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Diversified Instruments for Infrastructure Investment in Asian Capital Markets

Introduction

Infrastructure development is crucial to economic growth in Asia. At the same time, the amount of money needed to develop infrastructure in the region is huge, most likely beyond the financial wherewithal of each nation's government and banking sectors. Given this situation, Asian nations' expectations for multilateral development banks (MDBs) is rising. In addition, each nation is working independently to establish frameworks that promote the use of private-sector funds, including the creation of public-private partnerships (PPPs).

Meanwhile, in recent years some pension funds in advanced nations and sovereign wealth funds have recognized infrastructure as a new asset class and begun creating investment portfolios focused on such assets. Canada's public pension fund, for example, is investing in infrastructure projects around the world. Amid the rise in investor interest in alternative investments that offer risk-return characteristics different from those of stocks and bonds, an increasing number of listed and unlisted infrastructure funds are being formed. Some of these funds are advocating investment in infrastructure in India and in ASEAN nations.

We therefore are seeing an increasingly diverse range of investors supplying funds for infrastructure investment around the world, as well as a more diverse portfolio of financial instruments that can be used to procure funds for infrastructure development. Nevertheless, it is still not easy for Asian countries to raise the funds they need to finance infrastructure development.

In this report, we first examine the relationship between global infrastructure investment trends and infrastructure development in Asia. Thereafter, we discuss the importance of mobilizing public- and private-sector funds while also aggressively using the capital markets to fill the supply-demand gap for funds in Asian countries and to create a desirable fund allocation mechanism.

Characteristics of Infrastructure Investment and Challenges Facing Asia

Infrastructure can be defined as "basic public facilities necessary for improvement of public welfare and development of the national economy." Depending on the types of services offered through such facilities, infrastructure is often classified into two types, economic infrastructure and social infrastructure. Economic infrastructure refers to facilities related to transportation (toll roads, railroads, etc.), energy (power plants, pipelines, etc.), water supply, communications, etc. While economic infrastructure benefits many people through the promotion of industry and urbanization, it is a public asset that generally is built, owned and operated by the government and/or local authorities for the benefit of a wide range of users. The involvement of private enterprises is primarily related to construction contracts and the supply of materials, with ownership usually transferred to the government once the project enters the operating stage.

However, when a nation's economy begins to mature, ownership and management of infrastructure by private-sector entities is sometimes considered as a means for increasing management efficiency, reducing government-sector assets, and lowering maintenance costs. Economic infrastructure, which usually generates cash flow from usage fees, has begun to attract the attention of institutional investors who see an opportunity for dividend income and capital gain from the infrastructure's asset value. Through the creation of investment funds, such investors are able to join with business companies possessing the related operational know-how to invest in infrastructure. The long-term, stable, and in-

flation-linked characteristics of cash flows generated by economic infrastructure are highly attractive to pension funds, in particular. This attraction has led pension funds in Australia and Canada to gradually expand their investment in infrastructure since the 1990s. Meanwhile, in the United Kingdom and some other nations, the privatization of infrastructure and the use of PPPs or private finance initiatives (PFIs) has become common owing to the need to bring private-sector management skills into the operation of infrastructure. This has led to the creation of infrastructure funds that enable infrastructure projects to access funds from investors.

One important point that should be kept in mind when considering infrastructure investment in Asia is the great difference in risk and expected returns associated with infrastructure in the "greenfield" and "brownfield" stages of development. Infrastructure projects still in the design, development and construction stages are referred to as greenfield investments while infrastructure projects already in operation are considered to be brownfield investments. In general, greenfield infrastructure investments face higher risks, including those related to government approval of the business, demand forecasts, funding, and project completion. Projects in emerging countries also face higher uncertainties related to demand and the surrounding environment.

With infrastructure projects around the world attracting investor attention, funds are not necessarily flowing to Asian countries with high growth potential because the projects in Asia are overwhelmingly still in the greenfield stage and thus are considered by institutional investors to be highly risky. It is therefore important to either consider separate financing methods and ways to reduce the risks associated with greenfield projects or to recycle capital by bringing private-sector and foreign investors into projects in the brownfield stage.

