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Developing Asian Local Currency Bond Markets: Why and How?

Mark M. Spiegel

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Mark M. Spiegel is vice president of international research at the Federal Reserve Bank of San Francisco and director of its Center for Pacific Basin Studies. This paper was prepared for the ADBI Global Financial Crisis Conference on Financial Sector Reform and Regulation, 21–23 July, Tokyo. The author thanks Eric Swanson for sharing his European securities data. Helpful comments were received from Noritaka Akamatsu, Galina Hale, Alicia Garcia-Herrero, Masahiro Kawai, Yusuke Kawamura, David Mayes, Rakesh Mohan, Peter Morgan, Michael Plummer, Michael Pomerleano, Eric Swanson, and Diego Valderrama. Christopher Candelaria provided excellent research assistance. Represented views are my own and are not necessarily those of the Federal Reserve Bank of San Francisco, or the Federal Reserve Board of Governors.

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Asian Development Bank Institute
Kasumigaseki Building 8F
3-2-5 Kasumigaseki, Chiyoda-ku
Tokyo 100-6008, Japan

Tel: +81-3-3593-5500
Fax: +81-3-3593-5571
URL: www.adbi.org
E-mail: info@adbi.org

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Abstract

This paper examines the motivation for, and the success of, regional efforts in Asia to promote local currency bond markets. The analysis demonstrates that Asian local currency bond markets made substantial gains as a region going into the current global financial crisis. However, we argue that the current financial crisis requires a reassessment of the merits of promoting local currency bond markets and the gains that have been made to date. While most of the initial motivations for encouraging the development of domestic local currency bond markets appear to remain valid, there are some exceptions. However, the degree to which success in the development of these markets will be sustained remains unknown until global financial markets regain tranquility and official interventions into these markets are removed.

JEL Classification: F36, G15, G20, G28

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1. INTRODUCTION

Since the 1997 Asian financial crisis, there has been a perception that Asian financial markets would be aided by the existence of developed local currency bond markets. In part, these perceptions stretch back to former Federal Reserve Chairman Greenspan's "spare tire" argument that bond markets would provide alternative vehicles for intermediation in the event that primary sources of financing, such as bank and equity finance opportunities were disrupted (Greenspan 1999).

While others have expressed skepticism at this argument, it is generally agreed that the absence of well-developed domestic and regional bond markets exacerbated the 1997 crisis by increasing the losses of output and the severity of financial sector distress [e.g. Park and Park (2003)]. At a minimum, it is generally agreed that the opportunity to issue in local currencies would mitigate the currency mismatch difficulties experienced in many Asian nations in the wake of their severe exchange rate disruptions. Indeed, International Monetary Fund (IMF) conditionality requirements for support of some of the distressed Asian nations during the 1997 crisis, for example Thailand, included explicit calls for the development of local currency bond markets (Batten and Hoontrakul 2008).

In response, Asian governments actively undertook initiatives to promote local currency bond finance through their initial Asia Bond Market Initiative (ABMI) and through the Asian Bond Funds 1 and 2 (ABF1 and ABF2). While Asian bond markets have grown markedly since the launch of these initiatives, there is still a perception that the region is underserved by domestic bond markets (e.g. Eichengreen and Luengnaruemitchai [2006]). Moreover, as shown below, the progress to date has been heterogeneous within the region.

In part, the development of local currency bond markets has been hindered in some economies by the lack of sufficient economies of scale, due to insufficient demand for assets denominated in the local currencies of smaller Asian economies. In response, efforts have been made to coordinate policies at the regional level to achieve the scale economies needed for viable bond market activity.

This paper reviews the arguments for intervention in favor of the development of regional bond markets and assesses the progress on these initiatives to date. While it is relatively early to assess the ultimate success or failure of regional efforts to promote the development of their domestic currency markets, it does seem a good time to take stock.

Roughly five years passed between the launch of the Asian Bond Market Initiative and the onset of the global financial crisis. It would seem reasonable to expect some improvement in market liquidity and depth over this period of relatively uninterrupted global expansion, and indeed, it is apparent that much success in deepening markets as a region was achieved. For example, in the first five months of 2009, Chinese companies issued US $82 billion in debt, far outpacing the Japanese US $51 billion in issuance over the same period (Balfour 2009). However, there can be no doubt that the current global financial crisis begs for a reassessment of both the merits of efforts to encourage local currency bond market development and the degree of success that has been achieved to date.

The overall ramifications of the current global financial crisis are still uncertain, but it is clear that this event has challenged our understanding of the functioning of financial markets and their roles in economic activity. In particular, one of the primary motivations for encouraging the developments of Asian bond markets stemmed from the perception that that region was "overbanked," relative to its Western counterparts. In light of the current turbulence in security and equity markets worldwide, one wonders whether heavy dependence on banks for intermediation is such a bad thing. Indeed, many have argued that Western financial markets are likely to become more dependent on commercial banks in the future. This is demonstrated most dramatically in the United States (US), where many investment banks have returned to conventional banking activities.

On the second issue, the collapse of the asset bubble of the previous decade has revealed that a substantial share of investment during the run-up of the bubble was misplaced, often undertaken in an effort to "chase yields" in an environment of greater and greater risk tolerance. There can be no doubt that some of the capital allocated to Asian emerging market economies falls into this category. This raises the question of what share of the "success" experienced by the region in encouraging bond market investment will be retained, now that the risk tolerance of the boom years has abated.

As such, the current financial crisis provides a good opportunity to reexamine the merits of the Asian bond initiatives. Our analysis suggests that the bulk of policy conclusions one would be likely to have held going into the crisis are still likely to be valid. However, we should be cautious in concluding that the efforts to promote regional bond markets have been an unqualified success. While there is no doubt that the progress to date has resulted in a dramatic increase in local bond market volumes in some countries in the region, there is still much heterogeneity across the region in the pace of market deepening and in the speed of regulatory reforms.[1] Moreover, the crisis itself demands a reassessment of what constitutes a successful domestic bond market. Below, we review these considerations and suggest which policies are likely to remain conducive to the pursuit of successful domestic bond markets going forward, and which now appear to be anachronistic.

The remainder of the paper is divided into six sections. Section two discusses the motivation for intervention in favor of local currency bond market development. Section three discusses regional efforts prior to the global financial crisis. Section four assesses the success of these initiatives. Section five discusses the implications of the global financial crisis for the merits of regional local currency bond market initiatives, and provides an early review of regional policy responses to the crisis. Lastly, section six provides some policy conclusions.

2. MOTIVATION FOR ENCOURAGING LOCAL CURRENCY BOND MARKETS

2.1 Enhanced Financial Stability

As discussed in the introduction, one major conclusion from the 1997 Asian financial crisis was that the crisis may have been mitigated if the region was not so exceptionally-dependent on bank lending for financial intermediation. Indeed, then-Chairman Alan Greenspan hypothesized as much in a well-known speech (Greenspan 1999), characterizing a well-functioning bond market as a potential "spare tire," that might have allowed for continued intermediation and avoided economic turmoil even after banks had stopped lending in Thailand prior to the crisis.

Over time, the notion of bond markets as a spare tire has largely been discredited, as it has been widely observed that the development of successful banking sectors and domestic bond markets are complements, rather than substitutes. However, it is widely accepted that there is some truth to the idea that well-functioning bond markets can be better placed to provide some forms of intermediation. While banks are more adept at lending to smaller, more opaque firms, bond markets enjoy a comparative advantage in servicing larger, more established companies (Eichengreen 2006b). Indeed, if that were not the case, these markets would not have persisted in developed economies over time.

However, a more enduring lesson of the 1997 Asian financial crisis was the danger of exposure to currency risk. During that crisis, abrupt devaluations decimated the balance

[1] For the purposes of this paper, I consider the "region" as the ASEAN+3 group unless constrained otherwise by data availability.

sheets of firms and financial institutions, as the value of revenue streams that were usually tied to domestic currencies plummeted relative to the hard currencies in which firm and bank liabilities were denominated, their balance sheet positions rapidly deteriorated. This experience taught the enduring lesson that external exposure to currency mismatches are a major source of vulnerability. The opportunity to issue in local currencies allows firms to avoid these mismatches and limit this vulnerability.[2] This desire to mitigate firm currency risk exposure remains one of the primary motivations for government intervention in support of the development of local currency bond markets in Asia (e.g., Kwon [2006]).

2.2 Achieving Economies of Scale

Another motivation for encouraging the development of local currency bond markets is in allowing them to reach transaction volumes sufficient to achieve economies of scale and reduce funding costs for issuing domestic firms. The size of the underlying economy plays a key role in the determination of the depth of local bond market activity.

One reason for bond markets to exhibit scale economies is that smaller markets can suffer from illiquidity. Asian bond markets, excluding Japan, are commonly regarded as less liquid than those in the US. While there are a number of alternative measures of liquidity, in practice these measures tend to be highly correlated (e.g. Jiang and McCauley [2004]). In response, we concentrate on bid-ask spreads in our analysis of Asian bond market liquidity as that measure is most widely available. However, as pointed out by Jiang and McCauley (2004), one should note that bid-ask spreads may be flawed indicators of liquidity in Asia, as government restrictions may constrain their magnitudes. In the presence of such restrictions, markets may adjust via the only mechanism available, namely through a decline in volume.

For example, Hale and Spiegel (2009) find that among non-financial firms in international bond markets there was a 35.3% increase in the probability of issuing in euro relative to pre-union national currencies subsequent to the launch of the European Monetary Union (EMU). Presumably, that increase was attributable to the far greater size of the euro area economy relative to any of its national counterparts. This increased size implies that firms issuing in euro will attract more intense analyst coverage and face deeper markets than they did issuing in their national currencies prior to the advent of the euro. While the advent of the euro represented an unprecedented increase in the size of an underlying economy, it clearly suggests that scale economies play a role in the attractiveness of local currency bond markets.

Two features drive the perception that domestic Asian bond markets could achieve greater scale economies than those that they currently exhibit. The first is the perception that Asian domestic local currency bond markets are small relative to the size of their economies. While that conjecture is no longer as true as it used to be, thanks in large part to efforts made over the decade in promoting local currency bond market development in Asia, there is still a lot of heterogeneity within the region, with the result that this conjecture is still true for many countries within the region.

The second feature is that as a region Asia is running a large surplus with the rest of the world. The other side of this transaction is that the rest of this world finances this borrowing through the issuance of their own domestic bonds, with the result that both public and private agents in Asia have acquired large stocks of foreign bonds, particularly US Treasuries. There is a perception that instead of this pattern, capital could be profitably recycled within the region to local issuing firms. It has been argued for some time that the development of

[2] Of course, the existence of local currency bond markets is a necessary, but not sufficient, condition for avoiding currency mismatch, as firms may choose not to issue in their local currencies anyway (as many firms did in the current crisis in Eastern Europe). However, improved terms for borrowing in local are likely to decrease the severity of currency mismatch exposure, holding all else equal.

local currency bond markets could play a role in alleviating global imbalances, (e.g. Park and Rhee [2006]).

Although widely argued, the merits of this claim appear to be quite unclear. The argument appears to posit that US treasuries and Asian corporate bonds in domestic currencies are highly substitutable, so that reduced issuance of one would result in increased demand for the other. However, the period of rapid growth in global imbalances was also one with relatively low interest rates.

Some have argued that global interest rates were low over this period because of excessively-accommodative monetary policy. Taylor-rule based simulations indicate that the Federal Funds rate was below levels consistent with a 2% inflation target between 2003 and 2006, sometimes by as much as 200 basis points (e.g. White 2008). This might imply that Asian interest rates over this period were higher than they would have been under reduced global imbalances. However, at a minimum, it is clear that global credit conditions were easy during the period of high global imbalances, implying that the imbalances alone cannot be the source of low issuance volume in Asian domestic currency bond markets.

Indeed, if anything, one could argue that the low interest rates that prevailed during this period motivated increased appetite for more risky Asian securities, as global investors found themselves accepting greater and greater levels of risk to achieve some desired yield target. As such, the question seems rather to be whether local currency markets are sufficiently developed to provide a profitable channel for intermediation of the ample capital available for investment in the region.

Another motivation for encouraging the development of local currency bond markets is that current transaction volumes are inadequate to generate a desirable level of coverage by global rating agencies. It has long been understood (e.g. Park and Park [2003]) that successful development of Asian local currency bond markets would require the existence of both regionally specialized rating agencies, as well as rating activity from global firms. These rating agencies provide the analysis that investors require to feel secure about assessing the risks associated with foreign bond purchases, and the spreads required for issuance in the absence of their coverage may prove to be prohibitive to many potential issuing Asian firms. In response, Asian groups have actively encouraged additional coverage by both global and regional rating agencies.

