

TAPPING CAPITAL MARKETS AND INSTITUTIONAL INVESTORS FOR INFRASTRUCTURE DEVELOPMENT

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The present paper is focused on using capital markets in the Asia-Pacific region to channel more resources for infrastructure development, while mobilizing assets managed by institutional investors, such as pension funds and insurance companies. To this end, the paper is structured as follows. First, an analysis of the level of capital market development in the region is conducted, which indicates that markets remain at a nascent stage in many economies. Banks continue to dominate private financing in the region. Second, a review is carried out on the size of institutional investors from which it is suggested that prudential regulation might need to be adjusted to enable greater infrastructure investment. Third, different modalities for investors seeking infrastructure exposure are highlighted and initiatives launched by different countries to support the development of infrastructure-related instruments are presented. Fourth, a review is made on the actions to support capital market development, which is critical for greater involvement of institutional investors. Fifth, ways to address constraints hindering infrastructure investments are presented. Finally, the paper concludes with proposals of strategies that are adapted to each country's circumstances and designed to further tap this source of financing for infrastructure development.

JEL classification: G23, F21, G15

Keywords: capital markets, infrastructure development, institutional investors, financing, Asia and the Pacific

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INTRODUCTION

Countries in Asia and the Pacific need to spend trillions of dollars on infrastructure development in the coming years (infrastructure is defined here as transport, power, telecommunications, and water supply and sanitation).

While the banking sector has traditionally played a major financing role, stricter capital adequacy requirements and maturity mismatches may constrain infrastructure lending in the future. Capital markets may complement bank financing and provide an alternative intermediation mechanism between investors and project developers. These markets could connect investors seeking higher yield investments to infrastructure projects in emerging countries. Similarly, capital markets can be used to help channel the abundant savings available within the region as an alternative to them flowing to more mature economies.¹

Against this backdrop, the objective of this paper is to examine how more resources from institutional investors could be channelled through capital markets for infrastructure development in the Asia-Pacific region. In doing so, previous research related to capital market development, such as Genberg (2015), is used as the basis. While the latter mainly considered how institutional investors contributed to local capital market development, the focus of this paper is on the role that capital markets and institutional investors can play in financing infrastructure projects in the region and what modalities can be used for that purpose.

The paper is structured as follows: the first section contains a review of the state of financial market development in the region; the second section includes an assessment of the potential of institutional investors as a source of finance; the third section presents different investment modalities; the fourth section gives suggested actions to develop capital market in the region; the fifth section contains highlights of options to address constraints to infrastructure investment; and the sixth section concludes by identifying strategies tailored to country situations.

I. ASIA-PACIFIC FINANCIAL MARKETS

Diverse stage

While Asia and the Pacific is home to international financial hubs, such as Hong Kong, China; and Singapore, the region also has low-income economies where capital markets remain at an early stage of development. Financial systems in the region differ in terms of market size as well as from an institutional and regulatory point of view.

¹ While the domestic savings rate of the emerging and developing countries in Asia was 42.8 per cent in 2015, it was only 18 per cent for emerging and developing countries in Latin America and the Caribbean.

Table 1 provides a snapshot of the region's financial market development based on an index conceived by the International Monetary Fund (IMF), which comprises the following indicators: stock market capitalization to gross domestic product (GDP); stock market total value traded to GDP; international debt securities of government to GDP; total debt securities of financial corporation to GDP; and total debt securities of non-financial corporation to GDP (Svirydenka, 2016).

The diversity in the region is shown in table 1, which suggests that capital markets need to be further developed in some countries before they can contribute significantly to infrastructure development. For instance, Central Asian countries and those in the Pacific have underdeveloped capital markets. Many of them have neither a bond market nor a stock exchange.

Table 1. Financial market development index (2016)

Advanced >0.676	<----- 0.5 to 0.676	0.35 to 0.5	0.046 to 0.124	Nascent <0.046
Republic of Korea	China	Kazakhstan	Lao People's	Bangladesh
Australia	Malaysia	Indonesia	Democratic	Bhutan
Japan	Turkey	Iran	Republic	Armenia
Thailand	New Zealand	(Islamic	Azerbaijan	Nepal
Hong Kong, China	India	Republic of)	Uzbekistan	Turkmenistan
Singapore	Russian Federation	Viet Nam	Georgia	Kyrgyzstan
	Philippines	Papua New		Fiji
		Guinea		Cambodia
		Brunei Darussalam		Myanmar
		Mongolia		Micronesia
		Sri Lanka		(Federated
		Pakistan		States of)
				Kiribati
				Maldives
				Marshall Islands
				French Polynesia
				Solomon Islands
				Timor-Leste
				Tonga
				Vanuatu
				Samoa

Source: IMF, Financial Development Index database. Available at <https://data.imf.org/?sk=F8032E80-B36C-43B1-AC26-493C5B1CD33B>.

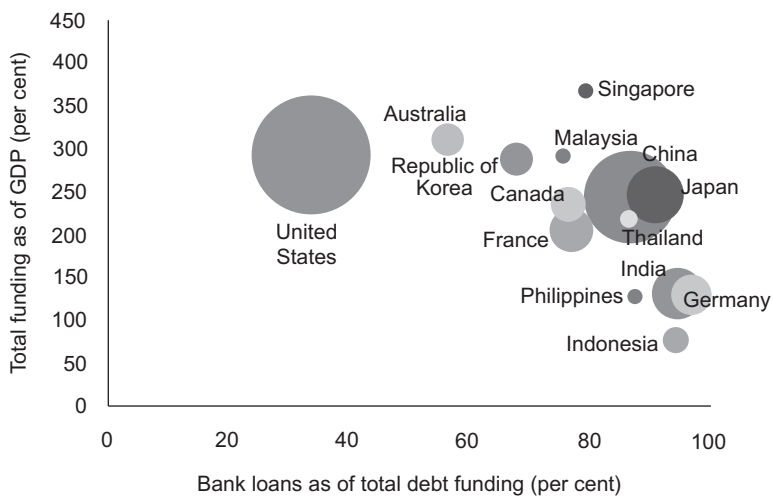
Note: Countries are sorted by financial market development index scores.

Bank domination

Another key feature of the financial system in the region is the dominant role played by banks. Loans represent more than 80 per cent of total debt funding for most Asian economies (see figure 1). This is different from the market in the United States of America where corporate bonds are a major source of financing.

Nonetheless, the balance between loan and bond has slightly evolved over time. In some countries, capital market financing has increased, while in others, banks have consolidated their dominance. For example, corporate bonds in China have increased more rapidly than bank lending, thereby pushing down the ratio of bank loans as of total debt funding to 86.6 per cent in 2015 from 91.7 per cent in 2005. The overall size of the financial sector has also grown exponentially from 140.3 per cent to 243.6 per cent (total funding as of GDP). In a similar fashion, bank lending in the United States has somewhat been substituted by corporate bonds with the same ratio declining from 69.7 per cent to 33 per cent over this ten-year period.

Figure 1. Funding structure in selected countries (2015)



Source: Authors' calculation, based on data from the Asian Development Bank, the International Monetary Fund, the Bank for International Settlements, and the World Bank.

Notes: Total funding is the sum of bank loans, corporate bond funding and equity funding. Bubble sizes are proportional to GDP.

On the other hand, the opposite has occurred in Japan, with the ratio of bank loans as of total debt increasing from 66 per cent in 2005 to 90.7 per cent in 2015. This may be explained by the prolonged period of monetary easing and low interest rates in the country, which has made bank lending cheaper and abundant. For instance, in the project finance industry, major Japanese banks, such as Mizuho, Mitsubishi UFJ Financial Group (MUFG) and Sumitomo Mitsui Banking Corporation (SMBC), have been able to provide competitive pricing for project finance, while keeping those loans on their balance sheet. This has limited the need for capital market financing for infrastructure projects. Similarly, the high liquidity of Filipino banks has made it possible to finance public-private partnerships (PPP) projects domestically.

