

## East Asian Bond Markets and Economic Growth

(Pasaran Bon dan Pertumbuhan Ekonomi Asia Timur)

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### ABSTRACT

*Although the relationship between the stock market and growth has attracted many researchers, the number of studies that have been carried out into the links between debt and growth is very limited. This article examines the relationship between debt markets and economic growth. Three categories of debts are considered in this analysis, using data from China, Hong Kong, Japan, South Korea, and Thailand for the years 2002-2009. The results show that public and private debts have contributed significantly to the growth of the region. The significant contribution of debt markets to GDP, however, is not common for all the countries in the sample and varies according to the category of debts issued. Both public and foreign currency debts have contributed in a significantly positive way to South Korea's GDP, but only public debt contributes in a significantly positive way to the growth of China and Hong Kong. As for Japan, none of the debt markets has had any impact on its GDP.*

*Keywords: Financial development; debt market; economic growth*

### ABSTRAK

*Walaupun kajian hubungan antara pasaran saham dengan pertumbuhan ekonomi telah menarik perhatian ramai penyelidik, kajian terhadap hubung kait antara pasaran hutang dengan pertumbuhan ekonomi masih sangat terhad. Kajian ini meneliti hubungan antara pasaran bon dengan pertumbuhan ekonomi. Dengan menggunakan data dari China, Hong Kong, Jepun, Korea Selatan dan Thailand untuk tahun 2002-2009, tiga kategori pasaran hutang telah diberi perhatian dalam analisis ini. Keputusan analisis menunjukkan bahawa pasaran hutang awam dan pasaran hutang swasta telah memberi sumbangan yang signifikan terhadap pertumbuhan ekonomi rantau ini. Sumbangan yang signifikan ini, bagaimanapun, adalah tidak sama untuk setiap negara yang dikaji, dan ia berbeza-beza mengikut kategori hutang yang dikeluarkan. Pasaran hutang awam dan pasaran hutang mata wang asing memberi sumbangan yang positif terhadap KDNK Korea Selatan. Walau bagaimanapun, hanya pasaran hutang awam sahaja yang memberi sumbangan positif kepada pertumbuhan ekonomi China dan Hong Kong. Sementara itu, ketiga-tiga kategori pasaran hutang tidak memberi kesan kepada KDNK negara Jepun.*

*Kata kunci: Perkembangan kewangan; pasaran hutang; pertumbuhan ekonomi*

### INTRODUCTION

Between the years 2000 to 2011, the Asian economy has enjoyed an average GDP growth of approximately 5.2% per annum. The People's Republic of China (PRC) exhibited the highest average gross domestic product (GDP) growth throughout the period, followed by Singapore, Indonesia, Malaysia, Philippines and Thailand. In spite of the global financial crisis in 2008, these countries have witnessed strong growth rates ranging from 1.1% in Singapore to 9.0% in the PRC in 2008 (Asian Development Bank (ADB) 2009). This strong momentum is likely to continue in the coming years and the aggregate growth of the region is forecasted to reach 4.9% by 2012.

Prior to this enormous growth, the East Asian region was shocked by the huge financial crisis of 1997-1998. Various efforts were made in several areas to address the weaknesses that contributed to the crisis, and the structure of financial institutions and markets was taken into consideration. From the 1980s to 1990s, due to the underdeveloped and small capital markets in the region,

firms were depending excessively on commercial banks for domestic financing. These finances were assigned on a short-term basis and were denominated in foreign currency. This led to the problem of 'double mismatch' or 'twin risks,' namely maturity and currency risks (Bhattacharyay 2011), making the region vulnerable to changes in short-term capital flows. To avoid this double mismatch risk in the future, there is a need for corporate borrowers to seek financing from well-diversified portfolios, particularly through the bond market. This has involved the development of local currency bond markets in the region. Following the ASEAN+3 Finance Ministers' Meeting held in August 2003 in Manila, the Asian Bond Markets Initiative (ABMI) was established. The objectives of ABMI were (i) to develop efficient and liquid bond markets in Asia, (ii) to enable better utilization of Asian savings for Asian investments, and (iii) to mitigate currency and maturity mismatches in the financing of Asian borrowers in order to promote the increased circulation of Asian investment within the region. To achieve these objectives, the ABMI focuses mainly on the

following areas: (i) facilitating market access through a wide variety of issuers and products, and (ii) building and enhancing the market infrastructure necessary to foster bond markets in the region. Other initiatives, such as the Executives' Meeting of East Asian Pacific Central Banks (EMEAP Initiatives) and the Asian Bond Fund (ABF Initiatives) were introduced later (refer to Appendix for more initiatives).

