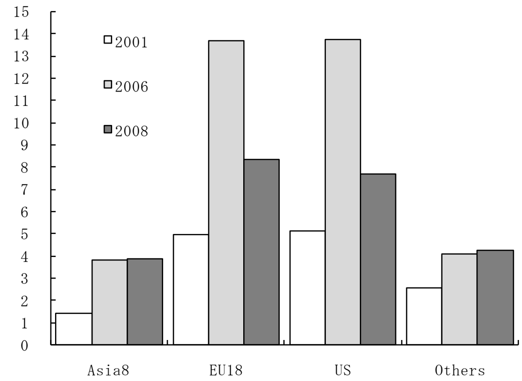
Source: IMF, CPIS.

62 Hong Kong, India, Indonesia, Japan, Korea, Macao, Malaysia, Pakistan, the Philippines, Singapore, and Thailand.

Despite a continuous increase in absolute terms and as a share of GDP, Asia's intra-regional cross-border portfolio investment is relatively small. As seen in Figure IV-5, the ASEAN+3's portfolio liabilities to selected Asian countries only amounted to 3.9 percent of Asia's GDP in 2008, smaller than the liabilities to the United States (7.7 percent) and that of the EU (8.4 percent). Moreover, liabilities to these regions rose by a larger amount during 2001–08 than intra-regional liabilities.

Figure IV-5: ASEAN+3's Foreign Portfolio Investment Liabilities, by Origin

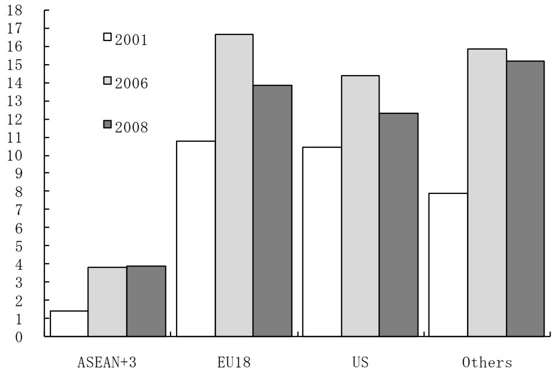
(In percent of Asia8's GDP)



Source: IMF, CPIS

Figure IV-6: Asia8[1]'s Foreign Portfolio Investment Assets, by Region

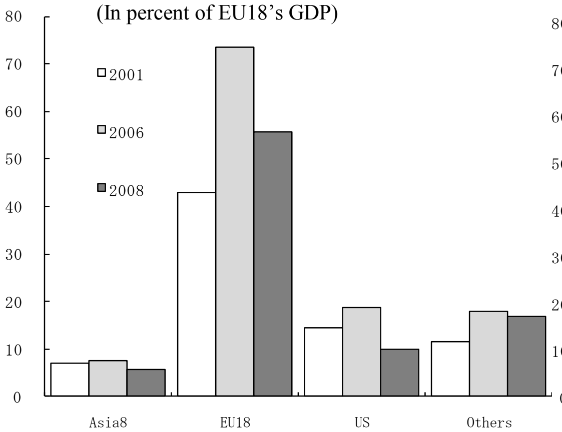
(In percent of Asia8's GDP)



Source: IMF, CPIS

Figure IV-7: EU18's Foreign Portfolio Investment Liabilities, by Origin

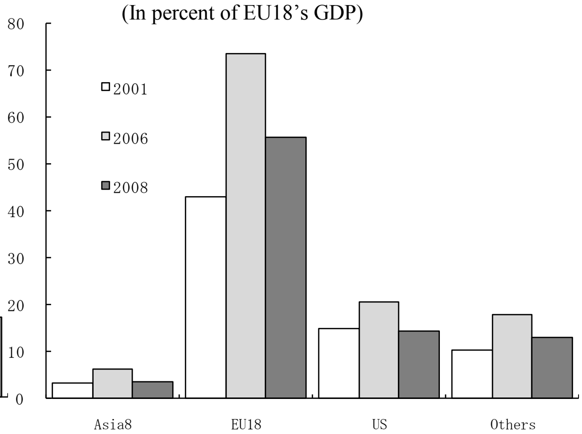
(In percent of EU18's GDP)



Source: IMF, CPIS

Figure IV-8: EU18's Foreign Portfolio Investment Assets, by Region

(In percent of EU18's GDP)



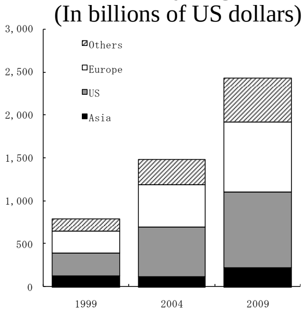
Source: IMF, CPIS

Note 1: Hong Kong, Indonesia, Japan, Korea, Malaysia, the Philippines, Singapore, and Thailand

A similar pattern holds for Asia's portfolio investment assets (Figure IV-6). Selected Asian countries' investments as a percentage of their GDP in either the United States (12.3 percent) or the EU (13.9 percent) were more than three times that within Asia (3.9 percent), although intra-regional asset holdings by Asia grew faster than inter-regional holdings during 2001–08.

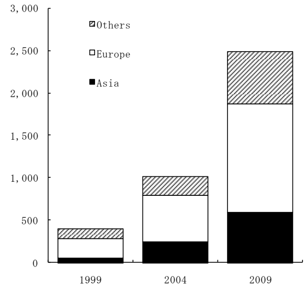
In contrast to the situation in Asia, in the EU the weights of the intra-regional portfolio liabilities and assets maintained very high levels (Figures IV-7 and IV-8). Intra-regional foreign portfolio investment liabilities and assets (as a share of the region's GDP) in the EU accounted for 74.5 percent in 2006, and stood at 57 percent despite the abrupt decrease in absolute terms and share due to the spread of the global crisis. Intra-regional portfolio investments in the EU were the main source of growth in cross-border flows for the region, and intra-regional portfolio investments in the region were mostly composed of debt liabilities and debt assets (especially long-term debt liabilities and assets).

Figure IV-9: Japanese Banks' Foreign Claims, by Region
(In billions of US dollars)



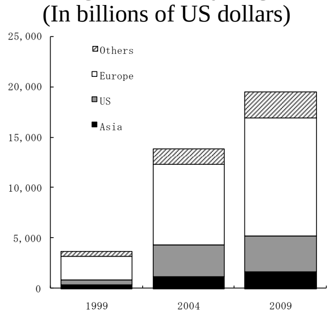
Source: BIS

Figure IV-10: US Banks' Foreign Claims, by Region
(In billions of US dollars)



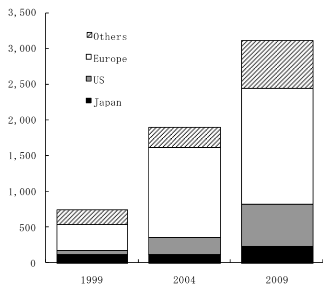
Source: BIS

Figure IV-11: European Banks' Foreign Claims, by Region
(In billions of US dollars)



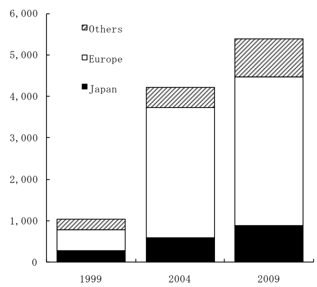
Source: BIS

Figure IV-12: Foreign Banks' Foreign Claims on Asia, by Origin
(In billions of US dollars)



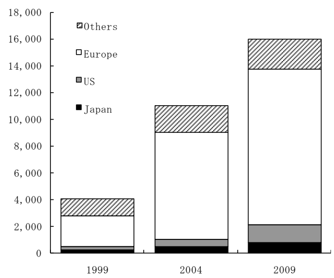
Source: BIS

Figure IV-13: Foreign Banks' Foreign Claims on US, by Origin
(In billions of US dollars)



Source: BIS

Figure IV-14: Foreign Banks' Foreign Claims on Europe, by Origin
(In billions of US dollars)



Source: BIS

Asian countries correspondingly depend more on inter-regional flows than intra-regional flows in cross-border borrowing and lending. According to BIS statistics,[63] for example, total cross-border claims by Japanese banks increased more than three times (206.3 percent) during 1999–2009: claims by Japanese banks on either the United States or European countries increased to more than three times, respectively. However, by contrast, Japanese banks' cross-border claims on Asia increased only 82.6 percent during the same period (Figure IV-9). Similarly, the U.S. banks' or European banks' claims on Asia were much larger, and grew faster than Japanese banks' claims on Asia: U.S. banks' and European banks' foreign claims on Asia increased 1,074 and 527.4 percent, respectively, during 1999–2009 (Figures IV-10 and IV-11).

Foreign banks' foreign claims on each region, by origin, show a similar pattern. As Figure IV-12 shows, the share of the U.S. and European banks' foreign claims on Asia in the total claims on Asia by all BIS reporting foreign banks increased from 6.8 and 48.2 percent in 1999 to 19.0 and 52.1 percent in 2009. By contrast, foreign banks' claims within the European countries were primarily intra-regional: the share of the foreign claims by European banks on Europe in the total claims on Europe accounted for 72.4 percent in 2004 and 72.8 percent in 2009 (Figure IV-14). The share of the European banks' foreign claims on the United States in the total claims on the United States by all BIS reporting foreign banks also maintained high levels, accounting for 74.5 percent in 2004 and 66.7 percent in 2009 (Figure IV-13).

2. Price-Based Measures

In this section, we examine the financial integration with three sets of price-based measures**:** correlations of the money and bond market rates, the UIP condition, and co-movement of stock market indices and returns with their causalities among the selected countries in East Asia and the United States. Considering the weight and importance in the Asian and global economy, we primarily explore the development of financial integration among the three major countries in Asia: Japan, China, and Korea.

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[63] Cross-border bank flow data are BIS-reporting banks only. Bilateral data for reporting banks in Asia are published by BIS for only Japan and Chinese Taipei. However, the time-series data for Chinese Taipei's banks are not available for the period of analysis.

(1) Co-Movements in Money and Bond Market Rates

Here we measure the correlation among the money and bond markets in the United States, and Japan, China, and Korea. As for the money market interest rates, yields of certificates of deposit (CDs)[64] (negotiable CDs) and interest rates in interbank markets (the federal funds [FF] markets for the United States) are used. We use monthly money market average rates, and split the timeline (1992.1–2010.6) into four periods: before the Asian financial crisis (1992.1–1996.12); during the crisis (1997.1–1998.12); after the crisis (1999.1–2010.6); and the recent period (2007.3–2010.6), considering availability of the benchmarking data.

Table IV-9: Correlation of the Money Market Rates

	United States	Japan	Korea	China
(1992.1–2010.6)				
United States	1.000	0.099	0.510	0.396
Japan	0.099	1.000	0.687	0.458
Korea	0.510	0.687	1.000	0.669
China	0.396	0.458	0.669	1.000
(1992.1–1996.12)				
United States	1.000	-0.738	-0.095	0.422
Japan	-0.738	1.000	0.600	-0.587
Korea	-0.095	0.600	1.000	-0.393
China	0.422	-0.587	-0.393	1.000
(1997.1–1998.12)				
United States	1.000	0.092	0.458	0.462
Japan	0.092	1.000	0.671	-0.508
Korea	0.458	0.671	1.000	-0.177
China	0.462	-0.508	-0.177	1.000
(1999.1–2010.6)				
United States	1.000	0.287	0.767	0.291
Japan	0.287	1.000	0.198	0.607
Korea	0.767	0.198	1.000	0.464
China	0.291	0.607	0.464	1.000
(2007.3–2010.6)				
United States	1.000	0.906	0.849	0.572
	(1.000)	(0.716)	(0.853)	(0.690)
Japan	0.906	1.000	0.935	0.798
	(0.716)	(1.000)	(0.861)	(0.770)
Korea	0.849	0.935	1.000	0.865
	(0.853)	(0.861)	(1.000)	(0.908)
China	0.572	0.798	0.865	1.000
	(0.690)	(0.770)	(0.908)	(1.000)

Note: Parentheses indicate interbank rates. For Japan: TIBOR; for Korea: KORIBOR; for China: the interbank rate; for the United States: the FF rate.
Source: Bloomberg.

[64] In the case of China, we use the deposit rate (three months), because the data are not available.

As we see in Table IV-9, the money market rates in four countries show increasing correlations after the Asian financial crisis. First, the three Asian money markets move tightly with the U.S. money market after the crisis: Japan and Korea changed to positive correlations after the Asian financial crisis, showing an increasing trend, and China maintained a positive correlation. Second, money markets in the three countries also moved closely with each other: the Korean money market maintained positive correlations with the Japanese market, and China changed to a high positive correlation with Japan and Korea after the Asian financial crisis, compared to the pre-crisis period's negative correlations.

Table IV-10: Correlation of the Bond Market Rates

	United States	Japan	Korea	China
(1995.5–2010.6)				
United States	1.000	0.678	0.763	n.a.
Japan	0.678	1.000	0.625	n.a.
Korea	0.763	0.625	1.000	n.a.
China	n.a.	n.a.	n.a.	1.000
(1995.5–1996.12)				
United States	1.000	0.451	0.175	n.a.
Japan	0.451	1.000	0.153	n.a.
Korea	0.175	0.153	1.000	n.a.
China	n.a.	n.a.	n.a.	1.000
(1997.1–1998.12)				
United States	1.000	0.884	0.251	n.a.
Japan	0.884	1.000	0.149	n.a.
Korea	0.251	0.149	1.000	n.a.
China	n.a.	n.a.	n.a.	1.000
(1999.1–2010.6)				
United States	1.000	0.488	0.756	n.a.
Japan	0.488	1.000	0.275	n.a.
Korea	0.756	0.275	1.000	n.a.
China	n.a.	n.a.	n.a.	1.000
(2005.6–2010.6)				
United States	1.000	0.709	0.341	0.041
	(1.000)	(0.835)	(0.139)	(0.101)
Japan	0.709	1.000	0.554	0.267
	(0.835)	(1.000)	(0.210)	(0.043)
Korea	0.341	0.554	1.000	0.727
	(0.139)	(0.210)	(1.000)	(0.676)
China	0.041	0.267	0.727	1.000
	(0.101)	(0.043)	(0.676)	(1.000)

Note: Parentheses indicate the 10-year government bond.
Source: Bloomberg.

To examine the correlations of the bond market rates, we use the government bond yields[65] (monthly average rates) in the United States, Japan, Korea, and China. We also split the sample period into four subsamples: before the Asian financial crisis (1995.1–1996.12); during the crisis (1997.1–1998.12); after the Asian financial crisis (1999.1–2010.6); and the recent period (2005.6–2010.6), considering the availability of benchmarking data.

As we see in Table IV-10, bond market rates in the four countries also show increasing correlations after the Asian financial crisis. First, the Japanese and Korean bond markets move more tightly with the U.S. bond market after the crisis; however, China with limited data does not show significant correlations with the United States. Second, bond markets in the three countries appear to move closely with each other in the recent period: the Korean bond market shows increasing correlations with Japan, and China shows positive correlations with Japan and Korea (and especially high correlations with Korea).

(2) UIP Condition

Here we analyze the differentials of the interest rates between domestic and foreign interest rates with an expected exchange rate change in the major three Asian countries including the United States, using the UIP condition as was estimated by Jung et al. (2004). The UIP can be expressed as the following:

$$i_t = i_t^* + X_{t\,,\,t+1}^e.$$

i_t: domestic interest rate i_t^*: foreign interest rate

$X_{t\,,\,t+1}^e$: next period (t + 1)'s expected exchange rate change

We can define the UIP differential (UID) as the following:

$$\text{UID} = i_t - i_t^* - X_{t\,,\,t+1}^e.$$

Using this simple formula, we can explain whether the expected return from domestic assets is larger or smaller than that of foreign assets, whether the UID is positive or

[65] Yields with maturities of five years and 10 years.

negative, and whether there is an incentive for capital to flow in or out of the home country. We could also assert that as the integration of the financial markets progresses, measured *ex post* the UID becomes smaller because of the larger capital flows of arbitrage. We estimate UIDs in money and bond markets in Japan, Korea, China, and the United States during the same sample periods as the above correlation analyzes in these markets using the same data. Here, the previous period's (month's) actual change of exchange rates is used for the next period's (month's) expected exchange rate change.

The UIDs in Korea-Japan and China-Japan show significant positive values over the whole sample period in the money markets with decreasing trends (Table IV-11 and Appendix IV-3). On the other hand, China-Korea shows a negative value over the available sample periods. The UIDs of the three countries with the United States show different trends across countries: the UIDs in Korea-United States remain positive despite the overall decrease, whereas the UIDs in Japan-United States show a negative value over the entire period. The UIDs in China-United States show a small positive value.

<u>Table IV-11: UIP Differentials in the Money Markets</u>

	1992.1–2010.6	1992.1–1996.12	1997.1–1998.12	1999.1–2010.6	2007.3–2010.6
(CD, three months)					
Korea-United States	4.18	9.17	7.19	1.49	0.98
Korea-Japan	7.06	11.21	12.19	4.36	2.36
Japan-United States	-2.88	-2.05	-5.00	-2.87	-1.38
China-United States	n.a.	n.a.	n.a.	n.a.	0.12
China-Japan	n.a.	n.a.	2.48	1.72	1.50
China-Korea	n.a.	n.a.	-9.71	-2.63	-0.85
(Interbank rates)					
Korea-United States	n.a.	n.a.	n.a.	0.82	0.93
Korea-Japan	n.a.	n.a.	n.a.	3.28	2.09
Japan-United States	n.a.	n.a.	-5.02	-2.46	-1.16
China-United States	n.a.	n.a.	n.a.	n.a.	0.92
China-Japan	n.a.	n.a.	n.a.	n.a.	2.08
China-Korea	n.a.	n.a.	n.a.	n.a.	-0.01

Note: $X^{e}_{t,\,t+1} = \log X_{t+1} - \log X_t$ X: spot rate
Source: Bloomberg.

The UIDs in bond markets in Japan, Korea, China, and the United States show trends similar to the UIDs in the money markets (Table IV-12 and Appendix IV-4). First, the UIDs in Korea-Japan and China-Japan show significant positive values over the whole sample period in the bond markets with decreasing trends. On the other hand, the UIDs in China-Korea show negative values over the available sample periods. The UIDs in the respective three countries with the United States show different trends across countries: the UIDs in Korea-United States maintain a significant positive value with decreasing trends, whereas the UIDs in Japan-United States show a significant negative value with decreasing trends in all periods. In addition, the UIDs in China-United States show small negative values over the recent available sample period.