Bond versus bank loans

The overall bank domination in the region is not an issue per se; however, this may create limitations for infrastructure project financing, notably with regard to the following:

- (a) *Maturity*: Infrastructure projects require long-term loans to avoid refinancing risks.² Banks, however, generally having short-term liabilities (such as deposits) and holding long-term assets on their balance sheets such as infrastructure loans, generate maturity mismatches.³ Capital markets can, instead, mobilize investors seeking a long-term horizon, such as pension funds, insurance companies and sovereign wealth funds.
- (b) *Credit limit*: Banks typically set single borrower limits to avoid the concentration of risks on a few counterparts. This limits their capacity to extend loans to the few large private companies capable of embarking on infrastructure projects. On the contrary, bonds spread credit risks over a large pool of investors. In addition, bonds, unlike loans, are tradable, so the credit risk may be transferred to other parties before maturity.
- (c) *Pricing*: Banking regulations, such as those of Basel III, tend to make loans relatively more expensive through stricter rules in terms of provisions, capital adequacy and liquidity ratios.⁴ These limitations and tighter banking regulations create opportunities for bonds to complement loans for infrastructure financing.

² Banks rarely grant loans for the kind of 20-year spans required for an infrastructure project, as loans typically reach maturity after 5 to 10 years depending on the market condition. The refinancing risk is the possibility that the project sponsor will not be able to repay its existing debt by borrowing (or borrowing at less favourable conditions) at the time its loan reaches maturity.

³ Maturity mismatch occurs when a bank funds long-term assets (such as fixed rate mortgages) through its short-term liabilities (such as deposits).

⁴ For example, the Tier-1 ratio will increase to 6 per cent in 2015 compared to 4.5 per cent in 2013 (Basel Committee on Banking Supervision, 2010, annex 4).

Nevertheless, bank financing is likely to continue to play a key role, especially in the initial phase of an infrastructure project during which the risk is typically higher. Banks are better equipped to manage construction risk and have specialized teams that closely monitor projects during their early days of implementation. In addition, loans allow for gradual disbursement of funds in line with the needs of an infrastructure project, thereby avoiding negative carry forward for the project owner.⁵ During the design and construction phase, it is also common for project developers to request waivers to debt covenants or restructure the debt structure in the light of unexpected events. While such renegotiation can be done with banks, it is more complex with bond financing. The latter could require negotiating with a multitude of bondholders. To have the best of both worlds, the ideal scheme is to finance projects initially through loans and then refinance them through bonds after the construction phase is over. An example of such structure is the \$2 billion project bond issued by the Indonesian power producer Paiton Energy, the proceeds of which were used to replace existing project debt and freed up capital for new projects (Stanton, 2017).

II. INSTITUTIONAL INVESTORS

Mobilizing institutional investors' resources can be a "game changer" for infrastructure development. The long-term nature of infrastructure projects matches the long-term liabilities of institutional investors, such as pension funds, insurance companies and sovereign wealth funds. Infrastructure assets are, therefore, appealing to them, as they offer opportunities in terms of return, inflation protection and portfolio diversification because of their low correlation to other asset classes.

The Organization for Economic Cooperation and Development (OECD) estimates that institutional investors managed approximately \$70 trillion of assets, as of 2013, which were mainly concentrated in government debt instruments. If only a small fraction of these resources were to be allocated to infrastructure projects, the impact would be significant. For instance, a shift of 5 per cent in Asian institutional investors' allocation in favour of infrastructure over the next ten years would create an additional annual flow of approximately \$80 billion. This would, however, require enough investable infrastructure opportunities in the region and a structural change in investors' behaviours.

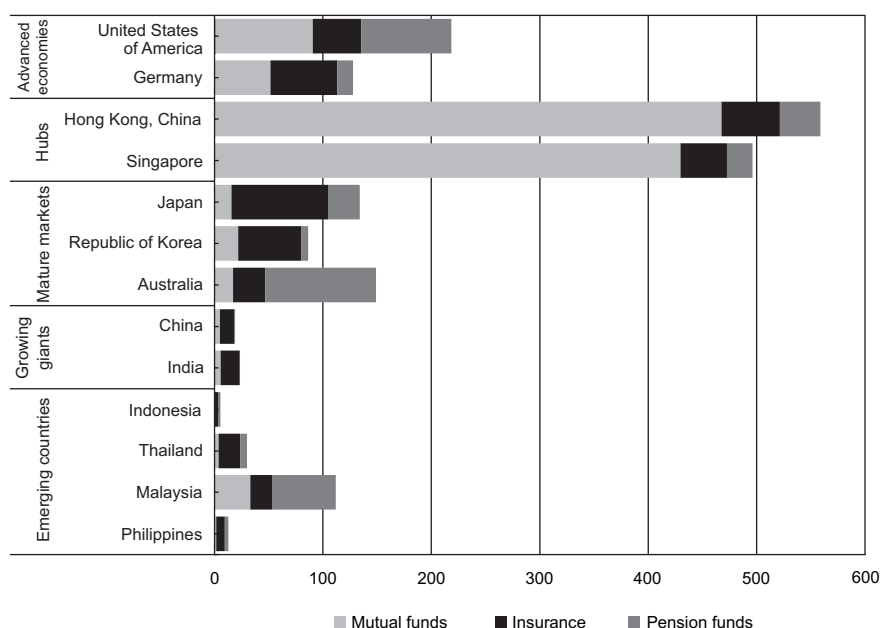
⁵ A negative carry occurs if an investor borrowed from a bank to purchase a bond and its cost of borrowing is higher than the bond's yield.

Status

Estimates from a study submitted to the World Economic Forum indicate that approximately 24 per cent of the world's total asset under management is from the Asia-Pacific region with the following distribution: insurance (54 per cent); pensions (25 per cent); and sovereign wealth funds and other funds (21 per cent).⁶

The size of institutional investors among economies differs widely. Hong Kong, China and Singapore have the largest asset size given their position as regional financial centres (more than 50 per cent of their assets are derived from foreign capital inflows) (figure 2). Meanwhile, the asset size of institutional investors in Indonesia and the Philippines, for example, is only about 6 per cent and 13 per cent of GDP, respectively (World Bank, 2014). Obviously, countries with strong local institutional investors have more potential to tap these investors for infrastructure development.

Figure 2. Institutional investors structure (GDP per cent – 2014)



Source: World Bank, Global Financial Development database, 2016. Available at www.worldbank.org/en/publication/gfdr/data/global-financial-development-database; Bank for International Settlements; IMF database and Securities Industry and Financial Markets Statistics. Available at www.sifma.org/research/statistics.aspx.

⁶ Global Asset Model from World Economic Forum and Oliver Wyman (2014).

Prudential regulation

Institutional investors are restricted by regulatory limits on the level of risk they may take in order to protect the savings they manage and ensure their solvency. They need to consider the security, quality and liquidity of their portfolio and avoid concentration. For instance, investments with any single counterpart may not exceed 5 per cent of their total assets invested in some countries. Limits can also be based on the following:

- Asset class characteristic (such as unlisted securities);
- Currency denomination (for example, a certain percentage of assets must be denominated in the same currency as the liabilities);
- Credit rating (for example, non-investment grade securities are usually prohibited or limited more strictly) (OECD, 2015b).

In the context of infrastructure, rule-based investment regulations may prescribe investment in unlisted infrastructure companies (as in Japan and the Republic of Korea), direct investment in projects (as in Thailand), and infrastructure funds (as in China) (Inderst, 2016).

As mentioned above, prudential regulation typically excludes non-investment grade (generally a rating lower than BBB) often found in emerging countries, thereby limiting significantly their potential to attract foreign institutional investors. In Asia and the Pacific, approximately 30 countries have been assigned sovereign ratings by major global rating agencies, such as Moody's, Standard and Poor's and Fitch Ratings, and only 13 of them have been given an "investment grade" (figure 3).⁷ As global rating agencies consider the country rating as a cap for any individual company rating, an infrastructure project cannot be rated higher than the country where the project is being carried out.⁸ Unfortunately (and quite logically), countries with lower ratings have the greatest demand for infrastructure development.