Sources of Infrastructure Financing in Asia

The sources of funding for infrastructure development in Asian countries include government finances, official development assistance (ODA) programs of advanced nations, support from such international development financial institutions as the Asian Development Bank (ADB) and the World Bank Group, and loans from domestic and overseas public and private-sector financial institutions (Figure 1).

At present, infrastructure development in Asian countries is heavily dependent on funding from the public sector. For example, the Indonesian government's plans for infrastructure development during 2014–2019 call for total investment of IDR 5,519 trillion (about USD 414 billion), with 50% of those funds expected to come from the government budget, 19% from government-related enterprises, and the remaining 31% from the private sector. Similarly, the Thai government's plans for infrastructure development from 2015 to 2022 will require a total investment of THB 2.4 trillion (about USD 69 billion), equivalent to 20% of GDP during that period. The Thai government expects to fund 20% from its budget, with 45% financed by government-related enterprises, 20% from PPP, 10% from revenue generated by government-related enterprises, and 5% from infrastructure funds.

On the other hand, the national government's fiscal condition, which is the basis for public investment, can hardly be described as solid in many Asian nations. India, for example, is running a fiscal deficit equivalent to 7–8% of its GDP. Malaysia and Indonesia have deficits of about 2% of their GDP. Many countries simply do not have sufficient amounts of public investment funds in their national budgets. Consequently, the ability to overcome these fiscal constraints by securing infrastructure investment funds will be a key to realizing sustainable growth in Asia.

Accordingly, trends at international development financial institutions are increasingly important to infrastructure financing in Asia. In particular, the Asian Infrastructure Investment Bank (AIIB), which was established in December 2015 by 57 countries as founding members led by China, has begun operations under Articles of Agreement that set forth "infrastructure and other productive sectors" as the main focus of lending by the bank. The AIIB approved nine loans totaling investments of about USD 1.73 billion in 2016 and is already participating in co-fi-

Figure 1: Sources of Funding for Infrastructure Investment

	Domestic Funds	Overseas Funds
Debt	Domestic Commercial Banks	International Commercial Banks
	Long-term Credit Institutions	Export Credit Agency
	Domestic Bond Markets	International Bond Markets
	Infrastructure Debt Funds	Multilateral Development Banks
Equity	Domestic Investors (Institutional, Individual)	Foreign Investors (Institutional, Individual)
	Utility Companies	Facility Suppliers
	Sovereign Wealth Funds	
	Unlisted Infrastructure Funds	
	Listed Infrastructure Funds	

Source: NICMR, based on *Connecting South Asia and Southeast Asia*, a joint study by Asian Development Bank and Asian Development Bank Institute (2015)

nancings with the World Bank, the ADB, and the European Bank for Reconstruction and Development (EBRD). For the AIIB, which has pointed out its struggles to hire qualified staff, co-financings with the ADB, which has experienced staff and a long track record, have many merits, and the two institutions are likely to co-exist and collaborate to meet Asia's international development financing needs over the foreseeable future. In addition to the AIIB, China is one of the five BRICS countries that established the New Development Bank (NDB), which also came into existence in 2015. China also has a number of its own government-related financial institutions, such as the Silk Road Fund and the China Development Bank (CDB), which are promoting its "One Belt, One Road" initiative targeting infrastructure development that will improve the trade connections between China and other countries in the region. Through such actions, China is likely to raise its presence as a provider of infrastructure development funds in Asia.