Table IV-12: UIP Differentials in the Bond Markets

	1995.5–2010.6	1995.5–1996.12	1997.1–1998.12	1999.1–2010.6	2005.6–2010.6
(Government bond, five years)					
Korea-United States	2.66	5.44	5.46	1.77	1.89
Korea-Japan	6.15	11.10	10.07	4.76	3.46
Japan-United States	-3.50	-5.65	-4.61	-2.99	-2.28
China-United States	n,a.	n,a.	n,a.	n,a.	-0.14
China-Japan	n.a.	n.a.	n.a.	n.a.	2.02
China-Korea	n.a.	n.a.	n.a.	n.a.	-1.42
(Government bond, 10 years)					
Korea-United States	n.a.	n.a.	n.a.	1.19	0.91
Korea-Japan	n.a.	n.a.	n.a.	3.89	317
Japan-United States	n.a.	-3.27	-3.87	-2.84	-2.52
China-United States	n.a.	n.a.	n.a.	n.a.	-0.07
China-Japan	n.a.	n.a.	n.a.	n.a.	1.90
China-Korea	n.a.	n.a.	n.a.	n.a.	-0.94

Source: Bloomberg.

The significant positive values of UIDs in Korea-Japan and China-Japan over the whole sample periods in the money and bond markets imply that there has been a strong impetus for capital to flow from Japan into Korea and China. The positive value of UIDs in Korea-United States also imply that there has been an impetus for capital to flow from the United States into Korea. The significant negative value of UIDs in Japan-United States also implies that there has been a strong impetus for capital to flow from Japan into the United States. In addition, the negative value of UIDs in China-Korea in recent years implies that there has been an impetus for capital to flow from China into Korea.

(3) Co-Movements in Stock Market Prices

Here we examine the correlations and Granger causality tests in the stock markets in the United States, Japan, Korea, and China. We use the daily stock price indices and daily market returns (changes in indices) in stock markets. The timeline is divided into three periods: before the Asian financial crisis (1992.1–1996.12); during the crisis (1997.1–1998.12); and after the crisis (1999.1–2010.6).

Table IV-13: Correlation of the Stock Market Indices (Returns[1])

	United States	Japan	Korea	China
(1991.1–2010.6)				
United States	1.000 (1.000)	-0.551 (0.121)	0.491 (0.121)	0.737 (-0.000)
Japan	-0.551 (0.122)	1.000 (1.000)	-0.178 (0.387)	-0.437 (0.081)
Korea	0.491 (0.121)	-0.178 (0.387)	1.000 (1.000)	0.716 (0.056)
China	0.737 (-0.000)	-0.437 (0.081)	0.716 (0.056)	1.000 (1.000)
(1991.1–1996.12)				
United States	1.000 (1.000)	-0.141 (0.124)	0.479 (0.066)	0.341 (-0.014)
Japan	-0.141 (0.124)	1.000 (1.000)	-0.152 (0.046)	-0.598 (0.006)
Korea	0.479 (0.066)	-0.152 (0.046)	1.000 (1.000)	0.090 (-0.019)
China	0.341 (-0.014)	-0.598 (0.006)	0.090 (-0.019)	1.000 (1.000)
(1997.1–1998.12)				
United States	1.000 (1.000)	-0.539 (0.120)	0.630 (0.100)	0.436 (-0.095)
Japan	-0.539 (0.120)	1.000 (1.000)	0.872 (0.133)	-0.136 (0.006)
Korea	0.630 (0.100)	0.872 (0.133)	1.000 (1.000)	-0.324 (0.017)
China	0.436 (-0.095)	-0.136 (0.006)	-0.324 (0.017)	1.000 (1.000)
(1999.1–2010.6)				
United States	1.000 (1.000)	0.732 (0.125)	0.575 (0.139)	0.561 (0.025)
Japan	0.723 (0.125)	1.000 (1.000)	0.210 (0.555)	0.170 (0.194)
Korea	0.575 (0.139)	0.210 (0.555)	1.000 (1.000)	0.738 (0.147)
China	0.561 (0.025)	0.170 (0.194)	0.738 (0.147)	1.000 (1.000)

Note: 1. For returns, log differences of daily stock prices indices are in parentheses.
Source: Bloomberg.

As seen in Table IV-13, the correlations in stock price indices and stock market returns in the United States, Japan, Korea, and China show mixed patterns on the integration in their stock markets. First, reviewing the correlations of the stock market indices, we see some prominent trends: stock markets in Japan, Korea, and China move more tightly with the U.S. stock market and show positive correlations with each other in the post-crisis period (especially China and Korea). Correlations in stock market returns, on the other hand, do not show prominent trends. China-Japan correlations and China-Korea correlations are low, as opposed to high Korea-Japan correlations, which also increase over time. Correlations in stock price indices in other East Asian countries (Hong Kong, Indonesia, Malaysia, the Philippines, Chinese Taipei, and Thailand) also show similar dominant trends in the post-crisis period (Table IV-14): their stock markets move more tightly with the U.S. stock market and correlate positively with others simultaneously.

We review the causality in stock market returns between the markets in the United States, Japan, Korea, and China during the same sample periods (Table IV-15). The results display changes in underlying patterns: (i) before the Asian crisis, there are strong causalities that run from the United States to Japan and Korea, whereas no casualties run from the three countries to the United States and between the three countries; and (ii) in the post Asian crisis, there are mutual causalities between the United States and Japan, while there are strong, one-sided causalities that run from the United States to Korea and China; and the linkages between Japan, Korea, and China show a mixed pattern: Korea and Japan have statistically significant mutual causalities, and there are causalities that run from China to Japan and Korea.

Table IV-14: Correlation of the Stock Market Indices

(1991.1–2010.6)

	United States	Japan	Korea	China	Hong Kong	Indonesia	Malaysia	Philippines	Taiwan	Thailand
United States	1.000	-0.551	0.491	0.737	0.812	0.586	0.301	0.196	0.568	0.542
Japan	-0.551	1.000	-0.178	-0.437	-0.354	-0.328	0.002	0.179	0.079	0.491
Korea	0.491	-0.178	1.000	0.716	0.815	0.926	0.809	0.670	0.423	0.250
China	0.737	-0.437	0.716	1.000	0.870	0.819	0.543	0.419	0.498	-0.259
Hong Kong	0.812	-0.354	0.815	0.870	1.000	0.864	0.726	0.603	0.669	-0.132
Indonesia	0.586	-0.328	0.926	0.819	0.864	1.000	0.739	0.609	0.486	0.040
Malaysia	0.301	0.002	0.809	0.543	0.726	0.739	1.000	0.884	0.489	0.491
Philippines	0.196	0.179	0.670	0.419	0.603	0.609	0.884	1.000	0.554	0.543
Chinese Taipei	0.568	0.079	0.423	0.498	0.669	0.486	0.489	0.554	1.000	-0.119
Thailand	-0.542	0.491	0.250	-0.259	-0.132	0.040	0.491	0.543	-0.119	1.000

(1991.1–1996.12)

	United States	Japan	Korea	China	Hong Kong	Indonesia	Malaysia	Philippines	Taiwan	Thailand
United States	1.000	-0.141	0.479	0.341	0.872	0.805	0.806	0.800	0.486	0.490
Japan	-0.141	1.000	-0.152	-0.598	-0.303	-0.019	-0.212	-0.278	0.157	-0.335
Korea	0.479	-0.152	1.000	0.090	0.674	0.690	0.786	0.789	0.619	0.876
China	0.341	-0.598	0.090	1.000	0.490	0.217	0.342	0.382	-0.064	-0.259
Hong Kong	0.872	-0.303	0.674	0.490	1.000	0.886	0.958	0.953	0.546	0.760
Indonesia	0.805	-0.019	0.690	0.217	0.886	1.000	0.929	0.896	0.647	0.761
Malaysia	0.806	-0.212	0.786	0.342	0.958	0.929	1.000	0.980	0.676	0.853
Philippines	0.800	-0.278	0.789	0.382	0.953	0.896	0.980	1.000	0.668	0.860
Chinese Taipei	0.486	0.157	0.619	-0.064	0.546	0.647	0.676	0.668	1.000	0.534
Thailand	0.490	-0.335	0.876	-0.259	0.760	0.761	0.853	0.860	0.534	1.000

(1997.1–1998.12)

	United States	Japan	Korea	China	Hong Kong	Indonesia	Malaysia	Philippines	Taiwan	Thailand
United States	1.000	-0.539	-0.630	0.436	0.726	-0.571	-0.749	-0.625	-0.061	-0.718
Japan	-0.539	1.000	0.872	-0.136	0.388	0.930	0.844	0.766	0.654	0.762
Korea	-0.630	0.872	1.000	-0.324	0.928	0.882	0.893	0.803	0.548	0.863
China	0.436	-0.136	-0.324	1.000	-0.303	0.237	-0.361	-0.310	0.098	-0.470
Hong Kong	-0.498	0.857	0.928	-0.303	1.000	0.834	0.826	0.750	0.649	0.813
Indonesia	-0.571	0.930	0.882	-0.237	0.834	1.000	0.930	0.904	0.573	0.868
Malaysia	-0.749	0.844	0.893	-0.361	0.826	0.930	1.000	0.959	0.430	0.950
Philippines	-0.625	0.766	0.803	-0.310	0.750	0.904	0.959	1.000	0.399	0.923
Chinese Taipei	-0.061	0.654	0.548	0.098	0.649	0.573	0.430	0.399	1.000	0.445
Thailand	-0.718	0.762	0.863	-0.470	0.813	0.868	0.950	0.923	0.445	1.000

(1999.1–2010.6)

	United States	Japan	Korea	China	Hong Kong	Indonesia	Malaysia	Philippines	Taiwan	Thailand
United States	1.000	0.723	0.575	0.561	0.726	0.481	0.611	0.683	0.730	0.579
Japan	0.723	1.000	0.210	0.170	0.388	0.049	0.211	0.391	0.711	0.140
Korea	0.575	0.210	1.000	0.738	0.892	0.956	0.940	0.908	0.632	0.822
China	0.561	0.170	0.738	1.000	0.839	0.762	0.789	0.741	0.542	0.462
Hong Kong	0.726	0.388	0.892	0.839	1.000	0.881	0.915	0.883	0.751	0.684
Indonesia	0.481	0.049	0.956	0.762	0.881	1.000	0.947	0.893	0.548	0.789
Malaysia	0.611	0.211	0.940	0.789	0.915	0.947	1.000	0.896	0.687	0.802
Philippines	0.683	0.391	0.908	0.741	0.883	0.893	0.896	1.000	0.720	0.738
Chinese Taipei	0.730	0.711	0.632	0.542	0.751	0.548	0.687	0.720	1.000	0.508
Thailand	0.579	0.140	0.822	0.462	0.684	0.789	0.802	0.738	0.508	1.000

Source: Bloomberg.

Table IV-15: Causality Test of the Stock Market Returns in Selected Countries

(1991.1–2010.6)

Null hypothesis	Obs.	Lag	F-statistic	Probability
United States does not Granger-cause Japan	4644	1	787.1937	0.0000
Japan does not Granger-cause United States	4644	1	5.6160	0.0178
United States does not Granger-cause Korea	4661	1	329.4863	0.0000
Korea does not Granger-cause Korea	4661	1	0.1711	0.6792
United States does not Granger-cause China	4627	1	10.1312	0.0015
China does not Granger-cause United States	4627	1	0.4720	0.4921
Japan does not Granger-cause Korea	4569	1	0.7939	0.3730
Korea does not Granger-cause Japan	4569	1	11.0385	0.0009
Japan does not Granger-cause China	4542	1	0.7692	0.3805
China does not Granger-cause Japan	4542	1	4.0072	0.0454
Korea does not Granger-cause China	4585	1	0.0863	0.7690
China does not Granger-cause Korea	4585	1	0.3230	0.5698

(1991.1–1996.12)

Null hypothesis	Obs.	Lag	F-statistic	Probability
United States does not Granger-cause Japan	1439	1	44.2732	0.0000
Japan does not Granger-cause United States	1439	1	0.0002	0.9880
United States does not Granger-cause Korea	1431	1	4.6505	0.0312
Korea does not Granger-cause Korea	1431	1	0.0011	0.9730
United States does not Granger-cause China	1475	1	0.0784	0.7795
China does not Granger-cause United States	1475	1	0.0021	0.9636
Japan does not Granger-cause Korea	1402	1	0.2746	0.6004
Korea does not Granger-cause Japan	1402	1	3.9928	0.0459
Japan does not Granger-cause China	1438	1	0.8336	0.3614
China does not Granger-cause Japan	1438	1	0.4598	0.4978
Korea does not Granger-cause China	1441	1	1.4407	0.2302
China does not Granger-cause Korea	1441	1	0.8764	0.3493

(1997.1–1998.12)

Null hypothesis	Obs.	Lag	F-statistic	Probability
United States does not Granger-cause Japan	476	1	44.1061	0.0000
Japan does not Granger-cause United States	476	1	2.4000	0.1220
United States does not Granger-cause Korea	475	1	15.6840	0.0000
Korea does not Granger-cause Korea	475	1	0.0022	0.9629
United States does not Granger-cause China	471	1	1.4215	0.2338
China does not Granger-cause United States	471	1	0.7386	0.3906
Japan does not Granger-cause Korea	467	1	1.1338	0.2487
Korea does not Granger-cause Japan	467	1	0.2025	0.6529
Japan does not Granger-cause China	460	1	2.5768	0.1091
China does not Granger-cause Japan	460	1	0.1058	0.7451
Korea does not Granger-cause China	463	1	0.0570	0.8113
China does not Granger-cause Korea	463	1	0.0047	0.9454

(1999.1–2010.6)

Null hypothesis	Obs.	Lag	F-statistic	Probability
United States does not Granger-cause Japan	2727	1	719.4592	0.0000
Japan does not Granger-cause United States	2727	1	4.0053	0.0455
United States does not Granger-cause Korea	2753	1	306.1865	0.0000
Korea does not Granger-cause Korea	2753	1	0.1294	0.7191
United States does not Granger-cause China	2679	1	22.2211	0.0000
China does not Granger-cause United States	2679	1	0.6352	0.4255
Japan does not Granger-cause Korea	2698	1	0.4229	0.0356
Korea does not Granger-cause Japan	2698	1	11.3259	0.0008
Japan does not Granger-cause China	2642	1	0.0045	0.9465
China does not Granger-cause Japan	2642	1	7.4009	0.0066
Korea does not Granger-cause China	2679	1	1.2580	0.2621
China does not Granger-cause Korea	2679	1	3.2374	0.0721

3. Institutional and Regulatory Measures

In this section, we examine the evidence on institutional and regulatory measures of financial integration in East Asia. These measures include institutional and regulatory changes in financial systems and financial markets. Effectively designed financial market infrastructure and regulatory frameworks are generally known to increase the benefits while containing the risks of financial integration. Factors pertaining to financial systems in individual countries include diverse areas such as financial institutions, domestic and international financial markets, financial supervision, and payment settlement systems, all of which are closely interlinked. It is very difficult to generalize these expansive areas to examine the degree of financial integration across the countries in the region, because of the diverse state of development of Asian economies. It is possible, however, to narrow them down to two key categories: regulations and barriers that affect cross-border portfolio investments, and those that affect settlement in the financial markets from the viewpoint of common interests in East Asian countries. The consensus that developed among policymakers in the region following the Asian financial crisis to promote financial integration was that financial integration in Asia lagged intra-regional trade integration, and that liquid and well-regulated capital markets were essential for effective allocation of the region's savings and strengthening of the region's resilience to domestic and external shocks.

In this respect, first we review the current cross-border portfolio investment regulations on capital flows in selected countries in East Asia. Regulations on cross-border investments are basically considered as important matters subject to constant policy review in individual countries. In selected countries in the region with developed financial markets such as Hong Kong, Japan, and Singapore, there are no restrictions on both capital inflows into the domestic financial markets and capital outflows by resident and non-resident investors. There are, however, many restrictions and barriers to cross-border portfolio investments in most developing countries in the region—in certain areas such as foreigners' investment in specific domestic financial instruments, residents' investment abroad, and repatriation of capital and profits (Appendix IV-5). In addition, following the recent global crisis, some countries in the region are strengthening controls on capital flows to efficiently reduce the expected negative effects of the capital flows.

Reviewing the current regulations on cross-border capital inflows, there are no specific restrictions in a number of countries (Hong Kong, Japan, Singapore, Cambodia, the Lao PDR, Malaysia, and the Philippines). Some countries (China, Korea, Indonesia, and Thailand),[66] however, have maintained or strengthened some restrictions on capital inflows to cope with its negative effects such as exchange rate overshooting, asset bubbles, pushing up of inflation expectations, and financial instability.

There are generally tighter restrictions for capital outflows to resident investors than non-resident investors. In some countries (Hong Kong, Japan, Singapore, Cambodia, and the Lao PDR), there are no specific restrictions on resident investors for capital outflows. Many countries (China, Indonesia, Korea, Malaysia, the Philippines, Thailand, and Vietnam), however, employ restrictive measures vis-à-vis resident investors to govern capital outflows. There are no specific restrictions on non-residents regarding repatriation of capital and profits in a number of countries (Hong Kong, Indonesia, Japan, Korea, the Lao PDR, Malaysia, and Singapore). Other countries in the region (Cambodia, China, the Philippines, Thailand, and Vietnam), on the other hand, have some form of restriction and requirement to repatriate capital and profits to non-residents.

Second, we review major barriers to cross-border investment and settlement focused on bond markets in East Asia. As indicated in the previous section, it is generally recognized that U.S. and European investors prefer Asian equities to Asian debt securities. This is because there are still a number of constraints impeding further development of liquid and deep Asian bond markets.[67] A recent comprehensive study on ASEAN+3 bond markets undertaken by the ABMI Group of Experts, ADB (2010a) shows that cross-border bond transaction costs in the ASEAN+3 countries are generally higher than those of the United States or the EU (e.g., Germany),[68] and there are considerable variations across countries

[66] China supports strict controls on overall capital inflows to maintain a stable Chinese yuan exchange rate. Korea recently strengthened the controls on capital inflows through various means such as restricting financial institutions' foreign currency borrowing to overseas use only, strengthening foreign exchange soundness management including regulation of the foreign currency liquidity ratio, and imposing a ceiling on future exchange positions. Indonesia and Thailand also recently strengthened regulations to control capital inflows: for example, Indonesia established a minimum holding period for foreign bond investors, and Thailand decided to impose a withholding tax on interest and capital gains of foreign bond investors.

