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Financing Infrastructure  
Development: Asian  
Developing Countries  
Need to Tap Bond Markets  
More Rigorously

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**Financing Infrastructure Development:  
Asian Developing Countries  
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More Rigorously**

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## Introduction

Financing the development of physical infrastructure in a timely and proper fashion in developing countries has always been on top of the development agenda, given the severe resource constraints in these countries. Theoretically there exist several financing instruments and sources, including fiscal resources mobilized through tax revenues, issuance of equities and bonds, and international and domestic short-term borrowing (e.g., from commercial banks). Each method involves varying degrees of advantages as well as risks. Asian developing countries (ADCs) have usually mobilized the needed financial resources by traditional means: through fiscal efforts and official external aid, while leaving bond markets untapped. This tendency is rooted in the perception that infrastructure financing should be the purview of the government, not only because of the strategic significance of development infrastructure to the economy but also due to the large magnitude of the costs for development and maintenance and the long gestation period associated with the cost recovery that places serious disincentives to private investors.

However, the last decade has seen important developments that facilitated and necessitated diversification of financing instruments and sources of constructing physical infrastructure in developing countries. The first and foremost development is that the government budget alone cannot provide the necessary funding for infrastructure in view of the rapidly increasing public demand for basic government services (infrastructure included). Second, financing long-term capital investment projects through annual tax revenues is unsound from the viewpoint of financial management principles. Third, short-term external borrowings may cause funding–investment mismatches that were a major factor underlying the Asian financial crisis in 1997. Lastly, with the introduction and adoption of various new financial techniques (e.g., build-operate-transfer), the private sector's desire to invest in physical infrastructure has drastically increased. These developments, among others, have led both governments and private entities to tap long-term private sources including bond financing in both domestic and international markets.

The Asian region is facing a formidable challenge of developing major physical infrastructure crucial to promoting overall growth and reducing poverty. Estimates on the investment level required by major countries in the region to construct and improve physical infrastructure have varied from \$20-30 trillion in the coming 10 years. The sheer magnitude of the region's financing requirements calls for urgent and diversified mobilization of financial resources. Asia needs to develop long-term financing and local currency markets that should channel the high level of savings in the region to infrastructure development. Deep and liquid bond markets, both local markets as well as regional markets, are key to addressing this challenge.

### **Importance of Bond Financing**

Bond market financing is important to the ADCs for several reasons (Kim 2000).

- (i) It helps to diversify the sources of infrastructure financing. Before the Asian crisis, such financing has been overly dependent on fiscal budget and banking institutions, involving a serious term mismatch between their short-term borrowing and long-term investments, inflexibility in financing methods, and high risks at the time when banks are reluctant to lend.
- (ii) Bond financing will alleviate the uncertainties caused by the global bank disintermediation in the postcrisis period. The bank disintermediation takes place largely due to two factors: (a) domestic and foreign banks are extremely cautious about providing new credit to the private sector in ADCs in general; and (b) portfolio diversification and aggressive yield-seeking behavior of domestic and globalized investors have increased the opportunity cost of bank deposits.
- (iii) The world's highest domestic savings are from East and Southeast Asian countries. Bond financing will contribute to transforming these savings, which are available mostly in short-term bank deposits, into long-term development resources. Similarly, the large foreign exchange reserves of Asian countries could be channeled to Asian countries for financing their development projects through regional bond markets.

- (iv) It will contribute to enhancing corporate governance standards in Asian developing countries, because bond issuers prefer a higher credit rating to reduce interest rate and issue costs.

## **State of Bond Financing in Asian Developing Countries and Challenges Ahead**

### **State of Bond Financing**

Since the Asian crisis in 1997-1998, bond financing by the ADCs has rapidly increased (see table). These countries have made extraordinary efforts to deepen and broaden their domestic bond markets as well as regional markets. Realizing the critical importance of well-functioning local bond markets as alternative channels of financial intermediation, ADCs—particularly ASEAN plus People’s Republic of China (PRC), India, and Republic of Korea (Korea)—have made a wide range of policy efforts to nurture and modernize their bond markets.

