



Asia infrastructure financing

Getting it right would lift medium-term growth

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Asia's needs for infrastructure are vast. Getting the right financing mix for infrastructure projects would be rewarding for borrowers and lenders and, more importantly, provide a boost to GDP growth for the region in the medium term.

Some Asian economies have seen impressive success in building and maintaining high-quality infrastructure in past decades. Hong Kong and Singapore are at the vanguard of global infrastructure rankings. Even emerging economies such as Malaysia, China and Thailand rank in the top half. On the other hand, India, Indonesia and the Philippines have remained laggards. Despite some remarkable success stories, providing adequate transport networks, power, water and other facilities remains a monumental task in Asia.

This note looks at the experience of Asian economies with various infrastructure financing options to draw observations on what worked, what could be improved upon and what would be the best way forward. A multi-pronged approach appears to be the answer. As different countries are at different stages of development and face diverse macroeconomic backdrops and endowments, suitable financing options for infrastructure development will vary.

Governments and multilateral agencies will remain important providers of funding, but the role of private financing looks set to grow. This underscores the need to put more effort into improving transparency and governance as well as enhancing cooperation in harmonising capital market standards and facilitating cross-border flows.

Non-Japan Asia's infrastructure competitiveness by sector

1

	Roads	Rail	Ports	Airports	Electricity	Mobile subscript.	Drinking water	Sanitation	Housing
	Index 1 (inefficient and extremely underdeveloped) to 7 (well developed)					per 100 inhabitants	improved facilities, %*	improved facilities, %*	substandard housing, %**
China	4.7	5.0	4.5	4.8	5.3	92	91	64	25.1
HK	6.2	6.4	6.4	6.6	6.8	239	na	na	na
India	4.1	4.1	4.2	4.3	3.7	75	92	34	24.0
Indonesia	3.7	3.6	3.8	4.4	4.1	126	82	54	21.8
Malaysia	5.7	5.1	5.6	5.7	5.8	149	100	96	na
Philippines	3.3	2.2	3.2	3.7	4.0	111	92	74	38.3
Singapore	6.2	5.7	6.7	6.8	6.7	158	100	100	na
S. Korea	5.6	5.6	5.2	5.5	5.7	116	98	100	na
Sri Lanka	5.2	3.9	4.3	4.9	4.9	103	91	92	12.0
Taiwan	5.8	5.5	5.5	5.5	6.2	130	na	na	na
Thailand	4.4	2.4	4.5	5.1	5.2	144	96	96	28.0
Vietnam	3.3	3.2	3.9	4.2	4.1	147	95	76	27.2

* Improved facilities according to the UN Joint Monitoring Programme database refers to facilities more likely to provide safe drinking water and those more likely to ensure privacy and hygienic use respectively. ** % of urban population living in substandard housing. Sources: Indicators 1-6 are from the World Economic Forum's Global Competitiveness report 2015-16; indicators 7-8 are from the UN Joint Monitoring Programme; indicator 9 is from the UN Millennium Development Goals database (data as of 2014), except for Sri Lanka (UNESCAP, data as of 2005).

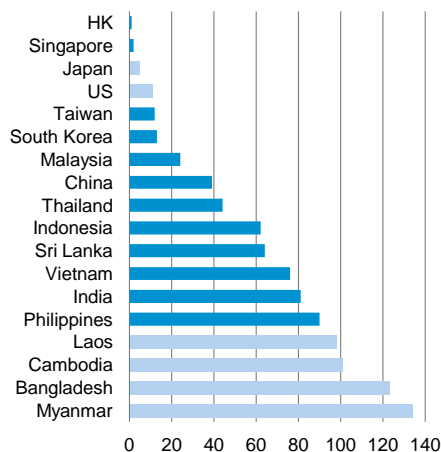


Asia infrastructure financing

Hong Kong tops global infrastructure ranking

2

Global infrastructure ranking 2015-16, from 1 = best to 140 = worst



Note: NJA economies are marked in dark blue.

Source: World Economic Forum

The state of play in Asian infrastructure financing

The state of infrastructure across Non-Japan Asia (NJA)¹ varies widely. According to the World Economic Forum's global competitiveness index on infrastructure covering 140 economies, the world's top two are from NJA: Hong Kong and Singapore, both small economies with high per capita income (chart 2). Conversely, populous and lower-income NJA economies such as Vietnam (76th), India (81st) and the Philippines (90th) rank among the bottom half. Thailand (44th), Indonesia (62nd) and Sri Lanka (64th) rank in the 30th-40th percentile. Sri Lanka and China (39th) climbed up most in the ranking compared to the previous year. Despite the relatively good overall ranking of this group, there is still significant disparity with respect to the density and quality of transport networks (roads, rails, ports, airports), electricity provision and housing when compared to the higher-ranked NJA peers (chart 1)

The positive contribution of infrastructure development to long-run growth is well documented.² Yet, raising adequate financing for providing transport, power, water and urban facilities has proven challenging across the region. Getting infrastructure financing right could lift medium-term growth potential, especially in laggard economies.

This note looks at the experience of infrastructure financing in NJA and discusses various financing options. We give a detailed account on selected country experiences in a global and regional financial context in an attempt to identify what would be the best way forward to fund the monumental needs of infrastructure investment in NJA.

Diverse region with huge needs for infrastructure financing in the next decades

Asia's medium-term demand for infrastructure investment is large. Even in the more developed economies, there is still substantial demand for upgrading and maintenance. In Singapore, high-profile projects up to 2020 include high-speed rail linking Singapore and Malaysia's capital Kuala Lumpur, expansion of the public transport system, and airport upgrades. South Korea is looking increasingly into expanding the capacity in green energy.

Middle-income ASEAN countries such as Malaysia and Thailand are still investing heavily in the rail and public transport system. China, South Asia and lower-income ASEAN economies continue to have considerable gaps in the supply and quality of rail and road density as well as electricity provision, often complicated by large land mass and population size. As of 2012, the infrastructure stock in ASEAN-5 (Indonesia, Malaysia, Philippines, Singapore and Thailand) hovered 30% below the advanced economies' benchmark, which was calculated at 70% of GDP by the McKinsey Global Institute.³ The Philippines are particularly weak with regard to transport and trade-related infrastructure. In China, infrastructure needs vary considerably across regions, and range from high-profile projects (such as high-speed railways) to installing basic municipal infrastructure and environmental protection. China's highway length more than doubled between 2004 and 2014 and the share of high-speed railways was boosted from 33% to 50% of total railway kilometres, yet transport density still falls far short of that in advanced economies.

¹ NJA here refers to China, Hong Kong, India, Indonesia, Korea, Malaysia, Philippines, Singapore, Sri Lanka, Taiwan, Thailand and Vietnam.

² See for example Walsh, J., C. Park and J. Yu. Financing Infrastructure in India. Macroeconomic Lessons and Emerging Markets Case Studies. IMF Working Paper, August 2011; Canning, D. and Pedroni, P. Infrastructure, Long Run Economic Growth and Causality Tests for Cointegrated Panels. The Manchester School, 2008.

³ McKinsey Global Institute: Southeast-Asia at the crossroads. Nov 2014.