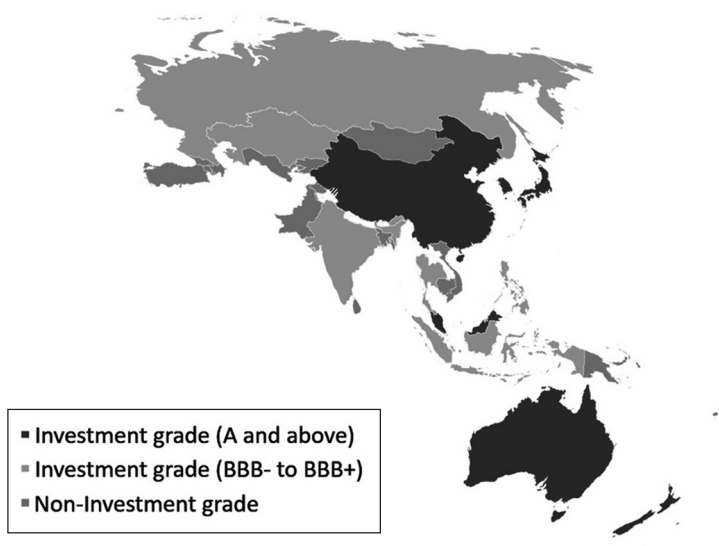
The shift in developed countries from rule-based regulations to principle-based regulations offers more flexibility. In contrast to strict investment limits, principle-based requirements tend not to put detailed restrictions on investments. Instead, they impose broad principles that create disincentives for riskier investments, but do not forbid them (OECD, 2015b). In addition, domestic investors tend to have more leeway to invest in

⁷ The Islamic Republic of Iran is the thirtieth country in the region to be given a sovereign rating by Fitch. Its grade is B+, which is non-investment grade.

⁸ This makes sense as governments significantly affect infrastructure projects through regulation in terms of quality and pricing of outputs and therefore are an important source of risk (Ehlers, Packer and Remolona, 2014).

local infrastructure projects. This can be the case if they opt to follow credit ratings provided by local agencies, which have a different approach regarding the country risk. In addition, as their liabilities are in local currency, investing in domestic-currency-denominated assets provide them with a natural hedge. Yet, this does not mean that domestic investors should not invest abroad in order to benefit from international diversification and limit their exposure to the local economy.

Figure 3. Sovereign rating of selected countries (as of 2019)



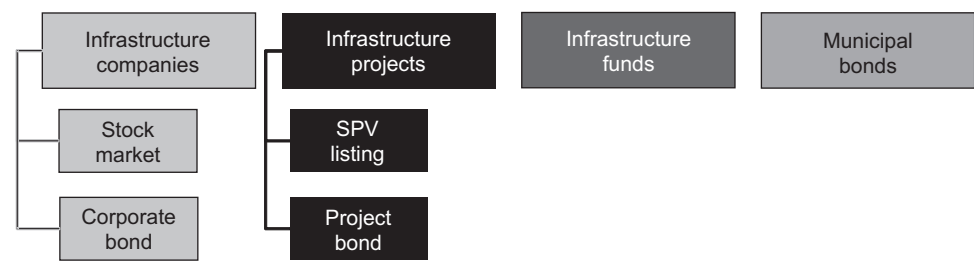
Source: Authors, based on the Tradingeconomics database. Available at <https://tradingeconomics.com/country-list/rating>.

Note: The designation employed and the presentation of material on this map do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

III. INVESTMENT MODALITIES

Investors have four options to channel funds to infrastructure development through capital markets. One option is to invest in infrastructure companies as a proxy to infrastructure projects. The other three are to finance infrastructure projects directly, go through listed infrastructure funds or purchase municipal bonds that have a large infrastructure component. Institutional investors can also finance projects directly through unlisted instruments, such as private equity funds, but this is outside the scope of the present paper. The different modalities are illustrated in figure 4.

Figure 4. Type of capital market investments in infrastructure



Infrastructure companies

Infrastructure companies can raise equity and debt on capital markets to finance their activities.

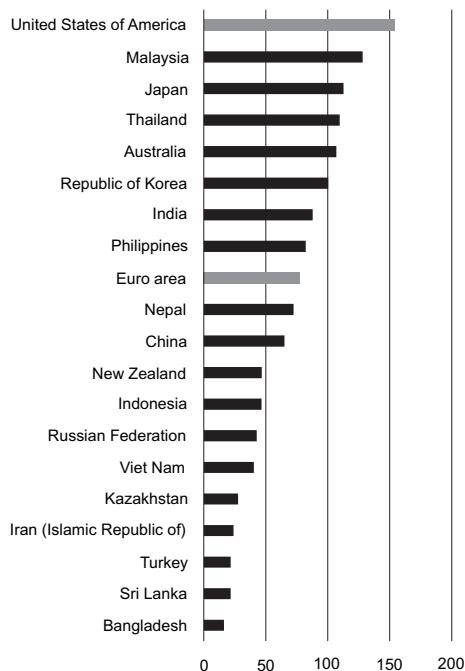
Equity

By issuing equity on capital markets, infrastructure companies mobilize financial resources, which may be used to participate in infrastructure projects. This is only possible if these companies have access to a developed stock market. Thirty-five economies in the Asia-Pacific region have a stock exchange, though the level of development among them varies.⁹ In addition, with the exception of a few countries, market capitalization is relatively limited in the region (see figure 5) and the liquidity in some Asian equity markets tends to be low (table 2), which reduces their attractiveness for investors seeking the possibility of rapid exits at a stable price.

In countries that have developed stock markets, infrastructure companies have typically been large issuers. For instance, it is estimated that listed infrastructure and utility companies represent 5 to 6 per cent of the equity market universe globally (Inderst, 2016). In the Asia-Pacific region, 30 of the largest publicly listed infrastructure companies – the companies that constitute the Standard and Poor’s Asia Infrastructure Index – have a total market capitalization of approximately \$260 billion. Table 3 shows the geographical distribution of the index. The companies are mainly in the utilities sector (39.5 per cent) followed by the industrials and energy sectors with 38.7 per cent and 21.8 per cent, respectively.

⁹ As of March 2016, the economies in Asia and the Pacific that do not have a stock exchange are Afghanistan; Brunei Darussalam; Democratic People’s Republic of Korea; French Polynesia; Kiribati; Macao, China; Marshall Islands; Micronesia (Federal States of), New Caledonia; Palau; Samoa; Solomon Islands; Tajikistan; Timor-Leste; Tonga; Turkmenistan; Tuvalu and Vanuatu.

Figure 5. Stock market capitalization of listed companies to GDP (per cent – 2017)



Source: <https://data.worldbank.org/indicator/> and CEIC. Available at www.ceicdata.com/en.

Table 2. Stock market turnover ratio (2018)

Countries	Stock market turnover ratio ^a
Kazakhstan	3.4
Sri Lanka	7.0
Philippines	11.3
New Zealand	14.1
Iran (Islamic Republic of)	18.3
Indonesia	21.5
Russian Federation	25.5
Malaysia	34.0
Viet Nam	39.8
India	58.1
Thailand	77.2
Republic of Korea	112.3
Australia	61.3
Japan	119.0
China	206.7
Turkey	247.8
World	104.7

Note: ^a Total value of shares traded during the period divided by the average market capitalization for the period.

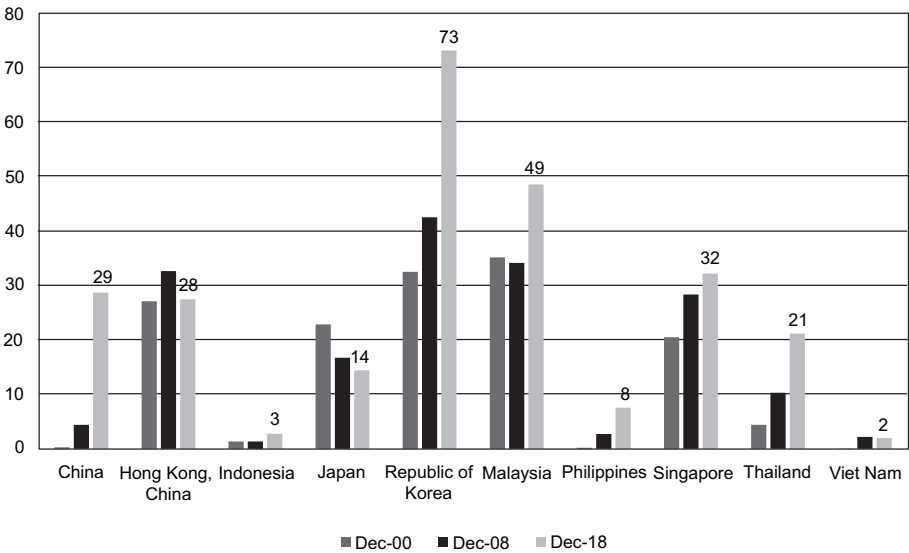
Table 3. Standard and Poor's Asia Infrastructure Index geographical distribution