Since the introduction of the first initiatives, China has witnessed the largest growth in its total local currency bond market capitalization, with an increase of eight times more from USD1,589 billion in 2003 to about USD12,895 billion in 2011. This is followed by Thailand, with an increase of four times more. Hong Kong, Japan and South Korea also experienced some growth in their bond market capitalization but only an increase of approximately three times more from 2003 to 2011. A closer analysis of this market and the breaking up of the countries in the market into two groups, according to whether they were public or private issuers, shows that China still leads other countries in the region with an increase of almost seven times more of its public debt and double digit growth in its private debt. In regard to bond market capitalization of public

issuers, Hong Kong comes second after China, followed by Thailand, South Korea and Japan. The growth sizes for bond market capitalization of private issuers, however, are far smaller for other countries compared to China, with Thailand experiencing an increase of about four times more from 2003 to 2011, followed by South Korea, Hong Kong and Japan, with increases of 130 percent, 42 percent and 30 percent, respectively.

As for foreign currency bonds, all the countries except Thailand have experienced steady growth in terms of the amounts issued for the 2003-2011 period. South Korea leads other countries with an increase of almost 200 percent, followed by China, Hong Kong and Japan with increases of 151 percent, 102 percent and 62 percent, respectively. As for Thailand, the amount of foreign currency bonds issued increased between 2004 and 2006, but this number gradually dwindled soon afterwards; so much so that by the second quarter of 2010, the amount issued was at its lowest since 2002 at USD8.02 billion. Table 1 sets out the figures for bond market capitalization for selected Asian countries for the period from 2003 and 2011.

TABLE 1. Size of bond market capitalization (USD billion)

Country	Local Currency Bond <sup>1</sup>				Foreign Currency Bond <sup>2</sup>	
	Public Issuer		Private Issuer		2003	2011
	2003	2011	2003	2011		
China	1546.43	9824.37	42.3	3070.99	44.012	110.698
Hong Kong	61.36	355.65	222.71	315.72	167.05	339.037
Japan	20158.3	44328.7	3520.29	4501.37	437.466	723.483
South Korea	746.98	2081.57	1249.81	2811.71	207.868	598.864
Thailand	175.9	727.47	32.57	174.05	38.34	34.072

Source: 1. Asian Bonds Online (<http://asianbondsonline.adb.org>)  
2. Bank for International Settlement Quarterly Review

While the relationship between the stock market and economic growth has attracted wide attention (e.g. Atje & Jovanic 1993; Levine & Zervos 1998a; Harris 1997; Leahy et al. 2001; Hahn 2002), studies of the bond market-growth link, however, are very limited. In this paper, therefore, the growth-debt markets link is investigated in more detail where debt is broken up into local and foreign currency debts. The local currency debts are further classified into two groups according to whether public or private issuers are involved.

The paper is structured as follows. The next section reviews the issue of financial systems and economic growth and discusses the existing empirical evidence. Section three outlines the methodology used to test the relationship between debt market and economic growth. Section four presents the empirical results and the last section concludes.

## LITERATURE REVIEW

The view that financial assets trigger economic development originates with the work of McKinnon (1973) and Shaw (1973). They argue that financial repression, consisting of indiscriminate "distortions of financial prices including interest rates and foreign-exchange rates," reduces "the real rate of growth and the real size of the financial system relative to nonfinancial magnitudes" (Fry 2012). Since then, there has been a long debate and a growing body of literature on the role of financial sectors in promoting growth, which has focused mostly on banks and stock markets, due to the fact that banks and stock markets provide services that could either complement or be substitutes for each other. In conducting a cross-country analysis of 80 countries, King and Levine (1993) show that bank development lead to economic growth. Their findings are supported by Levine (1998, 1999) and Beck, Levine and Loayza (2000). Stock markets mobilise savings, and