Trends in Private-Sector Funding of Infrastructure Projects

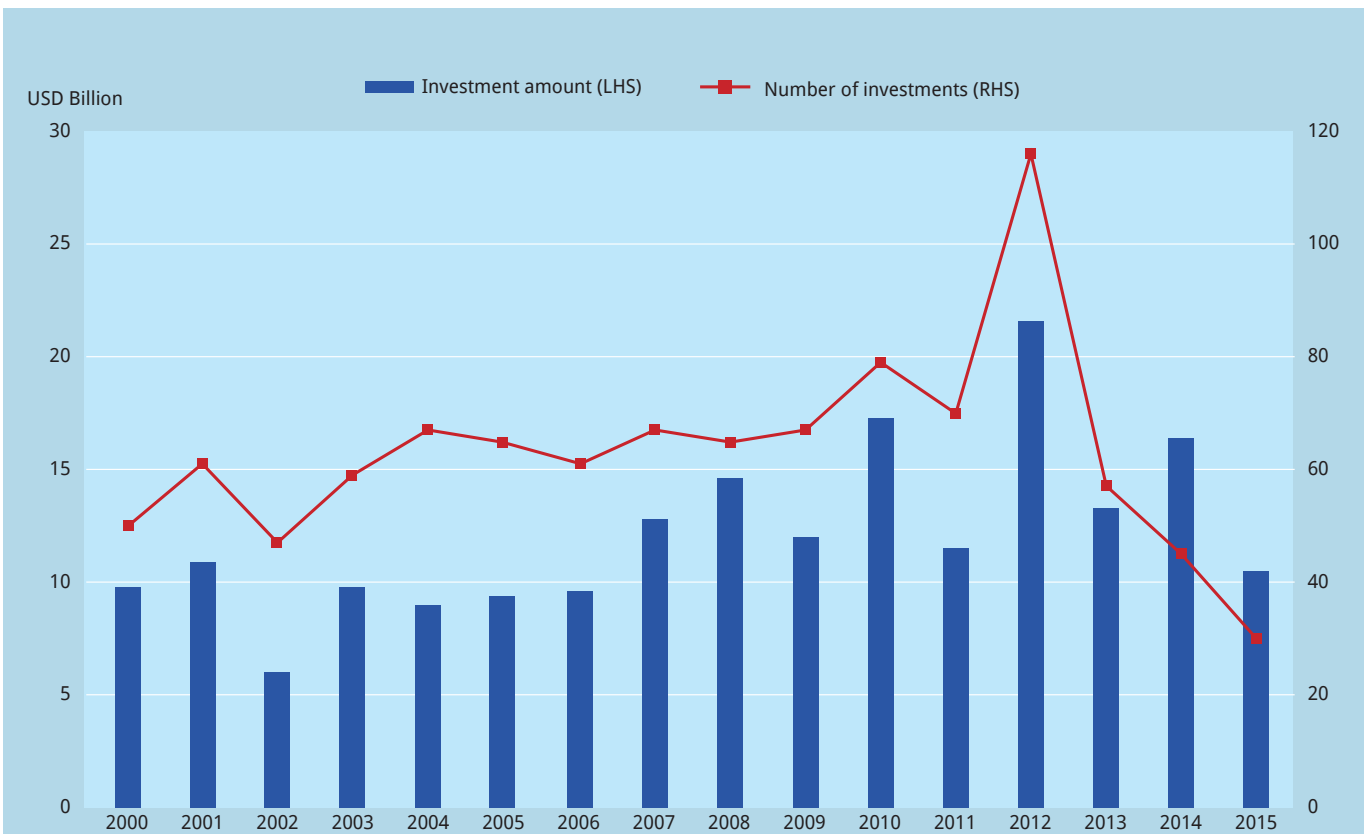
This section provides an overview of recent trends in infrastructure financing in Asia using private-sector funds. Infrastructure projects that utilize private-sector funds raised through a PPP or other structures generally entail the establishment of a special-purpose vehicle (SPV) for each individual project. As with regular operating companies, SPVs raise funds through equity and debt issuance. Although the debt-equity ratio varies from project to project, equity is often 20–30% of project capital with debt accounting for the remaining 70–80%.

In ASEAN nations, many infrastructure projects are greenfield projects, which makes it more difficult to secure equity investors and the desired amount of equity funding.