Economy	Number of constituents	Total market capitalization (billions of US dollars)
Japan	8	48
China	6	28
Hong Kong, China	4	92
Malaysia	5	37
Singapore	3	8.2
Thailand	1	15.6
Republic of Korea	1	27.6
Philippines	1	3.3
Indonesia	1	2.3
Total	30	262

Corporate bond

Regarding corporate bonds, companies from emerging markets represent approximately 20 per cent of the total global outstanding amount as of 2018. This is significantly higher than the pre-2008 Global Financial Crisis level. Growth has been particularly strong in China. The number of issuers in emerging markets increased from 347 issuers in 2007 to 1,917 in 2016 at its peak (more than a 5.5-fold increase) (OECD, 2019). Despite this, only a limited number of the economies in the Asia-Pacific region have a large local currency corporate bond market. Among them are China, Malaysia, the Republic of Korea, Malaysia, Singapore and China (figure 6). Significant progress related to corporate bonds has been achieved in other markets, such as in the Philippines and Thailand.

Figure 6. Size of local currency corporate bond market in selected economies from 2000 to 2018 (per cent of GDP)



Source: AsianBondsOnline. Available at <https://asianbondsonline.adb.org>.

As indicated above, in countries that have a developed corporate bond market, infrastructure-related companies have been key issuers (figure 6). For example, in China, infrastructure-related entities, such as State-owned enterprises, are among the largest corporate bond issuers. Similarly, the corporate bond landscape in Indonesia is dominated by mining and utilities firms, which issued more than 50 per cent of all bonds during the period 2009–2013 (Levinger and Li, 2014).

Infrastructure project

Investors can also invest directly in infrastructure projects by acquiring equity in the special purpose vehicle (SPV) created for these projects or through project bonds.

Special purpose vehicle listing

Project sponsors wishing to realize an infrastructure project often establish a dedicated project company known as a “special purpose vehicle” – or SPV – to attain financing and implement project activities. This legally isolates the parent organization from direct exposure to the financial risks associated with a project. If SPV is listed on the stock exchange, investors can invest directly in the project. To facilitate SPV listings, the Philippine Stock Exchange changed its listing rules in 2016. Under the revised rules, a company without the required three-year track record may still apply for listing on the stock exchange if they comply “with the rest of the general listing requirements set forth in the Philippine Stock Exchange Main Board.” The project needs, however, to have completed the construction phase (Dela Paz, 2016). The same types of criteria apply on the Thai stock exchange (Stock Exchange of Thailand, n.d., b).

Infrastructure companies may also create “yieldcos” for projects producing predictable cash flows, for instance through long-term contracts, such as those in the energy sector. A yieldco is a company formed to own operating assets. These assets are placed in a new subsidiary to separate them from other more volatile activities of the parent company, such as project development, and research and development. Part of the subsidiary shares are then listed on a stock exchange through an initial public offering. This type of structure has yet to take off in Asia (Chua, 2015). It is, however, well developed in North America, although the collapse of one such company, SunEdison, in 2016, has raised questions on the viability of the model.

Project bond

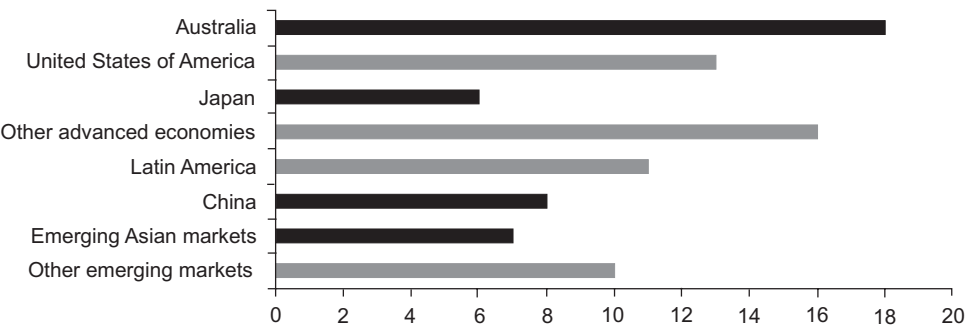
Project bonds are debt instruments used for financing stand-alone infrastructure projects, for which SPV is formed. SPV issues a project bond, the creditworthiness of which depends on the cash flow of the underlying infrastructure project. This is quite different from corporate bonds, which rely on the balance sheet of the issuing entity (OECD, 2015a).

Globally, project bonds accounted for about 10 per cent of global project debt from 1994 to 2012 and are more commonly issued in North America. Project bond financing declined during the 2008 Global Financial Crisis, but markets have rebounded since then, although the overall volumes have remained small (\$36 billion in 2013, which was less than 0.1 per cent of global GDP). In Asia and the Pacific, the volume of project bonds has ranged between \$1 billion and \$3 billion in recent years (Inderst, 2016). Maturities also tend to be shorter in Asia and the Pacific than in other markets. While in

advanced economies the average maturity of issued infrastructure-related bonds is approximately 15 years, in emerging Asian economies it is only about eight years (figure 7).

Some countries have, nevertheless, managed to use project bonds quite extensively. Malaysia, for example, has been successful in financing its infrastructure development through the issuance of sukuk (Islamic bonds structured to generate returns for investors without contravening Islamic law). The largest national highway concessionaire, PLUS Expressways Berhad, issued sukuk worth several billion dollars in 2012, notably for acquiring the rights for five toll concessions (Raghu and Kaiser, 2012). Project bonds can also be used to refinance infrastructure projects. They have, for instance, been used to refinance the Mersin International Port project in Turkey, for which a seven-year bond was issued for \$450 million in 2013.¹⁰

Figure 7. Average maturities of infrastructure-related debt securities bonds



Infrastructure fund

Infrastructure funds are another intermediary mechanism between investors and infrastructure projects. They serve as a vehicle to pool resources, skills and experiences from different investors while achieving economies of scale. Specialized skills are required for structuring and assessing infrastructure investments. It may not be efficient for every investor to develop such expertise internally. In 2015, seven Asian-focused infrastructure funds reached financial close, securing a combined \$5.3 billion (nearly double the capital raised in 2014) (Preqin, 2016).

¹⁰ See www.ebrd.com/work-with-us/projects/psd/mersin-international-port-bond.html.

Although a large chunk of infrastructure funds is private equity, listed instruments have also been used. For example, the listed Macquarie Korea Infrastructure Fund, set up in 2002, has contributed to one port and eleven road projects through equity, subordinated debt and senior debts.¹¹ Listed infrastructure funds have also been active in Australia and Singapore for several years.

In Thailand, infrastructure funds were established to raise capital from individual and institutional investors. The largest one to date is the BTS Rail Mass Transit Growth Infrastructure Fund, which raised through an initial public offering approximately \$2 billion in April 2013. Proceeds from the offering were used to buy the rights to the future net farebox revenues (= farebox revenues – operating costs and capital expenditure) of the Bangkok mass rapid transport system, the Bangkok skytrain, for the remaining concession years, until 2039) (InfraPPP, 2013). This type of structure also allows State-owned enterprises to recycle their operating assets in order to generate cash flow for new projects.

India has also been active on this front with infrastructure debt funds launched in 2013 as an intermediary vehicle capable of refinancing PPP project loans after they are operational through the issuance of bonds. Following three-years of operation, the level of refinancing has been limited, but it is expected to increase in the coming years (Rebello, 2016). Similarly, infrastructure investment trusts were established to refinance PPP project equity investment, which can be an interesting concept for other countries to consider (see box 1).

At the regional level, the ASEAN Infrastructure Fund was launched in 2012 to deal with the region's infrastructure needs. While the fund is initially providing loans from its own resources, it is expected to issue debt to increase the resources available for infrastructure financing. These debts will be able to be purchased by investors seeking exposure to infrastructure projects.