the more efficient savings are mobilised, the more capital will be accumulated for firms to tap into financing their investments. This, therefore, spurs economic growth (Levine & Zervos 1998a, 1998b; Adjasi & Biekpe 2006). Focusing on liquidity, Levine (1991), Bencivenga et al. (1996), Levine and Zervos (1998a) and Beck and Levine (2004) argue that stock market liquidity plays a key role in economic growth. They further argue that a liquid market not only improves the allocation of capital, but also lowers the cost of foreign capital. This will therefore enhance the prospects for the long-term growth of the country. Demircuc-Kunt and Levine (1996), however, point out that a liquid market might also have some setbacks, when an increased amount of liquidity in the market might deter growth through the savings rate. As we may observe, the markets referred to in the above literature were actually equity markets, while the bond markets being investigated were not completely attractive. One possible explanation is that in most emerging countries, the bond markets are relatively small compared to the banking system or equity markets (Herring & Chatusripitak 2000). The limited availability of data for bond markets, including those in the developed countries, is another reason why this market has been overlooked in most financial development-growth linked studies.

Bank financing, as well as equity markets, have emerged at a much earlier stage than bond markets. However, recently, bond market financing has overtaken borrowing from banks as a source of debt capital, especially for advanced economies. Bond market development is regarded as being critical to the strengthening of the financial system. The efficient functioning of these markets expands the array of financial assets available to investors. Hakansson (1999) documents several advantages of a well-developed bond market. He argues that a well-developed bond market will foster an efficient corporate financial structure. The presence of respected rating agencies will reduce systematic risk and other crises. He argues further that the elements of a well-developed bond market such as the greater transparency of a financial reporting system, a large and strong community of financial analysts and the existence of an efficient mechanism for corporate reorganization and liquidation will enhance the economic welfare of the country.

Herring and Chatusripitak (2000) considered the consequences of not having a well-functioning bond market and its implications for savers, investors and banks. Their findings are consistent with Hakansson (1999) and concluded that the lack of a well-functioning bond market may reduce the efficiency of an economy, and hence may increase its vulnerability to a financial crisis. To strengthen East Asian countries' financial structures and at the same time reduce their vulnerability to future financial crises, Fabella and Madhur (2003) suggest that the development of domestic markets in the region is of utmost importance. They further identify eight requirements that are necessary for a robust domestic bond market development in the region: (i) sustaining a stable macroeconomic environment

with low inflation and stable interest rates, (ii) developing a healthy government bond market that would serve as a benchmark for the corporate bond market, (iii) completing the post crisis agenda of banking sector restructuring, (iv) improving corporate governance, (v) strengthening the regulatory framework for the bond market, (vi) rationalizing tax treatment of bonds, (vii) broadening the investor base, and (viii) promoting the growth of regional bond market centres. The suggestions by Fabella and Madhur (2003) are in line with what was suggested by Radelet et al. (1998).

The increasing importance of bond markets has contributed to the growing literature on the role of bond markets in economic growth. In the Euro area, the introduction of the single currency Euro has led to the increase in the corporate bond issuance. Employing data of the Euro-denominated debt securities for the period from January 1999 to June 2001, DeBondt (2002) concluded that corporate bonds spread has significant predictive power for output growth. His finding is in line with the earlier findings of Gertler and Lown (1999) who concluded that high yield bond spread contains statistically significant information for the US aggregate economic activity. As for the Asian countries, the 1997/1998 financial crisis has encouraged the affected countries to embark on developing their bond market as an alternative source of funds for firms to tap into and it has now been more than a decade since ASEAN launched a major effort to develop its domestic bond markets. However, the liquidity and accessibility of the varied Asian bond markets remains a major issue.

Hyun and Jang (2008) assert that, for most countries in Asia, the bond market is still in an infant state, is very small in size and is therefore not capable of bearing the burden of a developed market. The participation of foreign investors is therefore critical to the growth of these markets. However, these markets are inaccessible even to the majority of East Asian borrowers which have contributed to their illiquidity. The issue of an illiquid market is also addressed by Plummer and Click (2005). They argue that developing sound, sustainable, stable, and liquid bond markets will reduce the dependence of firms on bank and foreign currency financing. Firms will be able to borrow long term through local bonds which match their investment needs and that this enables them to avoid balance sheet mismatches. In relation to market liquidity, the findings of Harrison (2002) suggest that the size of bond issues appears to be extremely sensitive to the state of liquidity of the market. Consistent with arguments forwarded by Hakansson (1999) and Herring and Chatusripitak (2000), Eichengreen and Luengnaruemitchai (2004) argue that to attract investment through local bond issues, firms have to adopt international accounting practices, and enhance corporate governance, thereby becoming more transparent. However, regulatory restrictions and capital controls in Asian countries may have limited the accessibility of foreign investors in the market and as a result have impeded the growth of these markets.