[67] Even though it is difficult to generalize all of the factors hindering bond market development in Asia, common impediments identified as major are (i) impediments to domestic bond market development, that is, limited demand for and supply of bonds, the lack of benchmark yield curves, and inadequate market infrastructures; and (ii) impediments to regional bond market development, that is, small and fragmented markets with heterogeneous legal and regulatory frameworks across countries in the region (Jang and Hyun [2009]).

[68] Regardless of the type of custodian, global or domestic, and the type of fee, safekeeping or transaction, transactions costs are higher.

even within the ASEAN+3 markets.[69] The study provides possible explanations of why cross-border transaction costs are higher in the region: (i) lack of economy of scale, technology of the custodian industry;[70] (ii) lack of general operational efficiency of each national market;[71] (iii) country-specific regulations;[72] and (iv) lack of regional policy coordination for an International Central Securities Depositories (ICSD).[73]

The ABMI Group of Experts, ADB (2010c) also undertook a comprehensive study to identify and assess the main barriers to cross-border investment and settlement in the ASEAN+3 bond markets. The study divides the many barriers that hamper the development of ASEAN+3 bond markets into two groups: (i) regulatory barriers such as foreign investor quotas, foreign investor registration, currency exchange controls, cash controls, taxes, omnibus accounts, regulatory frameworks, and legal frameworks; and (ii) settlement barriers such as messaging standards, securities numbering, settlement cycles, trade and settlement matching, and physical certificates. The study argues that these barriers discourage cross-border investment to a certain extent, which may in turn be holding back the development of vibrant, liquid, and economically beneficial local bond markets in these countries (Figure IV-15).

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[69] In terms of the level of custodian fees, markets in the region may be roughly categorized into three groups: (i) Japan, which is comparable to the United States and Germany; (ii) Hong Kong, Korea, Singapore, and Malaysia, where fees are lower than the net group; and (iii) Thailand, China, the Philippines, Indonesia, and Vietnam, where fees are higher than the former group.

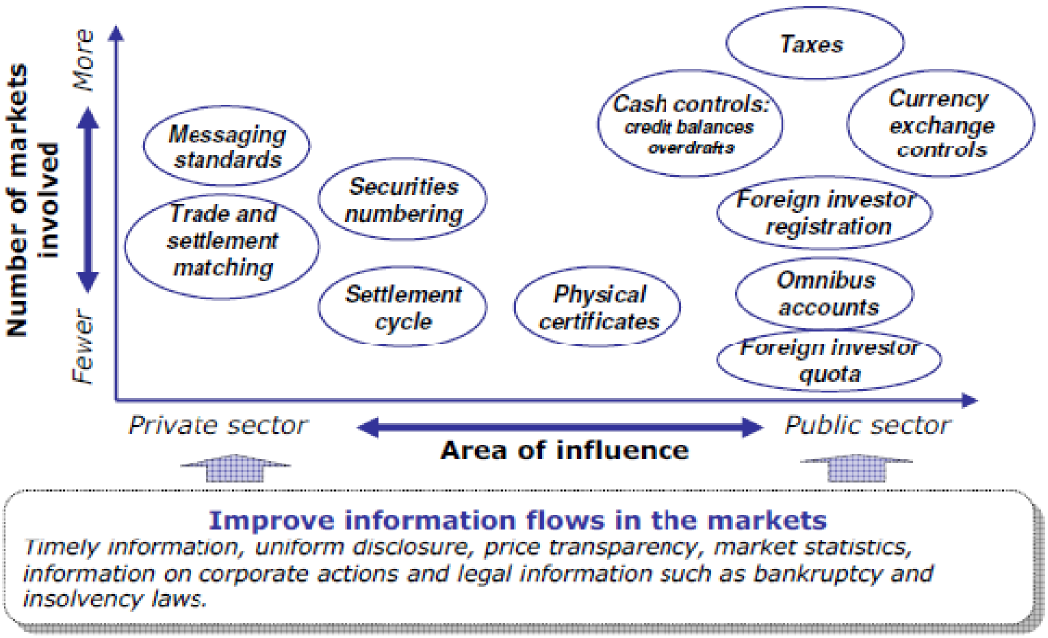
[70] The custodian business requires sizeable investment, and so is subject to “economy of scale.” Hence, higher custodian fees in the region, relative to the United States and Germany, may be due to lower transaction volumes. Similarly, across the ASEAN+3 markets, custodian fees for investing in some countries are higher than others simply because cross-border transaction flows vary substantially between countries.

[71] Direct measures of the operational efficiency of a market, including its post-trade infrastructure, are hard to construct. Instead, bid-ask spreads of the local bond markets, limited measures, could be employed as a proxy. To the extent that the operational efficiency of the bond trading process is correlated with that of the post-trading process, it can present overall operational efficiency of each local market. In ASEAN+3 countries, there is a positive relationship between custodian fees and bid-ask spreads, which indicates that local custodians are more directly exposed to local operational risk or cost and so their fees are more sensitive to such factors.

[72] Among many non-technical factors that can affect the operational risk and cost of cross-border transactions, arguably “regulation” would be the most important. Additional regulation may result in more services required by custodians to complete a cross-border bond transaction, and hence higher custodian fees. Thus, it may be that some countries in the ASEAN+3 have higher custodian fees because they impose more regulations on cross-border bond transactions.

[73] That is, lack of necessary conditions for an ICSD-type settlement arrangement to be feasible in the region. The “Legal Feasibility Study” undertaken by the experts reveals that a number of countries in the region have legal settings not favorable to (although not absolutely preventing) the operation of an ICSD.

Figure IV-15: Major Barriers to Cross-Border Investment and Settlement



Sources: ABMI Group of Experts, ADB (2010c).

An examination of the barriers by assessment area based on this study shows that many factors will likely have a significant impact on the attractiveness or accessibility of the market or add to costs or operational difficulties in most of the ASEAN+3 countries, with some exceptions such as Hong Kong, Japan, and Singapore (Appendix IV-6). Among the areas of regulatory barriers, taxes, cash controls, and currency exchange controls are generally assessed as the highest barriers.[74] Major settlement barriers include message formats, securities numbering, and dematerialization.

Previous studies show that clearing and settlement processes are well developed in many Asian markets, but the settlement system among the countries in the region lacks international links (Cowen et al. [2006]) (Appendixes IV-7 and IV-8). The ADB initiated the studies on Regional Settlement Intermediary (RSI) Options for efficient settlements in the ASEAN+3. The ABMI Group of Experts, ADB (2010b) conducted a feasibility study[75]

[74] For example, in the area of taxes, China, Indonesia, Korea, the Philippines, and Vietnam are assessed as having significant barriers in the market and overall assessment. In the area of cash controls of overdrafts, China, Vietnam, and the Philippines are assessed as having significant barriers. The area of currency exchange controls related to repatriation of funds, China, Vietnam, and the Philippines are also assessed as having significant barriers (Appendix IV-6).

[75] The main feasibility study was conducted in three steps: operational feasibility (specification), legal

on the two RSI Options—the Asian International Central Securities Depositories (ICSD) Model[76] and the CSD Linkage Model[77]—and suggested some recommendations[78] for the next step based on the analyses.

C. Linkages between Intra-Regional Trade and Financial Integration

Based on the reviewed related literatures on interactions between the trade and financial integration in Chapter III, we attempt to find linkages between trade and financial integration for selected Asian economies[79] as was attempted by Cowen et al. (2006). To examine possible linkages between the two variables, we measure the correlation coefficients between the annual trade flows and changes in portfolio investments[80] (equity and debt securities) in the selected respective Asian countries. We use annual trade data from the IMF's *Direction of Trade Statistics* (DOTS) and annual data from the IMF's CPIS, and from the BIS' *Quarterly Review* (Statistical Annex) for analysis. There are limitations in the data—such as that the IMF's available CPIS data are limited to 2001–08 and do not include the data of China, India, and Chinese Taipei, and the data do not include FDI. And

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feasibility (legal requirement), and a business feasibility study. In detail, (i) the operational feasibility study reviewed the functional architecture of the RSI options including areas such as the scope of services, main functional blocks of the options, interface among main functional blocks, service flows through RSI, and benefits that RSI could bring to the market. (ii) The legal feasibility study assessed legal feasibility of the RSI options including areas such as legal and regulatory "barriers" for each RSI option to be operative in each ASEAN+3 market, the extent of the problem regulations or laws as "barriers" for each RSI option, and classification of each barrier regulation into "HARD" and "SOFT." (iii) The business feasibility study, which was more complex than a regular business project case, examined the viability of the RSI options as a commercial entity including estimation of the cash flows of the revenue and the cost side based on various assumptions and scenarios.

[76] The purpose of the Asian ICSD would be to solve certain risks inherent in the current cross-border settlement infrastructure in the ASEAN+3 region and lay the foundation for the expansion and development of a regional bond market in Asia.

[77] The purpose of the CSD Linkage solution would be to improve the cross-border bond trading infrastructure of the ASEAN+3 region, addressing certain risks inherent in the current infrastructure and increasing access to cross-border trade between countries, thereby promoting increases in local issuance and further development of the regional bond market.

[78] The recommendations included the following: (i) address the identified legal barriers not only for more active cross-border investment but also for creating the necessary legal environment for the RSIs; (ii) solicit feedback on the feasibility study from other market participants and experts; (iii) review the feasibility study if there could be a new perspective on the regional post-trading infrastructure and its implications on the RSI in the aftermath of the global financial crisis; and (iv) undertake a more detailed feasibility study, based on the feasibility study, feedback from the private sector, and further input from the public sector.

[79] These comprise Hong Kong, Indonesia, Japan, Korea, Malaysia, the Philippines, Singapore, and Thailand.

[80] Here we use both annual flow data (level of trade and changes (△) in portfolio investments) to clear the spurious correlation problem.

Table IV-15: Intra-Regional Trade and Financial Integration Linkage

(Correlation coefficients during 2001–07)

	Hong Kong	Indonesia	Japan	Korea	Malaysia	Philippines	Singapore	Thailand	**Average**
Asia8[1]/trade to △finance	0.766	0.749	0.944 (0.965)	0.774	0.884	0.570	0.854	0.406	**0.744**
Asia8+United States/ trade to △finance	0.826	0.867	0.009 (0.446)	0.803	0.859	0.867	0.907	0.374	**0.689**
Asia8+EU18[2]/trade to △finance	0.741	0.869	0.241 (0.776)	0.881	0.771	0.312	0.935	0.560	**0.664**
Asia8+United States+ EU18/trade to △finance	0.772	0.875	0.052 (0.556)	0.854	0.806	0.578	0.936	0.499	**0.671**
Asia8 (-1)/trade leads △finance	0.746	0.630	0.888 (0.895)	0.817	0.856	0.743	0.788	0.388	**0.732**
Asia8+United States (-1)/trade leads △finance	0.786	0.841	-0.185 (0.200)	0.863	0.887	0.816	0.853	0.420	**0.660**
Asia8+EU18 (-1)/trade leads △finance	0 .676	0.781	-0.013 (0.541)	0 .900	0.691	0.410	0.897	0.542	**0.611**
Asia8+United States+ EU18 (-1)/ trade leads△finance	0.720	0.829	-0.193 (0.288)	0.882	0.778	0.567	0.895	0.525	**0.625**
Asia8 (+1)/△finance leads trade	0.724	0.444	0.987 (0.985)	0 .884	0.858	0.627	0.738	0.280	**0.693**
Asia8+United States (+1)/ △finance leads trade	0.778	0.815	0.609 (0.772)	0.706	0.840	0.971	0.841	0.161	**0.715**
Asia8+EU18 (+1)/ △finance leads trade	0.613	0.774	0.699 (0.834)	0.982	0.662	0.655	0.879	0.248	**0.689**
Asia8+US+EU18 (+1)/ △finance leads trade	0.698	0.817	0.642 (0.771)	0.790	0.640	0.856	0.880	0.189	**0.689**

Notes:
1. Asia8: Hong Kong, Indonesia, Japan, Korea, Malaysia, the Philippines, Singapore, and Thailand.
2. EU18: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, the United Kingdom, the Czech Republic, Hungary, and Poland.
3. Parentheses include Japanese banks' foreign claims.

Sources: IMF, CPIS, DOTS.
BIS, *Quarterly Review* (Statistical Annex), various issues.

we exclude the data in 2008 that showed a sharp flight of capital out of emerging Asia during the spread of the global crisis. With these data limitations, we can make the following observations (Table IV-15).[81]

First of all, intra-regional flows of trade and changes in portfolio investments show positive correlations in Asia throughout 2001–07. The average intra-Asia correlation coefficients that represent contemporary and time-lag links between trade flows and changes in portfolio investment in the selected respective Asian countries are significantly positive except for the Philippines and Thailand. Reviewing contemporary correlation coefficients of the respective countries with Asia8, the coefficients in Japan, Malaysia, and Singapore are significantly high. The time-lag correlation coefficients in Japan, Korea, and Malaysia are also very significant, at 0.9. When we include more global data in the portfolio investments, the correlation coefficients generally show a higher level with the exception of Japan. In the case of Japan, the links between trade flows and changes in portfolio investments display low correlations.

Second, when we add the BIS data (the selected BIS reporting banks' gross foreign claims) to the portfolio investments, the trade flows and changes in portfolio investments appear to have a significantly high positive correlation. In Japan, for example, the links of the trade flows and changes in portfolio investments including Japanese banks' foreign claims mostly show very significant positive correlation coefficients.

Third, the results do not show clear signs of causalities between the trade flows and changes in portfolio investments. Considering the lack of time-series data, we limit our time-lag correlation analysis to a one-period lag. The time-lag correlation coefficients of both cases (trade leads $\triangle$finance and $\triangle$finance leads trade) in respective Asian countries show significant positive levels except for Thailand. There are no clear patterns and differences in the series of two time-lag correlation coefficients. Based on these results, it is difficult to decide whether trade flows lead changes in portfolio investments, or vice versa.

[81] We find results similar to those derived by Cowen et al. (2006), with more significant and additional evidence such as the following: (i) there are overall strong positive correlations between trade and changes in portfolio investments in contemporary and time-lag links; (ii) the links between the levels of trade and portfolio investments show high correlation coefficients (Appendix IV-9); and (iii) there are no clear causalities between trade and changes in portfolio investments; however, in some cases we find mutual time-lag correlations.

In some cases, however, we find mutual time-lag correlations between trade flows and changes in portfolio investments.[82]

V. Assessment of Financial Integration in East Asia and Its Implications

In this chapter, we assess and summarize the degree of financial integration in East Asia based on the results of the analyses in Chapter IV, and review the policy implications and challenges in the post-crisis policy landscape.

A. Summary: The Degree of Trade and Financial Integration in East Asia

Asian countries have in the last decade achieved remarkable progress in economic integration. The degree of integration, however, is still insufficient, with financial integration lagging behind real economy integration. Inter-regional links appear to be stronger than intra-regional links in East Asian countries. Intra-regional trade and portfolio investment flows in Asia generally show positive correlations.

(1) Trade Integration: Intra-regional trade in Asia showed a remarkable increase mainly due to the contributions of the ASEAN+3 (especially the Plus-3 countries), which displayed relatively steady levels of trade interdependence. The overall degree of integration, however, is lower than that of Europe.

• Intra-regional trade share has steadily increased over the past two decades, while intra-regional trade intensities have maintained relatively steady levels despite the overall decrease in recent years. Both measures of trade interdependence in Asia, especially among

[82] Despite lack of time-series data, we managed to examine the causality between trade flows and portfolio investments. The results of the causality test show that there are no clear causalities in general; however, we find limited evidence as follows: (i) when we examine the causality between variables in Asia8, Japan, Malaysia, and Thailand show causalities that run from changes in portfolio investments to trade flows; and (ii) when we include the global data in the portfolio investments, there are causalities that run from trade flows to changes in portfolio investments, in the case of Japan the Philippines, Korea, and Thailand. Furthermore, in the case of Japan, when we include Japanese banks' foreign claims in the portfolio investments, trade flows and portfolio investments exhibit more significant causalities (Appendix IV-10).

the countries in the ASEAN+3, are lower than those of Europe.

• The ASEAN+3, especially the Plus-3 countries, have played a major role in Asia's trade growth. Intra-ASEAN+3 trade also depended more on the Plus-3 countries than the ASEAN countries.

(2) Financial Integration: Evidence from quantity and price-based measures, and institutional/regulatory measures, suggest that financial integration in Asia remains low, although it increased following the Asian financial crisis.

Quantity-Based Measures:

• Intra-regional portfolio investment in Asia is small, with an imbalance in assets and liabilities: long-term debt assets account for a larger part of total assets, while equity liabilities form the majority of liabilities.

• Asian countries depend more on inter-regional flows than intra-regional flows in cross-border borrowing and lending.

Price-Based Measures:

• Money and bond markets in Japan and Korea have generally moved tightly with the U.S. money and bond market since the Asian financial crisis. Money and bond markets in Japan, Korea, and China have also moved closely with each other in recent years.

• The differentials of the interest rates between domestic and foreign interest rates with expected exchange rate changes (UIDs) in Japan, Korea, China, and the United States show mixed patterns.

• Stock markets in Japan, Korea, and China move more tightly with the U.S. stock market since the Asian financial crisis, and stock markets among the three major Asian nations (especially China and Korea) also show positive correlations. The correlations in stock price indices in other East Asian countries also suggest a tighter interrelationship with the U.S. stock market following the Asian financial crisis.

• Strong causalities run from the U.S. stock market to stock markets in Japan, Korea, and China. However, links among the stock markets in Japan, Korea, and China are not as clear.

Institutional and Regulatory Measures:

• Evidence from institutional and regulatory measures focused on financial market infrastructure and regulatory frameworks suggests that financial integration in East Asia is low, despite continuing efforts to promote such integration since the Asian financial crisis.

(3) Intra-Regional Trade and Finance Linkages: Evidence with limited data shows an overall positive correlation between intra-regional trade and portfolio investment flows.