Municipal bonds

With the expansion of urbanization, municipalities are under strong pressure to deliver infrastructure services, such as public transport systems. To finance such development, local governments can issue bonds. For example, municipal bonds are particularly popular in the United States where tax exemption has made them attractive to investors. In Asia and the Pacific, this type of instrument is flourishing in some countries, such as China. In 2016, for example, local Chinese governments were scheduled to issue about 6.2 trillion Chinese yuan (¥) (\$860 billion) of securities in 2016, compared with ¥3.8 trillion in 2015 (Bloomberg News, 2016).

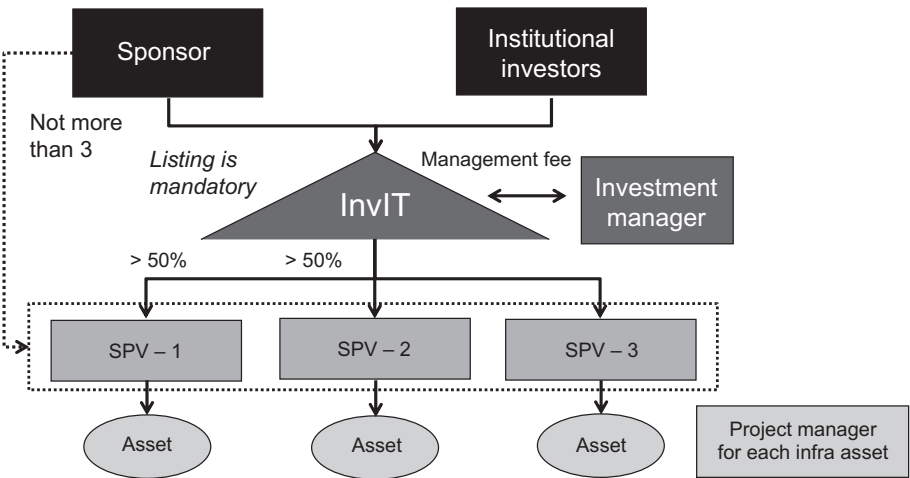
¹¹ See www.macquarie.com/mgl/mkif/en/about-mkif.

Box 1. Infrastructure investment trust in India

The Securities and Exchange Board of India issued infrastructure investment trust (InvIT) regulations in 2014.

For sponsors, InvIT is a way to unlock tied up capital in infrastructure projects by transferring operating and revenue-generating infrastructure assets to a trust. They have to keep a minimum percentage and the capital raised has to be used for repaying at least 50 per cent of the debt. For institutional investors, InvIT creates investment opportunities in infrastructure projects.

While to date, the success of InvIT has been limited, several Indian companies have initiated an approval process for this type of instrument, such as IRB Infrastructure Developers Ltd., IL and FS Transportation Networks Ltd., Sterlite Power Transmission Ltd., Reliance Infrastructure Ltd. and MEP Infrastructure Developers Ltd.



Source: www.ey.com/in/en/industries/real-estate/ey-real-estate-and-infrastructure-investment-trust.

Note: SPV, special purpose vehicle.

Municipal bonds usually attract funding at a low cost given the implicit guarantee they enjoy from the central government (although assessing their credit worthiness is difficult). They are also generally subject to a less stringent level of oversight than the corporate bond market. The corollary risk is that municipalities might pile up debt, thereby creating fiscal risks in the long run.

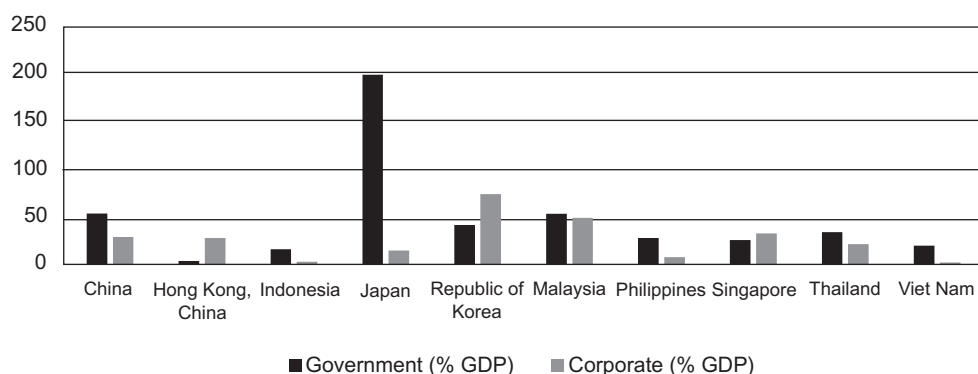
IV. CAPITAL MARKET DEVELOPMENT

While the previous section provides a comprehensive overview of the different investment modalities to finance infrastructure through capital markets, this section is focused on actions to support capital market development in the Asia-Pacific region, which is a precondition for greater involvement of institutional investors.

Building domestic bond markets

Few countries in the region have a developed corporate bond market, as illustrated in figure 8. Liquidity and maturity are also restraining the possibility of using bonds for long-term infrastructure projects (maturities of corporate bonds issued in Viet Nam are, for instance, relatively short). Accordingly, local capital markets need to be deeper for them to play a greater role in infrastructure financing.

Figure 8. Size of government and local corporate bonds in selected countries (as of 2018)



Source: AsianBondsOnline. Available at <https://asianbondsonline.adb.org/>.

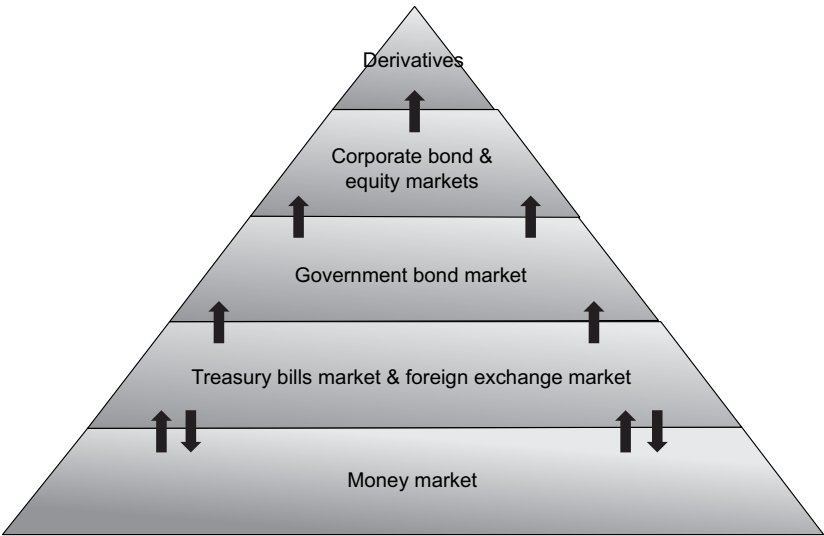
An incremental process

To develop local capital markets, countries need to follow an incremental process, such as the one described in box 2. This process has already been implemented in countries that had established a government bond market prior to setting up a corporate bond market, such as Indonesia, the Philippines and Viet Nam. Similarly, project bonds only emerge when there is a developed corporate bond market. This incremental process means that each country should follow a strategy based on its current market development stage.

Box 2. Sequencing approach to financial market development

Typically, the money market, short-term debt securities usually issued by governments and financial institutions, precedes the other segments because of its central role in price discovery and interest rate setting.^a Money markets are the medium through which central banks intervene and financial institutions manage their liquidity by lending and borrowing to and from each other. The foreign exchange market shares a lot of similarities with the money market except that in the former each transaction involves the exchange of local and foreign currency. The different market segments are, however, interrelated. For instance, a liquid money market relies on adequate depth in government bonds, as bonds are typically used as collateral in interbank lending (for repurchasing agreements). A well-developed government bond market also works as a catalyst for establishing appropriate bond market infrastructure (with expected positive spillovers for other fixed income markets) and the government bond yield curve serves as a price reference for corporate bonds. In addition, the development of derivative markets requires well-developed bond and equity markets, as they constitute the underlying assets of derivative instruments.

The hierarchical order of financial markets



Source: Cem Karacadag, V. Sundararajan and Jennifer Elliott, “Managing risk in financial market development: the role of sequencing”, IMF Working Paper, No. 03/116 (Washington, D.C., IMF, 2003).