The ability of a financial system to efficiently allocate financial resources within a market reflects the financial stability of that market. Stable financial systems reduce uncertainty and create a positive effect not only on financial markets but also on the economy in general. Radelet et al. (1998) point out that financial market instability played a critical role in both the 1929 and 1982 crises. There is also clear evidence that the region's capital market instability is a key factor in the depth, extent and severity of the region's economic problems. Lack of financial stability discourages investors from entering the markets, and thus limits the growth of those markets. Herring and Chatusripitak (2000) argue that bond markets are central to the development of the economic system of a country, and there would be additional benefits if bond markets are developed as these markets provide greater investment opportunities for investors and help deepen the financial markets. This in turn will attract foreign investors to the markets. The issue, however, is the efficient mobilisation and channelling of resources. In other words, efficient intermediation of funds is an important factor driving foreign investors to participate in the domestic debt market, which will enhance the development of the market.

In line with the arguments presented by Herring and Chatusripitak (2000) and using data from thirteen developed countries for the period 1950 to 2000, Fink et al. (2003), found that for three of the sample countries, there is evidence of interdependence between the bond sector growth and the real sector growth, and supply-leading causality from bond market capitalization change to real growth in ten other sample countries is supported. They, therefore, conclude that real economic activity is indeed significantly influenced by the development of the bonds market. The bond market–growth link has also been investigated by Abbas and Christensen (2007). Their study analysed domestic debt in developing countries for the period 1975 to 2004 and found support for a positive contribution of the debt market to economic growth which is consistent with findings of DeBondt (2002) discussed earlier.

## DATA AND METHODOLOGY

The limited availability of information on debt securities for most countries in the East Asian region has been a major constraint of this study. Out of nine countries that were initially considered for this international comparison, only five countries were finally sampled. These were China, Hong Kong, Japan, South Korea and Thailand. To avoid the influence of the financial crisis that hit the region beginning the year 1997, only data for the period beginning in 2002 were gathered. This data came from five countries during the period that runs from the fourth quarter of 2002 to the fourth quarter of 2011. These data were extracted from two sources. The local currency bond data was extracted from Asian Bonds Online, while the foreign currency bond was extracted from the Bank for International Settlements Quarterly Review. The dependent variable, the economic growth represented by real GDP was obtained from the Economist Intelligence Unit (EIU) database.

In addition to the above three measures, set of variables that capture a country-specific structure are used in the empirical estimation as control vectors. The control vectors used in Patillo et al. (2002) were considered. However, due to the limitation of those variables with regard to the quarterly data, most were dropped and eventually only three variables were employed as control vectors. These variables were inflation, money growth and interest rates as measured by the prime lending rate. All these data were extracted from the EIU database.

Table 2 shows a summary of the debt statistics issued for all samples as well as for individual countries. For all samples, the vast majority of debt issued is public debt, followed by private debt and foreign currency debt. This is also true for China, Japan and Thailand. Hong Kong places greater importance on private debt with a mean of USD70 billion, followed by foreign currency debt and public debt with means of USD5 billion and USD3.5 billion, respectively. Similarly with Hong Kong, the level of private debt issued is the highest in South Korea with a mean of USD463 billion, followed by public debt and foreign currency debt.

TABLE 2. Summary statistics of debt issued according to type of issuer, 2002: 4 – 2011: 4

		Public Debt	Private Debt	Foreign Currency Debt
All Samples	Mean	1.86E+12	3.37E+11	6.59E+10
	Median	3.93E+11	1.18E+11	4.87E+10
	Max	1.16E+13	1.16E+12	1.85E+11
	Min	1.51E+10	6.45E+09	7.98E+09
China	Mean	1.37E+12	2.40E+11	1.86E+10
	Median	1.25E+12	1.18E+11	1.86E+10
	Max	2.54E+12	8.52E+11	2.83E+10
	Min	3.28E+11	8.74E+09	1.04E+10
Hong Kong	Mean	3.51E+10	7.06E+10	5.21E+10
	Median	1.72E+10	7.38E+10	4.90E+10