However, many bond issuers in Asia are still not covered by these agencies. This immediately reduces the potential investor base for Asian issues, as many large Western institutional investors, such as pension funds, require that the bonds included in their portfolios be rated at some level by international credit rating agencies. This calls into question the wisdom of encouraging rating agencies solely at the regional level. These regional agencies are likely to encourage additional clients from the region itself, but may leave it difficult to attract foreign purchasers, as these institutions may not recognize the ratings generated by these regional agencies.

The superiority of global rating agencies over their national counterparts in Asia has also been questioned. On one hand, national rating agencies are supposed to have access to superior information concerning the underlying fundamentals of issuing firms. On the other hand, however, global rating agencies are supposed to enjoy superior international credibility, as they are generally considered to be more independent. A recent study by Ferri et al. (2009) sheds doubt on the superiority of global rating agencies in the Republic of Korea (Korea), as downgrades from a national ratings firm generated deeper negative responses on average than downgrades from its global affiliate counterparts.[3]

[3] The rating agencies in question in the study were Korea Investors Service (KIS) and Korea Artings Corp. (KR), which have been subsidiaries of Moody's and Fitch respectively since 2001, and national Information & Credit Evaluation, Inc.(NICE), which is a rating agency with solely Korean ownership.

As such, the strategy that is likely to be best is one that encourages additional coverage by both regional and global agencies. While these two goals are in some sense contradictory, it is clear that requiring transparency at levels that facilitate rating agency coverage is likely to facilitate additional coverage by both forms of agencies.

2.3 Anomalies and imperfections in less-developed markets

There is widespread perception that less developed bond markets exhibit anomalies and other distortions in their yield curves. When well-behaved, bond yield curves can provide important information concerning the degree to which investors discount future payment streams. Yield curves have been shown to provide important information concerning agent's discount and expected inflation rates. For example, Gürkaynak, Sack, and Swanson (2005) demonstrate that bond yield curves are useful in gauging investors long-term inflation expectations, as long-term yields appear to respond to current data.

Distortions in yield curves can arise for a wide variety of reasons, including liquidity premia, hedging demand, demand for deliverability into futures contracts, desirability for use in repo markets, or differences in bid-ask spreads or non-synchronous quote times (Gürkaynak, Sack, and Wright 2007). These anomalies can be problematic for two reasons. First, they may make it difficult to garner information about the rate of discount. As bonds do not exist at all maturities, estimation of yield curves must entail some degree of interpolation across maturities. This smoothing process can introduce errors depending on the underlying causes of observed anomalies: Some might reflect actual differences in rates of discount, while others might reflect more market-based sources of heterogeneity, such as the aforementioned differences in bid-ask spreads, which may raise the yield on one bond substantially over another of close maturity. This inability to identify the true rate of discounting of bonds at various maturities can make it hard to gauge, for example, how well inflation expectations are anchored, and thereby hinder the ability of bond yields to be used in the pursuit of monetary policy.

Second, to the extent that anomalies reflect difficulties in settlement or other financial frictions, they represent additional costs of intermediating through the bond market at a given maturity. As such, these anomalies reflect the fact that it is more costly to conduct transactions at these maturities. Since mitigating risk often requires the ability to open and close positions at various maturities, these costs may discourage bond issuance not only at the maturities exhibiting the observed anomalies, but in the market exhibiting these anomalies as a whole.

However, it should be recognized that liquidity discrepancies are likely to lead to some lack of smoothness in even the most developed markets. In their estimation of the US Treasury yield curve from 1961 to 2006, Gürkaynak, Sack, and Wright (2007) find that while they can fit a curve that matches the data quite well using only six parameters, they still find maturities that are off their fitted curve, most notably at two and three year maturities. As such, some discrepancies of bond yields from values consistent with a smoothed curve should be considered normal, even for the bond markets of the most developed economies.

Nevertheless, even the most developed countries appear to show declining yield curve anomalies with bond market development. Gürkaynak, Sack, and Wright (2007) show that yields on US securities at a wide variety of maturities exhibit declining yield curve anomalies, in the form of observed errors in yield curve estimation, over time. They argue that increased market activity and liquidity is one possible explanation for their observed decline in these pricing anomalies. In particular, they point out that their estimations do worse in the immediate aftermath of the global financial turmoil experienced in the fall of 1998.

Yield curve anomalies also appear to arise during temporary episodes of financial turbulence. These anomalies are likely to reflect the lack of liquidity in issues at specific maturities. For example, Gürkaynak, Sack, and Wright (2007) find increases in liquidity

premia of on-the-run 10 year US Treasury yields relative to synthetic off-the-run Treasury securities with comparable maturity dates and coupons during episodes of financial turmoil, such as the 1987 stock market crash and fall 1998 seizing up of financial markets following the Russian ruble crisis.

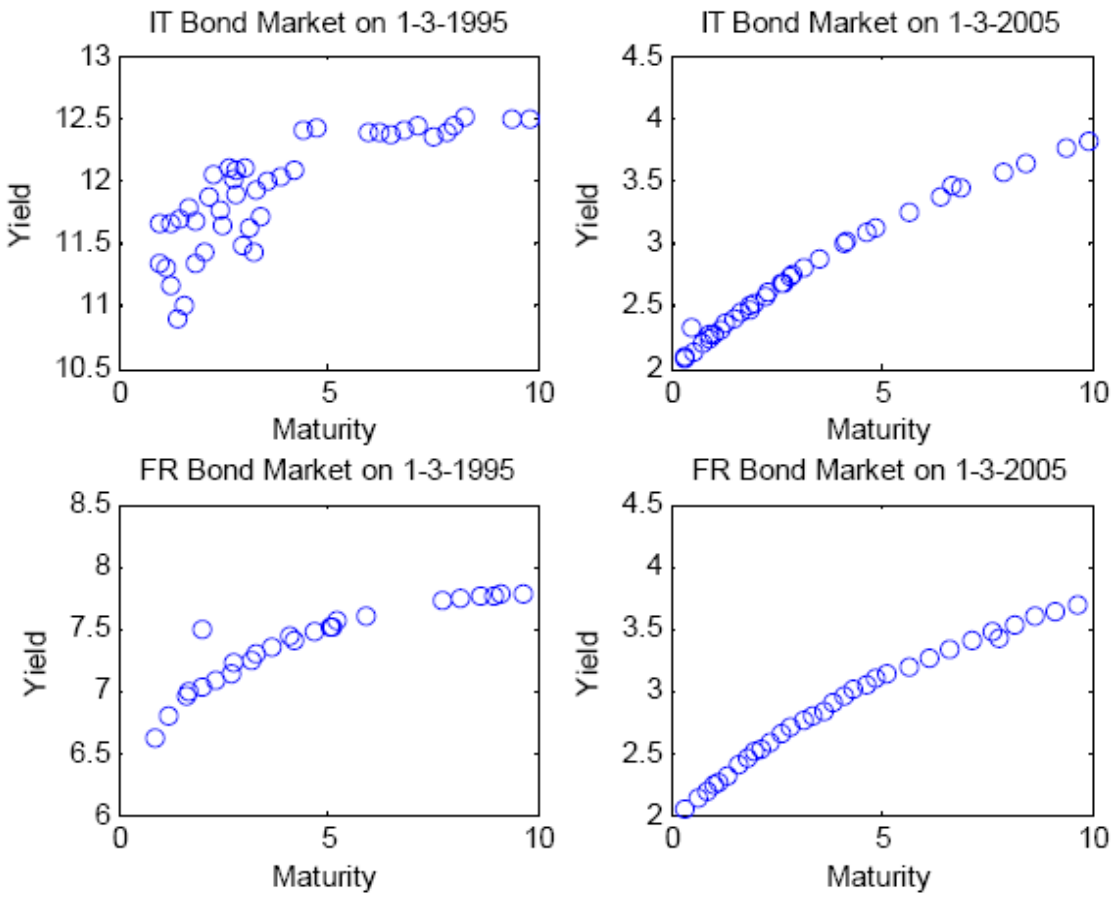
Even among developed economy bond markets we see evidence that increased depth and liquidity in domestic bond markets can reduce the magnitude and incidence of anomalies. For example, Ehrmann et al. (2007) examine the case of bond markets in the euro area before and after the advent of the EMU. They find that the advent of the euro led to substantial convergence of levels and co-movements of yields across these markets, suggesting that investors tended to treat the euro-area bond market as closer to a single market, notwithstanding the differences in perceived default risk among euro area member countries. Indeed, Manganelli and Wolswijk (2007) find evidence that heterogeneity in pricing of government bond yields after the launch of the euro was attributable to differences in bond credit ratings, which are supposed to be based solely on default risk. As such, it appears that net of default risk, and differences associated with legal regimes, the euro area was treated as a single local currency bond market after the launch of the monetary union.[4]

To the extent that investors treated issues in euro as a single market subsequent to the launch of the monetary union, we would expect bond markets in Europe to exhibit increased depth and liquidity after the launch of the currency union. The advent of the euro therefore provides us with a natural experiment concerning the impact of increased bond market depth and liquidity on the prevalence of anomalies, such as those displayed in deviations from smooth estimated yield curves.

Evidence consistent with this conjecture is provided in Figure 1, which is taken from Ehrmann et al. (2007). They estimated yield curves for Italy and France in 1995 and 2005, i.e. before and after the launch of the EMU. Prior to the launch of the EMU, Italian bond yields of similar maturities traded more than 100 basis points apart. They attributed these differences to wide discrepancies in liquidity and other security characteristics in the pre-EMU Italian bond market. However, the yield curves for 2005, subsequent to the launch of the EMU, suggest a deeper, more liquid, and more efficient Italian bond market.

[4] To the extent that a bailout of a defaulting euro area member carried positive probability, we would expect convergence in perceived default risk as well. This suggests that not all of the changes in spreads can be ascribed to convergence due to greater liquidity in these markets. Nevertheless, the evidence of decreases in the prevalence of yield curve anomalies provides an independent indication of increased liquidity in these markets subsequent to the advent of the euro.

Figure 1: Italian and French Bond Market Yields 1995 and 2005 (in %)



Note: Yield curves for French (FR) and Italian (IT) sovereign bonds on 3 January, 1995 and 3 January, 2005, i.e. before and after the 1999 launch of the European Monetary Union.

Source: Ehrmann et al. (2007).

Moreover, these discrepancies are far larger for the pre-EMU Italian bond market than for the French bond market. Prior to the launch of the EMU, the French bond market, which was already deeper and more developed in 1995 than its Italian counterpart, only displays one maturity far removed from the yield curve estimate. This suggests that even prior to the advent of the euro the French bond market was deep enough to avoid a substantial number of bonds removed from its smoothed yield curve.

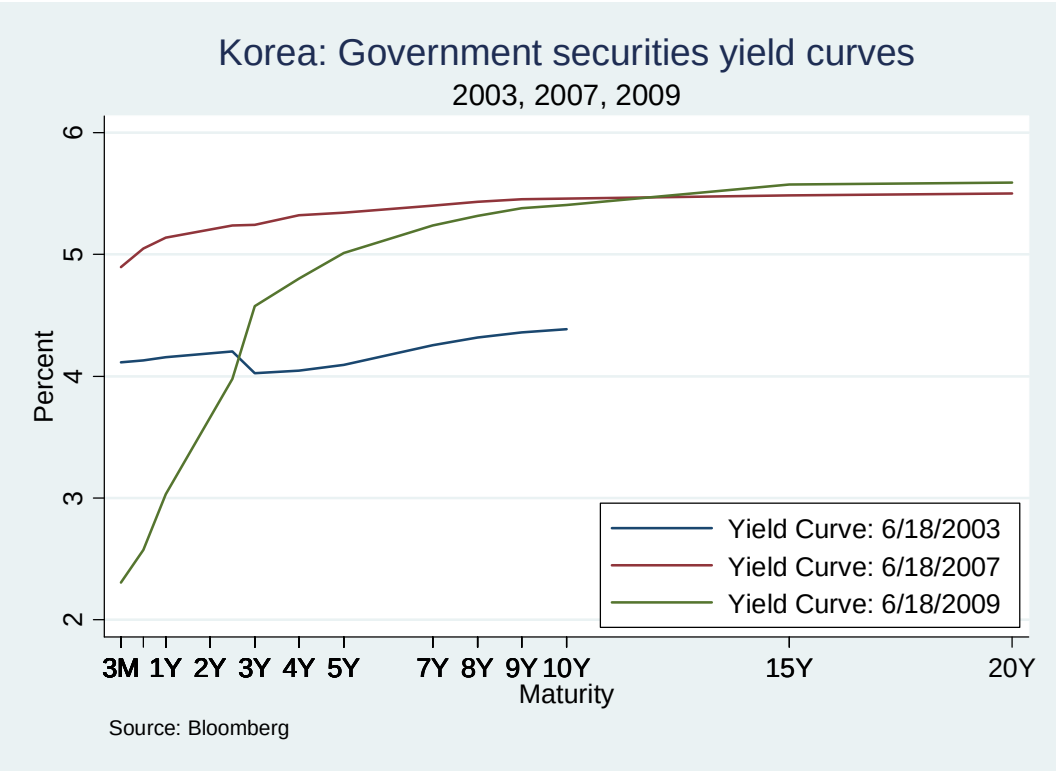
This evidence from the euro area demonstrates that the primary path to removing bond market inefficiencies is achieving the optimal scale necessary for sufficient liquidity, as well as deeper analyst coverage. However, it is important to remember that the advent of the euro brought other changes as well, most notably greater credibility for “Italian” monetary policy, but also greater credibility on the fiscal side because of the constraints faced under the growth and stability pact, which limited euro area governments to fiscal deficits less than 3% of gross domestic product (GDP), except in exceptional circumstances. Finally, other changes happened as well, including harmonization of financial standards within the European Union, which raised the quality of financial regulatory standards in Italy.