• The average intra-Asia correlation coefficients that represent contemporary and time-lag links between trade flows and changes in portfolio investment during 2001–07 in the selected Asian countries are significantly positive overall.

• The results do not show clear signs of causalities between the trade flows and changes in portfolio investments due to limitations of the data.

B. Policy Landscape and Challenges in East Asia

1. Policy Landscape Following the Global Financial and Economic Crisis

The Asian financial crisis marked an important turning point in the role of finance in most Asian economies.[83] It also marked the beginning of significant economic and financial regionalism in East Asia. During the decade following the Asian financial crisis, Asian economies continued to focus on export-led growth, but combined it with gradual financial liberalization, regional cooperation on issues of common concern, and accumulation of defensive foreign exchange reserves.

The global financial and economic crisis that commenced in 2007 marked another important turning point in the financial and economic development in Asia. Regional consensus has shifted in the wake of the global crisis: toward economic rebalancing away from the dominant focus on exports to developed markets such as the United States and Europe, and toward a more balanced economic structure supported by domestic and regional financial development. The global financial and economic crisis has highlighted

[83] The major role of the finance shifted, given the failure of the Asian growth model developed in the context of the Japanese-inspired model of the developmental state and at the same time a rejection of rapid financial liberalization (Arner and Schou-Zibell [2010]).

three major vulnerabilities: weaknesses in financial regulation and supervision; limitations of export-led growth and dependence on Western markets; and weakness in the reserve accumulation model. The global crisis highlights the urgent need to address a wide range of financial issues specific to the region, which can be narrowed down to three key areas:[84] enhancing financial stability; promoting financial sector development; and reforming the international financial architecture. Following the global crisis, the Group of 20 (G20) addressed these areas with a range of specific issues[85] regarding financial and economic weaknesses,[86] on the global and regional level. Developing countries in Asia face much more urgent issues beyond multifaceted weaknesses highlighted by the global crisis.

For Asia, the key lesson of the recent crisis has been the need to further develop and rebalance domestic economies, broaden trade and investment sources and destinations, and enhance domestic and regional financial systems. Among the issues currently being addressed, the issue of financial sector development to support growth and address global imbalances[87] is particularly important in Asia, if the current situation of the financial sector in the region is taken into account. Arner and Schou-Zibell (2010) point out that one aspect of finance that the global financial crisis has not changed is the fact that finance remains

[84] First, regarding financial stability, the crisis holds important lessons and presents significant opportunities for enhancing financial regulation in the region; moreover, Asian approaches to financial liberalization, prudential regulation, and financial innovation are likely to be closely considered around the world. Second, regarding financial sector development, the Asian financial system, despite having developed significantly since the Asian financial crisis, retains considerable scope for development: beyond the post-crisis issues, a necessity in the context of effectively allocating regional financial surpluses to support domestic and regional development and economic rebalancing; Third, in addition to domestic reform, the crisis provides an opportunity to enhance the international financial architecture, not only to improve its efficacy but also to enhance the role of empowered Asian economies in global fora and institutions, such as the IMF, Group of 20 (G20), and Financial Stability Board (FSB). At the same time, weaknesses in the international financial architecture suggest the need for Asian regional alternatives to address liquidity, liberalization, regulation, and exchange rate volatility (Arner and Schou-Zibell [2010]).

[85] There are “four pillars” of the G20 financial reform process: Enhancing Financial Regulation and Financial Infrastructure; Supporting Effective Macroprudential and Microprudential Supervision; Addressing Systemically Important Financial Institutions and Financial Institution Resolution; and Strengthening International and Regional Financial Assessment and Peer Review (Arner and Schou-Zibell [2010]).

[86] Arner and Schou-Zibell (2010) pointed out that the global crisis has highlighted three major types of weakness: weakness in financial regulation; limits of export-led growth and dependence on Western markets; and weakness in the reserves accumulation model. They also identified seven aspects of financial regulatory design needed to address systemic risk: (i) a robust financial infrastructure, especially payment and settlement systems; (ii) well-managed financial institutions with effective corporate governance and risk management systems; (iii) disclosure requirements sufficient to support market discipline; (iv) regulatory systems designed to reinforce risk management and market discipline, as well as setting and monitoring potential risks across all financial institutions; (v) a lender of last resort to provide liquidity to financial institutions on an appropriate basis; (vi) mechanisms for resolving problem institutions; and (vii) mechanisms to protect financial services consumers, such as deposit insurance.

[87] Adams et al. (2010) indicated that developing Asia remains at the core of global payment imbalances. They argue that regional rebalancing will depend critically on the adoption of deeper and more comprehensive structural reforms and further trade liberalization that will promote domestic spending-thus reducing Asia’s high dependence on extra regional demand.

central to growth and development, albeit with potentially high periodic costs. In this context, there is a clear need to focus efforts on financial sector development. East Asian countries are accordingly making continuous efforts to develop their financial sectors with a focus on establishing resilient national financial systems and developing financial market infrastructures including regulatory frameworks, particularly smoothly functioning capital markets and effective settlement systems in the region. East Asian authorities are also trying to develop a regional financial architecture that can complement and strengthen the current international financial architecture for crisis prevention, management, and resolution.

2. Policy Challenges in East Asia

As we examined, trade and financial integrations in the region remain insufficient. The region's financial integration lags far behind its trade integration, and intra-regional links in both sectors are relatively weaker than inter-regional links. These factors suggest that regional policymakers need to further strengthen economic ties to obtain the full benefits of increased regional integration. Evidence of positive correlation between trade and finance strongly suggest the need for increased trade and financial sector development in the region. Many challenges still lie ahead for both trade and financial integration in East Asia. Continuous strenuous efforts, especially in the financial sector, must be made to further trade and financial development and integration in the region at the multilateral and bilateral level. Here we identify the policy challenges that lie ahead for financial development and intra-regional integration in East Asia for both trade and finance.

(A) Trade Policy Cooperation in East Asia

East Asian economies have depended heavily on trade. The export-led model that spearheaded economic growth in this region also made it more vulnerable to the spread of the global economic crisis. It has been widely argued that the global economic crisis affected the East Asian economies through the trade channel rather than financial contagion:[88] a sharp fall in external demand from the United States and Europe caused a plunge in exports and economic growth for all countries in East Asia. The region remains heavily dependent on export markets in the United States and Europe through both direct

[88] See Chia (2010a, b).

exports to these destinations and indirect exports via the export of parts and components to other East Asian countries, in particular China, which are then assembled and exported as final goods to the United States and Europe. As we reviewed in Chapter IV, overall intra-regional trade integration in East Asia is still comparatively lower than that of Europe.

In this respect, the authorities in East Asia need to change their trade and development policies. East Asian countries should first redirect the basis of growth from exports sent to the United States and Europe to regional and domestic demand and cooperate in building a large integrated, dynamic regional market. Coherent regional trade policy and regional investment support are imperative to developing this integrated regional market. It is important for the ASEAN+3 to promote region-wide FTAs in order to increase intra-regional trade and demand. The recent proliferation of FTAs between the ASEAN+3 countries has so far had a scant effect on stimulating intra-regional trade. An integrated regional market could be realized by expediting the progress of the ASEAN Economic Community and taking further steps to promote FTAs among East Asia's largest economies: China, Japan, and Korea. While the potential benefits of such a market are evident and numerous,[89] there are also many challenges and difficulties in reaching a regional consensus for FTAs. Authorities in the region should work persistently to enhance expected benefits such as conducting feasibility studies to move closer to the ultimate goal of establishing region-wide FTAs.[90]

The authorities in the region also need to pay attention to the links between intra-regional trade and financial sector development and integration. Based on the results of the analysis in Chapter IV, the increase in intra-regional trade could contribute toward financial sector development and integration in the region, considering the expected positive correlations between intra-regional trade and financial flows. In the long run, trade policy and integration should be considered together with financial sector development.[91]

[89] Plummer (2010) estimates the benefits that ASEAN Economic Community (AEC) could increase national income by 5.3 percent through elimination of non-tariff barriers (NTBs), lower trade costs, and anticipated increase in FDI. Additional likely benefits (e.g., via free movements of skilled labor, standardization/harmonization, best practices, and greater macro stability) will significantly increase potential gains.

[90] The FTAs in the region ultimately will depend on a political-economic decision based on a cost-benefit analysis of liberalization, facilitation, and cooperation in a region-wide FTA.

[91] Eichengreen (2010) argues that emerging markets must think about gradually transitioning away from a tried and true growth model that has emphasized saving at the expense of consumption, slowed financial development, and successfully promoted export-led growth but at the same time contributed to global imbalances.

(B) Financial Development and Integration in East Asia

To achieve effective financial development and integration in East Asia, the authorities in the region need to prioritize policies with a long-term focus on the following: further development of capital markets with resilient financial systems to support stable growth and address global imbalances; effective management of cross-border portfolio investments; and strengthening of regional safety nets.

(1) Expediting Capital Market Development

Policymakers in the region are very much aware of the need to develop and integrate domestic and regional capital markets, especially bond markets. The recent global financial and economic crisis has made clear once again the need for developed, smoothly functioning bond markets in Asia for effective resource mobilization within the region and global rebalancing. As we reviewed in Chapter II, bond market development has been initiated by governments and central banks in Asia, but still remains insufficient.[92] A number of constraints are impeding further development of liquid and deep Asian bond markets. To overcome them, the authorities in the region need to further expedite the process of the initiatives, and prepare a detailed blueprint and concrete action plan for Asian bond markets development at the national and regional level.

As many studies suggest, bond market development needs to focus on the introduction of efficient market infrastructure and regulatory frameworks,[93] including expansion of other market fundamentals such as increased demand for and supply of bonds, and on development of benchmark yield curves to reduce barriers and promote integration.[94] A well-developed financial market infrastructure could reap the benefits and contain the risks of financial integration. The considerations related to domestic bond market development also apply to the development of a regional bond market, even though the development sequence of domestic and regional bond markets is controversial.[95] In the long run, bond

[92] Most developing Asian financial systems are still bank-centric, and often concentrated in a small number of financial institutions (Appendix V-1).

[93] Lee (2008) indicates that underdeveloped financial infrastructure is one of the major reasons of relative lack of financial integration in Asia.

[94] The ABMI Group of Experts, ADB (2010c) argues that gaining and retaining cross-border investors' confidence is critical to reduce the barriers, and a combination of regulatory and private sector is required.

[95] With regard to the development sequence, it is generally considered desirable to develop a country's domestic bond market first, then open it to foreign investors, and then finally introduce integrated on-shore markets or an integrated offshore regional market. For those countries with relatively developed local

markets in individual countries need to move increasingly toward more harmonized markets and establish regional standards[96] for efficient resource mobilization in the region, along with the growth of national bond markets, the harmonization of domestic markets in East Asia, and their eventual integration into a large and active regional bond market, all of which can yield numerous economic benefits.[97] Meanwhile, considering the high cross-border bond transaction costs in the region as reviewed in Chapter IV, and the very large amount of resources and time needed to develop domestic bond markets in respective individual countries, it is recommended that the authorities consider establishing Asian common (offshore) bond markets as soon as possible in some countries in the region with developed bond markets.

Cross-border payment and settlement systems in Asia should be developed further, and international links of their systems should also be promoted for effective efficient resource mobilization; from the standpoint of financial sector development to support growth, the development of effective, robust payment and settlement systems are essential to make financial resources available in individual economies and across the region, and to support the use of savings within the region and rebalance financial resources toward regional development (Arner and Schou-Zibell [2010]). To develop efficient payment settlement systems in the region, the authorities in the ASEAN+3 need to promote policy coordination among the countries in establishing ICSD-type settlement arrangement in Asia.

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currency bond markets, however, it is recommended that they also promote development of the cross-border or Asian common bond markets simultaneously, considering that the global and Asian regional financial markets are becoming increasingly integrated, and that the regional bond market should be developed as an integrated part of the global capital market. At the regional level, it is recommended that Asian countries should move toward a single Asian international (offshore) bond market, just like the Eurobond market, as an ultimate goal of Asian bond market development from the long-term perspective. This international bond market will enable Asian issuers to raise funds under a common bond issuance platform at low cost and will offer Asian investors more opportunities to freely access Asian currency-denominated bonds (Jang and Hyun [2009]). For additional reference, see "Strategy for Development of Bond Markets in Asia" (Appendix V-2).

[96] For details, see "Asian Bond Standards as a Common Platform" (Appendix V-3).

[97] Regarding this point, the ABMI Group of Experts, ADB (2010d) posits the expected benefits of harmonization of bond standards in the ASEAN+3 as the following: (i) the harmonization of segmented markets into a large and more homogeneous market will lead to efficiency gains through the realization of economies scales; (ii) bond market investors can benefit from the harmonization of Asian bond markets through reduced investment costs for individual domestic market research; (iii) harmonization would provide a superior investment frontier for both regional and global investors, bringing diversity into the market and broadening the scope of risk diversification, given that countries in the region remain at different stages of economic development and possess a range of growth potential; (iv) East Asia as a whole can better establish and utilize capital market infrastructure, including trading platforms, clearing and settlement functions, price discovery, and credit rating systems; and (v) the creation of an integrated regional bond market in East Asia can help alleviate global imbalances by better matching East Asia's vast savings with investment opportunities with the region.

(2) Effective Management of Cross-Border Portfolio Investments

As we reviewed, there are evident restrictions and barriers to cross-border portfolio investments in most of the developing countries in East Asia—in certain areas such as foreigners' investment in specific domestic financial instruments and repatriation of capital and profits, and residents' investment abroad. Prior to the recent global financial and economic crisis, economists and policymakers generally suggested further relaxing restrictions on cross-border investments to enhance financial integration, maintaining appropriate prudential safeguards. Following the recent global crisis, however, many countries in the region are trying to strengthen capital controls to reduce anticipated negative effects with large-scale capital flows despite their positive effects.[98] Policymakers in selected countries are taking into account both dimensions of capital flows, costs, and benefits of the capital inflows and outflows, under the recent situation in which net capital inflows have rebounded.[99]

In this respect, with regard to capital flows, regulations on cross-border investments are an important issue for continual policy review in individual countries. This is because the states of the economies vary widely across countries in the region, and their capacities to cope with the accompanying liberalization risks differ.[100] Eichengreen (2010) points out the common argument that countries with a relatively large financial system and whose markets are open to foreign investors, such as Korea, felt the recent crisis first and most acutely.[101] From this point of view, regulatory frameworks for domestic markets and their supervision need to be strengthened in these countries to reduce the negative effects of capital flows, especially sudden stops or reversals in capital flows. This, however, does not mean that less open or closed systems are generally better in developing countries.

[98] There are two dimensions to capital flows: (i) positive effects such as encouragement of economic growth, promotion of capital allocation efficiency, risk diversification, and development of financial markets; and (ii) negative effects such as exchange rate overshooting, increased leverage and credit booms, asset bubbles, pushing up of inflation expectations, financial instability, and sudden reversal and economic slowdown (Choi [2010]).

[99] With regard to rebounding capital inflows, Strauss-Kahn (2010) indicates that the challenges will be to absorb these flows effectively and avoid the build-up of vulnerabilities. He also indicates that any policy response must be pragmatic, and capital controls sometimes also play a role, but should not be used to avoid needed adjustment.

[100] Pasadilla (2008) argues that relaxation of capital flows should be a matter for constant policy review in East Asia. Kawai (2009) indicates an important lesson to draw from the global financial crisis: at the national level, a country clearly needs to establish the capacity to prevent a financial crisis: this requires prudent macroeconomic policy and effective financial regulation and supervision.

[101] Countries with better-developed financial systems had tended to have more short-term external debt, which made for a more serious crisis.

To minimize the negative effects of the capital flows effectively in developing countries, timely policy responses for capital flows management are needed for the short term. It is important for the medium and longer term to focus on fundamental solutions such as strengthening the macroeconomic fundamentals to reduce external vulnerabilities,[102] establishing a financial safety net, and coordinating current structural imbalances in accordance with the development stages of countries' financial markets. In the long run, developing countries in East Asia need to move in the direction of further financial openness for financial development and economic growth. As Obstfeld (2008) shrewdly points out, opening the financial account does appear to raise the frequency and severity of financial and economic crises. The challenge is to embrace the inevitable transition to global markets—which is only a matter of time—and find effective ways to minimize its negative effects.[103]

(3) Strengthening Regional Safety Networks

The Asian financial crisis heightened calls for the establishment of a liquidity support mechanism, a safety network in East Asia, and reform of the international financial architecture to better cope with future crises. The recent global financial and economic crisis further highlights the importance of strengthening the regional safety networks and reforming the international financial architecture to promote crisis prevention, management, and resolution at both the global and regional level.

The CMI/CMIM—the regional liquidity support mechanism promoted by the ASEAN+3—has shown remarkable progress during the last two years. This regional safety network should be further strengthened in order to play a significant role in supporting liquidity among member countries in case of financial crises. To effectively address this issue, it is necessary to increase the size of the fund for sufficient liquidity support, and make the CMIM more flexible and functional to enhance its practical application. Increase of the IMF de-linked portion should be considered to eliminate the "stigma effect"

[102] This includes such policies as encouraging domestic demand, improving the competitiveness of the service sector, maintaining adequate reserves, reducing maturity mismatch, and so on.

[103] Obstfeld (2008) indicates that developing countries continue to move in the direction of further financial openness: a plausible explanation is that financial development is a concomitant of successful economic growth, and a growing financial sector in an economy open to trade cannot long be insulated from cross-border financial flows. He also suggests the policy framework in which financial globalization is most likely to prove beneficial for developing countries.

associated with the IMF,[104] while moral hazard must also be considered. Together with strengthening the current regional liquidity support mechanism, the authorities in East Asia need to establish various financial safety networks such as currency swap arrangements among the countries in the region to cope with future crises. Reviewing the experience of Korea[105] during the spread of the global financial and economic crisis, we recognize the necessity of a smoothly functioning safety net to minimize the costs generated by the crises.

In addition, new facilities such as the AMRO and CGIF should be established as scheduled and robustly managed to achieve optimal functioning. The AMRO must function not only as a subsidiary of the CMIM but also as a leading institution of regional financial architecture, to act as an effective surveillance mechanism in the region (Kim and Yang [2010]). Member countries should strengthen information channels among themselves to enhance the AMRO's effectiveness and minimize the costs resulting from information asymmetries.

In the meantime, East Asian countries need to consider redesigning the Asian financial architecture to better promote macroeconomic and financial stability and further effective economic integration in the region for the longer term. A smoothly functioning regional financial architecture could complement and strengthen the current international financial architecture currently represented by the IMF and the World Bank.