*Continued*

Continue

		Public Debt	Private Debt	Foreign Currency Debt
Japan	Max	9.06E+10	8.20E+10	9.95E+10
	Min	1.51E+10	5.30E+10	3.91E+10
	Mean	7.40E+12	8.87E+11	1.54E+11
	Median	6.56E+12	8.75E+11	1.51E+11
	Max	1.16E+13	1.16E+12	1.85E+11
South Korea	Min	4.50E+12	6.88E+11	1.04E+11
	Mean	3.97E+11	4.63E+11	9.60E+10
	Median	4.44E+11	4.48E+11	1.01E+11
	Max	5.47E+11	7.27E+11	1.55E+11
	Min	1.63E+11	3.01E+11	4.74E+10
Thailand	Mean	1.02E+11	2.43E+10	9.45E+09
	Median	9.86E+10	2.68E+10	9.36E+09
	Max	1.87E+11	4.42E+10	1.18E+10
	Min	4.04E+10	6.45E+09	7.98E+09

The empirical analysis is performed in two parts. In order to establish a clear view of the growth-debt link in the region in general, a pooled regression analysis estimate for the data was performed for all the samples. This link was estimated by using the following equation:

$$\text{GROWTH}_{it} = a + bX_{it} + c\text{PU}_{it} + d\text{PR}_{it} + f\text{FCY}_{it} + e_{it} \quad (1)$$

where  $\text{GROWTH}_{it}$  represents per capita growth of country  $i$  at year  $t$ ,  $X_{it}$  is the control variables for country  $i$  at year  $t$ ,  $\text{PU}_{it}$  represents the public debt issued by country  $i$  on year  $t$ ,  $\text{PR}_{it}$  is the amount of private debt issued and finally  $\text{FCY}_{it}$  represents the amount of foreign currency debt issued by country  $i$  on year  $t$ . All variables are expressed in natural logarithms except for interest rates.

The variation in the amount of debt issued for each category of debt as presented in Table 2 suggests that there

is a possibility that they might have different types of impact on the economic growth of each individual country. Therefore, the link to growth-debt for each individual country was also established.

## RESULTS AND DISCUSSIONS

The estimation of Equation (1) illustrates the direct influence of debt market development on growth. This estimated regression also generates additional insights into the experience of each individual country. Table 3 shows the estimations for the debt-growth link when all five countries are simultaneously considered (Panel A,  $N = 185$ ) and for individual countries (Panel B,  $N = 37$  each).

TABLE 3. Relationship of public, private and foreign currency debts with GDP

Country		Constant	ln(pu)	ln(pr)	ln(fcy)	ln(Inf)	ln(m2)	int	R <sup>2</sup>
Panel A <sup>a</sup>									
All Countries	<i>Coeff.</i>	18.014	1.105	0.382	0.073	-4.459	-0.378	0.044	0.963
	<i>t-stat</i>	7.191**	32.630**	5.902**	1.301	-8.764**	-9.853**	2.243**	
Panel B									
China <sup>b</sup>	<i>Coeff.</i>	11.768	0.117	0.017	0.029	-0.028	0.359	0.009	0.998
	<i>t-stat</i>	11.451**	5.301**	1.064	1.018	-0.155	8.937**	3.811**	
Hong Kong <sup>c</sup>	<i>Coeff.</i>	5.342	-0.009	0.132	0.136	-0.607	0.535	0.004	0.903
	<i>t-stat</i>	1.933*	-0.328	0.428	1.851*	-0.913	2.174**	0.383	
Japan <sup>d</sup>	<i>Coeff.</i>	46.119	1.107	-0.109	0.032	-1.398	-0.337	0.039	0.633
	<i>t-stat</i>	4.523**	0.888	-1.646	0.275	-1.472	-1.162	1.919*	
South Korea <sup>e</sup>	<i>Coeff.</i>	16.116	0.033	0.049	1.155	0.088	0.102	0.008	0.993
	<i>t-stat</i>	10.659**	2.551**	1.363	2.366**	0.315	1.656	2.852**	
Thailand <sup>f</sup>	<i>Coeff.</i>	23.951	0.251	0.076	-0.051	-0.734	-0.102	0.014	0.899
	<i>t-stat</i>	4.659**	2.167**	1.339	-0.377	-1.511	-0.686	1.347	

Single asterisk (\*) indicates significance at 10% level and double asterisks (\*\*) indicates significance at 5% level.

<sup>a</sup>Period 2002: 4 – 2011: 4. No. of observations = 185.

<sup>b,c,d,e,f</sup> Period 2002: 4 – 2011: 4. No. of observations = 37 each.