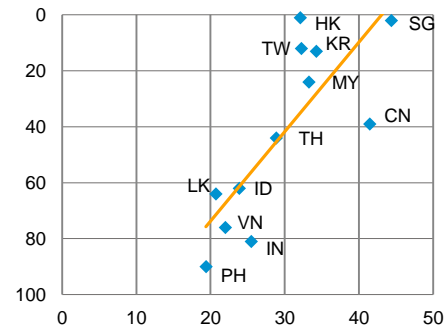


Asia infrastructure financing

High savings go together with infrastructure development

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X-axis: Gross savings (1980-2014 avg), % of GDP
Y-axis: Infrastructure competitiveness, 1=best

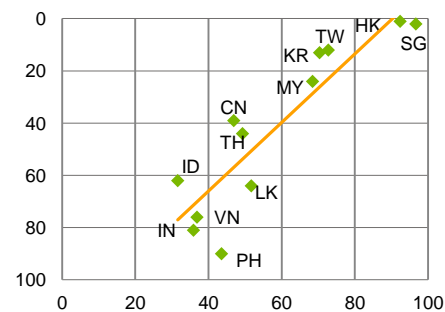


Note: Infrastructure competitiveness ranking as of 2015-16 edition
Sources: IMF, World Economic Forum, Deutsche Bank Research

Control of corruption and infrastructure development are positively related

5

X-axis: Control of corruption ranking, 100=best
Y-axis: Infrastructure competitiveness, 1=best



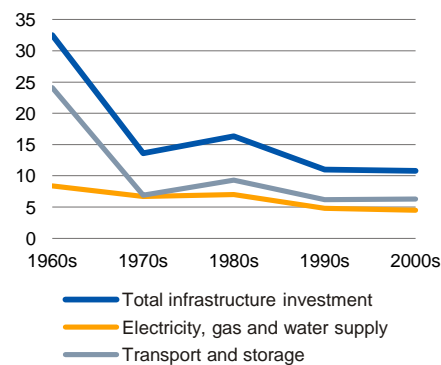
Note: Infrastructure competitiveness ranking as of 2015-16 edition; Control of corruption as of 2013 edition

Sources: World Bank, World Economic Forum, Deutsche Bank Research

South Korea: Share of government infrastructure investment declined

6

% share of total government investment



Sources: IMF, Bank of Korea, National accounts

Estimates of infrastructure needs are sizeable

3

Source	Time horizon	Regional focus	Amount (USD tr)
ADB	2010 - 2020	Emerging Asia	8.5
HSBC	2010 - 2030	Emerging Asia	11.5
McKinsey	2014 - 2030	ASEAN-5	7.0
B20	2015 - 2030	Global	57.0

Sources: Bhattacharyay (2012), Man (2013), B20 (2014), McKinsey Global Institute (Jan 2013, Nov 2014)

Assessing the estimates for infrastructure investment needs is complicated by the different time horizons and definitions of infrastructure used (chart 3). The Asian Development Bank estimated that around USD 8.2 tr was needed in Asia for national infrastructure investment projects between 2010 and 2020, equivalent to nearly 5% of the region's GDP. Another USD 300 bn was needed for regional projects.⁴ Building and upgrading of roads and energy/electricity infrastructure were deemed to have the largest financing requirements. HSBC quantified the need of infrastructure to support urbanisation in emerging Asia at USD 11.5 tr for the period 2010-2030.⁵ And USD 7 tr was estimated by McKinsey to be needed for infrastructure and real estate investment in ASEAN-5 alone between 2014 and 2030.⁶

In any case, Asia's infrastructure needs likely make up a substantial portion of the USD 57 tr funding required to finance infrastructure projects globally up to 2030 according to the B20 Task Force on Infrastructure.⁷ The Task Force also assessed that there was a gap of USD 500 bn annually between investment needs and available public funds.

Measures of infrastructure competitiveness such as those from the World Economic Forum correlate strongly not only with fiscal strength and national savings (chart 4) but with control of corruption (chart 5). While correlation is not causality, this observation implies that government financing of infrastructure has been effective when accompanied by fiscal discipline and strong governance.

Government financing – a funding source with constraints

Government financing remains a significant source of infrastructure funding in Asia. By nature, infrastructure financing is a public good and tends to be large and lumpy, requiring a long-term tenor and involving long gestation periods. Moreover, it is subject to political and regulatory risks. All these factors may deter involvement by private investors. It has been estimated that the public sector makes up nearly 70% of infrastructure financing, the private sector around 20% and multilateral agencies the remaining 10%.⁸

In higher-income NJA economies with deep and liquid capital markets, government financing plays a smaller role. In South Korea, the share of infrastructure in public investment has declined in recent years (chart 6). During the 1960s, barely one decade after the Korean War ended, infrastructure investment accounted for around one-third of government investment. Financing

⁴ Bhattacharyay, B. N. Estimating Demand for Infrastructure, 2010–2020. Infrastructure for Asian Connectivity. 2012.

⁵ Man, R. Bridging the Gap. HSBC Global Research Macro Economics – Asia. May 2013.

⁶ McKinsey Global Institute, Southeast Asia at the crossroads: Three paths to prosperity. November 2014.

⁷ B20. Infrastructure and Investment Task Force. December 2014. Based on estimates from McKinsey Global Institute. How to save \$1 trillion a year. January 2013.

⁸ Das, S.B. and James, C.R. Addressing Infrastructure Financing in Asia. ISEAS Perspective. May 2013.

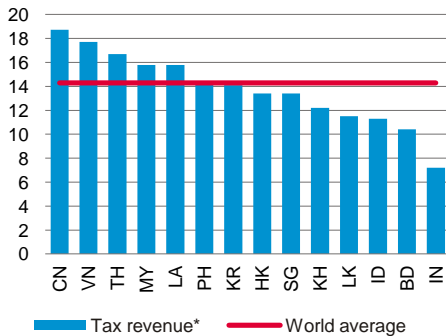


Asia infrastructure financing

Relatively narrow tax base constrains infrastructure spending

7

% of GDP



* refers to general government tax revenues, except for Thailand, Korea, Indonesia and India (central government). Latest available, mostly 2014. World average as of 2012.

Country codes: CN=China, VN=Vietnam, TH=Thailand, MY=Malaysia, LA=Lao PDR, PH=Philippines, KR=South Korea, HK=Hong Kong, SG= Singapore, KH=Cambodia, LK=Sri Lanka, ID=Indonesia, BD=Bangladesh, IN=India

Sources: IMF WEO, IMF Staff reports, World Bank, Deutsche Bank Research, national sources

was heavily dependent on public funding, with some help from foreign sources. Since then the ratio of infrastructure in public investment has declined, settling around 11% in the 2000s. The mix of financing has clearly shifted toward private financing.

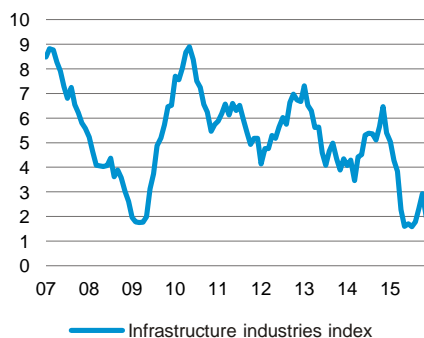
Government financing for infrastructure takes different forms, including direct fiscal support, which typically falls under capital or development expenditures. In some economies, policy or development banks – typically wholly-owned by the government – play a significant role. China Development Bank is one such example. Another funding source from the government is through export credit agencies (ECAs) such as Korea’s Export-Import Bank and Thailand’s EXIM Bank. ECAs’ involvement is seen favourably by other private lenders willing to fund the same projects, reducing concerns on potential political or policy risks.

Governments also provide guarantees for private financing, which enter fiscal accounts as contingent liabilities. In case of losses, such guarantees, both implicit and explicit, may translate into actual liabilities and thus push public debt higher. The government of the Philippines, for instance, pencilled in contingent liabilities arising from public or partly public projects in the ballpark of 7% of GDP in 2012, while those from public-private partnerships (PPPs) were not reported.⁹ Sri Lanka provided treasury guarantees to banks and state-owned enterprises for infrastructure-related borrowing amounting to around 14% of GDP in 2015.¹⁰ However, some potential obligations may be underreported or inadequately disclosed. While budget allocation to infrastructure has increased, execution problems remain. In fact, shortfalls in revenue targets are often met with cuts on development spending across Asia, in particular countries that have chronically weak public revenues such as India and Bangladesh (chart 7).

India’s infrastructure held back by weak government finance

8

% yoy, 6M mov. avg.