The European example therefore provides a lesson for the development of Asian local currency bond markets. While additional liberalizations makes it incorrect to attribute all of the declines in observed anomalies in euro area bond markets to scale economies with the increased volume of euro area issuance, we can conclude that the combination of increased market depth, superior macroeconomic policies, and improved financial regulatory conditions

provided a desirable cocktail of policy changes that led to marked improvements in the observed conditions in these markets.

Given the efforts made in encouraging the development of Asian local currency bond markets, and the general consensus that these efforts have been successful to date in a number of countries in the region, it is natural to expect that we would observe a decline in the yield curve anomalies discussed above over the time period where these efforts were taking place. That appears to be the case, as evidence by the fitted Korean yield curves in Figure 2.[5] It can be seen that at the launch of the ABMI in 2003, discussed in more detail below, the Korean government securities yield curve exhibited a number of anomalies, including a notable inversion at the 2-year horizon. Four years later, this was replaced by a relatively smooth upward-sloping yield curve. Most currently, despite the financial turbulence experienced in that country, the Korean yield curve fails to exhibit any inversions, although the medium maturities deviate substantially from levels that would be consistent with a smooth fitted yield curve.

Figure 2: Korea: Government Securities Yield Curves, 2003, 2007, 2009 (in %)



3. REGIONAL EFFORTS TO ENCOURAGE BOND FUND DEVELOPMENT

Because of awareness of the issues raised above, discussions about regional cooperation in Asia concerning the promotion of local financial markets have been going on for quite a while. However, efforts to promote local bond markets really took off subsequent to the 1997 Asian financial crisis. During this episode, firms experienced disruptions in their balance sheet positions due to currency mismatches following the dramatic exchange rate devaluations suffered by many Asian economies.

[5] Each yield curve in Figure 2, and in the other curve displayed in this paper as well, contains all of the maturities listed on the x axis. The 2003 curve does not extend beyond the 10 year maturity.

Table 1: Pre-Crisis Asian Regional Bond Market Initiatives

Date	Event
2003	Executives' Meeting of the East Asia Pacific central banks (EMEAP) announces creation of ABF1, consisting of US$1 billion in sovereign and quasi-sovereign Asian bonds.
	ASEAN+3 launches Asian Bond Market Initiative (ABMI): Six voluntary working groups established to discuss issues relevant to development of domestic and regional bond markets. Groups include securitization, credit guarantees, local currency bonds, credit ratings, and foreign exchange transactions.
2004	Japan Bank for International Cooperation (JBIC) guarantees baht-denominated bonds issued by Thai firm Tri Petch Isuzu.
	"Pan Asian Bonds" issued by Japan and Korea: Senior debt issued by 46 small and medium Korean firms with guarantees from JBIC and IBK.
	Ringgit-denominated Malaysian bonds issued by ADB and the International Finance Corporation (IFC).
	EMEAP announces ABF2, consisting of a Pan-Asian Bond Index fund and eight single-market funds.
2005	Release of ABMI "roadmap" for gathering and sharing information, as well as studies concerning issuing Asian currency basket bonds, regional efforts at promoting liquidity and cross-border trading, alternatives for tax treatment, and "Asian bond standards."
	EMEAP announces implementation of ABF2.
2007	Chiang Mai Initiative(CMI) Bilateral swap arrangements increased to US$80 billion. Agreed on self-managed reserve pooling arrangement.

Sources: ASEAN+3 Finance Ministers Meeting Statements, Jang and Hyun (2009), ASEAN+3, EMEAP.

Early in the process, it was understood that few of the Asian emerging market economies were prepared to issue bonds in their own currencies. The memory of the 1997 crisis led many countries to fear that excessive holdings of local currency issues by foreign speculators could "… erode control over monetary policy and expose them to currency speculation" (Park and Park 2003). Efforts were therefore launched under a number of regional groups to facilitate the development and depth of Asian financial markets. Most notable among these were the Asian Bond Market Initiative, which sought to develop the infrastructure for the Asian bond markets and to introduce issuance on local currencies, the Chiang Mai Initiative, which sought to mitigate, among other things, the risk of illiquidity through a series of swap arrangements, and the Asian Bond Funds 1 and 2, which sought to increase demand for Asian bonds. The chronology of these initiatives in shown in Table 1, in this section, I review each of them in turn.[6]

[6] My comments concentrate on official regional cooperative efforts, because private efforts to encourage bond finance at the regional level have been limited to date. As pointed out by my discussant, Yusuke Kawamura, private entities have played a central role in encouraging regional demand for equity finance, suggesting that there is scope for expanded private efforts in bond markets as well.

3.1 Asia Bond Market Initiative and Currency Swaps

In August of 2003, the ASEAN+3 Finance Ministers' Meeting in Manila announced the Asian Bond Market Initiative (ABMI), aimed at improving regional medium and long-term financial conditions. Six voluntary working groups were established to discuss issues relevant to the development of domestic and regional bond markets. These groups examined securitization, credit guarantees, local currency bonds, credit ratings, and foreign exchange transactions.[7]

Regional issuance activity grew in 2004. In June, the Japan Bank for International Cooperation (JBIC, formerly the Export-Import Bank of Japan) guaranteed baht-denominated bonds issued by Thai firm Tri Petch Isuzu. This was followed at the end of the year by the issuance of "Pan Asian Bonds," Collateralized Bond Obligations (CBOs), by Japan and Korea. Under this program, senior debt was issued by 46 small- and medium-sized Korean firms with a guarantee from the Industrial Bank of Korea (IBK). Bonds guaranteed by the JBIC backed by these Pan-Asian bonds were then issued on the Singaporean exchange, promoting the creation of a regional collateralized debt obligation (CDO) market.[8] At the same time, the Asian Development Bank (ADB) and the International Finance Corporation (IFC) issued ringgit-denominated Malaysian bonds.

The progress was codified in the release of the "roadmap" for gathering and sharing information, as well as studies concerning issuing Asian currency basket bonds, regional efforts at promoting liquidity and cross-border trading, and alternatives for tax treatment.

In May of 2008, efforts were increased with the release of the second ABMI roadmap creating task forces for the promotion of issuance and demand for local currency bonds, and improvements in regulatory frameworks and institutional structures. In addition, member countries were asked to develop references for self-assessment to serve as their benchmarks (ASEAN+3 Finance Ministers Meeting 2008).

In addition to the ABMI, the Chiang Mai Initiative (CMI), which was launched in May 2000, set up a network of bilateral swap arrangements among the ASEAN+3 countries. Under these swap arrangements, countries requesting support could immediately access 20% of their facility, while the remaining 80% was to be disbursed under an IMF program. The motivation for linking the disbursement to an IMF program, and hence IMF conditionality restrictions, was to address the region's "… current limited capacity to produce and enforce effective adjustment programs" (Kawai 2007).

3.2 Asia Bond Funds 1 and 2

In June of 2003, the Executives' Meeting of the East Asian and Pacific Central Banks and Monetary Authorities (EMEAP)[9] announced the creation of the first Asia Bond Fund (ABF1) under the management of the Bank for International Settlements (BIS 2003). The ABF1 consisted of dollar-denominated sovereign and quasi-sovereign Asian bonds equal to approximately US$1 billion issued by the EMEAP countries with the exception of Australia, Japan, and New Zealand. The ABF1 was one vehicle designed to encourage the development of Asian bond markets and reduce the region's perceived excessive reliance on bank financing (Kawai 2005).

From the beginning, it was understood that the ABF1 was aimed at retaining some of the region's reserves within the region in an effort to encourage the development of local capital

[7] Joint ministerial statement of the ASEAN + 3 Finance Ministers Meeting, August 7, 2003, Available: http://www.mof.go.jp/english/if/as3_030807e_01.htm.

[8] Japan International Cooperation Agency (2004).

[9] The 11 nations in the EMEAP include Australia; the People's Republic of China; Hong Kong, China; Indonesia; Japan; the Republic of Korea; Malaysia; New Zealand; the Philippines; Singapore; and Thailand.

markets. It was also apparent that true traction in affecting the development of local capital markets would require that the regional fund hold securities denominated in local currencies. It was announced at the outset that such activity was planned for the EMEAP.

With the launch of the second Asia Bond Fund (ABF2), the EMEAP moved toward the inclusion of instruments denominated in local currencies in the Asia Bond Fund. ABF2 invests in local currency issues from EMEAP countries other than Japan, Australia and New Zealand. There are two components of the ABF2, the Pan- Asia Index Fund (PAIF), which invests in sovereign and quasi-sovereign issues from eight EMEAP countries, and the Fund of Bond Funds (FOBF), which invests in eight single market funds that hold sovereign and quasi-sovereign local currency bonds. Both the PAIF and the FOBF have initial allocations equal to US$1 billion (Jang and Hyun 2009).

3.3 Regional credit rating agencies

As discussed above, while successful development of Asian local currency bond markets requires the existence of both regionally specialized rating agencies and rating activity from global firms, many bond issuers in Asia remain uncovered. This reduces the potential investor base for Asian issues, as many large Western institutional agencies such as pension funds, require that the bonds included in their portfolios be rated.

One strategy that is reliant on rating agency coverage is the so-called two-tiered securitization process. Under this procedure, local currency bonds are aggregated into two pools. The senior bonds are sold to an offshore special purpose vehicle, with prices based on their ratings. The special purpose vehicle repackages them and issues asset backed securities. These asset-backed securities are then sold at a price based on their credit rating. Ample coverage and common standards by ratings agencies are therefore required for such transactions to take place.

Efforts have been made to encourage additional coverage by both regional and global agencies. The Association of Credit Rating Agencies in Asia (ACRAA) contains rating agencies from 20 Asian nations that meet regularly to encourage cooperation on rating standards. However, many have called for a regional rating agency (e.g. Park and Rhee [2006]), particularly to encourage ratings coverage of local currency bonds.

Among the firms that are rated by both, there initially seemed to be a systemic discrepancy in the ratings assigned by domestic and international agencies, with those from the international agencies almost invariably being lower. International ratings agencies rate foreign issues for many issuers as simply one notch below the ratings given to the sovereign debt issued in their home country, which themselves are often below investment grade. Large investors – who commonly face restrictions against purchasing securities below investment grade – are often precluded from purchasing these bonds**.**

There was hope that the ABMI would reduce this gap by “uncovering” creditworthy private borrowers in the region (Park and Park [2003]). This was based on the notion that agencies would be better-informed about the macroeconomic conditions of local economies, as well as firm-specific information about the issuers themselves, and therefore base their ratings less on the ratings earned by the sovereign issues of firms’ countries of origin.

Moreover, the quality of ratings was likely to benefit from the existence of deep and viable bond markets within the region. The existence of a deep regional bond base would allow for the creation of regionally specialized rating agencies, which would presumably have superior information concerning the conditions of issuing firms. There would therefore be a feedback to regional bond market development, as the creation of deeper bond markets could enhance the profitability of rating agencies covering such markets, while the greater coverage would encourage more firms to issue in these markets, leading to further deepening.

While the ABMI explicitly called for the development of domestic credit rating agencies in Asia in 2003, the Association of Credit Rating Agencies in Asia (ACRAA) has been acting since 2001 to pursue harmonization of rating standards within the region. However, these efforts are often hampered by differences in legal systems and accounting standards followed across the region, as well as the reality that capital markets across the region are in quite different stages of development (Imai 2004). To address these differences, the ACRAA has created a "best practices" committee which compares the practices of rating agencies across the region. The Asian Development Bank recently issued its Handbook on International Best Practices in Credit Rating (2008), which aims to harmonize and improve standards across the region. There have also been efforts within the region to cooperate in the formation of a ratings agency. For example, in 2006 India, Malaysia, and Indonesia announced efforts to promote a regional ratings agency.