A relatively large number of infrastructure projects initiated around 1990 in the ASEAN region took advantage of private-sector funding and technological expertise. In addition to the earlier noted inability of governments to meet the demand for infrastructure using government funds alone, this trend is thought to have been driven by the view that the use of private-sector technology and know-how would make project operation and management more efficient. Realizing greater efficiencies was probably a major reason why international development financial institutions required governments to bring the private sector on board as one condition for financing projects.

According to the World Bank's Private Participation in Infrastructure (PPI) Project Database, the private sector's par-

Figure 2: ASEAN Infrastructure Projects with Private-Sector Participation



Note: (1) Investment amounts indicate the total amount of equity capital and debt procured by the entity undertaking the project. Amounts include some public-sector contributions as well as the investment from the private sector.
(2) Data is for the eight ASEAN nations other than Singapore and Brunei.
Source: NICMR, based on the World Bank PPI Project Database (as of August 2016)

ticipation as sponsors (equity investors) of infrastructure projects within the ASEAN region generally remained on an upward trend in terms of both project numbers and the total amount invested through 2012. However, it has reversed to a downward trend since 2013 (Figure 2). Examination of the data for specific countries reveals different trends in individual ASEAN nations. For example, while private-sector infrastructure investment in Indonesia has been falling from the 2012 peak, projects involving private-sector participation have been increasing in Thailand and the Philippines.

PPPs have played an important role in Asian infrastructure investment from a relatively early stage. For example, the Philippines enacted build-operate-transfer (BOT) legislation in 1990 and established a legal framework for PPPs in 1994. In recent years, many ASEAN countries, including Indonesia, Thailand, and Vietnam, have loosened regulatory controls to facilitate formation of PPPs and established administrative units specifically for the purpose of negotiating with the private sector and then coordinating efforts on joint infrastructure projects. These efforts have promoted competition in the market for participation in PPPs. These efforts alone, however, have proven insufficient for attracting the large amounts of private-sector funds needed to finance greenfield projects. Governments also need to create effective mechanisms, including government guarantees, that will ensure appropriate risk-sharing on greenfield projects.

Use of Capital Markets

In recent years, we have seen the creation of unique infrastructure financing structures in ASEAN nations that facilitate financing via the capital markets. These structures include project bonds, public-private investment funds, listed infrastructure funds, etc.

To avoid credit concentration risk at domestic banks, ASEAN countries have instituted regulations that set an upper limit on the total amount of loans that can be extended to one corporate group. Lending to infrastructure projects headed by a local conglomerate, for example, may be subject to such upper limits. In addition, the strengthening of bank capital regulations, such as Basel III, raises the possibility that banks will avoid long-term loans that place a heavy burden on their balance sheet.

As a result, the bond market is increasingly being recognized as an important source of funding to supplement bank loans. Project bonds, which use cash flows from the infrastructure project to repay lenders, are seeing considerable use in Malaysia, where Islamic finance is taking hold. Islamic finance must abide by Islamic law, which forbids the charging of interest. Islamic financings therefore are based on the concept that borrower and lender share in the transaction's risk and returns based on the actual business and assets realized through the financial transaction. Project bonds therefore are highly suitable for use in Islamic finance.

Project bonds are most often used to finance infrastructure projects in the brownfield stage. To stimulate wider issuance of project bonds, the Credit Guarantee and Investment Facility (CGIF) – established as part of the Asian Bond Markets Initiative (ABMI) to promote issuance of local-currency bonds within the ASEAN+3 (Japan, China and Korea) region – announced a new framework that will contribute to reducing the risk of the greenfield infrastructure projects by providing credit guarantees during the project's construction stage.