Note: The infrastructure industries index is a monthly production index covering eight core infrastructure industries. Base year = 2004-05

Source: Ministry of Commerce and Industry

For most key NJA economies, the role of direct fiscal support for infrastructure has met rising constraints from the public sector or general government’s account. For example, India has in recent years been cutting back on capital expenditures in order to keep the fiscal deficit under stated targets. Production in infrastructure-related industries has been on a downward trend since 2010, signs of a nascent recovery notwithstanding (chart 8). Weak finances have given incentives for governments to look for alternative funding sources for infrastructure.

Efforts underway to boost infrastructure spending despite fiscal constraints

We’ve recently seen the infrastructure laggards in Asia intensify efforts to narrow the gap with peers. India and the Philippines are allocating more government financing toward infrastructure. Indonesia, too, stepped up planned spending on infrastructure, but execution has stayed significantly below expectations. China, on its side, continues to bet on public infrastructure spending to support growth. The 13th Five-Year Plan blueprint suggests that greater emphasis will be put on urban planning and environmental protection.

India’s FY2015-16 budget proposed to set up a National Investment and Infrastructure Fund (NIIF) with an initial investment of INR 200 bn (USD 3 bn). The NIIF creation was approved by the cabinet in July 2015. Its equity funds would come from both the Indian government as well as strategic partners that could include overseas investors. This represents an effort by the Indian government to engage foreign partners directly in infrastructure development. In the past, foreign investors have been deterred by India’s poor implementation

⁹ International Monetary Fund. Philippines Fiscal Transparency Evaluation. June 2015.

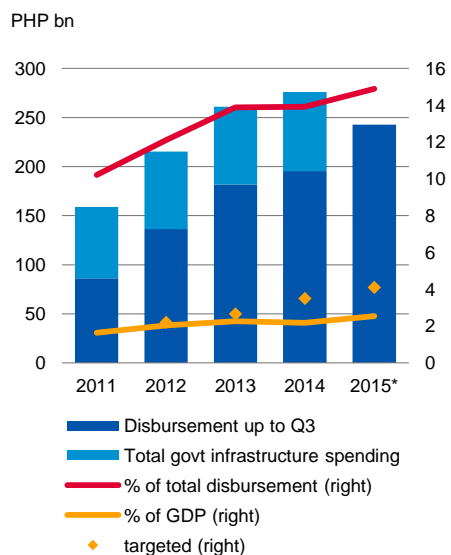
¹⁰ Ministry of Finance of Sri Lanka. Revised Budget 2015. January 2015.



Asia infrastructure financing

Philippines infrastructure spending gradually starting to pick up

9

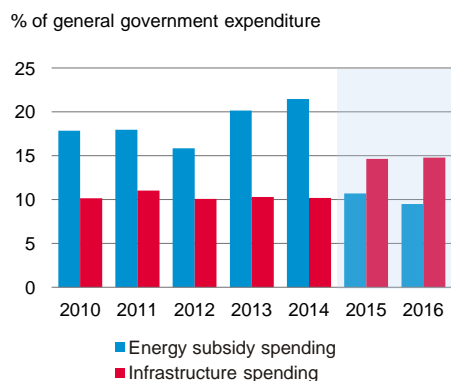


* 2015 includes Q1-Q3

Sources: Department of Budget and Management, Philippines National Economic and Development Authority, Deutsche Bank Research

Indonesia: Budget adjusted towards infrastructure

10



Sources: Directorate General of Budget, Ministry of Finance, Deutsche Bank Research

track-record. Several projects have been halted due to legal disputes or complaints regarding land acquisition or environmental concerns.

In the **Philippines**, infrastructure investment and other capital outlays have picked up as a percentage of total government expenditure in recent years, reaching 14.9% in the first three quarters of 2015, compared to just over 10% in 2011 (chart 9). Acceleration of infrastructure disbursement, notably since mid-2015, is a welcome development for the Philippines, which has ranked the lowest among key NJA economies in the WEF's infrastructure index. However, the government's plan to ramp up government infrastructure capital outlays to 5% of GDP by 2016 from under 3% currently could be challenging going by frequent shortfalls from annual targets in recent years.¹¹ Measures taken in support of higher and more efficient infrastructure spending range from improvements in procurement procedures to a new public finance management law. A key strategy to fast-track those reforms is the PPP scheme (see separate section on page 12).

Indonesia is faced with particularly pervasive infrastructure bottlenecks. The government estimates infrastructure financing needs at IDR 5,000 tr (USD 400 bn, or 8-9% of GDP) on average per year.¹² However, infrastructure spending has been persistently crowded out, with only 10% of the budget allocated for infrastructure spending on average between 2010 and 2014 compared to 19% for energy subsidies (chart 10). In sync with a subsidy cut in early 2015, Indonesia has rolled out an ambitious infrastructure plan, which includes cutting logistics costs to 19% of GDP and raising the electrification rate to 97% by 2019.¹³ The 2015 budget already included a big push on infrastructure investment, doubling the funds for capital spending from the previous year. But as of the first half of 2015 capital expenditure was underperforming due to weak revenue outturns as the economy slowed down. Nevertheless, since then public infrastructure spending has taken off, amid targeted policy measures, which include changes to the land acquisition law and a one-stop shop for business licences. Indonesia is also trying to attract financing from Chinese banks, which have already pledged USD 40 bn in loans.¹⁴ In October 2015, Indonesia and China signed a USD 5.5 bn joint venture agreement for construction of a high-speed rail link, where 75% of the financing comes from China Development Bank. However, red tape, land issues more generally and lack of coordination between local and regional institutions present huge execution challenges. Project realisation for China-backed investment was less than 10% of planned investment between 2005 and 2014, according to Indonesia's Investment Board. Financing plans for the next few years rest on equity markets – via capital injections to listed SOEs in the construction sector – and public-private partnerships. Bolstering infrastructure will remain a key policy priority in 2016, as shown by a budget increase of 8% yoy for public spending on roads, railway and airports, which would bring infrastructure expenditure to IDR 313 bn or 2.5% of GDP.

¹¹ National Economic and Development Authority. Philippine Development Plan 2011-2016. Midterm update. 2014.

¹² International Monetary Fund. Indonesia 2014 Article IV Consultation. Report 15/74. March 2015.

¹³ Ministry of Development Planning: Infrastructure Development Plan 2015-2019.

¹⁴ Loan commitment based on MoU signed between Indonesian Ministry of State Enterprises and China's National Development Reformation Commission (NDRC) in Feb 2015.



Asia infrastructure financing

Different infrastructure project stages attract different types of investment

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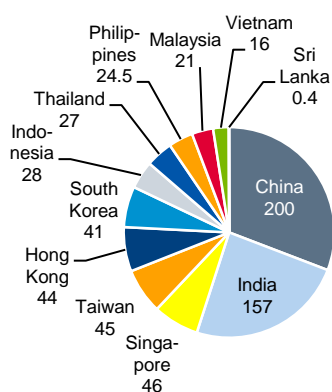
- At a planning stage, investors tend to be either the government or equity investors through a consortium or construction companies. Debt investors typically participate through syndicated loans. In few cases, there are bond and infrastructure funds financing, but they are rare.
- At construction phase, additional financing from private sources is usually sought through loans or new equities. Equity investors are often the construction companies themselves with partners with specialised knowledge such as power, energy, transport etc. In recent times, new groups of direct equity investors have emerged such as insurance companies or private equity funds, which are reported to have invested in unlisted infrastructure equity, raising USD 38 bn in 2013.
- When the project becomes operational and starts to generate cash flows, risks typically decline from the planning and construction phases. Project or equity owners sometime refinance the debts, which can be done through bonds.

Source: Ehlers, Torsten: Understanding the challenges for infrastructure finance. BIS Working Paper No. 454, Aug 2014

Syndicated loans to key infrastructure sectors in NJA-12 economies

12

USD bn (aggregate 1993-2015)



Source: Dealogic, Deutsche Bank Research

Private financing for infrastructure: Room to grow

Private financing for infrastructure projects comes in a range of forms: equity financing, commercial bank loans, project financing, bonds and funds. Since infrastructure projects involve many stages, different phases of the project tend to attract different types of investments or financing tools (see box 11).