4. SUCCESS OF REGIONAL BOND INITIATIVES

As discussed above, many characterize Asian Bond Markets as "under-developed" relative to other countries' financial systems. One basis for this assessment is the fact that intermediation through bond markets as a share of GDP is far lower in emerging Asia than in major financial centers like the US and Japan. Another reason is that the share of private borrowing is still small relative to the share of government issues, as private firms in Asia still borrow extensively through banks and also raise capital through equity markets. Finally, there is a perception (e.g. Jang and Hyun [2009]) that because of Asia's status as a surplus country in trade, it is generating capital that could profitably be "recycled" within the region, rather than used to finance foreign issues.[10]

Asian bond markets also exhibit a diverse set of circumstances. As such, the problems discussed above apply with different intensity across the region. For example, consider the issue of liquidity. Some markets in Asia exhibit greater liquidity and narrower bid-ask spreads (e.g. Jiang and McCauley (2004)). These tend to be markets with larger average issue size. However, the region also contains less liquid markets that exhibit wider bid-ask spreads and higher yields. In particular, the size of local currency bond markets pale relative to their more developed counterparts in the US and Japan.

Another characteristic of Asian bond markets is the small share of private issuance, as corporate financing remained dominated by equity and bank financing. Because the share of private issuance is relatively small, and private issuance tends to be in foreign currencies while public issuance tends to be in local currencies, the share of domestic currency issuance in Asian markets usually exceeds that of hard currency issuance. This feature suggests that private firms in Asia may be "over-banked," i.e. excessively reliant on bank lending, for their financing. However, as we discuss below, the global financial crisis may warrant a reassessment of the wisdom of using Western standards, particularly those of the past decade, as a benchmark for assessing desirable levels of private issuance in Asia. Moreover, this assessment may be losing its accuracy, as in the case of the PRC where corporate issuance has boomed in the current year.

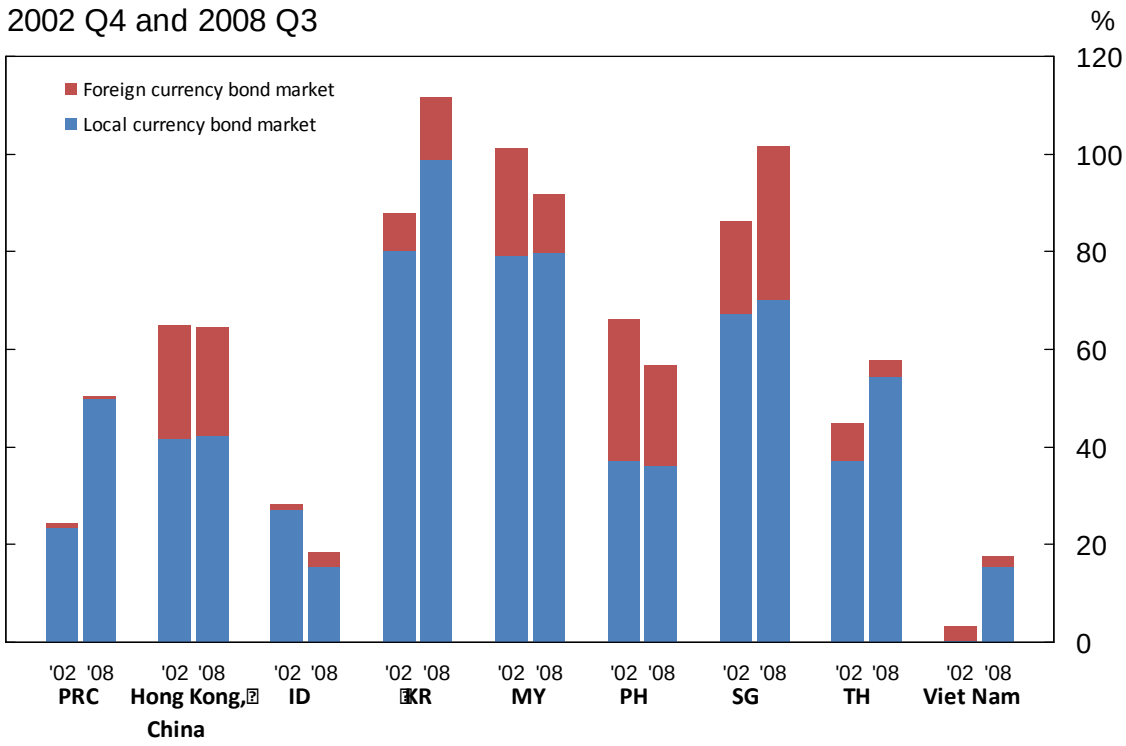
Indeed, by most accounts, efforts to encourage bond market development in the past decade have been quite successful. Volumes of issuance more than doubled in the region prior to the onset of the global financial crisis, with increased corporate participation and decreasing risk premia. However, the pace of advancement has been heterogeneous across the region. Bond markets in some countries, such as Korea and Malaysia, have achieved

[10] At the outset, one recognizes a flaw in this argument. The positive imbalances enjoyed by Asian nations as a group in trade requires lending to deficit regions of the world, particularly the United States. Still, the argument could be extended to claim that in the event that more of its capital was recycled internally, global imbalances could be mitigated.

corporate market penetration comparable to that in the US (Batten and Szilagyi 2007). However, for other nations, the pace of advancement has lagged.

For example, see Figure 3. As a share of GDP, the local currency bond markets of Korea, Malaysia and Singapore are most prominent, while those India and Viet Nam are notably lagging behind. To some extent, this discrepancy clearly reflects the relative level of development these countries have achieved. However, it is also interesting to see which countries have succeeded in increasing their local currency bond issues as a share of GDP between 2002 and 2008. Only Korea, Singapore, Thailand, and Viet Nam appear to have made much progress in this area over this period.

Figure 3: Size of Asian Bond Markets as a Percentage of GDP



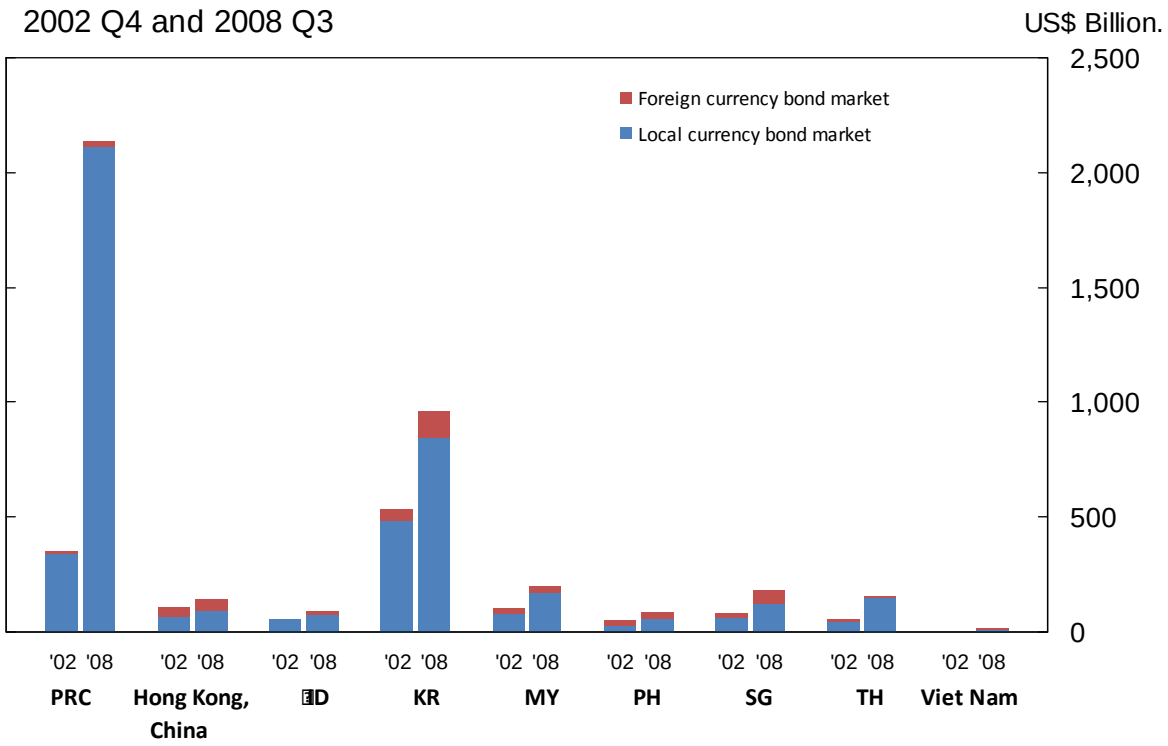
Notes: Size is defined as the absolute amount of bonds outstanding in USD. Country abbreviations: ID= Indonesia; MY= Malaysia; SG= Singapore; TH= Thailand

Source: Asian Bonds Online, Asian Development Bank; author's calculations.

While we have stressed throughout that Asian bond markets are quite heterogeneous, and the success of efforts to date to promote bond markets in the region is mixed, some broad generalizations can be made. The first concerns size. It is clear that the regional bond market has grown dramatically since the 1997 financial crisis. It also appears to be the case that Asian bond markets have become more liquid, as evidenced from declines in average bid-ask spreads.

However, a look at the raw size of Asian bond markets (Figure 4) reveals a much different picture. In value terms, the PRC and Korean bond markets dwarf those of their emerging Asia counterparts. This suggests that for many of these countries, improvements are unlikely to leave many individual markets sufficiently efficient to reach the scale economies necessary to achieve the cost reductions that are adequate to successfully compete with offshore bond markets. Instead, achievement of scale economies is likely to require cooperation at the regional level.

Figure 4: Size of Asian Bond Markets



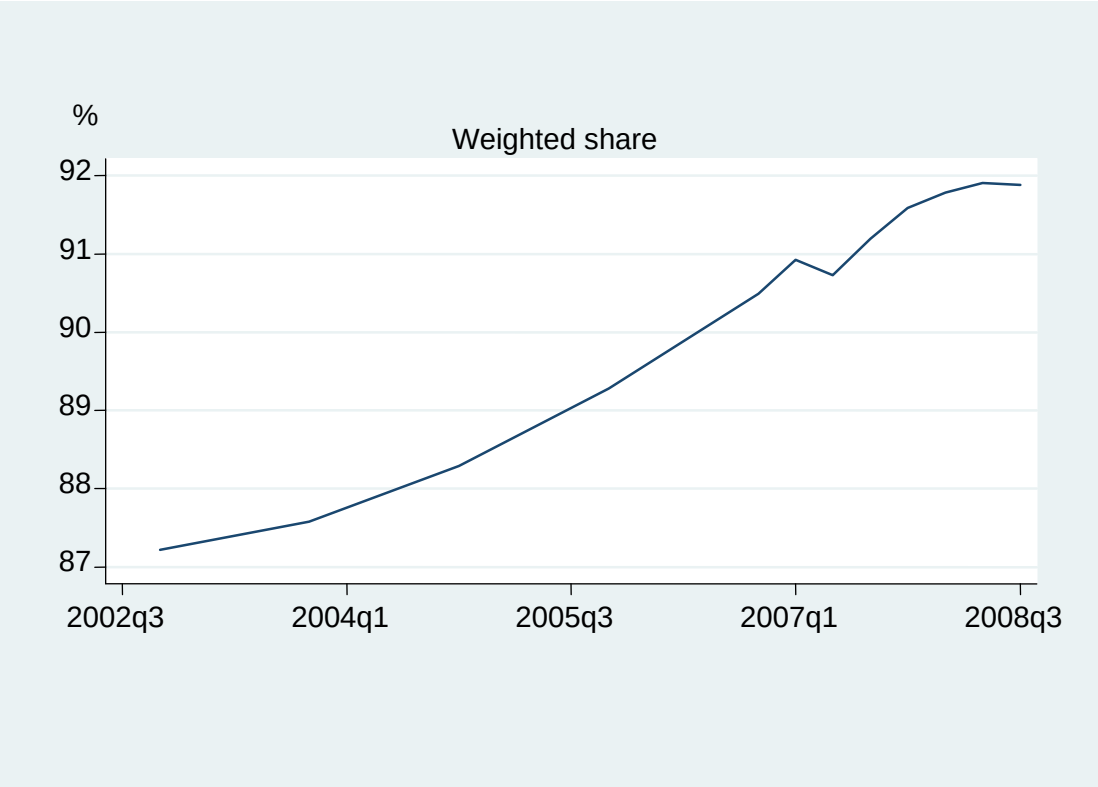
Notes: Size is defined as the absolute amount of bonds outstanding in US$. Country abbreviations: ID= Indonesia; MY= Malaysia; SG= Singapore; TH= Thailand.