(C) Leading Roles of the Three Major Countries

Based on the discussions above, the paper suggests that the three major countries in the region—Japan, China, and Korea—play a more active and leading role in furthering intra-regional trade and financial integration to realize various benefits of economic integration in the region.

On the trade side, as we reviewed in Chapter IV, the three countries have mainly contributed to trade growth in East Asia, including their mutual trade, although the intra-

[104] The IMF de-linked portion may be increased above the limit of 20 percent after the surveillance mechanism becomes fully effective (Kawai [2009]).

[105] The Bank of Korea arranged a bilateral currency swap line with the U.S. Federal Reserve, which was very effective in heading off currency speculation. The Bank of Korea also arranged bilateral local-currency swap lines with the BOJ and the People's Bank of China (PBOC); Even though their size was small (US$3 billion equivalent with the BOJ and US$4 billion equivalent with the PBOC) and the yuan was non-convertible, these swap arrangements were also helpful.

regional trade intensity of the three countries remains comparatively low with Europe and ASEAN. The three countries need to take further steps to facilitate the proliferation of FTAs in the region. Until now, the FTAs between Japan, China, and Korea have made no progress.[106] There are huge potential benefits to be gained, however, through FTAs among the three countries.[107]

On the financial side, as East Asia's largest economies, the three countries also need to further promote financial development and integration in the region: develop and link the capital markets, and strengthen the safety nets in the region. Through the integration of the developed financial markets in China, Japan, and Korea, their affluent resources could be mobilized within the region, contributing to its overall financial stability and long-term economic growth. It is suggested that with the further development of the domestic bond markets including corporate bond markets, a regional bond market should be developed. The three countries are expected to play a leading role in creating an integrated regional bond market with liquidity and depth that could complement or serve as an alternative to the advanced financial markets. The three countries, as the main contributors, are also expected to strengthen the regional safety nets to better address the needs of financial and economic stability in the crisis-ridden region.

In the meantime, it is necessary to strengthen the existing dialogue mechanisms for cooperation between China, Japan, and Korea. It would be prudent over the longer term to establish an economic cooperation entity to deal with the crucial, complex issues involving the three countries. The three countries also need to undertake comprehensive and intensive studies such as joint research and conferences on the costs and benefits of intra-regional trade, as well as financial development and integration in East Asia, including that of the three countries.

[106] Lee (2010) indicates that non-economic factors such as historical legacies, national rivalries and lack of community spirit seem to be more serious lingering issues to be dealt with for achieving FTAs between the three countries. He also indicates that among these obstacles, there is a reason to believe that impediments to a Japan-Korea-China FTA are relatively easier to overcome – In addition to the increasing economic inter-dependency among the three countries, there are many issues the three countries should cooperate on at sub-regional, regional and global levels. The growing needs for closer cooperation is likely to prevail over remaining non-economic impediments. Especially, if the leaders of the three countries acknowledge that the remaining obstacles could be mitigated through closer economic ties, FTAs between the three countries may be realized sooner than many people expect.

[107] Chia (2010a) indicates that considering the high concentration of intra-regional trade among the three countries and the complementarities of their industrial structure and geographic proximity, there is a high probability of an emerging trade agreement—barring political constraint. He also indicates that Japan and Korea could take advantage of the huge market and low-priced natural and human resources of China, while China could benefit from the transfer of technology and FDI from Japan and Korea.

VI. Concluding Remarks

This study assesses the current situation of trade and financial integration in East Asia and their potential association, and discusses their policy implications based on the results, considering the policy landscape following the global financial and economic crisis. The overall degree of intra-regional trade and financial integration in East Asia remains insufficient, with financial integration lagging far behind trade integration. The recent global financial and economic crisis that originated in the United States has made clear the need to change East Asia's trade and development policies and facilitate intra-regional trade and financial integration to rebalance domestic economies and maintain stable growth in the region.

Development in East Asia would benefit from wider regional mechanisms with the enhancement of intra-regional trade and financial development and integration. At this crucial turning point in East Asia, the paper suggests that East Asian countries work dynamically to increase the various benefits of the regional mechanisms with smoothly functioning, integrated regional markets. Their efforts should focus on enhancing trade policy cooperation, expediting capital market development, effectively managing cross-border portfolio investments, and strengthening regional safety networks. China, Japan, and Korea should lead this process of regional integration and cooperation.

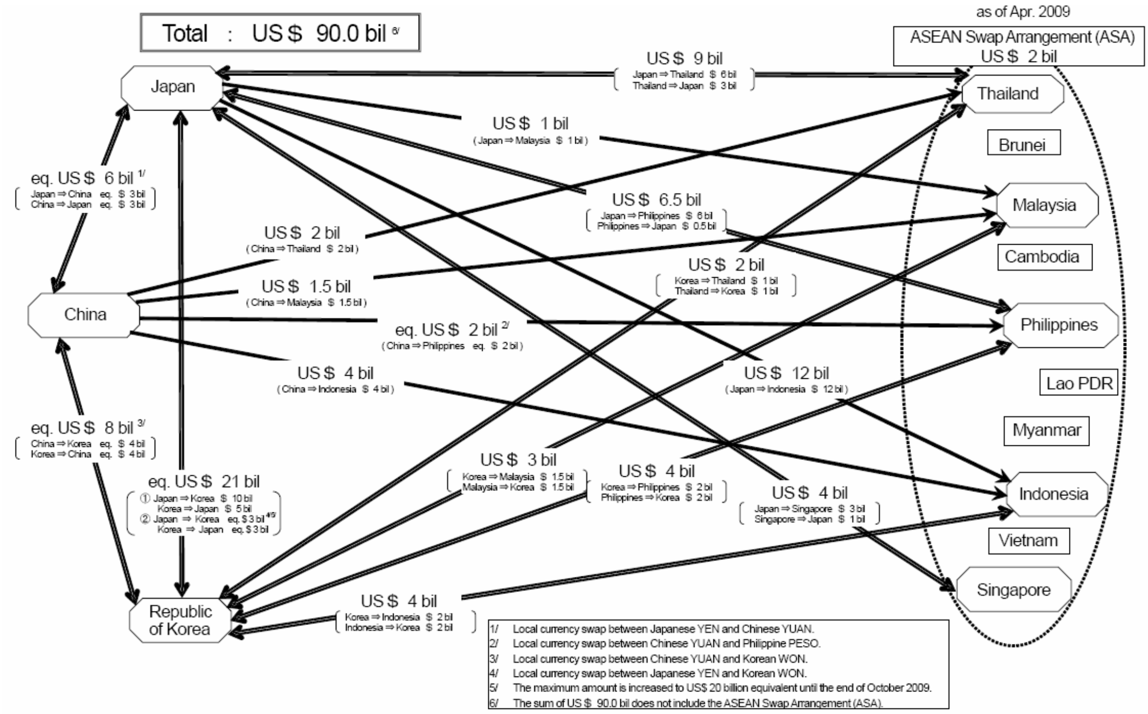
There are some challenges and limitations to furthering regional economic integration, especially in the financial sector, due to the differing states of the economies across East Asia. However, the transition to trade and financial integration in the region is inevitable, and eventually will be beneficial; it is only a question of time and the pace of change from a medium- and long-term perspective. This is because trade openness and integration are closely related to the degree of financial integration, and the major costs of financial integration stem primarily from domestic financial market imperfections and institutional weakness, not financial openness. The recent global financial and economic crisis has also supplied the trigger for furthering regionalism in East Asia.

From this point of view, it is suggested that East Asian countries strengthen regional cooperation to facilitate intra-regional trade and financial integration and reap the accompanying benefits. It is also suggested that the major countries in the region (Japan, China, and Korea) play a leading role in facilitating the integration process. Through regional economic integration and coordination, East Asian countries will be able to achieve sustained and balanced growth at the regional and national level. Economic integration in East Asia could also play a complementary role in global-level initiatives.

In closing, this paper mentions the limitations of this study and suggests salient issues for further study. Given the very limited quantity-based financial data available, it is difficult to assess the degree of financial integration at a regional level and identify the links between intra-regional trade and financial integration. As more comprehensive data become available for analysis, more significant and clear policy implications on financial integration can be deduced. Further studies on regional economic integration should pay particular attention to the following issues: (i) the links between the trade and financial flows at the bilateral, regional, and global level with various available data, and their implications; (ii) the role of the financial sector in promoting economic growth in the region; (iii) regional economic integration and macroeconomic policies in the region and their coordination, in particular, intra-regional capital market development including the regional offshore bond market and monetary policies in the individual countries and the region; and (iv) trade and financial integration between the major three countries (Japan, China, and Korea) in the region, and their roles in furthering intra-regional economic integration.

Appendix

Appendix II-1: Network of Bilateral SWAP Arrangements (BSAs) under the CMI



Source: Ministry of Finance, Japan.

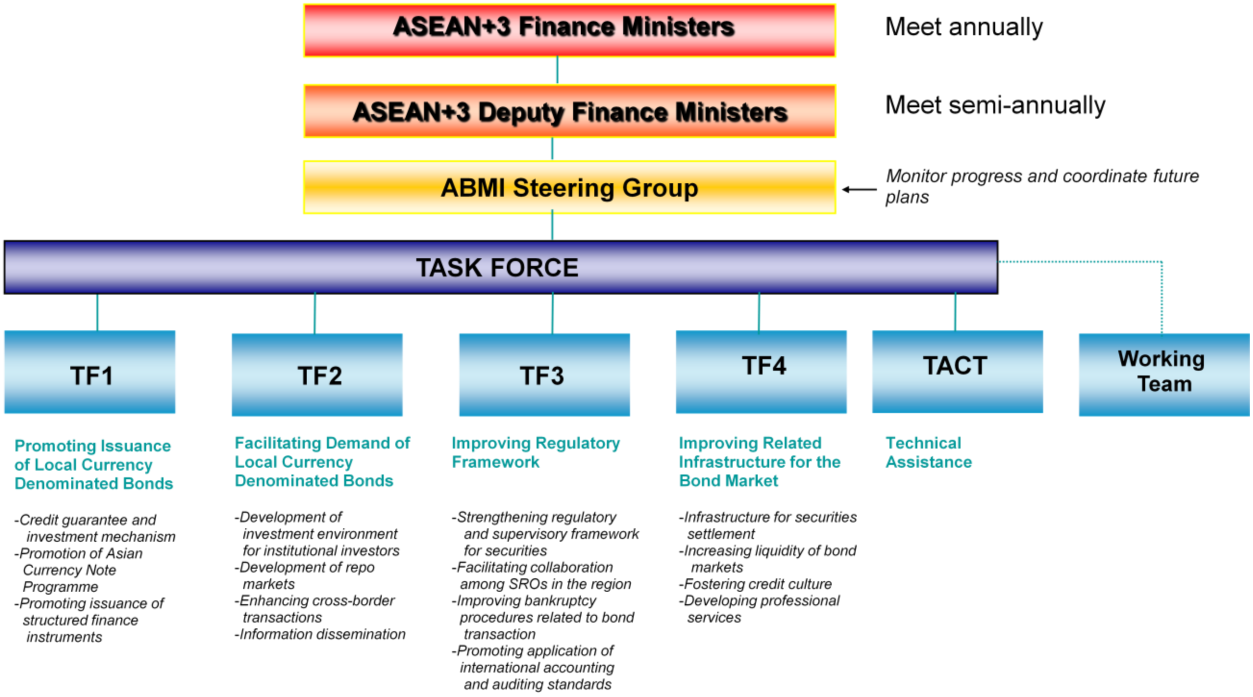
Appendix II-2: CMIM Contribution and Voting Power

	Contributions				**Purchasing multiple**	**Voting power (percent)**
	U.S. dollars (billions)		Share (percent)			
China	38.4	(Excluding Hong Kong) 34.2	32.0	28.5	0.5	25.43
		HK 4.2		3.5	2.5	2.98
Japan	38.4		32.0		0.5	28.41
Korea	19.2		16.0		1.0	14.77
Plus 3	**96.0**		**80.0**		**-**	**71.59**
Indonesia	4.77		3.97		2.5	4.52
Thailand	4.77		3.97		2.5	4.52
Malaysia	4.77		3.97		2.5	4.52
Singapore	4.77		3.97		2.5	4.52
Philippines	3.68		3.07		2.5	3.75
Vietnam	1.00		0.83		5.0	1.85
Cambodia	0.12		0.10		5.0	1.22
Myanmar	0.06		0.05		5.0	1.18
Burnei	0.03		0.02		5.0	1.16
Lao PDR	0.03		0.02		5.0	1.16
ASEAN	**24.0**		**20.0**		**-**	**28.41**
Total	**120.0**		**100.0**		**-**	**100.0**

*Hong Kong's purchasing is limited to the IMF de-linked portion, because Hong Kong is not a member of the IMF

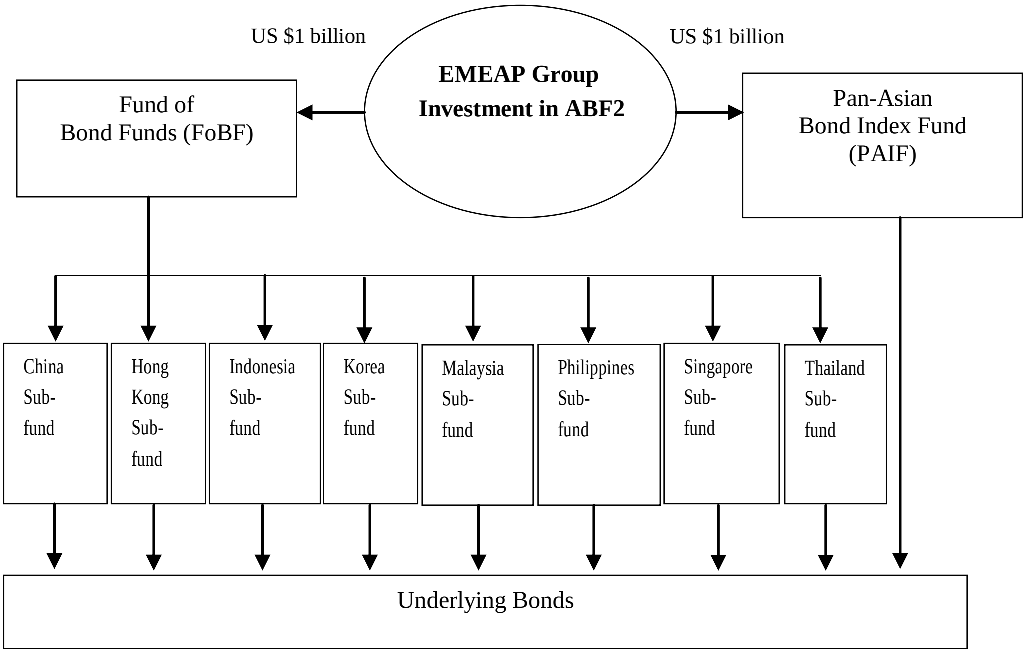
Source: Ministry of Strategy and Finance, Korea.

Appendix II-3: Organizational Structure of ABMI



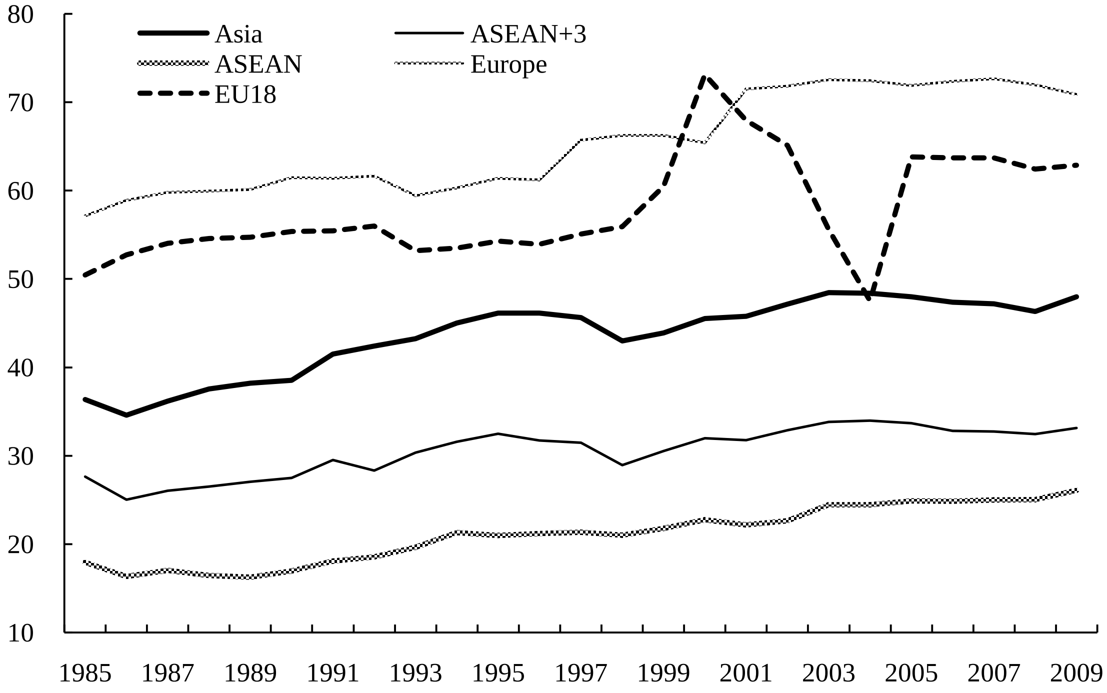
Source: ABMF.