Commercial banks have played a key role in infrastructure financing. But they are challenged by the inherent asset-liability mismatch it generates. Banks typically have substantial short-term liabilities, but infrastructure financing often involves long-term assets.

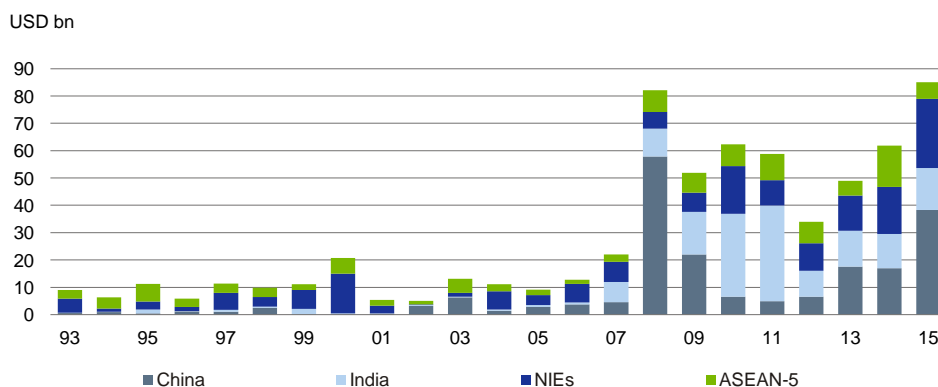
Syndicated loans: Uneven trend with China as key driver

As infrastructure financing requirements are large, loans more often than not come under a syndicate of banks. This is due to the limits on single-party exposure for each bank which are typically required by risk management policies. Data on syndicated loans for key infrastructure sectors¹⁵ in 1993-2015 show a total of USD 649 bn in loans to Asia-12. The trend has been uneven in the past two decades (chart 13). The previous peak was in 2008, which was driven by the surge of loans for infrastructure in China. China was indeed a major driver of Asia-12 infrastructure loan volumes, accounting for 31% of the total, followed by India with 24% (chart 12). The more advanced NJA economies (Hong Kong, Singapore, Korea and Taiwan) accounted for 27% while ASEAN-5 took up 18%. During 2010-15, Asia-12 syndicated loans for infrastructure averaged around USD 58 bn p.a., much higher than before the global financial crisis. In 2015, syndicated loans climbed to a new record of USD 85 bn, 45% of which was accounted for by China.

The US dollar is the predominant currency for syndicated loans, alongside local currencies. This trend is observed across all Asia-12 economies. By sector, electric power accounts for the lion's share of loans in most countries. The exception is China, where both nuclear power and rail transport account for a higher share than electrical power.

Syndicated loans for infrastructure climbed significantly after the global financial crisis

13



Note: NIEs are Hong Kong, Singapore, South Korea and Taiwan.

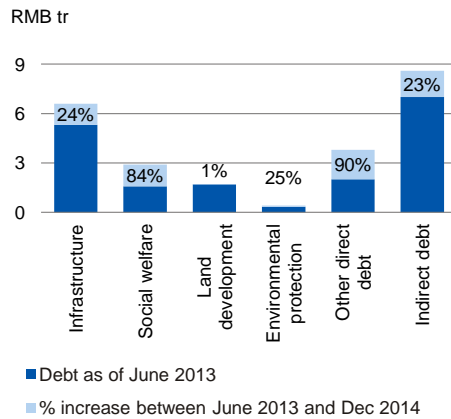
Sources: Dealogic, Deutsche Bank Research

¹⁵ Based on Dealogic DCM data. We confine the definition of infrastructure-related industries to airports, rails, road, electric power, gas, hydroelectric power, nuclear power, water and other utilities, oil & gas pipelines. Data for Asia-12 refer to China, Hong Kong, India, Indonesia, Korea, Malaysia, Philippines, Singapore, Sri Lanka, Taiwan, Thailand and Vietnam. ASEAN-5 refers to Indonesia, Malaysia, Philippines, Thailand and Vietnam.



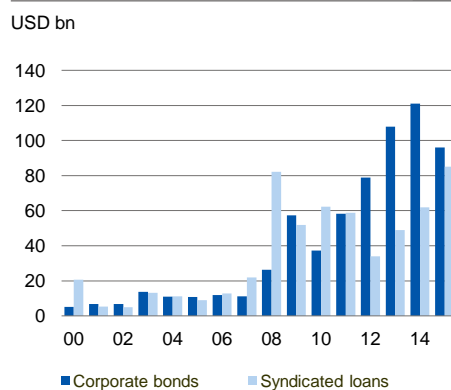
Asia infrastructure financing

Infrastructure accounts for much of direct local government debt in China **14**



Sources: Moody's, PRC Ministry of Finance

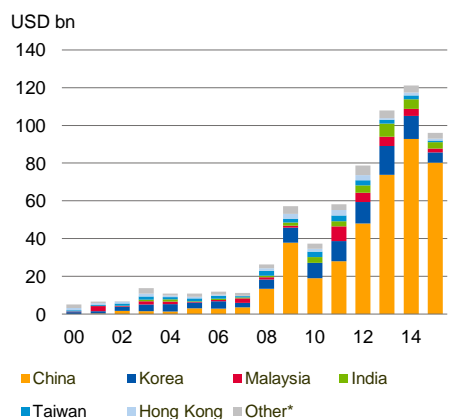
Infrastructure corporate bonds ahead of syndicated loans in recent years **15**



Note: refers to NJA bond and loan issuance in selected infrastructure sectors.

Source: Dealogic, Deutsche Bank Research

China dominates issuance of corporate infrastructure bonds **16**



* Thailand, Philippines, Indonesia, Singapore and Vietnam.

Sources: Dealogic, Deutsche Bank Research

Project financing and Special Purpose Vehicles (SPVs)

Project finance is typically a form of financing for projects of medium to long-term nature with intensive capital demand. The merit of the project is derived from future cash-flow generation prospects rather than from the financial strength of the project developers/owners. To obtain private project financing, the set-up of a Special Purpose Vehicle (SPV) is a prerequisite. The SPV is the entity which takes legal responsibility for the project, and outlines clearly the contractual obligations, pledging of cash flows to creditors and how to distribute risks among the contract partners.

SPV models have been employed in many NJA economies for the financing of infrastructure projects, but the experience of China is the largest in scale and has caught most attention. In China, local governments have relied heavily on Local Government Financing Vehicles (LGFVs) to finance various infrastructure projects.¹⁶ Infrastructure debt makes up the largest share of China's regional and local government direct debt (chart 14), and increased by 24% between June 2013 and December 2014 to more than RMB 6.5 tr (USD 1 tr).

Although many LGFVs have been associated with financing difficulties leading to the recent imposition of a lending limit on regional and local governments in China, not all LGFVs are in financial trouble. The successful ones have been instrumental in delivering the necessary infrastructure backbone to different parts of China. Despite its vast geographical size, China commands 6th place among NJA economies in the WEF's global infrastructure ranking.

For those LGFVs in trouble, local banks have been encouraged to be flexible in refinancing existing infrastructure projects. The key lesson learned in the case of China's LGFVs is that there needs to be clearly defined financial obligations of the LGFVs and the scope of central government's responsibility in order to protect public-sector finances.