Source: Asian Bonds Online, Asian Development Bank; author's calculations.

Moreover, the large volumes observed in the PRC are misleading, as the market is dominated by sterilization bonds. Some authors (e.g. Lardy (2008)) have argued that increased issuance of sterilization bonds actually have a negative impact on the development of the PRC bond market, as the need to continue to issue sterilization bonds to pursue its exchange rate goals gives the PRC government an incentive to discourage the development of the rest of the bond market in an effort to maintain low funding costs.

A related question concerns the penetration of local currency bond markets. As a share of total regional issuance, the growth of the local currency bond market has been substantial, as the share has increased from 42.8% at the launch of the ABMI in 2003 to 54.5 % in Q3 2008 (See Figures 5 and Table 2). Moreover, in value terms the growth has been even more dramatic, as corporate issuance of local currency debt has more than doubled in value over this period while government issuance has almost tripled (see Figures 6 and Table 2).

Figure 5: Local Currency Bond Market Size as a Share of Total Bond Market Size



Notes:

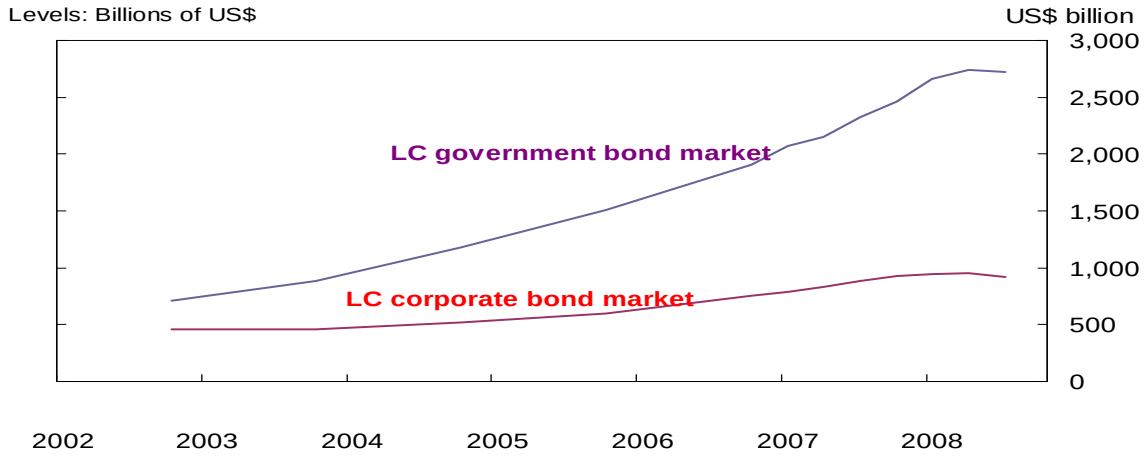
(1) Countries: PRC; Hong Kong, China; Indonesia; Korea; Malaysia; Philippines; Singapore; Thailand; Viet Nam

(2) Annual data from 2002-2006; Quarterly data from 2007Q1 to 2008Q3.

(3) Total bond market size defined as the sum of outstanding local and foreign currency bond amounts.

Source: Asian Bonds Online, Asian Development Bank; author's calculations.

Figure 6: Local Currency Corporate and Government Bonds Outstanding



Notes: Annual data from 2002-2006; Quarterly data from 2007Q1 to 2008Q32) Countries: China, Hong Kong, Indonesia, Korea, Malaysia, Philippines, Singapore, Thailand, Vietnam

Source: Asian Bonds Online, Asian Development Bank; author's calculations.

Table 2: Size of Local Currency (LC) and Foreign Currency (FC) Bond Markets

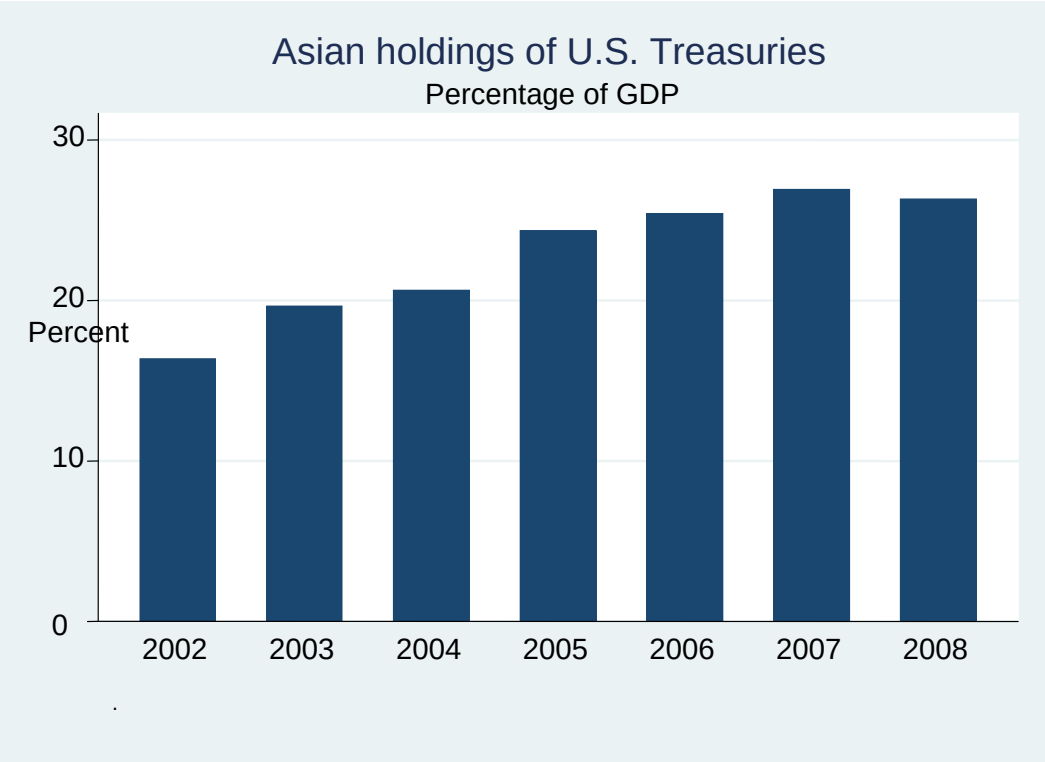
(Values in billions of USD)	2002	2003	2004	2005	2006	2007	2008
Size LC bond market	1167.8	1349.1	1700.1	2106.1	2663.8	3393.1	3694.1
Corporate	455.8	463.8	518.9	596.6	755.1	928.9	947.0
Government	712.0	885.3	1181.2	1509.5	1908.8	2464.2	2747.1
Size FC bond market	171.1	191.3	225.4	252.9	280.0	311.8	—
(As a percentage of GDP)	2002	2003	2004	2005	2006	2007	2008
Size of LC bond market	40.9	42.8	46.2	50.4	53.7	55.8	54.5
Corporate	16.0	14.7	14.1	14.3	15.2	15.3	14.0
Government	24.9	28.1	32.1	36.2	38.5	40.5	40.6
Size FC bond market	6.0	6.1	6.1	6.1	5.6	5.1	—

Country group: PRC; Hong Kong, China; Indonesia; Korea; Malaysia; Philippines; Singapore; Thailand; Viet Nam.

Sources: Asian Bonds Online, Asian Development Bank; author's calculations.

Nevertheless, an important reality of the current regional bond market situation is the large remaining holdings of foreign securities as a result of the large global surpluses the region has run vis-à-vis the Western economies, primarily the US. During the same period where the region enjoyed the blossoming of domestic bond market activity just described, holdings of foreign securities, particularly US Treasuries, continued to grow. As a percentage of GDP in the region, US Treasuries peak in our sample in 2007 at 26.9%, up from 19.6% in 2003 (see Figure 7).

Figure 7: Asian Holdings of US Treasuries (in %)



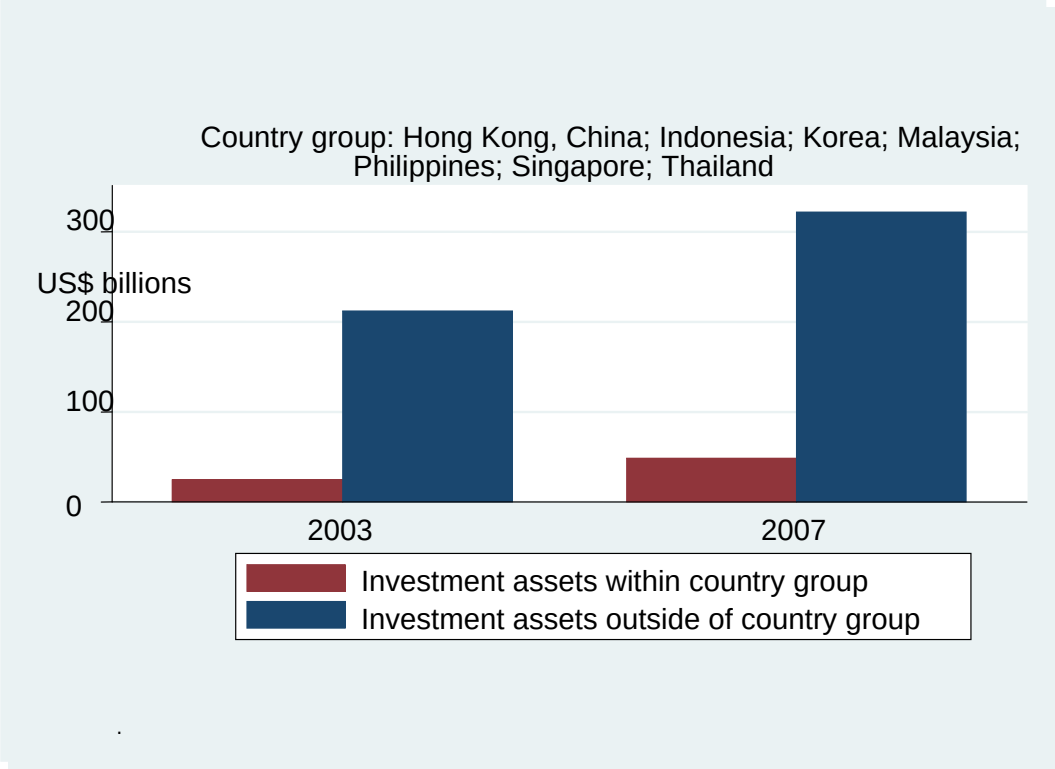
Note: Sum of long-term and short-term held debt divided by the sum of GDP. Countries: PRC; Hong Kong,China; Indonesia; Korea; Malaysia; Philippines; Singapore; Thailand; Viet Nam

Source: US Treasury; author's calculations.

Figure 8 displays foreign securities holdings both within and outside the Asian region.[11] It can be seen that holdings of securities issued in other Asian nations grew dramatically within the region between 2003 and 2007, from US$25.0 billion to US$48.5 billion. However, those holdings were not sufficient to close the gap on holdings of securities issued outside the region, which grew over the same period by 52% from US $212.0 billion to US $322.3 billion.

[11] The figures for holdings of assets within the country group do not include national holdings of securities issued in their home country.

Figure 8: Reported Portfolio Investment Assets: Long-term Debt Securities

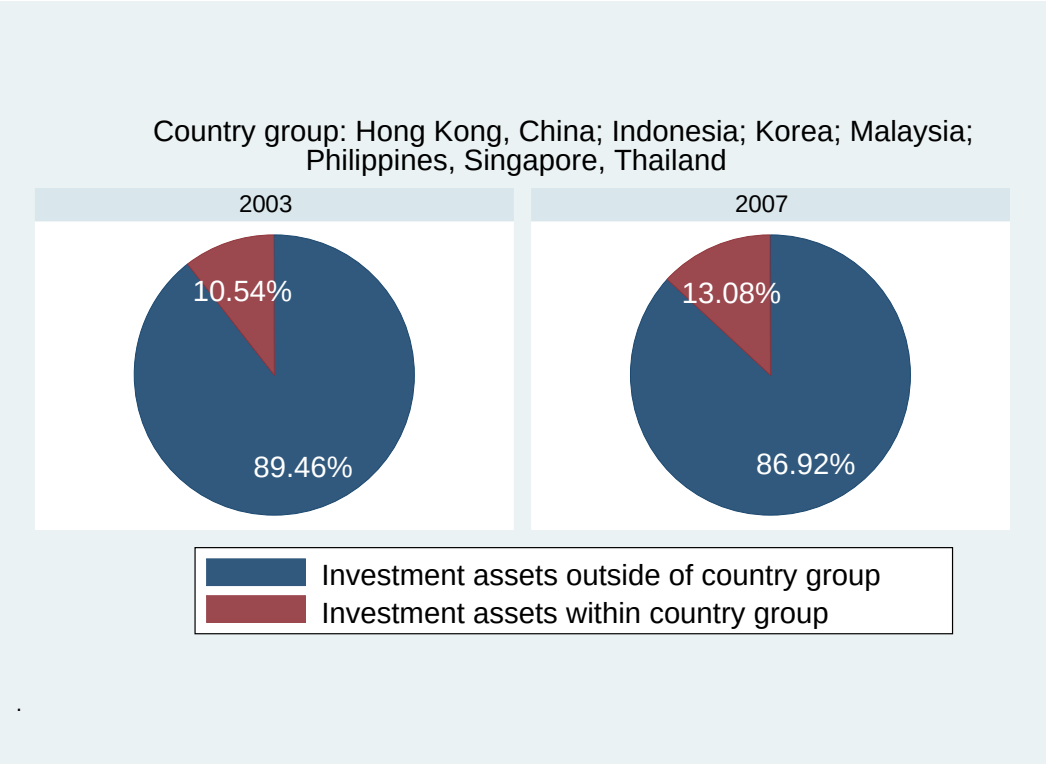


Notes: IMF Coordinated Portfolio Investment Survey (CPIS) database reports portfolio investment assets by economy of nonresident issuer. Investment assets within an individual country's own country are not included in sum of investment assets within the country group.