As shown by the results in Panel A, public and private debts contribute in a significantly positive way to the growth of the region in general. The coefficients for both of these categories of debt are significant at a level of 5%. The findings suggest that, in general, the heavier issuance of public and private debts in the Asian region following the 1997 financial crisis has enabled the region to recover from the crisis and has eventually contributed to the growth of the region. Although the debt markets of the region have not been expanding relative to GDP, as argued by Mieno et al. (2009) and Felman et al. (2011), the importance of these markets, in particular the private and public debt markets can be seen in the findings of this paper. Mieno et al. (2009) and Felman et al. (2011) argue that the only way for the debt market to consistently expand relative to GDP is to attract more foreign investors through the issuance of foreign currency bonds. However, the evidence from the results presented in Panel A, where foreign currency bonds do not provide any significant contribution to the GDP of the region, suggests that this is not true.

Nevertheless, the significant contribution of debt markets to GDP is not common for all countries in the sample and varies according to the category of debt issued. For South Korea, both the public and foreign currency debts contribute in a significantly positive way to its GDP. Only public debt contributes in a significantly positive way to growth in China and Thailand, with the largest contribution being evidenced for China. This is not surprising in the case of China, where of the total debt issued in the country in 2002, more than 50 percent was public debts. As for Hong Kong, public debts and private debts make up only 22 percent and 7 percent of total debt issued in 2002, respectively (Jiang & McCauley 2004). This indicates that both public and private debts contribute minimum importance to the country. This indication is reflected in the findings of the empirical analysis which show that both public and private debt are not significant in contributing to the growth of the country. The continuous interest of foreign investors on Hong Kong debt markets has seen the amount of foreign currency debt grow and eventually contribute in a significantly positive way to the 10% level of the country's GDP as evidence from results showed in Table 3.

Finally, the debt-growth link fails to be true for Japan for all categories of debts. Similar to China and Thailand, the bulk of debts were issued by governments as reflected by the mean of public debt in Table 2. However, unlike China and Thailand, this category of debt fails to contribute to the GDP of Japan. The same can be said about the private and foreign currency debts issued in Japan. Broadly speaking, the hypothesis which suggests that debt market matters for real growth as forwarded by Fink et al. (2003) can be supported by all countries except Japan; although Japan has the highest average ratio of bond market capitalization to GDP for the years 2001 to 2009 among the 5 countries in the sample. The fail link in Japan can be attributed to several factors. Among them is the

enormous fiscal deficit that Japan has carried for several years. It is well known that Japan's economy has been very bad for the past two decades. The nation's debt to GDP ratio reached more than 400 percent in the year 2000. Due to this deficit, and although Japan is one of the two countries in Asia (the other one is South Korea) with developed bond markets, the amount of debts issued in the country, be they public, private or foreign currency debts, have failed to improve the GDP of the country. In conclusion, it is therefore important for each country to make a continuous effort to maintain a stable macroeconomic environment as a precondition for efficient bond market (Hyun & Jang 2008) that would eventually contribute to the growth of the country.

## CONCLUSION

Continuous efforts have been made by various agencies to promote debt markets in the Asian region since the 1997/1998 financial crisis. Although these efforts may seem to have been successful in increasing the amount as well as the type of debts issued, their contribution to the growth of the countries is rather limited. The amount of debts issued is also said to be insufficient compared to that of the advanced countries. Thus, the ultimate effect of debt markets development on growth may be critically influenced by the amount of debts issued for each category of debts. However, further detailed studies are called for prior to establishing a commonly accepted consensus.

## REFERENCES

- Abbas, S.M.A. & Christensen, J.E. 2010. The role of domestic debt markets in economic growth: An empirical investigation for low-income countries and emerging markets. IMF Staff Papers (Washington: International Monetary Fund).
- Adjasi, C.K.D. & Biekpe, N. B. 2006. Stock market development and economic growth: The case of selected African countries. *African Development Review* 18(1): 144-161.
- Asian Development Bank. 2009. Emerging East Asia – A regional economic update. *Asia Economic Monitor*.
- Atje, R. & Jovanic, B. 1993. Stock markets and development. *European Economic Review* 37(1): 16-41.
- Beck, T., Levine, R. & Loayza, N. 2000. Finance and the sources of growth. *Journal of Financial Economics* 58(1&2): 261-300.
- Beck, T. & Levine, R. 2004. Stock markets, banks, and growth: Panel evidence. *Journal of Banking and Finance* 28(3): 423-442.
- Bencivenga, V.R., Smith, B.D. & Starr, R.M. 1996. Equity markets, transaction costs, and capital accumulation: An illustration. *World Bank Economic Review* 10(2): 241-265.
- Bhattacharyay, B.N. 2011. Bond market development in Asia: An empirical analysis of major determinants. Asian Development Bank Institute (ADBI) Working Paper No. 300. Tokyo: ADBI.
- De Bondt, G. 2002. Euro area corporate debt securities market: First empirical evidence. European Central Bank Working Paper Series, Working Paper No. 164.