Figure II-4: ABF-2 Framework



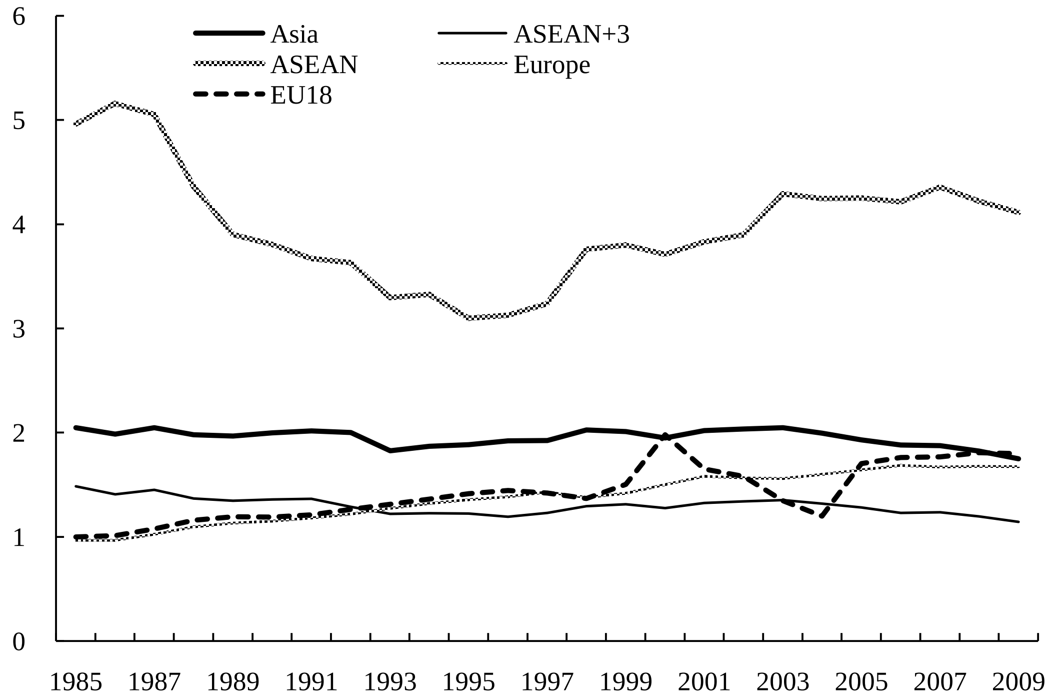
Source: EMEAP, *Review of the Asian Bond Fund 2 Initiative* (June 2006).

Appendix IV-1: Intra-regional Trade Shares (Percent)



Source: IMF, DOTS.

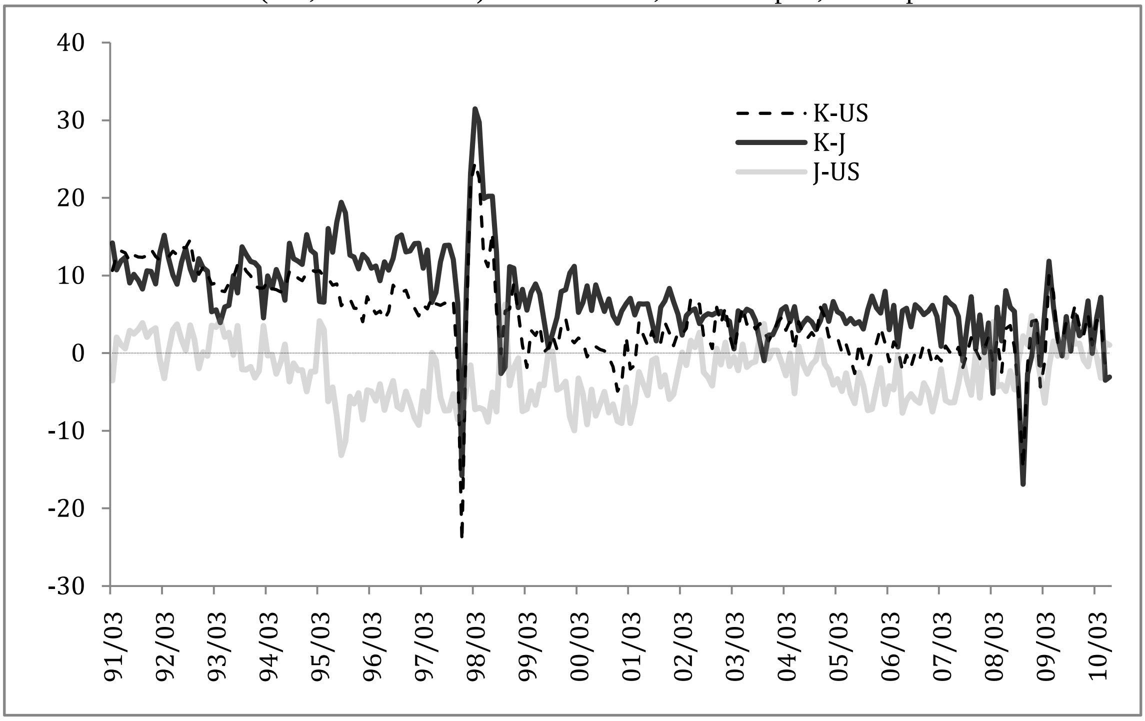
Appendix IV-2: Intra-regional Trade Intensities



Source: IMF, DOTS.

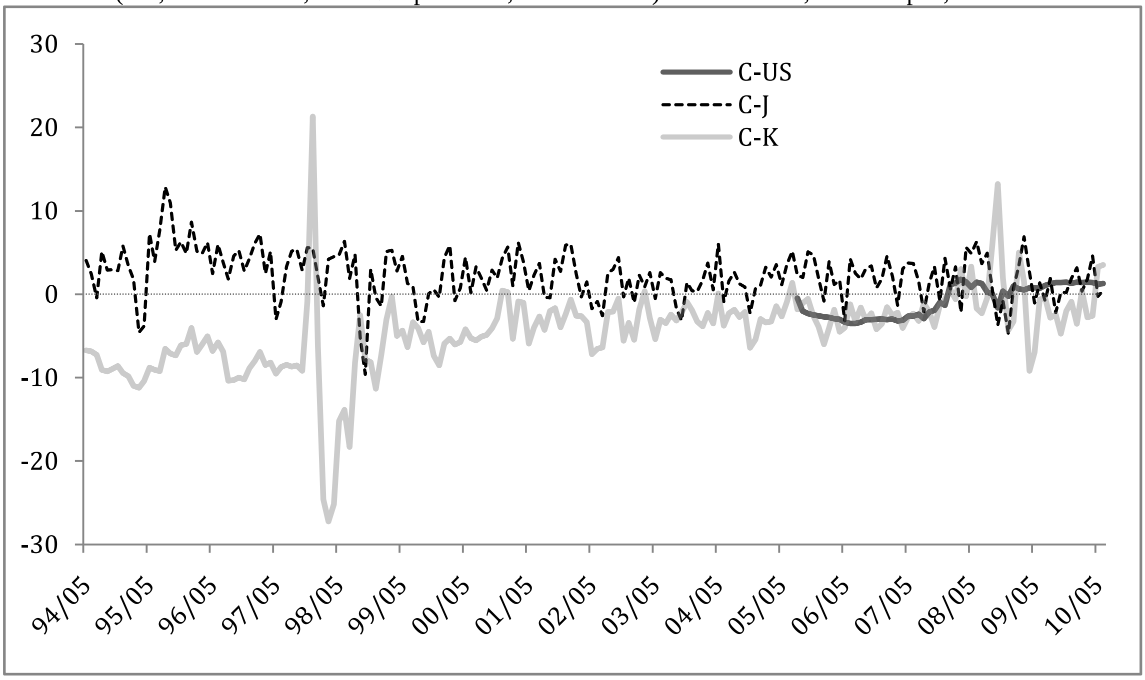
Appendix IV-3: UIP Differentials in the Money Markets

UIDs (CD, three months) for Korea-US, Korea-Japan, and Japan-US



Source: Bloomberg.

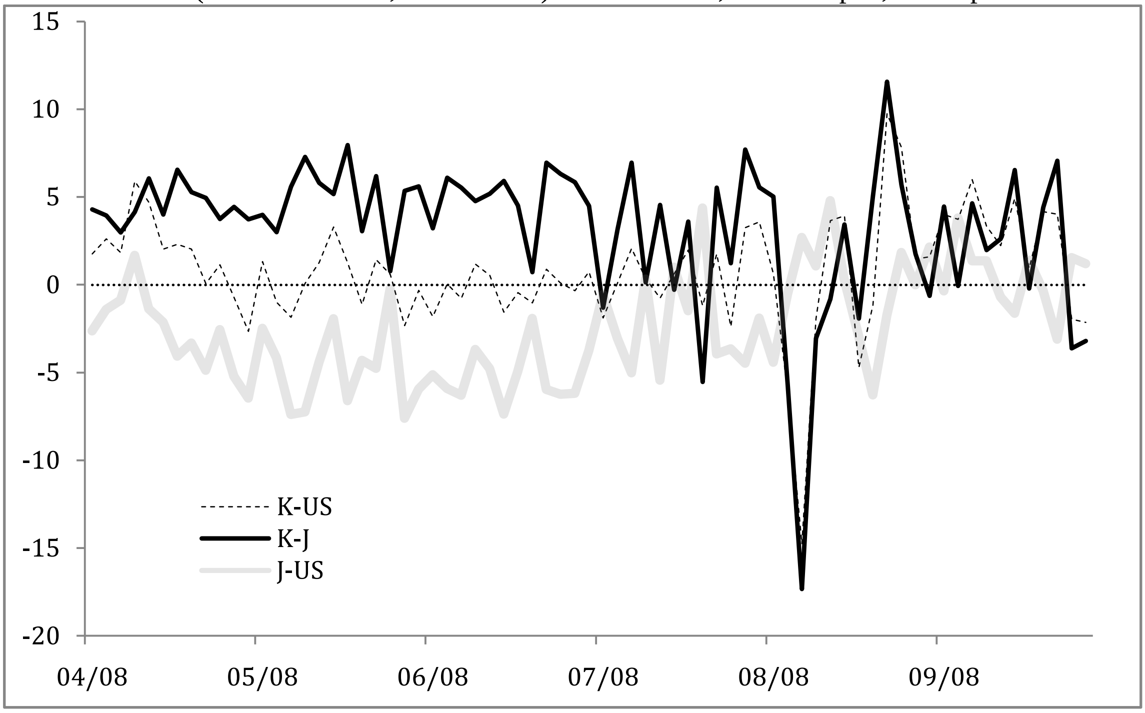
UIDs (CD, three months, China: deposit rate, three months) for China-US, China-Japan, and China-Korea



Source: Bloomberg.

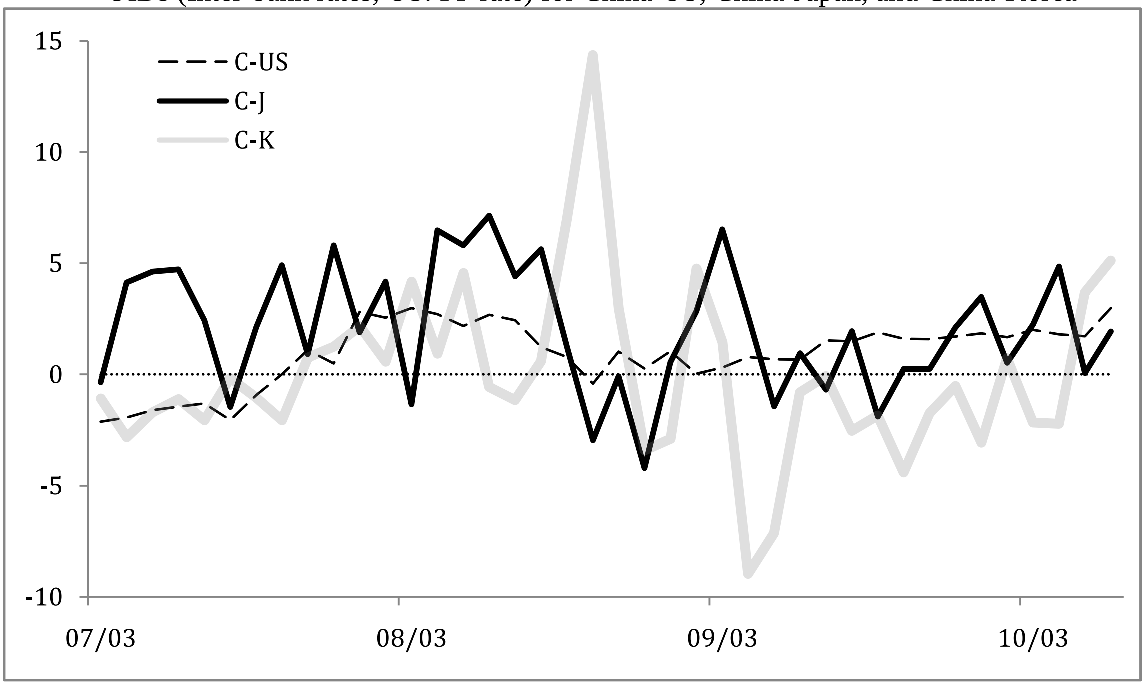
Appendix IV-3 (Continued): UIP Differentials in the Money Markets

UIDs (Inter-bank rates, US: FF rate) for Korea-US, Korea-Japan, and Japan-US



Source: Bloomberg.

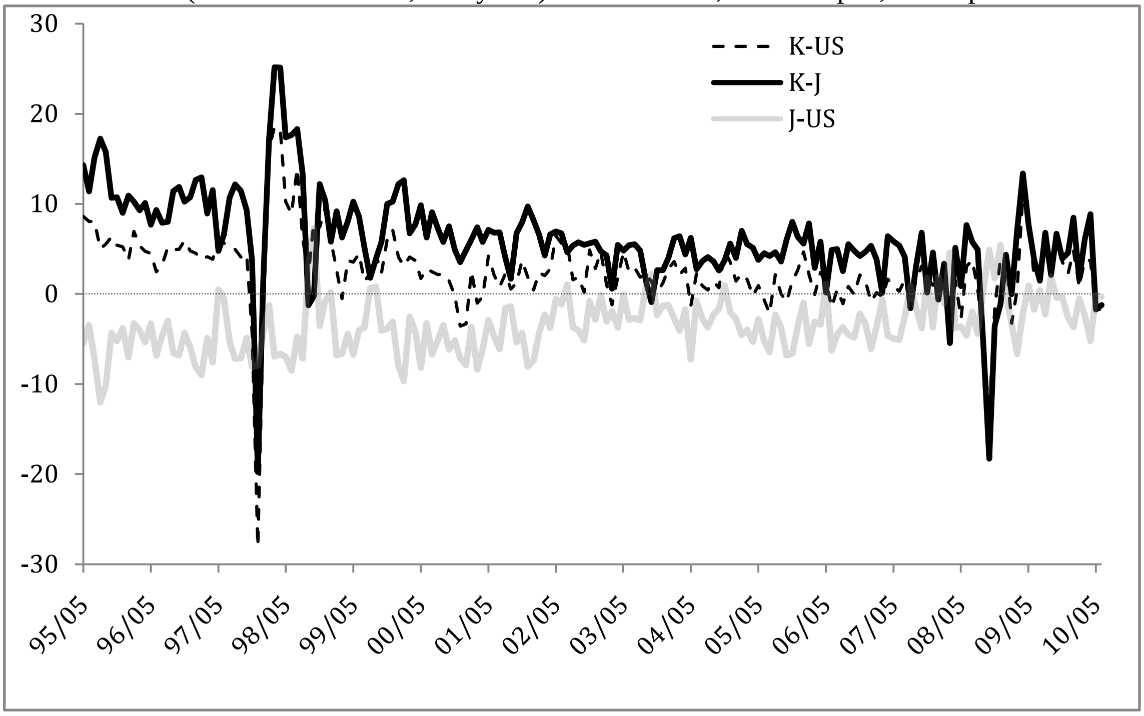
UIDs (Inter-bank rates, US: FF rate) for China-US, China-Japan, and China-Korea



Source: Bloomberg.

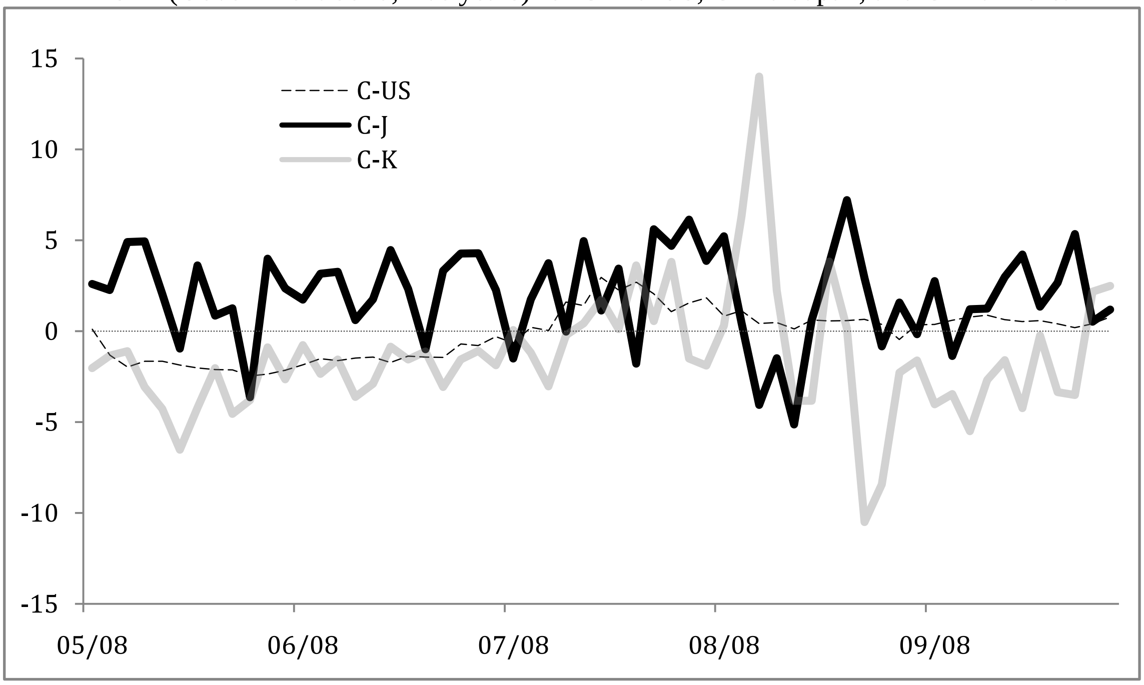
Appendix IV-4: UIP Differentials in the Bond Markets

UID (Government bond, five years) for Korea-US, Korea-Japan, and Japan-US



Source: Bloomberg.