Source: CPIS database, Table 1.2.A, International Monetary Fund; author's calculations.

Similarly, Figure 9 reports the overall shares of holdings both within and outside the region. Again, it can be seen that the share of foreign holdings from within the country group increased by a substantial amount, from 10.5% to 13.1% from 2003 to 2007. Still, this only resulted in a modest reduction in the share of holdings from outside the region, which only declined from 89.5% to 87.0%.

Figure 9: Reported Portfolio Investment Assets: Long-term Debt Securities



Note: CPIS database reports portfolio investment assets by economy of nonresident issuer. Investment assets within an individual country's own country are not included in sum of investment assets within the country group.

Source: CPIS database, Table 1.2.A, International Monetary Fund; author's calculations.

Table 3 documents holdings of foreign securities within and outside the region by country. Notable advancement in the shares of within-region investment by such countries as Thailand and Singapore over this period can be seen. However, these shares are still small relative to the share of the region in GDP, and region-wide the declining share of holdings by Korean investors from within the region has largely offset most of these other gains.

Table 3: Long Term Debt Securities (millions of US$)

	2003				2007			
	Investment within	Investment Outside	Total investment	Within/total investment (%)	Investment within	Investment outside	Total investment	Within/total Investment (%)
Hong Kong, China	14,205	139,889	154,094	9.2	20,579	184,923	205,502	10.0
Indonesia	196	1,515	1,711	11.5	226	1,229	1,455	15.5
Korea	973	12,864	13,837	7.0	2,651	49,490	52,141	5.1
Malaysia	124	872	996	12.4	616	2,789	3,405	18.1
Philippines	230	1970	2,200	10.5	854	3,937	4,791	17.8
Singapore	9,218	52,683	61,901	14.9	23,146	76,447	99,593	23.2
Thailand	39	2,184	2,223	1.8	416	3,449	3,865	10.8

Source: Coordinated Portfolio Investment Survey, International Monetary Fund; author's calculations.

Finally, we revisit the issue of the systematic discrepancies between global and regional credit rating agencies that many claimed existed at the launch of the ABMI. To a large extent they no longer seem to exist. For example, see Table 4. We compare the long-term sovereign debt ratings of nine Asian nations by global ratings agency Standard & Poor's (S&P) and Japanese ratings agency Risk and Investment (R&I). It can be seen that foreign currency ratings by R&I in 2000 were generally modestly higher than those given by S&P. However, consider current ratings by both agencies. If anything, S&P ratings of both local and foreign currency bonds tend to be higher, with a small number of exceptions.

Table 4: Long term Sovereign Debt Ratings

Local currency

	S&P			R&I		
Country	Current	2005	2000	Current	2005	2000
PRC	A+	A-	BBB	AA-	N/A	N/A
Hong Kong, China	AA+	AA-	A+	AA+	AA	AA
Indonesia	BB+	BB	B	N/A	N/A	N/A
Korea	A+	A+	A	AA-	N/A	N/A
Malaysia	A+	A+	A	A+	N/A	N/A
Philippines	BB+	BB+	BBB+	N/A	N/A	N/A
Singapore	AAA	AAA	AAA	AAA	AAA	AAA
Thailand	A-	A	A-	A-	N/A	N/A
Viet Nam	BB+	BB	N/A	N/A	N/A	N/A

Foreign currency

	S&P			R&I		
Country	Current	2005	2000	Current	2005	2000
PRC	A+	A-	BBB	A+	A	A+
Hong Kong, China	AA+	AA-	A	AA+	AA-	AA-
Indonesia	BB-	B+	B-	BB+	BB-	B-
Korea	A	A	BBB	A+	A	BBB+
Malaysia	A-	A-	BBB	A	A-	BBB+
Philippines	BB-	BB-	BB+	BBB-	BBB-	BBB-
Singapore	AAA	AAA	AAA	AAA	AAA	AAA
Thailand	BBB+	BBB+	BBB-	BBB+	BBB+	BBB
Viet Nam	BB	BB-	N/A	BB	N/A	N/A

Note: R&I is a Japanese rating company named Risk and Investment Incorporated.

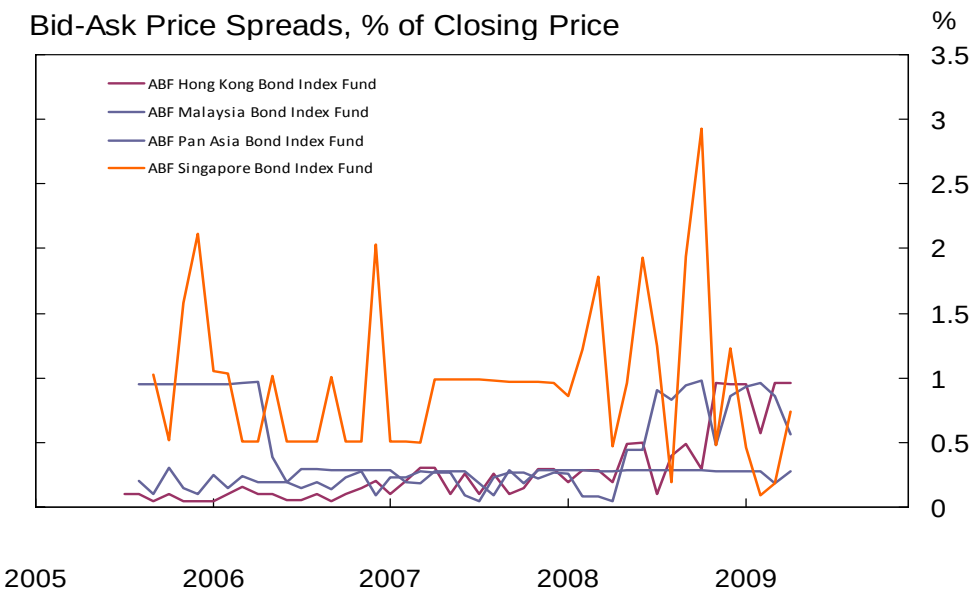
Source: Bloomberg.

5. IMPACT OF THE GLOBAL FINANCIAL CRISIS

5.1 Asian Bond Market Performance During the Crisis

While the 2008–2009 financial crisis originated in the US, it quickly disrupted financial markets across the globe, including those in Asia. As volatility spread, Asian markets seized up along with their counterparts in the rest of the world. Asian bond funds exhibited increased bid-ask spreads, as markets became increasingly illiquid (Figure 10).

Figure 10: Asian Bond Funds



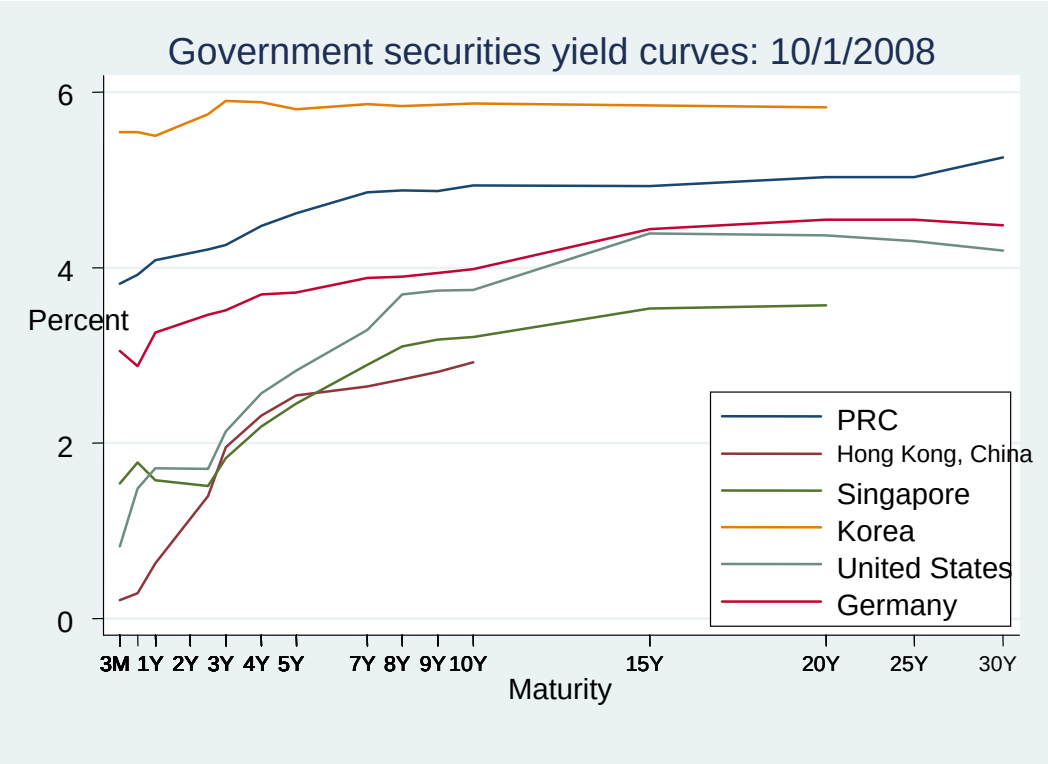
Note: Closing price is a 3-month moving average centered on second month

Source: Bloomberg, author's calculations.

An assessment of the performance of regional benchmarks over this period requires some sort of benchmark. One piece of evidence might be the relative severity of yield curve anomalies exhibited during the height of the crisis. As argued above, yield curves for less-developed bond markets are likely to exhibit more severe anomalies. As a benchmark, we include the yield curves of both the US and Germany, as the financial turbulence in the US probably leaves it a poor benchmark despite that market's greater transaction volume.

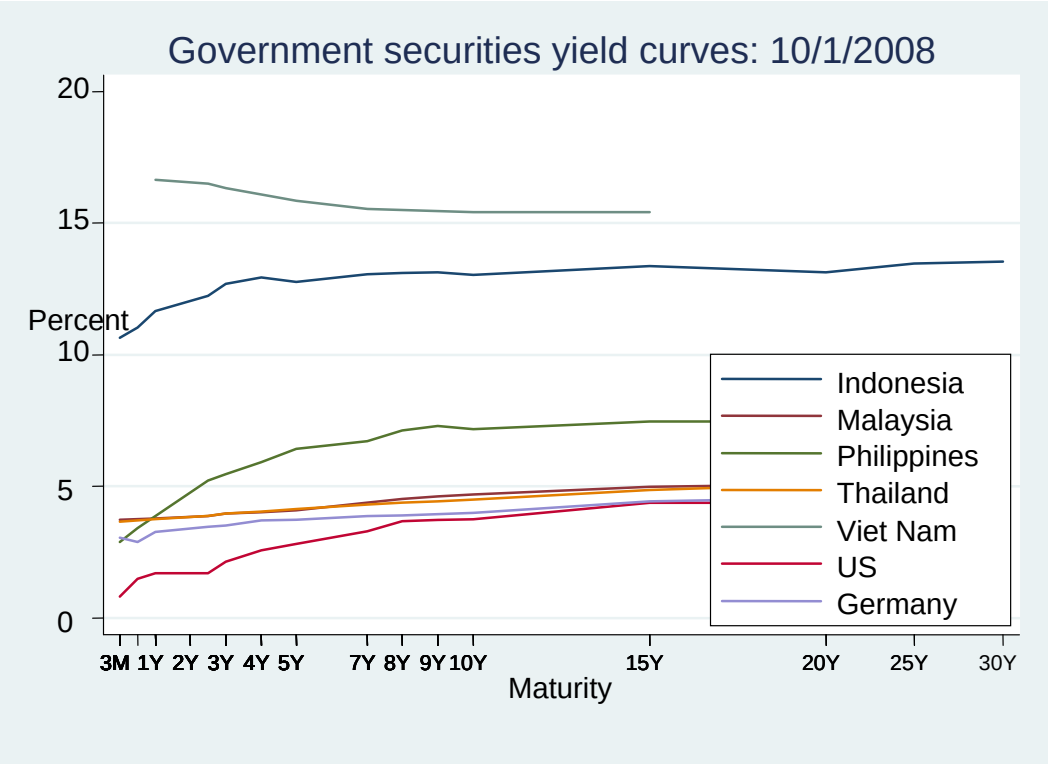
The larger and more-developed local currency bond markets are shown for October 1, 2009 in Figure 11, along with those of the US and Germany. Emerging Asian bond markets are represented in Figure 12, again along with the US and German benchmarks, for the same date.