- Demirguc-Kunt, A. & Levine, R. 1996. Stock market development and financial intermediary growth: Stylized facts. *World Bank Economic Review* 10(2): 291-321.
- Eichengreen, B. & Luengnaruemitchai, P. 2004. Why doesn't Asia have bigger bond markets? National Bureau of Economic Research (NBER) Working Paper No. 10576. Cambridge, MA: National Bureau of Economic Research
- Eichengreen, B. 2006. The development of Asian bond markets. *Bank for International Settlements (BIS) Paper No. 30*. Basel, Switzerland: Bank of International Settlements
- Eichengreen, B., Hausmann, R. & Panizza, U. 2002. *Original sin: the pain, the mystery, and the road to redemption*. Unpublished manuscript. UC Berkeley, Harvard University, and IDB.
- Fabella, R. & Shrinivasa, M. 2003. Bond market development in East Asia: Issues and challenges. ERD Working Paper No.35. Manila: Asian Development Bank.
- Felman, J., Gray, S., Goswami, M., Jobst, A., Pradhan, M., Peiris, S.J. & Seneviratne, D. 2011. ASEAN5 bond market development: Where does it stand? Where is it going? International Monetary Fund (IMF) Working Paper 137.
- Fink, G., Haiss, P. & Hristoforova, S. Bond markets and economic growth. 2003. Institute for European Affairs Working Paper 49.
- Fry, M. J. 2012. In favour of financial liberalization. *The Economic Journal* 107(442): 754-770.
- Gertler, M. & Lown, C.S. 2000. The information in the high yield bond spread for the business cycle: Evidence and some implications. *Oxford Review of Economic Policy* 15(3): 132-50.
- Hahn, F.R. 2002. The finance-growth nexus revisited. New evidence from OECD countries. Austrian Institute of Economic Research, WIFO Working Papers 176.
- Hakansson, N. 1999. The role of a corporate bond market in an economy and in avoiding crises. Research Program in Finance Working Paper. Institute of Business and Economic Research, University of California, Berkeley.
- Harris, R.D.F. 1997. Stock markets and development: A reassessment. *European Economic Review* 41(1): 139-146.
- Harrison, P. 2002. The impact of market liquidity in times of stress on corporate bond issuance. *Proceedings of the Third Joint Central Bank Research on Risk Management and Security Risk Conference*.
- Hawkins, J. 2002. Bond markets and banks in emerging economies. *Bank for International Settlements (BIS) Paper No. 11*.
- Herring, R. & Chatusripitak, N. 2000. The case of the missing market: The bond market and why it matters for financial development. Asian Development Bank Institute (ADBI) Working Paper No. 11.
- Hyun, S. & Jang, H. B. 2008. Bond market development in Asia. Available at [http://www.unescap.org/pdd/projects/bondmkt/1\\_bond\\_development.pdf](http://www.unescap.org/pdd/projects/bondmkt/1_bond_development.pdf)
- Jiang, G. & McCauley, R. 2004. Asian local currency bond markets. *Bank for International Settlements (BIS) Quarterly Review* (June).
- Kawai, M. 2007. Asian bond market development: progress, prospects and challenges. Key Note Speech by the Dean of the Asian Development Bank Institute. High Yield Debt Summit Asia 2007 Singapore.
- King, R.G. & Levine, R. 1993. Finance and growth: Schumpeter might be right. *Quarterly Journal of Economics* 108(3): 717-38.
- Leahy, M., Schich, S., Wehinger, G., Pelgrin, F. & Thorgeirsson, T. 2001. Contributions of financial systems to growth in OECD countries. *OECD Economics Department Working Paper No. 280*.
- Levine, R. 1991. Stock markets, growth, and tax policy. *Journal of Finance* 46(4): 1445-1465.
- Levine, R. & Zervos, S.J. 1998a. Stock markets, banks, and economic growth. *American Economic Review* 88(3): 537-58.
- Levine R. & Zervos, S.J. 1998b. The legal environment, bank, and long-run economic growth. *Journal of Money, Credit, and Banking* 30(3): 597-620.
- Levine, R. 1998. The legal environment, banks, and long-run economic growth. *Journal of Money, Credit and Banking* 30(3): 596-613.
- Levine, R. 1999. Law, finance, and economic growth. *Journal of Financial Intermediation* 8(1&2): 8-35.
- McKinnon, R. 1973. *Money and Capital in Economic Development*. Washington D.C.: Brookings Institution Press.
- Mieno, F., Nagano, M., Takayasu, K., Takeda, M. & Nagai, S. 2009. Developing bond markets in Asia. Study Group on the Asian Financial System Center for Monetary Cooperation in Asia, Bank of Japan.
- Patillo, C., Poirson, H. & Ricci, L. 2002. External debt and growth. IMF Working Paper 02/69.
- Plummer, M.G. & Click, R.W. 2005. Bond market development and integration in ASEAN. *International Journal of Finance and Economics* 10(2): 133-142.
- Radelet, S., Sachs, J.D., Cooper, R.N. & Bosworth, B.P. 1998. The East Asian financial crisis: Diagnosis, remedies, prospects. *Brookings Papers on Economic Activity* 1: 1-90.
- Shaw, E.S. 1973. *Financial Deepening in Economic Development*. New York: Oxford University Press.