^a The money market plays central role in price discovery because long-term nominal interest rates should be an average of current and expected nominal short-term rates.

Bond market determinants

Researchers have tried to determine the key factors supporting bond market development. Studies have shown that high inflation volatility can be a constraint to such development, as it creates uncertainty regarding real returns for investors (Burger, Warnock and Warnock, 2015). In this respect, an increase in the issuance of inflation-indexed bonds could signal government commitment to inflation control. For example, the Reserve Bank of India allowed inflation indexed bonds in 2013 and 2014. This financial product provides hedging opportunities for investors (Shenoy, 2013).

The importance of credit right protection has also been stressed in different studies (Burger, Warnock and Warnock, 2015). Debtholders need to be confident that governments will adhere to the rule of law and contracts will be enforced. In Asia and the Pacific, trust seems to be lacking in several countries. This was indicated by the 2016 rule of law index in which four Asia-Pacific countries ranked in the last ten out of the 113 countries surveyed (World Justice Project, 2016).¹² In particular, treatment of bankruptcy is important for investors and need to be predictable.

To successfully develop bond markets, the low liquidity level, a persistent issue in many markets throughout the region, must be addressed. It is also worth noting that a government bond market does not automatically result in the development of a corporate bond market. For instance, one factor attributed to an underdeveloped corporate bond market is the higher cost of issuing corporate bonds because of the greater volume of documentation required in comparison to bank lending. Regulators should investigate ways to lessen transaction costs without compromising the needs of investors for transparency and security.

International support

To further develop bond markets in the Asia-Pacific region, countries need to exploit the opportunity to work with multilateral development banks, which can issue bonds in local markets for this purpose. For instance, the Asian Development Bank (ADB) was the first foreign issuer in the domestic capital markets of China (co-issuer with the International Finance Cooperation), India, Malaysia, the Philippines, the Republic of Korea and Thailand. These issuances serve as a benchmark for lower-rated issuers, while also attracting investors unfamiliar with a specific currency. To be successful, such issuances should contribute towards increasing market liquidity, lead to longer tenors and result in subsequent issuers. Once markets are developed, infrastructure companies and projects may more easily tap long-term financing and access a wider pool of financiers.

¹² They are Afghanistan (111); Bangladesh (103); Cambodia (112); and Pakistan (106).

Facilitating foreign investment

Countries must also address such issues as capital controls and the lack of foreign exchange hedging instruments in order to attract foreign investors into infrastructure investments.

Capital controls

Progressive capital account liberalization has eased market access to foreign investors, although there are still limits on non-residents holding and trading domestic securities in several countries. For example, India has put restrictions on foreign investment in rupee-denominated bonds (Patnaik and others, 2013). In the same vein, Thailand only grants approvals to foreign entities to issue baht bonds on the condition that they keep the proceeds in baht and use them in the country (Thaichareon and Sriring, 2016). Most of the countries in the region have in place foreign exchange restrictions to mitigate vulnerabilities stemming from capital outflows. These restrictions limit investments by non-resident institutional investors, which adversely affects market development in these countries. A balance needs to be struck between the negative and positive effects of capital control policies.

Hedging instruments

To enable larger international allocations from institutional investors, hedging instruments, such as interest and currency swaps, are needed. Derivative markets are relatively underdeveloped in Asia and the Pacific, as compared to other regions. The derivative market value represents 15 per cent of the underlying market in the region, as compared with 35 per cent in the United States of America and 50 per cent in Europe (as of 2012) (Deloitte, 2015).

Initiatives have been launched to overcome this issue. For example, the Reserve Bank of India is working with the Securities and Exchange Board of India to allow non-resident institutional investors to hedge currency risk with exchange-traded currency futures.¹³ At the international level, the Currency Exchange Fund was created to provide hedging against currency and interest rate mismatches in frontier and less liquid emerging markets. Its services cover approximately 70 currencies, including 17 currencies of Asian countries.¹⁴ The price of these hedging instruments, however, are often prohibitive, especially for illiquid and underdeveloped markets. Given the importance of hedging instruments, efforts should be pursued to further develop these instruments in the region.

¹³ Currency futures specifies the price at which a currency can be bought or sold at a future date.

¹⁴ www.tcxfund.com/.

Promoting financial integration

For small-scale economies, the viability of a domestic liquid capital market that provides a large amount of resources appears to be uncertain. In such circumstances, countries may need to leverage offshore markets although this creates currency risks.

In the view of the amount needed for infrastructure projects and the desirability of long maturities, tapping the United States and Eurobond offshore markets may offer alternative sources for infrastructure investments. For example, during the period 2009–2013, 551 infrastructure bond deals were signed with a total value of \$167.5 billion in emerging Asian countries (Ehlers, Packer and Remolona, 2014); \$2.3 billion of that total value was issued in United States market and \$200 million was issued in the Eurobond market in Asia (Ehlers, Packer and Remolona, 2014). Offshore markets open to infrastructure companies provide a greater pool of savings to tap, but these companies are tasked with managing the currency mismatch resulting from issuing securities in foreign currency.¹⁵

By strengthening ties between the region's financial markets, countries can also diversify their sources of financing and attract foreign investment. This requires reducing cross-border transaction costs, among other things. For example, the cost of cross-border transactions in the ASEAN+3 region¹⁶ is three times higher than those in the United States and the European Union (ADB, n.d.).

To facilitate cross-border investments, countries need to harmonize regulations, corporate governance and financial products with the objective of achieving mutual recognition of trading transactions. For instance, different standards and requirements may prevent investors to credibly assess investment opportunities across multiple countries. Harmonizing these standards and requirements with the international standards and requirements go a long way in addressing this issue. Although impetus has grown in this regard in Asia and the Pacific since 2013 when Japan and China started working on International Financial Reporting Standards, significant discrepancies across the region persist.

Key market infrastructure for securities, including payment systems, cross-border clearing and settlement systems, central securities depositories and custodians are also needed in order to strengthen financial integration. For example, most of the local central securities do not have links with international central securities, with the exception of a few countries, such as Malaysia and Singapore.

¹⁵ Currency mismatch means having assets that are denominated in a different currency than liabilities, so that a change in the exchange rate between those currencies can have a large positive or negative effect on the balance sheet.

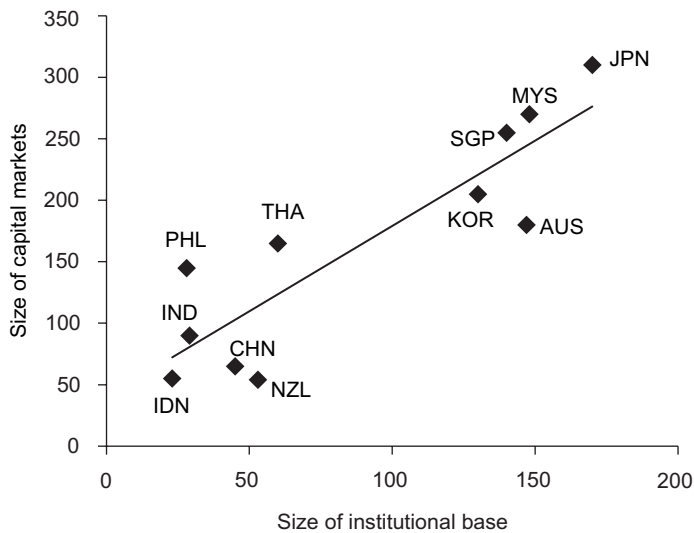
¹⁶ This region comprises the ASEAN member states plus China, Japan and the Republic of Korea.

Against this backdrop, it is important to further support regional initiatives that promote financial integration, such as the ASEAN+3 Bond Market Forum and the ASEAN Trading Link, which was launched in 2012. These initiatives should facilitate the mobilization of financing beyond domestic resources for infrastructure projects. For regional initiatives to be successfully carried out, it is also essential to further educate investors in order to make them comfortable in investing in financial instruments abroad. while making regional market development more demand-driven.

Supporting domestic investors

There is a high correlation between the size of the institutional investor base and the size of capital markets (figure 9). This confirms the importance of developing a critical mass of long-term institutional investors to support the deepening of the financial markets, as these investors play a catalytic role in capital market development. In addition, local institutional investors have liabilities in local currency and accordingly are willing to invest in local currency.