Figure 11: Government Securities Yield Curves



Source: Bloomberg.

Figure 12: Government Securities Yield Curves



Source: Bloomberg.

It can be seen that substantial deviations from a smoothed yield curve are displayed for all of the countries in Figure 11, including the US and Germany. However, the smaller local currency bond markets, Hong Kong and Singapore, exhibit substantial deviations from a

smoothed yield curve. In contrast, the Chinese domestic currency market appears to be comparable to that of Germany, and closer to a smoothed curve than that of the US.

The emerging market country local currency bond markets exhibit much more aberrant behavior in Figure 12. In the wake of a general flight to quality, many of the economies shown exhibit higher yields at the short end, consistent with deteriorating borrowing conditions. In particular, the Vietnamese curve is actually inverted, with very high short-term rates that reflect steep premia on short-term borrowing during the crisis. However, most of the other curves also exhibit high short-term rates, reflective of decreased supply of short-term funds.

It is difficult to say whether these pictures indicate that Asian government securities markets performed well over the course of the crisis. This period was a volatile one where investors' taste for emerging market paper of any kind was changing rapidly. As such, one would expect some anomalous behavior to appear in any market.

It is the case that as financial markets recovered worldwide, the yield curves did as well. As of 18 June 2009, for example, the Vietnamese yield curve was no longer inverted, although 1 year yields were the highest in the region.[12] At the short-end, yields recovered dramatically. For example, the 3-month Korean Treasury yield fell by 325 basis points to 2.3%, while the 3-month yield on US Treasuries fell 61.9 basis points over the same period.[13]

5.2 Reassessment of bond market promotion

It is clear that the current global financial crisis has affected our understanding of the role of financial markets in economic activity, and the role of bond markets in particular, in fundamental ways that are as yet incompletely understood. In this section, I raise some of these issues, although the answers are far less clear than the questions.

Some of the lessons of the crisis are apparent. One is that former Federal Reserve Chairman Greenspan's "spare tire" argument does not hold under sufficiently severe disruptions (Eichengreen 2007).[14] Greenspan argued that a nation with a well-functioning bond market would be better placed to weather a financial storm, as its firms would be better able to rely on bond financing in the event that bank lending dried up. Moreover, they allow firms to borrow at longer maturities, which should be stabilizing for firms relative to borrowing at shorter maturities from banks.

However, as Eichengreen (2007) notes, there is no guarantee that bond markets will continue to function as the banking sector around collapses. In the US, bank lending seized up during the crisis precisely at the point when difficulties arose in using collateralized debt obligations as collateral. The lesson is that well-functioning bank and bond markets tend to go together, and the forces that lead to the disruption in one market are likely to spill over to the other market. This can be either due to a direct spillover, as in the above case where difficulties in bond markets actually reduce the value of collateral in the financial system available to support bank lending, or simply due to the fact that the deterioration in fundamentals that reduces activity in one market is also likely to reduce activity in the other.

The recent financial crisis also demonstrates that bond market characteristics can create new problems during financial disruptions. For example, the diversification achieved through

[12] Longer-term yields were actually higher in Indonesia.

[13] Of course, the movement in yields is not only attributable to the changes in liquidity in these markets and the appetites for these types of paper, but also to the unprecedented steps taken by central banks over the period to ensure adequate liquidity levels and stimulate their economies.

[14] While Eichengreen (2007) argues that the current crisis discredited the "spare tire" argument once and for all, there were a number of participants at the ADBI conference, including Alicia Garcia-Herrero and Masahiro Kawai, who argued that bond markets exhibited surprising resilience during the most turbulent periods.

bond markets is a welcome source of reduced idiosyncratic risk, but it weakens the incentives faced by creditors to gather information about their borrowers. This could lead to more imprudence in lending. Moreover, once a default does take place, the dispersion of credit claims leaves it more difficult to restructure debt obligations.

Other issues raised by the financial crisis remain unresolved. For example, many conclude that the recent global financial crisis revealed that the growth in financial intermediation going into the crisis period was excessive. Authors such as Rose and Spiegel (2009) find that those countries with the greatest leverage in financial institutions going into the crisis experienced the deepest downturns in economic performance and equity returns. However, much of the literature on the implications of the global financial crisis (e.g. Jang and Hyun [2009]), have concluded that the global crisis provides evidence of the "clear need" for well-functioning bond markets in Asia.

This raises the following question: if the global financial crisis revealed that intermediation worldwide was excessive, should Asian governments continue promoting increased bond market activity? In particular, how do we know that previous benchmarks that were used to assess the viability of the levels of activity in Asian markets, for example by comparing volumes in Asian bond markets to those in developed economies, were accurate?

One answer is that the difficulties associated with the run-up to the global financial crisis stemmed more from flaws in the financial system than from excessive intermediation volumes. However, some of the steps that have been advocated in response to these flaws may exacerbate the difficulties associated with the lack of scale economies in smaller Asian economies, as these efforts may increase the cost of intermediation. As a result, we may experience some declines in volumes in these markets, moving them even farther below levels associated with achieving viable economies of scale.

Another answer is that the importance of regional efforts has increased. As it becomes ever more difficult for individual country local currency bond markets to "go it alone," the potential for welfare-improving outcomes from coordination at the regional level are enhanced. For example, the poor performance of rating agencies in classifying the underlying risk in securitized debt raises, rather than lowers, the demand for quality rating services. To the extent that quality services can be more readily provided through cooperation at the regional level, the crisis has raised the need for regional coordination rather than lowering it.

Finally, while financial markets generally exhibited excessive leverage going into the crisis, there is the countervailing fact that smaller countries appeared to exhibit greater disruptions during the global financial crisis, particularly those whose exchange rates were not credibly linked to one of the major world currencies. The global financial crisis therefore also underscores the importance of currency mismatch issues, one of the primary motivations for regional efforts in Asia to promote local currency bond markets.

5.3 Official responses to the Global Financial Crisis

A number of official responses to the global financial crisis have been released since the beginning of 2008. The regional policy changes with Asian efforts to promote bond market development are summarized in Table 5.

Table 5: Post-Crisis Asian Regional Bond Market Initiatives

Date	Event
2008	Release of 2nd ABMI roadmap arguing for promotion of issuance and demand for local currency bonds and improvements in regulatory frameworks and institutional structures.
	ASEAN+3 agreed to implement measures to facilitate monitoring of economic and financial conditions under the Economic Review and Policy Dialogue. Also agreed to explore the role of the International Financial institutions in providing information.
2009 (February)	The ASEAN+3 Finance Ministers met in Phuket, Thailand in a special meeting in response to the global financial crisis. Total size of swap arrangements under the Chiang Mai Initiative increased from US$80 billion to US$120 billion. Also established an independent regional surveillance unit.
	Called for an immediate and substantial capital increase for the Asian Development Bank.
2009 (May)	Announced agreement on all main components of CMIM, including individual country contributions, borrowing limits, and surveillance mechanisms, with the scheme to be implemented before end of year. Hong Kong, China, welcomed into CMIM.
	Endorsed establishment of Credit Guarantee and Investment Mechanism (CGIM) as trust fund of ADB with initial capital outlay of US$500 million to support private local currency bond issuance in region.
	Agreed on technical assistance from ADB for the Government of the Lao People's Democratic Government to issue cross-border securities in Thailand.

Source: ASEAN+3 Finance Ministers' Meeting Statements, May 2008 and May 2009.

Following its May 2008 ASEAN+3 Ministers Meeting, it was announced that efforts were being made to strengthen financial cooperation in the region. The group reiterated its commitment to the multilateralization of the Chiang Mai Initiative (CMIM) under a self-managed reserve pooling arrangement in a single contractual agreement. The group raised the total size of the CMIM to US$ 80 billion. It also agreed to implement measures to facilitate monitoring and surveillance of economic and financial conditions under the Economic Review and Policy Dialogue and agreed to explore the role of the International Financial Institutions in providing information.

In efforts to promote the ABMI, the group endorsed the release of 2nd ABMI roadmap arguing for promotion of issuance and demand for local currency bonds and improvements in regulatory frameworks and institutional structures. The group also agreed to make periodic self-assessments of their progress to undertake voluntary efforts to promote the ABMI. A private sector group was also launched to discuss facilitating cross-border transactions.

The ASEAN+3 Finance Ministers met in Phuket, Thailand in a special meeting in February 2009 in response to the global financial crisis. At that meeting, the total size of swap arrangements under CMIM was increased from US$80 billion to US$ 120 billion. They also agreed to establish an independent regional surveillance unit to promote monitoring of economic conditions. Finally, the group called for an immediate and substantial capital increase for the Asian Development Bank.

The regular May ASEAN+3 meeting also included a number of notable announcements, both concerning addressing the current crisis and in terms of fostering development of regional financial markets. The group announced agreement on all of the main components of CMIM, including individual country contributions, borrowing limits, and surveillance

mechanisms, with the scheme to be implemented before end of year. In addition, Hong Kong, China, was welcomed into CMIM.

The May ASEAN+3 Finance Ministers' Meeting also endorsed the establishment of a Credit Guarantee and Investment Mechanism (CGIM) as trust fund of the ADB with an initial capital outlay of $500 million to support private local currency bond issuance in region. Some details, such as the scope of coverage, leverage ratios and country limits were to be resolved by the 2010 meeting.

The group also agreed on the proposed provision of technical assistance from the ADB for cross-border bond issuance of Lao government debt in Thailand. The group took note of private sector efforts on cross-border transactions and settlements issues.

Overall, it is clear that the bulk of official responses to date have moved towards more regional cooperation and greater efforts to encourage local bond markets. However, not all policies remain unchanged. For example, the Basel Committee has changed its proposed treatment of securitized assets, such as collateralized debt obligations and asset-backed securities in response to the changed perception of the relative riskiness of securitized assets in the wake of the financial crisis (BIS 2009). Presumably, the crisis will lead to similar reassessments among the regional Asian groups.

6. POLICY CONCLUSIONS

The experience over the previous decade was one of rapid growth and development of local currency bond markets within the region. Moreover, while the advent of the global financial crisis has required that we reassess many of policy conclusions that were held going into the crisis, it appears that most of them remain intact, which leads to some notable conclusions.

First and foremost, the global financial crisis does not eliminate the merits of pursuing development of local currency bond markets. It is true that the crisis revealed many institutions to be overleveraged, suggesting that a reduction in overall issuance volumes worldwide might be desirable. It is also true that the experience also put paid to a strong form of former Chairman Greenspan's "spare tire" argument, as bond markets collapsed along with bank lending worldwide.

However, the crisis also demonstrated the perils of currency mismatch, particularly for smaller emerging market economies whose currencies were not credibly linked to one of the major world currencies. The primary motivation for encouraging the development of local currency bond markets was therefore strengthened by the crisis experience.

The crisis also supports the pursuit of initiatives at the regional level. First, the imperative of mitigating currency risk exposure among firms from smaller emerging market economies can only be satisfied through regional efforts. These economies are too small to achieve economies of scale in debt issuance in their domestic currencies, and their best prospect would be some kind of regional currency basket that would mitigate their exposure, although not eliminate it entirely. A viable arrangement for debt issuance of that form would only be feasible through coordination at the regional level.

Small movements towards monetary integration may have benign implications for the development of local currency bond markets. As Eichengreen (2006a) noted, one result of the path towards monetary integration in Europe was the increased issuance of European Currency Unit (ECU) bonds. The ECU was a basket of European community currencies that countries were encouraged to stabilize their currencies against beginning in 1979. While the bulk of transactions in Europe were still conducted in national currencies during this time, the development of the ECU bond market presents an alternative for Asia, as the adoption of a similar parallel currency Asian Currency Unit (ACU) might encourage increased local currency issuance within the region.