Bonds gaining prominence: Hard-currency share still substantial but shift toward local currency visible

In recent years, bonds have outstripped syndicated loans as a source of infrastructure finance in NJA although issuance declined in 2015 (chart 15). If we consider the wider Asia-Pacific region, infrastructure bonds accounted for a sizeable 20% of global issues over the period 2000-2013, compared with 41% in North America, 21% from Europe (including 4% of emerging Europe) and 15% from Latin America.¹⁷

The vast majority of infrastructure bonds have been issued in local currency (LCY). Of the USD 590 bn in infrastructure bonds issued since 1990 by companies in five large NJA countries,¹⁸ 88% were issued in LCY, with a sharp rise in the LCY share since 2001. Among foreign-currency issuance, the US dollar portion stood out, accounting for 10% of total issuance. Of note is the relatively large amount (USD 2.8 bn) of infrastructure bonds denominated in euros issued by Chinese names this year.

Chinese issuers have been the most active over the past 15 years, followed by Korean issuers (chart 16). In terms of outstanding infrastructure bonds, China dominates, too. In local-currency terms the top Chinese issuers¹⁹ had USD 439

¹⁶ Levinger, H. China's provinces. Mapping the way forward. Deutsche Bank Research. June 2015.

¹⁷ Ehlers, T., F. Packer and E. Remolona. Infrastructure and Corporate Bond Markets in Asia. Reserve Bank of Australia. 2014.

¹⁸ China, India, Indonesia, Malaysia and Korea. Infrastructure sectors included as in footnote 15.

¹⁹ Infrastructure-sector issuers from the Top-30 LCY corporate bond issuers. ADB's Asia Bond Monitor, November 2015 edition.



Asia infrastructure financing

bn in outstanding infrastructure bonds as of November 2015 (table 17). Korean companies have been the 2nd most active issuers in the region. Korean state-owned companies were earlier issuers of infrastructure bonds given Korea's strong sovereign rating and its deep domestic capital market. Other advanced NJA economies with established capital markets such as Hong Kong and Singapore have also seen active issuance by government-linked companies.

In some NJA countries where banking sectors are constrained by domestic factors such as deleveraging policies or legacy NPLs, such as China and India, many companies or state entities have increasingly turned to issuing bonds.

In India, infrastructure bond issuers are diverse, comprising state-owned as well as private companies. India's FY2015 budget sought to make infrastructure bonds more attractive by allowing railways, roadways and irrigation companies to raise funds through tax-free infrastructure bonds. Furthermore, initiatives such as the Asian Development (ADB)-backed credit enhancement scheme could be useful in matching Indian companies seeking financing with investors, especially institutional ones. In the case of ReNew Power Ventures' project bond, India Infrastructure Finance Company Limited (IIFCL) is guaranteeing a maximum of 28% of the bond and the ADB counter-guaranteeing half of that amount. The guarantee raises the credit rating of the bond to AA+.²⁰

Among ASEAN LCY infrastructure bond issuers, the most active are in Malaysia, with an amount of bonds outstanding of USD 25 bn for key issuers. The issuer base comes mostly from the transport and utilities sectors. Thailand's issuers are a distant second, with outstanding bonds at around USD 9 bn, concentrated in the energy and utilities sector.

In the earlier stages of infrastructure bond financing, banks and financial institutions were key investors. In recent years, foreign institutional investors, investment funds, and private wealth clients have emerged as investors in this type of bonds. While the role of bond markets is gaining prominence, significant limitations remain. Many local bond markets in NJA are not deep enough to absorb infrastructure bonds, which tend to be issued in local currency to avoid currency mismatches.²¹ A supporting financial infrastructure is also lacking in many markets, for example a legal framework conducive to contract enforceability, adequate bankruptcy procedures, presence of rating agencies, etc. These obstacles deter potential investors.

Key issuers of infrastructure-related bonds in local currency in NJA economies

North Asia	Issuer	Amount outstanding: LCY bn	USD bn	State-owned	Industry
China	China Railway	1,183.5	186.2	Yes	Transport
	State Grid Corporation of China	429.1	67.5	Yes	Public utilities
	China National Petroleum	350.0	55.1	Yes	Energy
	Petrochina	131.0	20.6	Yes	Energy
	State Power Investment	128.4	20.2	Yes	Public utilities
	Senhua Group	104.0	16.4	Yes	Energy
	China Petroleum and Chemical	98.5	15.5	Yes	Energy
	China Three Gorges Project	81.5	12.8	Yes	Public utilities
	China Southern Power Grid	80.0	12.6	Yes	Public utilities
	China Datang	71.2	11.2	Yes	Energy
	China Guodian	71.1	11.2	Yes	Public utilities
	Tianjin Infrastructure Investment Group	64.9	10.2	Yes	Capital goods

²⁰ Lambert, D. And S. Shah. First-bond issue under guarantee facility can be boon for Indian infrastructure. Asian Development Blog. September 2015.

²¹ See also Levinger, H. and C. Li. What's behind recent trends in Asian corporate bond markets? Deutsche Bank Research. Current Issues. January 2014.



Asia infrastructure financing

Key issuers of infrastructure-related bonds in local currency in NJA economies (cont.)

17

North Asia	Issuer	Amount outstanding: LCY bn	USD bn	State-owned	Industry
Hong Kong	CLP Power Hong Kong Financing	9.5	1.2	No	Electric
	MTR Corporation (C.I.)	5.8	0.7	Yes	Transport
	Hong Kong Electric Finance	4.5	0.6	No	Electric
	Kowloon-Canton Railway	3.4	0.4	Yes	Transport
	Airport Authority Hong Kong	2.6	0.3	Yes	Transport
South Korea	Korea Electric Power Corp.	27,010.0	22.8	Yes	Utilities
	Korea Expressway	22,350.0	18.9	Yes	Infrastructure
	Korea Rail Network Authority	18,320.0	15.5	Yes	Infrastructure
	Korea Gas Corp.	15,449.0	13.1	Yes	Utilities
	Korea Water Resource Corp.	10,509.0	8.9	Yes	Utilities
	Korea Railroad Corp.	10,270.0	8.7	Yes	Infrastructure
ASEAN					
Indonesia	PLN	13,268.0	0.9	Yes	Energy
	Indosat	10,742.0	0.7	No	Telecoms
	Telekomunikasi Indonesia	8,995.0	0.6	Yes	Telecoms
	Jasa Marga	5,900.0	0.4	Yes	Toll roads
	Medco-Energi International	3,500.0	0.2	No	Energy
Malaysia	Project Lebuhraya Usahasama	30.6	7.0	No	Transport, storage, communications
	Prasarana	15.6	3.6	Yes	Transport, storage, communications
	Pengurusan Air	13.5	3.1	Yes	Energy, gas and water
	Sarawak Energy	8.5	1.9	Yes	Energy, gas and water
	BGSM Management	6.0	1.4	No	Transport, storage, communications
	Turus Pesawat	5.3	1.2	Yes	Transport, storage, communications
	Malakoff Power	4.9	1.1	No	Energy, gas and water
	Manjung Island Energy	4.9	1.1	No	Energy, gas and water
	YTL Power International	4.8	1.1	No	Energy, gas and water
	Celcom Networks	4.5	1.0	No	Transport, storage, communications
	Tanjung Bin Power	4.0	0.9	No	Energy, gas and water
	Telekom Malaysia	3.7	0.8	No	Transport, storage, communications
	TNB Western Energy	3.7	0.8	Yes	Energy, gas and water
Philippines	Meralco	23.5	0.5	No	Electricity distribution
	South Luzon Tollway	18.3	0.4	No	Transport Services
	Globe Telecom	17.0	0.4	No	Telecoms
	Maynilad Water Services	16.4	0.4	No	Water
	Philippine Long Distance Telephone	15.0	0.3	No	Telecoms
	Manila North Tollways	13.0	0.3	No	Transport Services
	MTD Manila Expressway	11.5	0.2	No	Transport Services
	Aboitiz Power	10.5	0.2	No	Electricity generation
	Energy Development	10.5	0.2	No	Electricity generation
Singapore	Land Transport Authority	4.0	2.8	Yes	Transport
	SP Power Assets	1.9	1.3	No	Utilities
	Public Utilities Board	1.8	1.2	Yes	Utilities
	Hyflux	1.3	0.9	No	Utilities
	Singtel Group Treasury	1.2	0.8	No	Telecoms
	SMRT Capital	0.8	0.5	No	Transport
Thailand	PTT	173.0	4.8	Yes	Energy and utilities
	Banpu	37.9	1.0	No	Energy and utilities
	True Corporation	36.5	1.0	No	Telecoms
	PTT Exploration & Production Company	32.1	0.9	Yes	Energy and utilities
	Thai Oil	28.1	0.8	Yes	Energy and utilities
	IRPC	22.6	0.6	Yes	Energy and utilities
Vietnam	Ho Chi Minh City Infrastructure	1,081.9	0.1	No	Infrastructure