Figure 9. Asian institutional investor base and capital market development (per cent of GDP)



Source: Kang, Jeasakul and Lim (2015).

Note: AUS, Australia; CHN, China; IDN, Indonesia; IND, India; JPN, Japan; MYS, Malaysia; NZL, New Zealand; PHL, Philippines; SGP, Singapore; THA, Thailand; KOR, Republic of Korea.

Unfortunately, the size of domestic institutional investors is relatively limited in the region despite the existence of sizeable social security and public pension schemes in some countries.¹⁷ OECD estimates that the largest Asian funded pensions systems are well below the OECD average of 84 per cent of GDP, with developing Asia at less than 5 per cent (OECD, 2014b). Additional efforts should, therefore, be made to support the emergence of a larger base of domestic investors. This can be done, for instance, by encouraging funded pension schemes.

V. CONSTRAINTS TO INFRASTRUCTURE INVESTMENTS

The focus of this section is on various constraints that impede investment in infrastructure development by institutional investors. Options to address them are given in the section.

Enhancing risk profile

Achieving the necessary rating to make infrastructure project bonds attractive to institutional investors requires reducing the risk of the debt component of an infrastructure project. This can be done through various mechanisms, such as increasing the equity share in a project, introducing subordinated debts and providing guarantees. For instance, by providing a corporate or rolling guarantee, the sponsors, the parent companies, can enhance the credit rating of a project bond. Similarly, an external guarantee can be used for the same purpose. For example, in Malaysia the West Coast road project was granted an AAA rating because it was guaranteed by a solid bank.

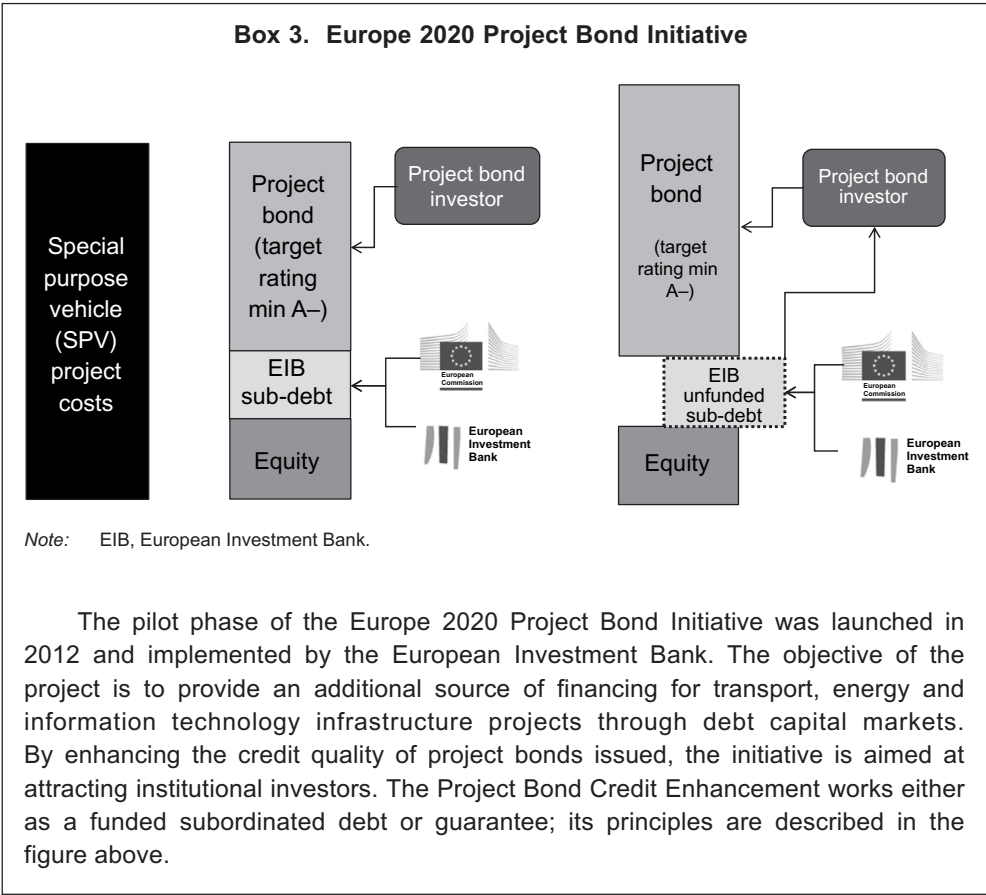
Providing a credit guarantee was the business of “monoline” insurance companies before the 2008 Global Financial Crisis. This market has yet to recover. Consequently, alternatives need to be found. Multilateral institutions have tried to fill the gap. For instance, the Credit Guarantee and Investment Facility was established in 2010 to improve the risk profile of local currency bond issuance in the ASEAN+3 region.¹⁸ In addition to providing a credit guarantee, in 2016, a new instrument was added to its portfolio to offer a construction period guarantee, thereby significantly improving the risk profile of greenfield projects. Similarly, ADB and the India Infrastructure Finance

¹⁷ The Pension Investment Fund (about \$1.2 trillion) of the Government of Japan, the Republic of Korea National Pension Service (\$400 billion), the National Social Security Fund of Singapore (\$200 billion), Central Provident Fund of Singapore (\$190 billion), the Employees Provident Fund of Malaysia (\$180 billion), and the Employee Provident Fund of India (\$116 billion) (OECD, 2014a).

¹⁸ See www.cgif-abmi.org/about/overview.

Company Ltd. set up in 2012 a project bond guarantee facility to attract more institutional investors; to date, it has enjoyed only limited success.¹⁹

Subordinated debts have also been used to improve the rating of senior tranches; an example of this is the Europe 2020 Project Bond Initiative implemented by the European Investment Bank (see box 3). A similar mechanism exists with commercial banks, namely the Pan European Bank to Bond Loan Equitisation (PEBBLE) developed by ING Bank, and Allen and Overy in 2012.²⁰



¹⁹ Two projects have benefited from this guarantee facility for respectively \$68 million (2015) and \$19.6 million (2016) (Lambert, 2016).

²⁰ This mechanism was first used in the N33 widening road project in the Netherlands, with a capital value of 120 million euros (€) (\$130 million) and a 20-year concession period (Allen and Overy, 2012).

Box 3. (continued)

As of 31 July 2015, seven transactions have been supported with a total Project Bond Credit Enhancement of 612 million euros, which enabled the issuance of more than 3.7 billion euros worth of bonds. Based on this track record, an independent evaluation published in March 2016 concluded that the Project Bond Credit Enhancement solution should continue to be deployed in the future, because it has demonstrated the ability to provide long-term competitive solutions to finance crucial infrastructure projects.

Source: European Commission, "The ad-hoc audit report of the pilot phase of the Europe 2020 Project Bond Initiative. Executive summary", Commission Staff Working Document (2016). Available at http://ec.europa.eu/dgs/economy_finance/evaluation/pdf/eval_pbi_pilot_phase_executive_en.pdf.