Besides individual countries’ own initiatives and actions, several regional measures have also been taken by the ASEAN+3 (10 country members of the Association of Southeast Asian Nations with PRC, Japan, and Korea) under the umbrella of “Asian Bond Markets Initiative” in order to harmonize individual policies, exchange relevant information, and conduct studies on the underlying problems and the necessary policy responses.<sup>1</sup>

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<sup>1</sup> The measures include creation of the Asian Bond Fund (ABF) amounting to \$1 billion and the second ABF of \$2 billion to invest in Asian currency bonds, issuance of local currency bonds by ADB and Japan Bank for International Cooperation, ongoing study on regional credit guarantee mechanism and regional bond settlement and payment mechanism, and ADB’s Asian Bond Website.

## Size of Local Bond Markets in Selected Asian Developing Economies, 2002

	US\$ billion, Outstanding	Percent of GDP
PRC	465	38
Hong Kong, China	68	42
Indonesia	56	31
India	156	34
Korea	381	76
Malaysia	83	87
Philippines	26	34
Singapore	53	60
Taipei, China	107	38
Thailand	47	38
<i>Memo:</i>		
Japan	6,735	161
United States	16,324	156

Source: Jiang and McCauley (2004).

In most countries, local bond financing has more than doubled in size between 1997 and 2002. Among the four crisis countries, Korea and Malaysia reached almost 80 percent of gross domestic product (GDP) in 2002, while Indonesia and Thailand showed only 30-40 percent of GDP. It should be noted, however, that in the latter two countries bond financing was very limited before the crisis.

Nevertheless, Asian countries' financial systems are still distinctively bank-centered, while bond markets are generally underdeveloped and shallow to varying degrees. The markets are small compared to those in Japan or the United States, where outstanding domestic bonds account for over 150 percent of GDP. More importantly government bonds—issued mostly for the funding of bank restructuring to address the large nonperforming loan—make up the lion's share, whereas corporate financing heavily relies on bank lending and equity markets. Further, the markets are segmented from each other and from global fixed securities markets, liquidity is generally not high enough, and the investible portion of bonds is much smaller than the total outstanding.

## Challenges Ahead

Given the low level of bond market development, it is essential that the ADCs make stronger endeavors to develop bond markets. Developing viable bond markets needs continued and consistent policy efforts over a sustained time period. The policy efforts should deal with both demand- and supply-side impediments as well as infrastructure problems. While banks account for up to 80 percent of financial assets in Asia, they account for less than 25 percent in the United States (US). This suggests that nonbanking financial markets, including bond markets, have a promising future in Asia if proper policies are pursued.

The following would be the most important issues that deserve governments' vigorous policy efforts. On the supply side:

- (i) Provide a sound macroeconomic environment entailing financial liberalization and maintaining an adequate exchange rate policy and regulatory standards.
- (ii) Reform corporate governance to enhance the protection of the legitimate interests of all stakeholders including the holders of corporate bonds.

On the demand side:

- (i) Strengthen the role of institutional investors and mutual funds to expand the investor base.
- (ii) Encourage private placement because private placement of corporate bonds has advantages particularly in developing countries where the overall bond market is underdeveloped.

On the development of infrastructure:

- (i) Raise reliability in credit rating by domestic credit rating institutions.
- (ii) Create a reliable benchmark yield: The curve is essential for the pricing of nongovernment securities since investors traditionally price these securities based on a spread over the equivalent risk-free or government security with the same maturity.

Lastly, at the regional level, the Asian development community needs to strengthen its ongoing policy efforts to boost regional bond markets. Priorities should be placed on harmonizing legal and regulatory systems and frameworks and creating guarantee facilities to facilitate cross-country bond issuance.

## **Decentralization and Infrastructure Financing of Local Governments**

An important recent development that should be noted in relation to bond financing is the ongoing political decentralization, with central governments devolving to local governments the responsibilities of delivering local public services and developing key infrastructure that requires large financial resources (for more elaboration, see Kim 2003).<sup>2</sup> Decentralization is based on the recognition that participation of key local stakeholders, including local governments and communities, is critical for sustainable economic growth and poverty reduction. Further, the rapid urbanization in most developing countries reinforces the need to improve existing, often poorly maintained, infrastructure and to meet new demand for housing, education, water supply, sanitation, sewerage treatment and disposal, solid waste management, and public transport. This requires massive investments, much of which should be financed, cofinanced, or guaranteed by local governments.