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## APPENDIX

## Major Asian Region Bond Market Initiatives Following the 1997 Financial Crisis

## 1. Asian Bond Fund (ABF)

- a. The ABF was established in 2003 by the Executives' Meeting of East Asia-Pacific Central Banks (EMEAP) with the objective of facilitating bond issuance.
- b. To expand the bond market, eight members of the EMEAP (the PRC; Hong Kong, China; Indonesia; the Republic of Korea; Malaysia; Philippines; Singapore; and Thailand) issued sovereign and quasi-sovereign bonds, which were purchased by the foreign exchange reserve of all the members of the EMEAP (including Australia, Japan, and New Zealand).
- c. Initial purchase was US\$1 billion of US dollar denominated bonds—called Asian Bond Fund-1 (ABF-1).
- d. To avoid the “Twin Risk” problem, ABF-2 was introduced in late 2004 with an initial purchase of \$2 billion of Asian-currency denominated sovereign and quasi-sovereign bonds.
- e. ABF-2 introduced two funds:
  - i. Pan-Asian Bond Index Fund: a single bond fund index investing in local currency bonds issued in eight Asian economies.

- ii. The Fund of Bond Funds: a parent fund investing in eight sub-funds.

## 2. Asian Bond Market Initiative (ABMI)

- a. Established in 2003 by the ASEAN+3 Finance Ministers.
  - i. To develop local currency denominated bonds.
  - ii. Aims at establishing a national and regional market infrastructure for bond market development.
- b. The ABMI created several working groups for conducting studies relating to bond market development, such as:
  - i. Issuance of new securitized debt instruments;
  - ii. Establishment of a regional bond guarantee agency;
  - iii. Creation of a regional settlement and clearance system; and
  - iv. Strengthening of regional rating agencies.
- c. To create synergies between policies and market activities, the working groups ensure consultation with the private sector. Some progress has been made on these studies.

Other Initiatives	Activities
EMEAP	<ul style="list-style-type: none"> <li>• Strengthen the demand side of bond market development</li> <li>• Establish the Asian Bond Fund (ABF-1, ABF-2)</li> </ul>
ASEAN+3 Finance Ministers Meeting	<ul style="list-style-type: none"> <li>• Strengthen the supply side of bond market development</li> <li>• Study and implement initiatives through working groups on: new securitized debt instruments; credit guarantee and investment mechanisms; foreign exchange transactions and settlement issues; and rating systems</li> </ul>
Asia-Pacific Economic Cooperation (APEC) Finance Ministers Meeting	<ul style="list-style-type: none"> <li>• Study measures to promote regional bond market development</li> <li>• Study securitization, credit guarantee mechanisms and new instruments</li> </ul>
Asia-Cooperation Dialogue	<ul style="list-style-type: none"> <li>• Increase public awareness of the various initiatives and secure political support</li> </ul>

\*Source: Bhattacharyay (2011) which is based on Kawai (2006, 2007), Asia Sentinel (2010), APEC (2004), and other ADB/ADBI documents.