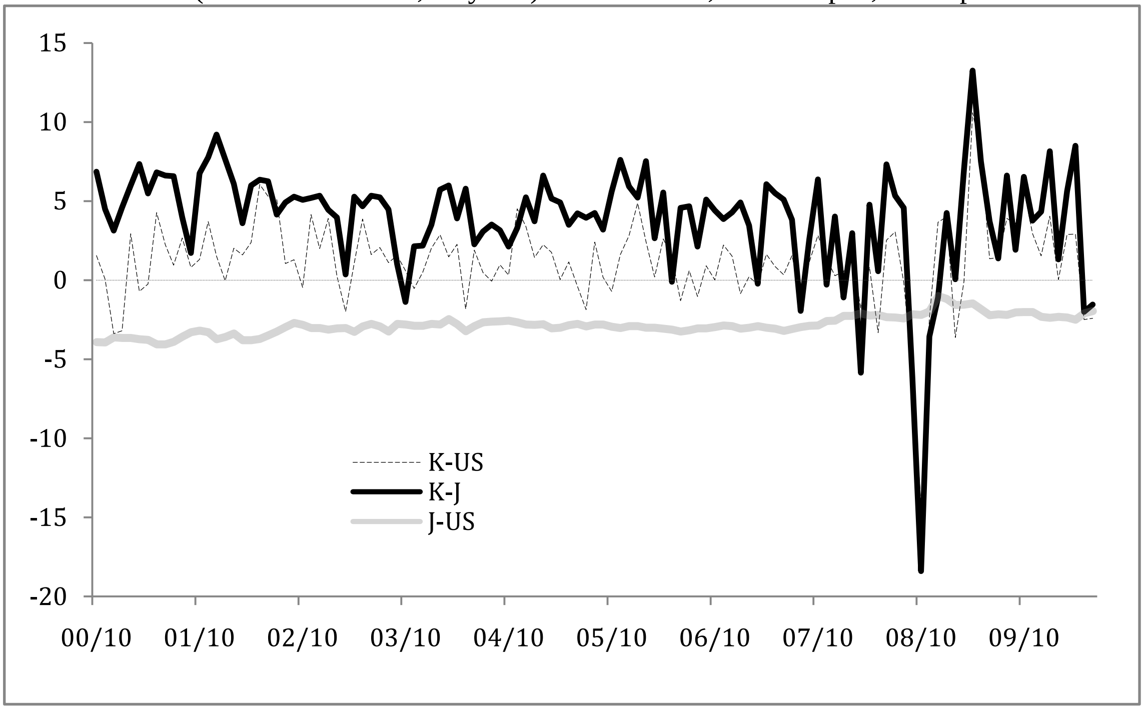
UID (Government bond, five years) for China-US, China-Japan, and China-Korea



Source: Bloomberg.

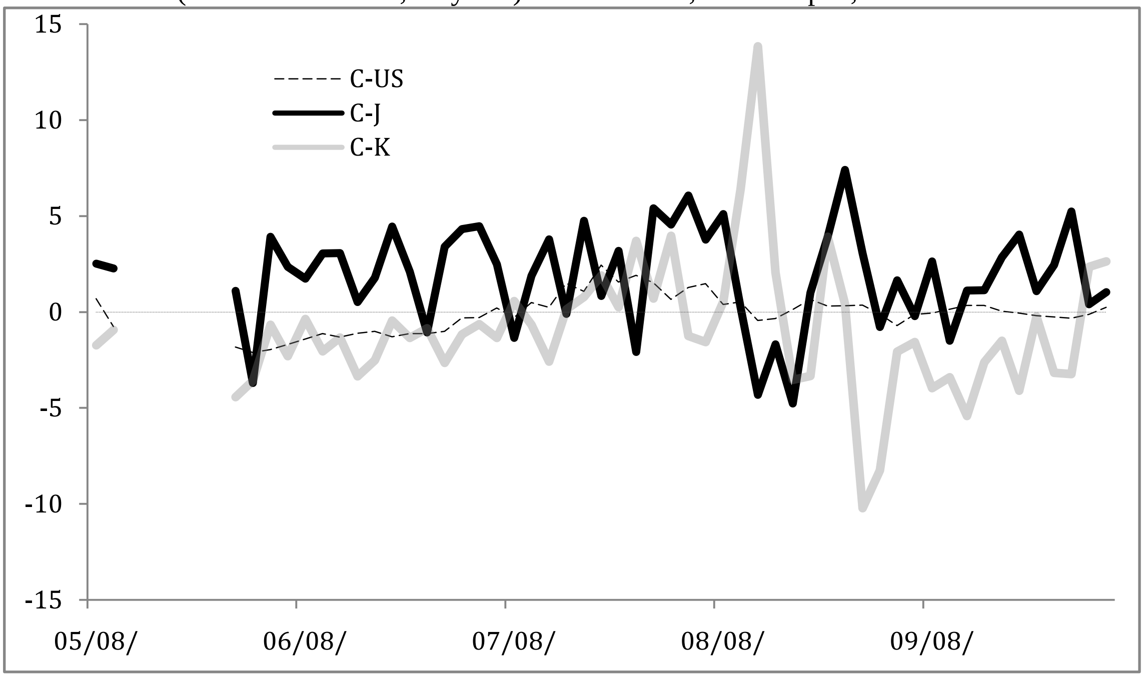
Appendix IV-4 (Continues): UIP Differentials in the Bond Markets

UID (Government bond, 10 years) for Korea-US, Korea-Japan, and Japan-US



Source: Bloomberg.

UID (Government bond, 10 years) for China-US, China-Japan, and China-Korea



Note: Data for the period starting from October 2005 to March 2006 are not available.

Source: Bloomberg.

Appendix IV-5: Cross-Border Investment Regulation in Selected Countries in East Asia

	Capital inflow			Capital outflow	
	Money market instruments	**Bond market instruments**	**Equity market instruments**	**Resident investors**	**Nonresident investors**
Cambodia	•Nonresidents are free to purchase money market securities.	•Nonresidents are free to purchase debt securities.	•Nonresidents are free to purchase equity securities.	•No restrictions apply on residents investing abroad.	•Foreign investors are required to open a bank account to repatriate capital and profits.
China	•Nonresidents are not allowed to invest in money market instruments.	•Qualified Foreign Institutional Investors (QFIIs) are allowed to invest in listed bonds subject to quotas.	•QFIIs are allowed to invest in A-shares subject to quotas. No single QFII may hold more than 10 percent of a listed company.	•Qualified Domestic Institutional Investors (QDIIs) are allowed to buy and hold offshore securities subject to certain quotas.	•Closed-end QFIIs must keep their investment in China for three years; principal may be remitted in installments of not more than 20 percent of their total investment at one-month (or longer) intervals. •Other QFIIs are required to keep their investments in China for one year; principal may be remitted in installments of not more than 20 percent of their total investment at intervals of three months or longer. •Repatriation of foreign exchange requires the approval.
Hong Kong	•There are no specific restrictions on portfolio investments, and foreign investors may place funds directly in money market instruments.	•Nonresidents are free to purchase debt instruments.	•Nonresidents are free to purchase equity securities. Investment in banks require Hong Kong Monetary Authority (HKMA) approval.	•Residents are generally free to invest abroad. Overseas investment by institutional investors (e.g., insurance companies, banks) must be within certain limits and may require HKMA approval.	•No restrictions on repatriation of capital and profits.
Indonesia	•Foreign investors are allowed to purchase money market instruments locally.	•Foreign investors are allowed to purchase debt securities without limit.	•Foreign investors are allowed to purchase shares without limit with the exception of shares in finance company joint ventures. Nonresidents may not purchase more than 10 percent of an investment fund.	•Resident banks are not allowed to invest in Indonesian rupiah-denominated securities issued by nonresidents. Mutual funds are not allowed to invest abroad. Insurance and reinsurance companies are not allowed to invest abroad except for private placement in insurance business overseas.	•No restrictions apply to repatriation of capital, remittance of dividends, profits, royalties, and fees. All payments must meet all reporting requirements.
Japan	•Foreign investors are allowed to purchase money market instruments locally.	•Nonresidents are free to purchase debt securities.	•Nonresidents are free to purchase equity securities.	•Residents can invest abroad, but they are required to provide a simple *ex post facto* report to the Ministry of Finance.	•No restrictions on repatriation of capital, profits, dividends, interest, royalties, and fees.
Korea	•Domestic money markets are open to nonresidents subject to registration, with exemptions given if they reside or work in Korea for more than six months.	•Domestic bond markets are open to nonresidents subject to registration, with exemptions given if they reside or work in Korea for more than six months.	• Domestic equity markets are open to nonresidents subject to registration, with exemptions given if they reside or work in Korea for more than six months. Investment in banks by nonresidents exceeding 10 percent of stocks requires regulatory approval.	•Residents can purchase foreign bonds subject to regulatory declaration. Regulatory approval is required for purchase of Korean won-denominated non-marketable bonds or short-term securities abroad.	•No restrictions on repatriation of capital or profits. All remittances abroad must be in foreign currency other than restricted currencies.

Appendix IV-5 (Continued): Cross-Border Investment Regulation in Selected Countries in East Asia

	Capital inflow			Capital outflow	
	Money market instruments	**Bond market instruments**	**Equity market instruments**	**Resident investors**	**Nonresident investors**
Lao PDR	•Nonresidents are allowed to purchase money market instruments.	•Nonresidents are free to purchase debt securities.	•No restriction on nonresident investment in equity securities.	•Resident investors are allowed to invest abroad, subject to regulatory approval.	•No restrictions on repatriation of capital and profits. Nonresident investors are required to open an account with a commercial bank.
Malaysia	•Nonresidents are allowed to purchase money market instruments without any restrictions.	•Nonresidents are allowed to purchase bond market instruments without any restrictions.	•Nonresidents are allowed to purchase equity instruments without any restrictions.	•Resident with domestic borrowing may invest abroad subject to certain limits. Unit trust management companies, Insurers and Islamic (*takaful*) insurance operators' investment abroad are subject to limits.	•Nonresidents are free to repatriate funds from investment of Malaysian ringgit assets of profits/dividends arising from investments.
Philippines	•No restrictions on the purchase of money market instruments. Regulatory registration is required only if the foreign exchange needed to service the capital repatriation of dividend, profits, and earnings is sourced from the local banks.	•No restrictions on the purchase of bonds. Regulatory registration is required only if the foreign exchange needed to service the capital repatriation of dividend, profits, and earnings is sourced from the local banks.	•Foreign investors are allowed to participate in the local stock market. Regulatory registration is required only if the foreign exchange needed to service the capital repatriation of dividend, profits, and earnings is sourced from the local banks.	•A resident investment abroad in excess of US$6 million a year requires prior regulatory approval. Registration is required if foreign exchange used for investments will be purchased from the domestic banking system. For smaller investments, an investor must submit to the foreign exchange selling bank the supporting documents to show the nature and place of investments.	•Repatriation of capital gains, profit or dividends is allowed without regulatory approval, as long as proof of registration of the original investment is available or its registration document is presented. Regulatory approval and registrations are required if the foreign exchange needed for repatriation is sourced from the domestic banking system.
Singapore	•Nonresidents are allowed to purchase money market instruments without any restrictions.	•Nonresidents are allowed to purchase bond market instruments without any restrictions.	•Nonresidents are free to purchase equity instruments without any restrictions.	•No restrictions on investments by residents abroad.	•No restrictions on repatriation of capital and profits. Singapore dollar proceeds must be converted to foreign currency before remittance abroad. Nonresidents can issue equity shares of bonds with proceeds to be used offshore, converted to foreign currency before remittance abroad.
Thailand	•No restrictions	• No restrictions	•Investments in equities by foreign participants are subject to some restrictions.	•Investment abroad by individual and institutional investors are subject to some restrictions.	•Subject to some restrictions, such as requirement of documentation for repatriation of portfolio investments.
Vietnam	•Nonresidents are allowed to purchase money market instruments locally.	• No restrictions on foreign investors holding bonds.	• Foreign investors are allowed to hold up to 49 percent of a company's current shares.	•Residents are not allowed to invest in shares and bonds abroad. Institutional investors are allowed to invest in securities locally issued by nonresidents but not allowed to invest in those held abroad.	• Foreign investors are required to open a Vietnamese dong-denominated securities trading account and a securities custody account with a foreign custody agent. Repatriation of capital is allowed a year after the securities trading account was opened.

Source: ADB, Asian Bonds Online, National Authorities.

Appendix IV-6: Barriers to Cross-Border Investment and Settlement in ASEAN+3 Bond Markets

	China		Hong Kong		Indonesia	
	Market assessment	Overall barrier assessment	Market assessment	Overall barrier assessment	Market assessment	Overall barrier assessment
Quotas	HIGH	HIGH	OK	OK	OK	OK
Investor registration	HIGH	HIGH	OK	OK	OK	OK
Foreign exchange controls: conversion	HIGH	HIGH	OK	OK	HIGH	HIGH
Foreign exchange controls: repatriation of funds	LOW	HIGH	OK	OK	LOW	LOW
Cash controls: credit balances	OK	OK	OK	OK	LOW	LOW
Cash controls: overdrafts	HIGH	HIGH	OK	OK	LOW	LOW
Taxes	HIGH	LOW	OK	OK	HIGH	HIGH
Omnibus accounts	HIGH	HIGH	OK	OK	OK	OK
Regulatory framework	-	LOW	-	OK	-	HIGH
Message formats	LOW	LOW	OK	OK	LOW	LOW
Securities numbering	LOW	LOW	OK	OK	LOW	LOW
Settlement cycle	LOW	LOW	OK	OK	OK	OK
Matching	OK	OK	LOW	LOW	OK	OK
Dematerialization	OK	OK	LOW	LOW	LOW	OK
High barriers	**6**	**6**	**-**	**-**	**2**	**3**
Low barriers	**4**	**5**	**2**	**2**	**6**	**5**
Total barriers	**10**	**11**	**2**	**2**	**8**	**8**

	Japan		Korea		Malaysia	
	Market assessment	Overall barrier assessment	Market assessment	Overall barrier assessment	Market assessment	Overall barrier assessment
Quotas	OK	OK	OK	OK	OK	OK
Investor registration	OK	OK	LOW	LOW	OK	OK
Foreign exchange controls: conversion	OK	OK	OK	OK	LOW	OK
Foreign exchange controls: repatriation of funds	OK	OK	OK	OK	OK	OK
Cash controls: credit balances	OK	OK	OK	OK	LOW	OK
Cash controls: overdrafts	OK	OK	LOW	LOW	LOW	LOW
Taxes	LOW	LOW	LOW	HIGH	OK	OK
Omnibus accounts	OK	OK	HIGH	HIGH	OK	OK
Regulatory framework	-	OK	-	OK	-	OK
Message formats	OK	OK	OK	OK	LOW	LOW
Securities numbering	OK	OK	OK	OK	LOW	OK
Settlement cycle	OK	OK	OK	OK	OK	OK
Matching	OK	OK	LOW	LOW	OK	OK
Dematerialization	OK	OK	OK	OK	OK	OK
High barriers	**-**	**-**	**1**	**2**	**-**	**-**
Low barriers	**1**	**1**	**4**	**3**	**5**	**2**
Total barriers	**1**	**1**	**5**	**5**	**5**	**2**

Appendix IV-6 (Continued): Barriers to Cross-Border Investment and Settlement in ASEAN+3 Bond Markets

	Philippines		**Singapore**		**Thailand**		**Vietnam**	
	Market assessment	Overall barrier assessment	Market assessment	Overall barrier assessment	Market assessment	Overall barrier assessment	Market assessment	Overall barrier assessment
Quotas	OK	OK	OK	OK	OK	OK	LOW	OK
Investor registration	OK	OK	OK	OK	OK	OK	LOW	LOW
Foreign exchange controls: conversion	LOW	LOW	OK	OK	LOW	LOW	LOW	LOW
Foreign exchange controls: repatriation of funds	LOW	HIGH	OK	OK	LOW	LOW	LOW	HIGH
Cash controls: credit balances	LOW	OK	OK	OK	HIGH	HIGH	OK	OK
Cash controls: overdrafts	LOW	HIGH	OK	OK	LOW	LOW	HIGH	HIGH
Taxes	HIGH	HIGH	LOW	OK	LOW	LOW	HIGH	HIGH
Omnibus accounts	OK	OK	OK	OK	OK	OK	OK	OK
Regulatory framework	-	LOW	-	OK	-	HIGH	-	LOW
Message formats	LOW	LOW	OK	OK	LOW	LOW	LOW	LOW
Securities numbering	LOW	LOW	OK	OK	OK	LOW	HIGH	HIGH
Settlement cycle	OK	OK	LOW	OK	OK	OK	LOW	LOW
Matching	OK	OK	OK	OK	OK	OK	LOW	LOW
Dematerialization	LOW	LOW	LOW	LOW	LOW	LOW	OK	OK
High barriers	**1**	**3**	**-**	**-**	**1**	**2**	**3**	**4**
Low barriers	**7**	**5**	**3**	**1**	**6**	**7**	**7**	**6**
Total barriers	**8**	**8**	**3**	**1**	**7**	**9**	**10**	**10**

Source: Author's summary based on the ABMI Group of Experts Report, ADB (2010c).

Assessment Area

- Foreign investor quota: The existence of limits on the amount of investment that a nonresident investor (or nonresident investor as a whole) may make into a local market
- Foreign investor registration: The registration process that is sometimes needed for a nonresident investor to access the market for the first time
- Currency exchange controls: Restrictions or procedural rules on the convertibility of the local currency
- Cash controls : credit balances: Restrictions on nonresidents holding credit balances in local currency or short term investments in money market instruments
- Cash controls: overdrafts: Restrictions or prohibitions on nonresidents borrowing in local currency
- Tax: Withholding taxes imposed on nonresident investors, whether in connection with income or capital gains
- Omnibus accounts: Restrictions on the use of omnibus accounts for nonresident investors
- Messaging standards: The use of (or rather, non-use) of international standards for securities messaging in a local market
- Securities numbering: The use of (or rather, non-use) of international standards for securities numbering in a local market
- Settlement cycle: The number of days between trade date and settlement date
- Trade and settlement matching: The matching of trade details between counterparties
- Physical certificates: many bonds today are in dematerialized form, held in book-entry at the local securities depository or central bank system, or (in the case of most international bonds) on the books of the ICSDs
- Regulatory framework: The perceived risk of sudden changes in regulations that adversely affect nonresidents, and, in the worst case, may prevent them from exiting markets without substantial penalty

Barrier Assessments

- HIGH: The current situation in this area is likely to have a significant impact on the attractiveness or accessibility of this market, which therefore may defer some foreign investors from this market; it does not necessarily indicate that foreign investment is prevented, but indicates that the barrier is regarded by foreign investors as a serious issue when evaluating investment in that market.
- LOW: The current situation in this area is likely to add to costs or operational difficulties, which is not likely to prevent foreign investment in this market but may make it relatively less attractive than other markets; it does not mean that the barrier is unimportant, but indicates that the barrier is likely to be less serious in that market than a barrier assessed as HIGH.
- OK: There is no significant barrier in that area to cross-border bond investment; it does not mean that a market functions perfectly in that area and that no further improvement is needed.