Even as they strive to improve local revenue collections and private sector participation, local governments have realized that the pool of these funds will not be sufficient to bridge the financing gap particularly for urban infrastructure investments. So local governments are seriously looking at the option of tapping into long-term commercial funds through local credit markets. Local governments can consider two models of municipal credit market—the bank lending model used in Western Europe, and the municipal bond model used in North America—and select from each model various elements appropriate for the countries' socio-cultural-political milieu.

The US municipal bond market is the most vibrant form of the bond model. It introduced credit-rating agencies, public disclosure of financial information, and private bond insurance to limit credit risk. Developing countries may find it difficult to adopt the US model to their infant local credit markets but it would be imperative for local governments to tap bond markets for financing long-term infrastructure projects.<sup>3</sup> If sufficient guarantee coverage is provided, even smaller

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<sup>2</sup> Decentralization reforms were based on laws passed in the last decade. For example, the Philippines's Local Government Code in 1991; India's Decentralization Acts in 1992; Thailand's law giving subdistrict councils juridical status in 1994; Korea's Local Autonomy Act in 1995; and Indonesia's laws on local government and central-local financial fund in 1999.

and poorer local governments—which are in need more urgently—can have access to bond markets.

### **Project Bonds: A New Opportunity**

One of the great developments in bond financing in the 1990s is the emergence of project bonds to fund long-term infrastructure projects in developing countries.<sup>4</sup> In view of the massive infrastructure needs in developing countries, the long-term prospects for project bonds appear to be promising. While most project bonds are corporate bonds, the reverse is not true. A project bond differs from a corporate bond significantly in terms of financial and legal terms. The dissimilarities are primarily rooted on the underlying financial and repayment framework of the borrower. In the case of a project bond, the issuer issues the bond to finance a single individual capital investment project whose cash flows are the sole source to meet financial obligations and to provide returns to investors, whereas in the case of a typical corporate bond the bond is issued against the firm's general credit and underlying assets. Corporate bonds are secured by all the assets and cash flows of the issuer that offer to the investors risk diversification and an important cross-asset insurance mechanism. No such cross-asset insurance exists in the case of project bonds.

Although the volume of funds raised through international project bonds remains relatively small, the market has rapidly expanded and delivered many high-profile transactions (e.g., \$1.2 billion issued by the Ras Laffan Liquefied Natural Gas project in Qatar, \$1 billion issued by the Petrozuata heavy oil project in Venezuela, and \$125 million issued by the Quezon power project in the Philippines). International project bonds differ widely in their issue size, maturity, issue spread, project structure, and legal characteristics and covenants. Issue size ranges from \$23 million to \$1.2 billion, their maturity from less than 3 years to 100 years, and the yield at issue over US Treasuries from 10 basis points to 802 basis points.

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<sup>3</sup> Local governments in some countries have already used bond financing for their infrastructure projects. For example, Daejeon city and Seoul city in Korea, Tamil Nadu in India, and Taipei city in Taipei, China.

<sup>4</sup> This section relies on Dailami and Hauswald (2003).

Dailami and Hauswald (2003) present an interesting finding: If issue terms and sector effects are controlled, legal and regulatory obstacles have the largest and statistically most significant effect on the quality of the project bond. Increases in the obstacles for judiciary and regulatory issues and taxation in the host country led to much higher at-issue spreads. Covenant protection and contractual devices alone are insufficient to overcome shortcomings in host country's legal, economic, and political institutions.

### **Concluding Remarks**

Asian developing economies are now faced with the urgent call to develop physical infrastructures to strengthen the foundations of sustained development and poverty reduction. How to finance long-term, large-scale capital investment projects is indeed a formidable challenge. Bond financing is one of the most profitable and appropriate financing options. A notable development now is the rapid expansion of international project bond markets, providing developing countries with wider choices in bond financing. Since the Asian financial crisis, the Asian economies have taken impressive preliminary actions to nurture domestic and regional bond markets. Many challenges, however, still lie ahead.

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