Note: Issuers of bonds in infrastructure industries (including energy) among top 30 non-bank corporate issuers

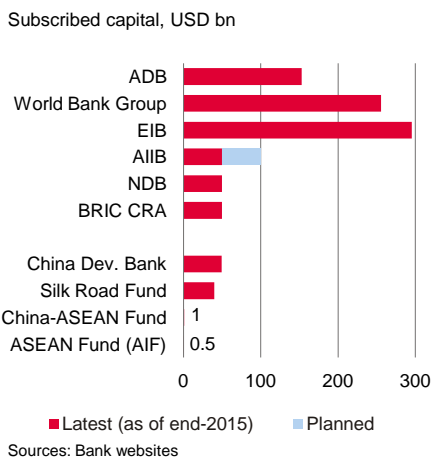
Source: ADB Asian Bond Monitor November 2015



Multilateral banks – shifting powers between old and new giants

Multilateral development banks (MDBs) have long kept a focus on infrastructure development – besides poverty reduction a main pillar of involvement in Asia. MDBs not only make capital available for direct financing into infrastructure sectors from sanitation to telecoms, but typically also provide technical assistance for improving the mobilisation of capital, set up monitoring and risk assessment frameworks and help establish capital market deepening to support infrastructure investment.²² In addition, MDBs may provide credit enhancement schemes, ensuring funding for riskier projects. It's for these functions that MDBs will continue to play an important role in developing the institutional framework for infrastructure financing in Asia. Moreover, MDBs' mandate in leveraging their capacities to boost infrastructure investment has been further cemented in the recently launched UN agenda for sustainable development.²³

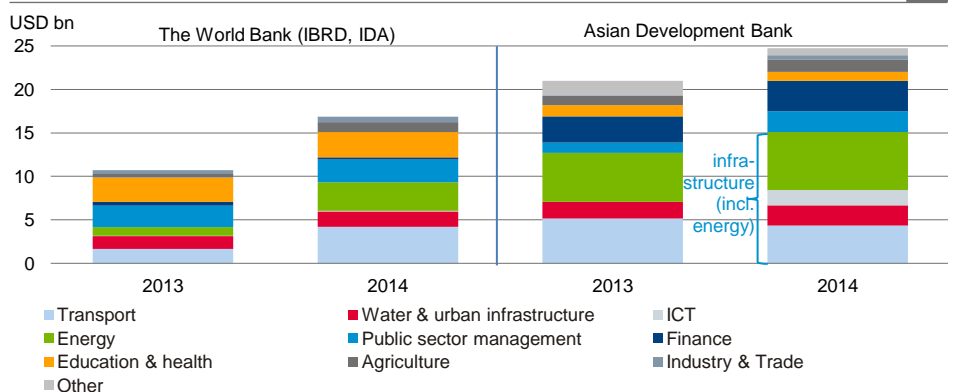
Large capital from new lenders 18



Financing capacities by MDBs are substantial, yet pale against outstanding investment needs. Subscribed capital of the large MDBs active in NJA – World Bank Group, European Investment Bank (EIB) and ADB – amounted to more than USD 700 bn globally at end-2014 (chart 18). In addition, domestic development banks such as China Development Bank (CDB) and Development Bank of the Philippines (DBP) contribute capital for country-specific projects. A World Bank survey for 2007-2009 found that development banks' loan portfolio grew most rapidly in Asia (by 72% in that period) compared with other regions.²⁴ Private equity funds such as the China-ASEAN Investment Cooperation Fund (CAF) with capital worth USD 1 bn and the USD 40 bn Silk Road Fund, launched in 2014, specifically target infrastructure projects. Finally, special funds like the ADB-groomed ASEAN Infrastructure Fund (AIF) are financed from the pool of the region's foreign exchange reserves.

The definition of infrastructure differs among MDBs. Using a broader concept of infrastructure-related sectors (which includes energy), approved lending in Asia by ADB and the World Bank amounted to USD 24.7 bn in 2014,²⁵ up 45% from 2013 and comprising roughly 60% of their total lending to Asia (chart 19).

Most MDB lending to Asia goes to energy and transport sectors 19



²² Depending on the development status of the recipient country, MDBs' involvement ranges from non-financial and technical assistance to direct financing through loans, grants, equity investment and guarantees. Other financing methods where MDBs assume the role of an intermediary include debt and equity syndications and provision of advisory support. Moreover, MDBs can catalyse funding in the form of PPPs or private equity to increase private-sector involvement.

²³ United Nations. Transforming our World. The 2030 Agenda for Sustainable Development. October 2015.

²⁴ The World Bank. Global Survey of Development Banks. Working Paper. Feb 2012.

²⁵ Fiscal years in the case of The World Bank.



Asia infrastructure financing

One Belt One Road – new impetus for infrastructure across and beyond Asia?

20

The One Belt One Road (OBOR) initiative provides the framework for China's outbound trade and investment strategy over the medium term, and charts the course for foreign policy. The plan which was started in 2013 spans 40 countries from Central and Southern Asia to the Middle East and Europe. Apart from support to domestic industries, infrastructure financing along the Belt and the Road is a key priority. Below are some of the relevant China-led investment deals into South and Southeast Asia under the OBOR plan:

Indonesia: China pledged up to USD 100 bn investment, of which half is planned to be invested in the power, railway and smelting sectors. The Jokowi government also plans to invest USD 429 bn in upgrading port infrastructure and construct 24 new ports over the next 5 years to facilitate China's maritime investment initiative.

Sri Lanka: China participates in more than 10 overseas harbour projects as part of the OBOR Initiative. Colombo Port project was resumed in July 2015 after being halted for political reasons.

Malaysia: China's railway manufacturer CSR Zhuzhou Electric Locomotive won the bid to deliver 30 light rail trains for Malaysia's AMPANG Line Extension project.

Vietnam: China Southern Power Grid construction of a coal-fired power generation plant. The project is China's first BOT power project in Vietnam and part of the 5-year Sino-Vietnam trading cooperation plan.

Cambodia, Laos, Bangladesh, Myanmar: Part of the Bangladesh-China-India-Myanmar Corridor (BCIMEC) and the China-Indochina Peninsula Economic Corridor (CICPEC).

Sources: China GoAbroad, various news reports.

Splitting up the loan amounts by region and sector, where available, highlights the importance of infrastructure funding for MDBs' financing in Asia. For the ADB, loan and guarantee exposure is concentrated mostly on China (27%), India (23%) and Indonesia (14%) as of end-2014.²⁶ ADB's largest non-sovereign exposures are in China, India and Thailand, with nearly 50% concentrated in the utilities sector, hence directly linked to infrastructure. For the World Bank, Asia (including South Asia and the Pacific) accounted for nearly one-quarter of disbursements in FY 2014. China, India and Indonesia together took up 23.7% of gross loans outstanding at end-2014 for the World Bank's IBRD.²⁷

Yet, traditional MDB financing faces challenges. For poorer economies, MDBs' concessional financing arms typically ensure "soft" financing is made available at a price below that of financing obtained from financial markets. About 30% of the concessional lending to Asia by the World Bank's International Development Association (IDA) since 1990 went to infrastructure. Concessional debt on average accounts for 20% of NJA external debt, although the share is considerably higher for lower-income countries such as Bangladesh and Cambodia. However, this is changing as countries become richer and increase borrowing on commercial terms. For example, India "graduated" from IDA at the end of fiscal year 2014. Vietnam and Sri Lanka, too, have leaned more towards market-based borrowing, although they still receive substantial concessional credit. Phasing out concessional financing by MDBs may risk underspending on what is essentially a public good.