However, as a basket currency, creditors and issuers of ACU-denominated bonds would still be exposed to currency risk. One must therefore acknowledge that part of the observed growth in the ECU market may have been attributable to the mandate for countries to stabilize their exchange rates against the ECU, something that the ACU would lack in the absence of more dramatic monetary regime change in the region. As a result, it may be unrealistic to expect that the launch of an ACU in the absence of a commitment to further monetary integration in the region would result in the increased issuance volume observed in Europe.

Second, the effort to encourage greater coverage of private issues through the encouragement of regional ratings agencies -- while also ensuring that global ratings agencies remain active in the region -- is also of primary importance. While there were many disappointments with the performance of the ratings agencies during the crisis, particularly with respect to securitized assets, the problems illuminated that the need for quality ratings was stronger than previously believed, not weaker.

To some extent, the crisis supports the contention that increased official borrowing encourages, rather than crowds out, the issuing opportunities enjoyed by the private sector. Government issues appear to fill out volumes along the yield curve and reduce the severity of the anomalies discussed above. In particular, we saw bond markets with larger shares of domestic issues, such as that of China, exhibit less disruption during the height of the crisis. However, one should caution that much is not held equal in a cross-country context, and a more systematic study would be required to assess this question.

Among issues where reassessment is in order, one must include the conclusion that regional efforts over the decade to promote local currency bond issues were an unqualified success based on the astronomical growth in issues observed over this period. In retrospect, it is clear that a portion of these issues were motivated by an unhealthy and unrealistic appetite for risk in world financial markets. It is by no means certain that this healthy growth will be reversed, but the ultimate state of Asian local currency bond markets will only be known when markets return to tranquility; to date, the recovery in Korean 3-month Treasuries mirroring the performance of 3-month US treasuries over the same period signals that solid progress has been made in the region.

Another issue concerns the role of securitization. Led by revisions to Basel II, the current trend is away from regulatory encouragement as a vehicle for diversification, as we now have appreciation that it achieves this reduction in idiosyncratic risk only at the expense of increasing systematic risk exposure and opaqueness.

Beyond the lessons of the crisis, a number of other policy conclusions are worth mentioning: First, it remains of primary importance that countries maintain macroeconomic stability and the financial infrastructure needed for successful intermediation in their domestic market. On the macro policy side, it has been well-documented that emerging market economies that exhibit macroeconomic stability are more successful in developing their domestic financial markets, (e.g. Burger and Warnock [2007]).

It is also important to develop a robust and safe domestic financial system. Such a system would allow firms to issue offshore, as well as in foreign currencies. Many market imperfections in Asian markets are self-induced. For example, withholding taxes and legal constraints combine to segment markets from global capital (Jiang and McCauley 2004). These policy-induced distortions raise the cost of intermediation through local bond markets, and drive issuers to alternative financial instruments or to alternative jurisdictions.

Countries may also expand their domestic financial depth by encouraging foreign borrowers to issue domestically in local currency. Asian markets are already making headwinds along these lines, such as in the Korean “Arirang” bond market, which reached the size of US$2.7

billion in 2006 (Batten and Skilagyi 2007).[15] Attracting foreign issuers may be a desirable way to encourage increased volume in the domestic market.

First, there is a logical disconnect in the notion that the capital surpluses built up in Asia are somehow available for "recycling" by domestic Asian borrowers. The buildup of capital is a result of large current account surpluses, the financing of which requires a net surplus of external lending. However, if a portion of this foreign borrowing can be channeled to domestic local currency bond markets, it can play a positive role in increasing domestic currency issue volumes to levels sufficient to achieve economies of scale. Indeed, as noted by Hoschka (2005a), the presence of highly rated multinational corporations may actually "crowd in" local issuance, because they are likely to be experienced in raising capital through this channel and will deepen the markets for their domestic counterparts. This deepening also increases the visibility of domestic issuers, potentially increasing their coverage and further reducing their issuance costs. Moreover, firms that raise funds locally with the intent of swapping these funds into other currencies may contribute to the development of cross-currency swap markets, which are desirable for local issuers that issue abroad and desire to hedge these issues to avoid exposure to currency mismatches.

A successful program of encouraging local currency issues by foreigners would require achieving a certain degree of liberalization. Hoschka (2005b) argues that a primary source of foreign issuance is through the multilateral development banks. However, these institutions typically require compliance with conditions, such as exemption from withholding taxes, exemption from domestic rating requirements, access to a broad set of potential investors, including insurance and pension funds, risk weightings in line with BIS guidelines, and eligibility to meet financial institution reserve requirements, similar to the status enjoyed by government securities.

Attracting foreign investors will require a number of enhancements to domestic bond markets that should improve their performance overall. Asian nations will need to continue to make progress in regional harmonization of regulatory standards. This is the motivation for the promotion of "Asian Bond Standards," within the region. However, prevailing regulatory standards remain quite heterogeneous. Asian nations will also need to develop access to hedging instruments, such as currency swaps and forward contracts, to encourage foreign investors to acquiring Asian domestic bonds (Park and Park 2003).

Finally, it must be recognized that one of the primary forces limiting the development of Asian bond markets is that the large current account surpluses enjoyed by Asian nations are financed in large part through offshore bond issuance. Global firms from outside the region find willing holders of their paper in Asia as these investors attempt to park their export proceeds in safe instruments yielding competitive returns. Given these imbalances, potential borrowers within the Asian region find themselves in competition with foreign bond issuers. If trade were more balanced, there would be less excess demand for credit from the rest of the world, and the borrowing terms faced by Asian issuers would be enhanced, holding all else equal.

Of course, all need not be held equal. Domestic issuers would respond to these enhanced terms by issuing more debt, some of it presumably on domestic markets. As a group, this would increase the volume of issues in these domestic markets and to some extent alleviate their economies of scale issues. Admittedly, the level of response is unclear, as Asian firms may alternatively choose to issue their paper abroad. Still, it appears certain that the fact that Asia as a region is running a large current account surplus and holding a large share of debt issued outside the region in its portfolio is not a coincidence.

[15] At that size, Batten and Szilagyi (2007) note that the Arirang market was still only 1.7% of Korea's corporate bond issuance.

7. REFERENCES

ASEAN+3. 2008. "Joint Statement of the 11th ASEAN Plus Three Finance Ministers Meeting, Madrid, Spain, 4 May. Available: http://www.mof.go.jp/english/if/as3_080504.htm.

———. 2009. "Joint Statement of the 12th ASEAN Plus Three Ministers Meeting, Bali, Indonesia, 3 May. Available: http://www.aseansec.org/22536.htm.

Balfour, F. 2009. In China, a Burst of Corporate Bonds. Business Week. June 25. Available: http://www.businessweek.com/magazine/content/09_27/b4138025154217.htm.

Bank for International Settlements (BIS). 2003. Launch of the Asia Bond Fund. BIS Press Release, June 2.

———. 2009. Proposed Enhancements to the Basel II Framework. Consultative Document, Basel Committee on Banking Supervision, January.

Batten, J. A., and P. Hoontrakul. 2008. What are the Next Steps for Bond Market Development in Thailand? International Finance Review 8: 497-519.

Batten, J.A.. and P. G. Szilagyi. 2007. Domestic Bond Market Development: The Arirang Bond Experience in Korea. The World Bank Research Observer 22(2): 165-195.

Black, S., and A. Munro. 2009. Why Issue Bonds Offshore? in Bank for International Settlements: Internationalisation of Asia-Pacific Bond Markets, Paper Two, August, 1-47.

Burger, J. D., and F. E. Warnock. 2007. Foreign Participation in Local Currency Bond Markets. Review of Financial Economics 16: 291-304.

Ehrmann, M., M. Fratzscher, R. S. Gürkaynak, and E. T. Swanson. 2007. Convergence and Anchoring of Yield Curves in the Euro Area. Federal Reserve Bank of San Francisco Working Paper 2007-24, http://www.frbsf.org/publications/economics/papers/2007/wp07-24bk.pdf.

Eichengreen, Barry. 2006a. The Parallel-Currency Approach to Asian Monetary Integration.American Economic Review 96(2): 432-436.

———. 2006b, The Development of Asian Bond Markets. Asian Bond Markets: Issues and Prospects, BIS Papers, no. 30, 1-12.

———. 2007. "The Mother of All Emerging Market Crises," mimeo, August 22, http://www.econ.berkeley.edu/~eichengr/mother_all_emerging.pdf.

.Eichengreen, B., and P. Luengnaruemitchai. 2006. Why Doesn't Asia Have Bigger bond Markets? Asian Bond Markets: Issues and Prospects, BIS Papers no. 30: 40-77.

Ferri, G., T. S. Kang, P. Lacitignola, and J. Y. Lee. 2009. Foreign Ownership and the Credibility of National Rating Agencies: Evidence from Korea. Paper presented at ADBI Conference "Credit Ratings, Credit Rating Agencies, and their Development in Asia" Tokyo, 2 July.

Greenspan, A.. 1999. Do Efficient Financial Markets Mitigate Financial Crises? Speech before the 1999 Financial Markets Conference of the Federal Reserve Bank of Atlanta, Sea Island, Georgia, 19 October.

Gürkaynak, R. S., B. Sack, and E. T. Swanson. 2005. The Sensitivity of Long-Term Interest Rates to Economic News: Evidence and Implications for Macroeconomic Models. American Economic Review 95(1): 425-436.

Gürkaynak, R. S., B. Sack, and J. Wright. 2007. The U.S. Treasury Yield Curve: 1961 to the Present. Journal of Monetary Economics 54(8): 2291-2304.

Hale, G. B., and M. M. Spiegel. 2009. Who Drove the Boom in Euro-Denominated Bond Issues? Federal Reserve Bank of San Francisco Working Paper 2009-20. San Francisco: Federal Reserve Bank of San Francisco.

Hoschka, T. C. 2005a. Developing the Market for Local Currency bonds by Foreign Issuers: Lessons from Asia. ADB Economics and Research Department Working Paper No. 63. Manila: ADB.

———. 2005b. Local Currency Financing: The Next Frontier for MDBs? ADB Economics and Research Department Working Paper No. 68. Manila: ADB.

Imai, K. 2004. ACRAA and Harmonization Under Asian Bond Market Initiative. Paper presented at 6th Tokyo Roundtable on Capital Market Reform, Tokyo, 28 September. www.oecd.org/dataoecd/6/19/33735708.pdf.

Jang, H. B., and S. Hyun. 2009. A Way Forward for Asian Bond Fund Development. Bank of Korea Institute for Monetary and Economic Research Working Paper No. 383. Seoul: Bank of Korea Institute for Monetary and Economic Research.

Japan International Cooperation Agency. 2004. Guarantee for Korean Collateralized Bond Obligations (Pan-Asian Bond). December 8. http://www.jica.go.jp/english/news/jbic_archive/autocontents/english/news/2004/000074/index.html.

Jiang, G., and R. McCauley. 2004. Asian Local Currency Bond Markets. BIS Quarterly Review, June.

Kawai, M. 2005. East Asian Economic Regionalism: Progress and Challenges. Journal of Asian Economics 16: 29-55.

———. 2007. Evolving Economic Architecture in East Asia. ADBI Discussion Paper no. 84. Tokyo: ADBI.

Kwon, T. 2006. For the Advent of a Promising and Sound Asian Bond Market. Asian Bond Markets: Issues and Prospects, BIS Papers, no. 30: 13-15.

Lardy, N. R. 2008. Financial Repression in China. Peterson Institute for International Economics Policy Brief, PB08-8. Washington, DC: Peterson Institute for International Economics.

Nishi, F., and A. Vergus. 2006. Asian Bond Issues in Tokyo: History, Structure and Prospects. Asian Bond Markets: Issues and Prospects, BIS Papers, no. 30: 143-167.

Park, D., and C. Rhee. 2006. Building Infrastructure for Asian Bond Markets: Settlement and Credit Rating. Asian Bond Markets: Issues and Prospects, BIS Papers, no. 30: 202-221.

Park, Y., and D. Park. 2003. Creating Regional Bond Markets in East Asia: Rationale and Strategy. Paper presented at 2nd Annual Conference of the PECC Financial Forum, Hua Hin, Thailand.

Rose, A., and M. Spiegel. 2009,.Cross-Country Causes and Consequences of the 2008 Financial Crisis: Early Warning. NBER Working Paper no. 15357, September..

Scott, H. S. 2007. The Development of Asian Bond Markets: The Offshore Option.Available:http://www.adb.org/AnnualMeeting/2007/seminars/presentations/hscott-presentation.pdf.

White, L. H. 2008. How Did We Get Into This Financial Mess? Cato Institute Briefing Paper no. 110. Washington, DC: Cato Institute.