Infrastructure funds are entities that collect equity capital from a small number investors via private placements (unlisted funds) or an unspecified larger number of investors (listed funds). On a global basis, most infrastructure funds are unlisted, but listed infrastructure bond markets have emerged in the ASEAN region, specifically in Thailand and Singapore. A listed infrastructure fund system was introduced in Thailand in 2012. As an added incentive for investors, dividend payouts from such funds and the infrastructure assets included in the funds are exempt from taxation. As of the end of December 2016, Thailand has five listed infrastructure funds with an aggregate market capitalization of around THB 237.8 billion. Also in Thailand, the government is now preparing for the launch of its large-scale infrastructure fund, named the Thailand Future Fund (TFF). The TFF portfolio will initially include toll-charging expressways already in use. After the fund's listing, the government plans to expand its portfolio to include new expressway projects in the greenfield stage.

Future Challenges and Japan's Experience

As noted above, Asian nations are seeing a diversification of instruments enabling private-sector investments in infrastructure projects, especially those in the brownfield stage. In particular, instruments that utilize capital markets, such as project bonds and listed infrastructure funds, are increasing to attract the attention of investors. However, the domestic capital markets of most ASEAN countries still have a rather small investor base. Meanwhile, global investors are unlikely to prioritize investment in high-risk greenfield projects in Asia. Considering the limited fiscal resources of most Asian nations, the gap in supply and demand for equity capital for greenfield projects remains huge and will require some action going forward.

Japan's Fiscal Investment and Loan Program (FILP) may be a good reference point for Asian governments. FILP is a system for providing long-term, low-interest financing through investments and loans that are funded by various public funds backed by the Japanese government's strong credit. After World War II, Japan rebuilt its infrastructure using citizens' postal savings and premiums paid into postal insurance plans. These funds were channeled into infrastructure development through the FILP via FILP agencies, such as the Japan Highway Public Corporation, Japan Railway Construction Public Corporation (now the Japan Railway Construction, Transport and Technology Agency), and the Japan Development Bank (now the Development Bank of Japan, a special company under the jurisdiction of the Ministry of Finance). The FILP agencies (also called *zaito* agencies) were responsible for the development of key infrastructure, including such public utilities as electric power and telecommunication systems, highways, and housing projects, under the management of the former Ministry of Finance's Trust Fund Bureau. During Japan's period of rapid economic growth in the 1960s and 1970s, the scale of the FILP reached 30–40% of the government's general account. This so-called "Second Budget" had a great influence on Japan's economic

development, with about 40% of all FILP investments and loans allocated to infrastructure development. After the opening of Japan's financial markets to the outside world and the development of the domestic private banking sector and capital markets, various adverse effects of the FILP were pointed out, resulting in repeated reforms that have transformed the program into its present day form. Nonetheless, its importance to the greenfield phase of infrastructure development in Japan cannot be dismissed. The FILP was supported by Japan's unique postal savings, which are government-guaranteed savings deposits made by individuals at their local post office. The Japanese government was able to use these retail saving deposits as funds to finance infrastructure development during the country's period of rapid economic growth, when the nation's capital markets were not yet well developed.

In today's global economic system, it probably is unrealistic for Asian countries to create a national government–run system like Japan's former FILP. However, a system that enables the use of funds from domestic retail investors to promote and expand greenfield infrastructure development would have the added benefit of enabling individuals to profit from their country's economic growth while also expanding and diversifying the capital market's investor base. We therefore think this would be a rational strategy for Asian nations to adopt. Another mechanism for promoting greenfield infrastructure investments would be to monetize the assets of infrastructure in the brownfield stage through PFIs, listed infrastructure funds, and other instruments and then use the returns on those assets to finance greenfield investments.

Lastly, the contribution for infrastructure finance by Japanese financial institutions might be further emphasized in the future. On the public sector side, Japanese Bank for International Cooperation (JBIC) and Japan International Cooperation Agency (JICA) have had a lot of track records and in the industry side, Japanese largest commercial banking groups, so called mega-banks, have strong presences in project finance in ASEAN countries. In reality, Japanese households now have huge a financial asset base of about JPY 1,700 trillion (about USD 15 trillion) but are faced with low interest rates and a dearth of growth opportunities in Japan. It would therefore seem plausible that Japanese households could become important investors in brownfield infrastructure projects in Asia.

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