Enter AIIB – emergence of new lenders reshuffles MDB landscape

In recent years, the MDB landscape has been in flux. NJA's capital hunger has not been fully met by the existing MDBs. The trend of intra-EM cooperation has seen a massive boost, led by China's inception of the Asian Infrastructure Investment Bank (AIIB) and the New Development Bank (NDB), which is jointly funded by Brazil, Russia, India, China and South Africa, the so-called BRICS. With authorised capital of USD 100 bn as of end-2015, of which USD 29.8 bn brought in by China, the size of AIIB already exceeds other development banks. Initial subscribed capital is planned to double from USD 50 bn to USD 100 bn, which – combined with the NDB's – reaches 98% of the ADB's subscribed capital base and 59% of the World Bank Group's.

This is complemented by planned capital injections to existing banks, such as China Development Bank (CDB) and the Agricultural Bank of China, which are increasingly active in cross-border funding. CDB recently won the bid to build a USD 5.5 bn railway line in Indonesia, competing against Japan. AIIB will assume a vital role in financing China's ambitious One Belt One Road initiative (see box 20). In contrast to other MDBs active in Asia, AIIB's financing agenda is entirely geared to infrastructure both inside and outside China. The aim to intensify trade and investment is not inconsistent with China's global expansion in the past. This approach shares similarities with China's past lending to Latin America, where CDB's and China Export-Import Bank's infrastructure spending exceeded provisions from the World Bank and the Inter-American Development Bank (IADB).²⁸ Given the relatively small capital commitment of USD 140 bn – much of which will have to be spent on setting the ball rolling – the One Belt One Road plan is unlikely to translate into a large-scale upgrading of infrastructure in the receiving countries overnight. Yet, the political dimension of the new lender's emergence cannot be ignored, ranging from stability-oriented

²⁶ Asian Development Bank. Financial report. Dec 2014.

²⁷ Moody's Investor Service. IBRD (World Bank). Credit Analysis, Feb 2015.

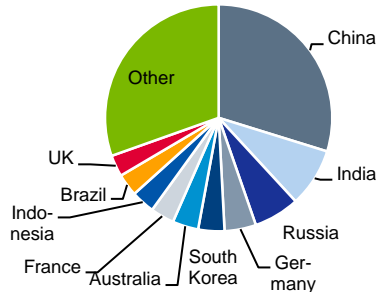
²⁸ ISEAS. Can the China-led AIIB support ASEAN Connectivity Master Plan? 24 June 2015, and Forster, M. China rebalancing: Blessing and curse for Latin America. Deutsche Bank Research. March 2015.



Asia infrastructure financing

AIIB: China has largest (minority) share 21

% of initial authorised capital stock*



* as in Articles of Agreement of 29 June 2015
Source: The Asian Infrastructure Investment Bank

investment in China’s western regions and adjacent countries to expanding soft power in key resource-based countries.

AIIB’s set-up implies a broader shift in the global MDB landscape. All 57 founding member nations signed AIIB’s articles of agreement ahead of its formal launch in December 2015, including the UK, Germany, France, Italy, Korea and Australia. The Philippines became the last member to ratify the agreement. Doors are being kept open for other countries to join and countries from Maldives to Taiwan are gearing up to file application. With a 26% share of the voting rights, China holds veto power on key decisions such as changing the capital stock. This marks a shift from existing MDBs such as ADB, where Asian borrower countries are underrepresented (chart 21).

Probably related to the emergence of newcomers, existing MDBs have been stepping up their commitments to infrastructure. In March 2015, ADB said it would raise its annual lending amount by 40% to USD 18 bn by combining two funds and hence increase the amount of collateral it can borrow against, in a bid to spur infrastructure development.²⁹ By the same token, competition among multilateral donors is on the rise, as cross-border financing within Asia gains pace. The new lenders’ financing efficiency is sometimes viewed with a critical eye. Critics argue that any additional funds would be better used in capitalising existing MDBs instead. The huge size of the infrastructure gap argues for a combined approach, with both existing and new MDBs acting in the market, ideally in a collaborative way.

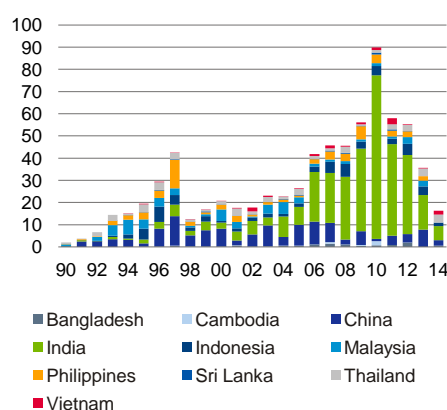
PPPs – a (not so new) concept gaining traction?

Public-private partnerships (PPPs) have become a significant method for procuring infrastructure projects. But the emergence of PPPs has been relatively slow across Asia, with the exception of India and – to a lesser extent – China and the Philippines. Despite only few countries in the driver’s seat, Asia is topped only by Latin America in terms of total PPP projects into emerging markets since 2000. But relative to developed markets, Asia accounted for less than 10% of global infrastructure PPP deals in the first three quarters of 2015.³⁰

The dynamics of PPPs in infrastructure have been rather lacklustre in recent years. In 2014, investment captured in the World Bank’s PPI Database³¹ increased globally by 6% to USD 107.5 bn. Latin America represented the lion’s share of infrastructure projects with private participation (PPIs), while Asia accounted for only 17% (East Asia saw 46 new projects worth USD 11.5 bn and South Asia’s 40 projects worth USD 6.7 bn).³² Falling investment in recent years was due to the smaller size of PPI projects in China as well as a notable decline of investment in India from a 2010 peak. India had also led the strong expansion between 2002 and 2010, when commitments surged more than fivefold in key Asian countries (chart 22). By the number of projects, China saw even higher commitments, largely directed to the energy sector. Private investment in India has stalled both in terms of the number and value of projects. The reasons for the end of the boom are manifold, ranging from red tape, environmental clearances and land acquisition problems to aggressive bidding and wrong cost calculations (e.g. developers relying on cheap input costs from state-owned

India leads private-invested projects 22

USD bn



Sources: World Bank PPI Projects Database, Deutsche Bank Research

²⁹ Financial Times. ADB set to boost lending by 40%. 8 March 2015.

³⁰ Preqin Infrastructure Report, Q3 2015.

³¹ The World Bank’s Private Participation Infrastructure (PPI) Database captures investment projects involving private partners at contract signature or financial closure in energy, telecoms, transport and water. PPIs are not equivalent to PPPs but are used interchangeably in the literature. See for example Hammami, Mona, J.-F. Rughashyankiko and E. Yehou. Determinants of Public-Private Partnerships in Infrastructure. IMF Working Paper. April 2006.

³² The World Bank. Global PPI (Private Participation in Infrastructure) Update. 2014.

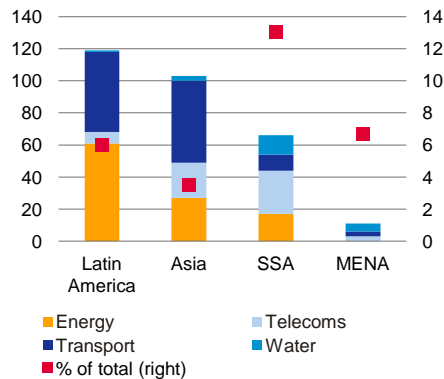


Asia infrastructure financing

Asia has lowest share of troubled PPP projects

23

No. of distressed/cancelled projects, 1990-2014



Sources: World Bank PPI Projects Database, Deutsche Bank Research

A snapshot of PPP policies across Asia

24

India: 2012-2017 PPP strategy: 12th Five-Year Plan envisages PPP-funded infrastructure and investments for a total of USD 1 tr.