Appendix IV-7: Summary of Bond Settlement Systems in Selected Countries in East Asia

	Settlement organizations for government bonds	Settlement organizations for unlisted corporate bonds	Settlement organizations for bonds traded on a stock exchange (government and corporate bonds)	Link between organizations	International links used for settlement
China	China Government Securities Depository Trust & Clearing Co. Ltd. (CDC)	China Government Securities Depository Trust & Clearing Co. Ltd. (CDC)	China Securities Depository and Clearing Co. (CSDCC)	CSDCC performs settlement of stock exchange transactions. However, CDC maintains the master record for government and corporate debt (other than convertible bonds listed on an exchange) and therefore CSDCC records are sub-accounts of CDC records.	CDC has one-way links with HK CMU. CDC participants can settle CMU eligible securities and use the CMU links with other international organizations.
Hong Kong	Central Money Market Unit (CMU) of the HKMA	CMU. Direct counter-party settlement is also possible.	Central Clearing and Settlement System (CCASS), which is wholly owned by the Hong Kong Exchange (HKEx)	CCASS accounts with the CMU to facilitate participants' settlement of debt securities	CMU has two-way links with Euroclear, Clearstream, Austraclear (Australia), AustraclearNZ (New Zealand), and KSD, one-way, outward links with Austraclear (Australia), and one-way, inward links with CDC.
Indonesia	Scripless Settlement System (SSS) owned and operated by the Bank Indonesia	Directly between the counterparties by re-registration at the nominated transfer agent	Indonesia Central Securities Depository (KSEI)	KSEI is one of 10 sub-registries in the scripless securities settlement system. The other sub-registeries are private-sector banks.	
Japan	Bank of Japan Financial Network System (BOJ-NET)	Japan Securities Depository Center (JASDEC)	JASDEC, BOJ-NET	BOJ-NET and JASDEC's System have their own network	JASDEC has bilateral links with Central Depository (Pte) Ltd.
Korea	Korea Securities Depository (KSD) operated by the Korea Stock Exchange (KRX), through Bank of Korea Financial Network (BOK-Wire)	KSD operated by KRX, through Bank of Korea Financial Network (BOK-Wire)	KSD operated by KRX, through Bank of Korea Financial Network (BOK-Wire)	The same organization (KSD) is used for both types of bonds, through Bank of Korea Financial Network (BOK-Wire).	KSD has two-way links with CMU.

Appendix IV-7 (Continued): Summary of Bond Settlement Systems in Selected Countries in East Asia

	Settlement organizations for government bonds	**Settlement organizations for unlisted corporate bonds**	**Settlement organizations for bonds traded on a stock exchange (government and corporate bonds)**	**Link between organizations**	**International links used for settlement**
Malaysia	Scripless Securities Trading System (SSTS). This is part of the Real-time Electronic Transfer of Funds and Securities (RENTAS) system owned and operated by Bank Negara Malaysia (BNM).	All unlisted corporate bonds are held by Bank Negara Malaysia (BNM) as custodian agent through RENTAS and are settled by fund exchanges.	All listed corporate bonds under Bursa Malaysia Berhad are settled through the Bursa Malaysia Depository Sdn Bhd.	BNM through RENTAS	Scripless securities including Malaysian government securities can be settled internationally via major custodian banks International Central Securities Depositories (ICSD) such as Euroclear and Clearstream.
Philippines	Registry of Scripless Securities (RoSS) or Philippines Depository & Trust Corporation (PDTC)		The Philippines Securities Settlement Corp. (PSSC) is responsible for matching, clearing, and settlement, with Philippines Depository & Trust Corporation (PDTC) handling depository and custodianship of fixed-income securities and derivatives.	PDTC holds an account in RoSS for government securities being held by PDTC as a custodian or trust entity.	
Singapore	Monetary Authority of Singapore (MAS) Electronic Payment System – delivery versus payment (MEPS-SGS) operated by the MAS	Debt Securities Clearing and Settlement System (DCSS) operated by the Stock Exchange of Singapore (SGX)	Debt Securities Clearing and Settlement System (DCSS) operated by the Stock Exchange of Singapore (SGX)	A real-time DVP arrangement is achieved through a live leased line linkage between DCSS and MEPS.	Central Depository (Pte) Ltd. has bilateral links with Japan Securities Depository Center (JASDEC) and unilateral links with Clearstream, DTCC (US) and Shenzhen Securities Registrar Ltd.
Thailand	The Bond Registry System and the book-entry system at the Bank of Thailand (BOT), government bonds in the book entry system are settled through BAHTNET	Counterparties make their own direct settlement arrangements.	The Thailand Securities Depository Co., Ltd. (TSD), a subsidiary of the Stock Exchange of Thailand (SET), facilitates the book-entry system for the dealers to settle listed corporate bonds.		
Vietnam	There is no settlement matching system. Existing issues must be deposited into the Viet Nam Securities Depository (VSD).	There is no settlement matching system. Existing issues must be deposited into the Viet Nam Securities Depository (VSD).	There is no settlement matching system. Existing issues must be deposited into the Viet Nam Securities Depository (VSD).		

Sources: ADB, Asian Bonds Online, ABMI Expert Group Report (2010b), National Authorities.

Appendix IV-8: Bond Settlement Systems Linkages Between the Countries in East Asia

	China	Hong Kong	Indonesia	Japan	Korea	Malaysia	Philippines	Singapore	Thailand	Vietnam
China		**o**						**o**		
Hong Kong	**o**				**o**					
Indonesia										
Japan								**o**		
Korea		**o**								
Malaysia										
Philippines										
Singapore	**o**			**o**						
Thailand										
Vietnam										

Source: Asian Bonds Online, ADB, and ABMI Group of Expert, ADB (2010b).

Appendix IV-9 Intra-regional Trade and Financial Integration Linkage

(Correlation Coefficients during 2001~07)

	Hong Kong	Indonesia	Japan	Korea	Malaysia	Philippines	Singapore	Thailand	**Average**
Asia8[1] / trade to finance	0.888	0.717	0.799 (0.746)	0.790	0.420	0.753	0.987	0.225	**0.697**
Asia8+US / trade to finance	0.921	0.951	0.985 (0.995)	0.955	0.816	0.975	0.985	0.918	**0.938**
Asia8+EU18[2] / trade to finance	0.968	0.946	0.991 (0.983)	0.946	0.939	0.967	0.981	0.938	**0.959**
Asia8+US+EU18 / trade to finance	0.960	0.961	0.988 (0.994)	0.967	0.935	0.986	0.980	0.947	**0.966**
Asia8 (-1) / trade leads finance	0.899	0.734	0.916 (0.897)	0.846	0.870	0.922	0.991	0.527	**0.838**
Asia8+US (-1) / trade leads finance	0.935	0.938	0.929 (0.979)	0.986	0.924	0.952	0.989	0.908	**0.945**
Asia8+EU18 (-1) / trade leads finance	0.960	0.932	0.961 (0.887)	0.964	0.960	0.973	0.983	0.914	**0.956**
Asia8+US+EU18 (-1) / trade leads finance	0.958	0.950	0.937 (0.952)	0.988	0.962	0.967	0.983	0.931	**0.959**
Asia8 (+1) / finance leads trade	0.931	0.380	0.585 (0.436)	0.839	-0.260	0.649	0.964	-0.180	**0.490**
Asia8+US (+1) / finance leads trade	0.904	0.952	0.978 (0.816)	0.941	0.745	0.968	0.969	0.910	**0.921**
Asia8+EU18 (+1) / finance leads trade	0.969	0.924	0.944 (0.910)	0.956	0.858	0.977	0.970	0.944	**0.943**
Asia8+US+EU18 (+1) / finance leads trade	0.953	0.951	0.969 (0.902)	0.955	0.914	0.990	0.968	0.963	**0.958**

Notes: 1. Asia8: Hong Kong, Indonesia, Japan, Korea, Malaysia, the Philippines, Singapore, and Thailand
2. EU18: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxemburg, the Netherland, Portugal, Spain, Sweden, the United Kingdom, the Czech Republic, Hungary, and Poland
3. Parentheses include Japanese Banks' Foreign Claims

Source: IMF, CPIS, DOTS.
BIS, *Quarterly Review* (Statistical Annex) various issues.

Appendix IV-10: Causality Test of Intra-regional Trade and Finance in Selected Countries

(2002~07 and 2002~08 with Asia8)

Null hypothesis	Obs.	Lag	F-statistic	Prob.
•Trade flows in Japan do not Granger-cause changes in Japan's portfolio investment assets and liabilities in Asia8	5	1	1.6768	0.3247
•Changes in Japan's portfolio investment assets and liabilities in Asia8 do not Granger-cause trade flows in Japan	5	1	20.6123	0.0452
•Trade flows in Japan do not Granger-cause changes in Japan's portfolio investment assets and liabilities in Asia8	6	1	1.4145	0.3199
•Changes in Japan's portfolio investment assets and liabilities in Asia8 do not Granger-cause trade flows in Japan	6	1	25.3137	0.0153
•Trade flows in Malaysia do not Granger-cause changes in Malaysia's portfolio investment assets and liabilities in Asia8	6	1	1.5347	0.5177
•Changes in Malaysia's portfolio investment assets and liabilities in Asia8 do not Granger-cause trade flows in Malaysia	6	1	6.9897	0.0774
•Trade flows in Thailand do not Granger-cause changes in Thailand's portfolio investment assets and liabilities in Asia8	6	1	1.7573	0.2769
•Changes in Thailand's portfolio investment assets and liabilities in Asia8 do not Granger-cause trade flows in Thailand	6	1	6.3890	0.0856
•Trade flows in Japan do not Granger-cause changes in Japan's portfolio investment assets and liabilities (including Japanese banks' foreign claims) in Asia8	6	1	0.3420	0.5997
•Changes in Japan's portfolio investment assets and liabilities (including Japanese banks' foreign claims) in Asia8 do not Granger-cause trade flows in Japan	6	1	5.7344	0.0963

(2002~07 and 2002~08 with the world)

Null hypothesis	Obs.	Lag	F-statistic	Prob.
•Trade flows in Korea do not Granger-cause changes in Korea's portfolio investment assets and liabilities in the world	5	1	55.2614	0.0176
•Changes in Korea's portfolio investment assets and liabilities in the world do not Granger-cause trade flows in Korea	5	1	0.3162	0.6305
•Trade flows in Japan do not Granger-cause changes in Japan's portfolio investment assets and liabilities (including Japanese banks' foreign claims) in the world	5	1	44.8406	0.0216
•Changes in Japan's portfolio investment assets and liabilities (including Japanese banks' foreign claims) in the world do not Granger-cause trade flows in Japan	5	1	0.7851	0.4691
•Trade flows in Japan do not Granger-cause changes in portfolio investment assets and liabilities in the world	6	1	12.4630	0.0386
•Changes in portfolio investment assets and liabilities in the world do not Granger-cause trade flows in Japan	6	1	0.1849	0.6962
•Trade flows in Philippines do not Granger-cause changes in Philippines' portfolio investment assets and liabilities in the world	6	1	3.2282	0.1702
•Changes in Philippines' portfolio investment assets and liabilities in the world do not Granger-cause trade flows in Philippines	6	1	8.6822	0.0602
•Trade flows in Japan do not Granger-cause changes in Japan's portfolio investment assets and liabilities (including Japanese banks' foreign claims) in the world	6	1	5.2441	0.1050
•Changes in Japan's portfolio investment assets and liabilities (including Japanese banks foreign claims) in the world do not Granger-cause trade flows in Japan	6	1	6.3034	0.6201

Appendix V-1: Size and Composition of Financial Systems in Selected Asian Economies

(As a percentage of GDP)

	Financial Sector Assets[1]				Stock Market Capitalization[2]		Total Bonds Outstanding[3]	
	Deposit-taking Financial Institutions		Non-Bank Financial Institutions					
	2000	2009	2000	2009	2000	2009	2000	2009
China, People's Rep. of	157.2	200.6	5.1	5.8	48.9	82.7	16.9	52.3
Hong Kong, China	505.5	651.7	188.3	459.0	368.3	1,093.9	35.8	68.4
India[4]	64.5	103.5	15.6	29.0	69.9	205.2	24.6	48.8
Indonesia	63.6	34.7	8.7	11.4	16.2	39.8	31.9	18.2
Korea, Rep. of	130.5	158.6	41.9	67.3	27.8	100.3	66.6	122.7
Malaysia	154.2	211.5	41.4	99.9	120.6	149.5	73.3	96.5
Philippines	99.2	83.1	23.9	20.0	33.3	53.6	27.6	39.2
Singapore	646.3	643.7	76.6	83.9	167.3	271.7	48.0	84.7
Taipei,China	256.0	295.6	29.4	92.2	75.9	173.5	37.7	57.5
Thailand	132.3	146.6	10.7	41.1	23.8	67.1	25.3	67.0
Average[5]	**221.0**	**253.0**	**44.2**	**92.0**	**95.2**	**223.7**	**38.8**	**65.5**
Median	**143.2**	**179.6**	**26.6**	**54.2**	**59.4**	**124.9**	**33.8**	**62.2**
Memo								
eurozone	230.9	315.6	157.8	214.5	79.6	56.5	87.9	114.4
Japan	510.8	541.8	274.7	291.3	67.6	69.7	97.4	189.6
United States	79.6	107.9	279.3	314.1	152.1	105.8	138.0	175.8

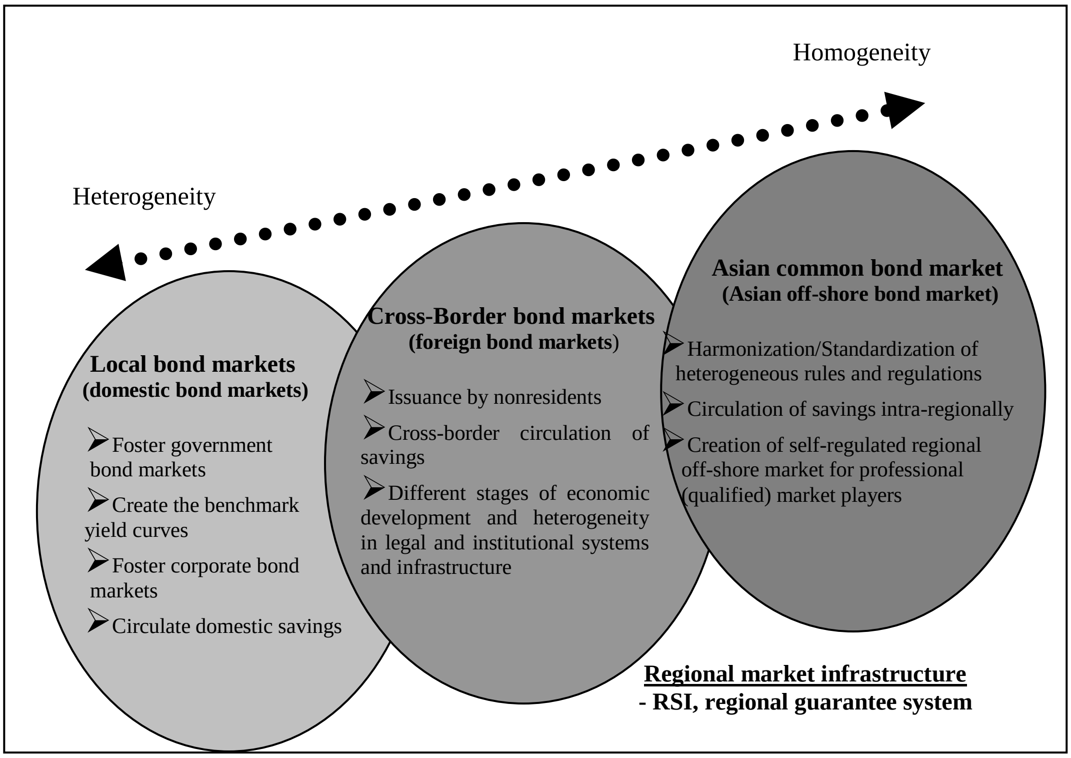
— = data not available.

1. Financial asset data for Indonesia as of end-2001 and end-2008.
2. Figures are computed using US dollar values of stock market capitalization and gross domestic product; except for China, People's Rep. of and India computed using local currency unit.
3. Data covers domestic debt securities. Figures for the United States exclude non-marketable government securities.
4. Financial sector assets data for India refers to the end of fiscal year.
5. Simple average.

Source: OREI staff calculations using data from national sources, CEIC, AsianBondsOnline, Bank for International Settlements, *World Economic Outlook Database,* International Monetary Fund, and World Federation of Exchanges.

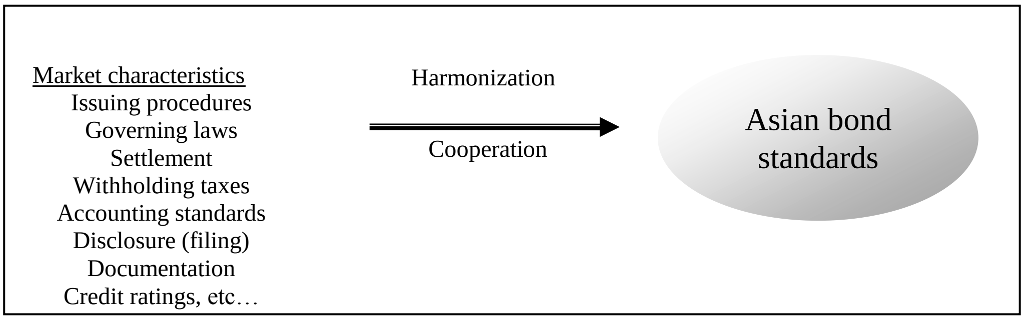
Source: Arner and Park (2010)

Appendix V-2: Strategy for Development of Bond Markets in Asia



Source: Jang and Hyun (2009)

Appendix V-3: Asian Bond Standards as a Common Platform



Source: Jang and Hyun (2009)

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