These kinds of credit enhancement mechanisms are critical to support infrastructure financing through capital markets. Lessons learned from international experiences should help governments in designing appropriate mechanisms for their respective countries

Addressing capacity constraints

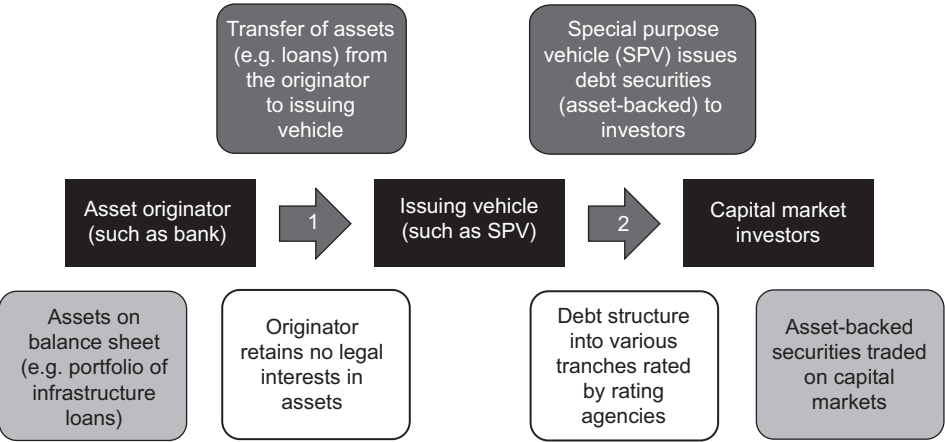
Identifying and assessing infrastructure investment opportunities is complex. It requires skills and local expertise that institutional investors may lack. To address this issue, investors can use an external fund manager or partner with experienced international investors. For instance, development finance institutions can play an important role in this area and reduce transactions costs for institutional investors. For decades, multilateral development banks have operated syndicated-loan programmes that allow financiers, such as international banks, to participate in multilateral development bank loans while benefiting from the banks' preferred creditor advantage. The International Finance Corporation, more recently, has created the Managed Co-Lending Portfolio Programme to serve as a syndication platform that creates diversified portfolios of emerging market private sector loans (instead of participating in individual deals), allowing investors to gain exposure in these markets by co-lending alongside the International Finance Cooperation on commercial terms. As of 2018, the Managed Co-Lending Portfolio Programme raised \$7 billion from eight global investors.

Creating investment opportunities

The lack of infrastructure investment opportunities can be an obstacle for channelling institutional investors to this asset class. The securitization of infrastructure project finance loans offers a way to create more opportunities (see box 4).

Box 4. How does securitization work?

Securitization is the process in which certain types of assets are pooled so that they can be repackaged into interest-bearing securities. The interest and principal payments from the assets are passed on to the purchasers of the securities. Basically, the process consists of two steps (see the chart below). In step one, a company with loans or other income-producing assets — the originator — identifies the assets it wants to remove from its balance sheet, such as a portfolio of loans, and pools them into what is called the reference portfolio. It then sells this asset pool to an issuer, such as a special purpose vehicle, which is an entity set up, usually by a financial institution, specifically to purchase the assets. In the second step, the issuer finances the acquisition of the pooled assets by issuing tradable, interest-bearing securities that are sold to capital market investors. The investors receive fixed or floating rate payments from a trustee account funded by the cash flows generated by the reference portfolio. In most cases, the originator services the loans in the portfolio, collects payments from the original borrowers, and passes them on – minus a servicing fee – directly to the special purpose vehicle or the trustee.



Source: Andreas Jobst, "What is securitization?", *Finance & Development* (September 2008), pp. 48-49. Available at www.imf.org/external/pubs/ft/fandd/2008/09/pdf/basics.pdf; and Jennifer Romero-Torres, "Enabling monetization of infrastructure assets", presentation prepared for the UNESCAP PPP Workshop, Kuala Lumpur, Malaysia, November 2015. Available at www.unescap.org/sites/default/files/3a%20-%20ADB%20-%20Enabling%20Monetization%20of%20Infra%20Assets.pdf.

For banks, securitization allows them to move long-term assets off their balance sheets and relieve pressure resulting from tighter capital requirement regulations. For example, banks may be presented with the opportunity to sell their infrastructure loans when projects are in their operational phase and risk is much reduced, thereby creating relative safe long-term products sought by institutional investors. To develop a securitization market, there must be a guarantee that lenders keep some “skin in the game” to avoid the issues faced by the “subprime” market, which triggered the 2008 Global Financial Crisis.

Examples of this kind of structure are already found in Asia and the Pacific. For instance, the Japanese bank SMBC issued in 2016 its first project finance loan securitization note to be sold to institutional investors (the loan portfolio was related to large-scale solar power plants) (Nikkei Asian Review, 2016). Similarly, in Australia and China, banks are issuing green bonds based on their green loan portfolio. Approximately 50 per cent of the labelled green bond market is issued by development and commercial banks (Climate Bonds Initiative, 2016). For securitization to function properly, banks need to have an incentive to sell these loans either for reasons linked to capital adequacy ratio or because they are reaching their single borrower limits. Otherwise, they might be reluctant to cede performing assets.

Tailoring credit rating assessment

Infrastructure assets tend to show a robust risk profile. A study conducted by Standard and Poor Global Ratings confirmed that infrastructure credits have lower default rates and ratings than companies active in other sectors (Standard and Poor Global, 2018).

Credit agencies may need to develop methodologies that take into account the specificities of infrastructure projects, such as their lower default and good recovery rates (Moody's Investors Service, 2014). In India, rating agencies have recently launched a specific credit rating for infrastructure assets. By introducing credit rating systems that reflect the unique nature of the infrastructure sector, countries may open up more long-term funding.

Standardizing contractual provisions

Infrastructure projects are inherently complex. This makes it time consuming and costly for investors to assess risks and allocate more resources to this sector.

Further standardization of contractual arrangements could go a long way in facilitating risk assessment, while also simplifying project development by public authorities. The World Bank has produced *Guidance on PPP Contractual Provisions* to this effect. Scaling up private infrastructure investment requires more standardized investment opportunities.

Reviewing tax policy

Tax treatment can promote or deter the use of capital markets for infrastructure financing and may favour loans over bonds. For example, a stamp duty might create a distortionary effect. When enforced, this tax is placed on the transfer of securities. In particular, a stamp duty significantly hinders the development of securitization, as the transfer of receivables from the originator to the special purpose vehicle is subject to such payment, which can make the structure commercially unviable. To address this issue, stamp duty exemptions have been granted in Thailand if the special purpose vehicle arranges to transfer the infrastructure asset back to its originator or to any other public sector (Stock Exchange of Thailand, n.d., a). Similarly, a transfer tax, lease and mortgage register fees have been reduced to the minimum in order to make infrastructure funds viable.

Governments can also attract investors by granting favorable tax treatments to infrastructure-linked investment. For example, to steer investment towards infrastructure development, the Securities and Exchange Commission of Thailand adopted rules on infrastructure finance in February 2012. Under these rules, investors are exempt from personal income tax on dividends for 10 years. Similarly, Malaysia and Singapore do not impose a withholding tax on interest earned from local bonds by foreign investors (Sahay and others, 2015). Meanwhile, the currently level of development of municipal bonds in the United States can be attributed to tax exemption. These examples show how tax policies can affect capital market development. The tax policies, however, need to be balanced against the foregone revenue they create.

VI. POLICY RECOMMENDATIONS ADAPTED TO THE LOCAL CONTEXT

With rapidly growing assets under management, institutional investors in Asia and the Pacific can potentially play a greater role in infrastructure financing provided that governments develop viable pipelines of infrastructure projects. The extent of this role depends on country circumstances. Some countries have a well-developed institutional investor base and functioning capital markets, while others are at a more preliminary stage. High-risk country ratings also prevent deeper involvement of institutional investors in some markets. While there is no “one size fits all” strategy for the region, it is possible to recommend different strategies for different groups of countries. This is shown in table 4, although the segregation among the different groups is more blurry in reality.

Table 4. Strategies for mobilizing capital market for infrastructure development

		Phase III	Phase II	Phase I
Country characteristics	Rating	High-rating (investment grade)	Medium-rating (just above or below investment grade)	Highly speculative grade or no rating
	Stock market	Developed and liquid	Emerging	No/limited market
	Bond market	Developed and liquid government and corporate bond markets	Relatively developed government and emerging local currency corporate bond markets	No/limited government bond market
	Project bond	Emerging	Infancy	N/A
Possible strategies		Consider securitization to increase the size of infrastructure assets. Examine the possibility to develop infrastructure funds/special purpose vehicle listing and use capital markets for asset recycling. Support the development of project bonds through credit enhancement mechanisms where appropriate. Review the prudential framework of institutional investors related to investment limits.	Strengthen capital market development in particular corporate bond market (notably by improving credit information services and finding ways to increase liquidity). Review collaboration opportunities with development banks regarding local currency issuances. Expand the investor base and reinforce the legal environment.	Strengthen the government bond market (as a price reference) and investment environment by reinforcing regulatory frameworks and ensuring stable macroeconomic environment. Focus on developing an investor base and seek optimal ways to access already developed markets in the region. Tap institutional investors through direct lending to infrastructure projects.

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