Indonesia: Presidential regulation No. 38/ 2015 provides legal framework for PPP cooperation and infrastructure provision.

Malaysia: New Social Services PPP plan launched in July 2015. 9th Malaysia Plan of 2009 provides legal background for implementing PPP projects.

Philippines: PPP framework is embedded in the 2011-16 Development Plan.

Thailand: The Private Investments in State Undertakings Act of 2013 aims to streamline project approval. The draft for the current 2015-19 strategic plan on PPPs is pending legislative approval. As of August 2015, 57 projects were in progress under the new Act.

Vietnam: New legal framework for PPP as per the Decree No.15/2015.

Sources: PPP agencies and government websites

monopolies).³³ As a result, infrastructure firms' debt soared and PPP-linked non-performing loans increased. Some PPPs needed a government bail-out.

Experiences with PPPs have been mixed

NJA's experiences with PPPs have been mixed. Positive examples – according to an assessment by the UNDP – include the Philippines' Metro Manila Marketplace which dates back to the mid-1990s and China's opening up of the water sector.³⁴ But the complexities and risk transfers associated with the financing arrangements have also yielded shortfalls. In many cases, failures of PPP projects are attributed to poor project preparation or financial shortages. For PPPs with a high involvement of state-owned enterprises, contingent liabilities may increase as a result of implicit or explicit government guarantees. This could add to explicit debt and lead to higher financing costs. Finally, large-scale PPP programmes risk being halted or terminated due to a change in political leadership or risks. Compared to other regions, Asia's share of distressed projects is relatively low over the period 1990-2014 with shortfalls concentrated in the transport sector (chart 23). Malaysia and Indonesia top the list regarding the share of cancelled or distressed projects.³⁵

Many countries have made PPPs an integral part of their national development strategies (see box 24). In China, PPPs have been in use from as early as the 1990s on a trial basis, but promoted with more vigour recently as a means to steer away from financing through LGFVs. In December 2014, China's Ministry of Finance rolled out 30 pilot projects worth RMB 180 bn and targeted mostly at urban infrastructure as part of the 2015-17 plan. May 2015 saw 1,043 new PPP projects unveiled, with potential investment amounting close to RMB 2 tr, the bulk of which is in transport (by value) as well as municipal services (by the number of projects) (chart 25).³⁶ In addition, a newly created PPP centre will be entrusted with coordinating between the entities, based on updated guidelines issued by the National Development and Reform Commission.³⁷ However, actual private participation is generally limited while SOEs play a more prominent role, hence contributing not only to an increase in SOE debt but also calling into question the stability of government subsidies.

The government of the Philippines has reformed the underlying legal framework for PPPs and an amendment of the Build Operate Transfer Law, which would institutionalise PPP processes, is currently being considered by the legislature. As of mid-December 2015, 30 projects worth 6.4% of GDP were awarded or in the procurement phase, while 25 more are in the pipeline.³⁸ In July, the Philippines' first PPP road project, Muntinlupa-Cavite expressway, started operation. Moreover, the government is looking into alternative ways of funding PPPs from the capital market as recent announcements of issuance of own government PPP project bonds show.³⁹

With Asian countries keen to step up infrastructure investment, public-private investment contracts will remain important. In April 2015, Vietnam signed into effect a new legal framework on PPP investment in a bid to attract FDI to infrastructure development. This includes removal of the 49% cap on state

³³ The Economist. India's love affair with public-private partnerships faces a stern test. 15 Dec 12; and National Institution for Transforming India Aayog. Infrastructure and PPP Division. Feb 2015.

³⁴ The World Bank. Overcoming constraints to the financing of infrastructure. Jan 2014.

³⁵ Expert Group Meeting on Asian Partnership in Financing SDGs, Dhaka 2015.

³⁶ National Development and Reform Commission. Press release. 25 May 2015.

³⁷ Ministry of Finance of the People's Republic of China. Press release. December 2014. http://jrs.mof.gov.cn/zhengwuxinxi/gongzuodongtai/201412/t20141204_1162962.html.

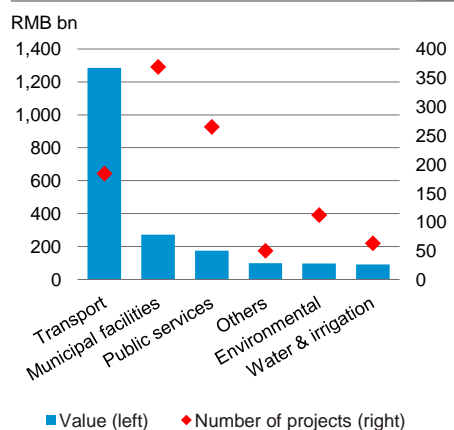
³⁸ Philippines Public-Private-Partnership Centre. Projects Database.

³⁹ Philippines PPP Centre. Government backs project bonds. Press release. 16 October 2015.



Asia infrastructure financing

China proposed new PPPs, the bulk in transport sectors (by value)



Note: as per NDRC proposal in May 2015

Sources: National Development Reform Commission, Deutsche Bank Research

investment.⁴⁰ Moreover, ASEAN nations agreed to a new set of governance principles for PPPs in view of the ASEAN Economic Community (AEC) launch by end-2015. Mega-projects have also come on stream in lower-income countries such as Bangladesh (with projects involving costs of approx. USD 40 bn to be completed by 2020).

In sum, selected governments will likely lean more towards PPPs as a key financing method, subject to both capacity and the type of prioritised projects. The mix of private and public involvement in a PPP contract (concessionaire) may range from simple leasing agreements to full privatisation of design, building, finances, operations and maintenance (DBFOM). When managed well, projects involving the private sector can benefit from more competitive selection processes, operational efficiency and management of risks, while private capital can help to bridge fiscal pressures. Governments have entered PPP agreements to diversify financial resources and risks, but also to cater to national and political goals. In reality, balancing public and private interests has often turned out tricky. While a squeeze on public finances is often the first incentive for PPP-type financing, costs may become excessive due to the length and complexity of the contract. Accordingly, sharing of risks and rewards between private and public entities is a key determinant of the success but differs greatly from one infrastructure project to another. Whether PPP is the suitable financing form thus remains a case-by-case decision.

Conclusion

A robust pipeline of infrastructure projects in NJA promises to see strong demand for infrastructure financing continue in the next decade. Underlying fundamentals such as population size, GDP growth trajectory, urbanisation, decentralisation and regional integration all point to busy activity in the infrastructure space.

Different countries will take different approaches to financing. Frontier economies such as Bangladesh, Cambodia, Laos and Myanmar are likely to rely on multilateral development banks. Similarly, in the Philippines and Vietnam government financing and multilateral agencies will lead the way. Large economies such as China, India and Indonesia are expected to still work closely with multilateral institutions but lean more toward PPPs as a financing option. China and India have also been increasingly tapping capital markets. Middle-income countries such as Malaysia and Thailand are expected to employ various methods of government financing as well as commercial bank loans and capital market options. Finally, in the more developed countries such as Hong Kong, Singapore, Korea and Taiwan, a combination of capital markets and government guarantees will be employed given these countries' strong savings, sound public accounts and mature local financial markets.

Although financing preferences will differ according to the macroeconomic and capital market conditions of each country, successful fund raising as well as project completion will depend crucially on factors such as fiscal discipline and governance standards. Initiatives on closer regional co-operation and financial integration also provide good opportunities to tap into NJA's large savings pool. Private investors, hungry for yields in long-term investment, can be enticed to take a greater role in infrastructure financing, but they will demand greater transparency and a more solid institutional framework, areas in which many NJA borrowers can improve upon.

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⁴⁰ Vietnam. Investment and Trade Promotion Center. Decree No. 15/2015/ND_CP.



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