WHO SPONSORS INFRASTRUCTURE PROJECTS?

Disentangling public and private contributions

2017
Who Sponsored Infrastructure in 2017?

SNAPSHOT

- **34%** investment by public entities (treasuries, ministries)
- **66%** investment by SOEs

- **17%** private investment in infrastructure projects
- **83%** public investment in infrastructure projects

- Corporatized sponsors in both private sector (company investors) and public sector (SOEs) had a preference for greenfield projects.

- **59%** of public projects had more equity financing
- **70%** of private projects had more debt financing

- **73%** of SOE investment project commitments were financed by public banks and public equity
- **55%** of private investment was financed by non-private sources (public banks, bilaterals and multilaterals)
- **72%** of public/SOE debt was financed by DFIs
- **87%** of public/SOE investment projects were heavily concentrated at the national level
Investment refers to investment commitment to infrastructure project recorded at a stage at which construction for the project can begin, after all conception, planning, documentation and contracts, financing (if any) and alignment of counterparties and contractors has concluded. It is reported for energy, transport, water and ICT backbone projects serving the public in low- and middle-income countries, including natural gas transmission and distribution, but excluding oil and gas extraction.

Asia, including both East Asia and the Pacific and South Asia, attracted more investment commitments to infrastructure projects than all other regions combined.

1.7% investment share of GDP in East Asia and the Pacific is the lowest among all other regions.

95% of investments in Sub-Saharan Africa were by public/SOEs.

50% of total investments were accounted for within these top five countries:
- Brazil
- Cambodia
- Colombia
- Egypt
- China

10 countries recorded higher private investments than public investments:
- Ghana
- Jordan
- Mongolia
- Philippines
- Turkey
- Mexico
- Colombia
- Egypt
- Brazil
- China

45% of total investments applied to transport sector. Public/SOEs accounted for 88 percent of the investment.

4% of total investments applied to water sector. Public entities accounted for 80 percent of the investment.

50% of total investments applied to energy sector. Public/SOEs accounted for 80 percent of the investment.

1% of total investments applied to ICT sector. Private entities accounted for 76 percent of the investment.

* "Investment" refers to investment commitment to infrastructure project recorded at a stage at which construction for the project can begin, after all conception, planning, documentation and contracts, financing (if any) and alignment of counterparties and contractors has concluded. It is reported for energy, transport, water and ICT backbone projects serving the public in low- and middle-income countries, including natural gas transmission and distribution, but excluding oil and gas extraction.
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Abstract

Infrastructure investment has been recognized as an accelerator of economic development, but little is known about the levels of total infrastructure investment and spending across the private and public sectors. The Private Participation in Infrastructure (PPI) database has 28 years’ worth of data on private-sector investment commitments (measured at financial close) to infrastructure projects in developing countries. However, there is little data on the corresponding public-sector investment commitments to infrastructure. With support from the Public-Private Infrastructure Advisory Facility (PPIAF), data was collected on infrastructure projects sponsored in 2017, either directly through public budgets or indirectly through state-owned entities (SOEs).

The data collection complements the PPI database and covers investment commitments in energy, transport, water and information and communications technology (ICT)-backbone projects in low- and middle-income countries. Projects are recorded at the stage at which construction can begin—after the completion of the conception, planning, documentation and contracting tasks; the financing (if any); and the alignment of counterparties and contractors. Importantly, although we believe this data offers new and unique insights into the world of infrastructure projects, it is not meant to be representative of public-infrastructure investment as a whole, because it only covers public investments channelled through a project vehicle and does not attempt to measure all public infrastructure investments. Furthermore, because it relies on publicly available information, projects not reported by major news sources, databases, government websites, market submissions and other sources may be omitted. As a result, the database may be biased towards middle-income and larger countries, and larger projects.

This report documents and analyzes the SOE/public project data collected (“SPI data”) and compares it to the PPI data, in order to see the relative proportion of investment commitments made by the public, SOE and private sectors to infrastructure projects at the global, regional and sectoral levels in 2017.
Executive Summary

Annual global infrastructure investments are known to have fallen short of levels required to support social and economic development goals in emerging markets and developing economies (EMDEs). But governments, developers, investors, financiers and other stakeholders in the infrastructure arena are challenged by the dearth of information regarding current levels of spending and future investments being committed to infrastructure projects by public, private, and multilateral participants. Moreover, there is limited understanding of the distribution of investment sources, their geographical and sectoral allocations, and the patterns of public versus private infrastructure project sponsorship.

Governments have historically accounted for the bulk of infrastructure investment and development, whether funded directly, or indirectly via corporatized SOEs. The emergence and development of public-private partnerships (PPPs) and other forms of PPI over the past couple of decades has expanded the options for infrastructure development and financing.

Interestingly, despite the consistent dominance of public funding for infrastructure, far more information is available about private investment. The PPI database contains a large dataset of private-sector infrastructure investment commitments since 1995. Although extremely useful for understanding the role of the private sector in committing to infrastructure development, there is limited complementary information about investments committed by governments to infrastructure development. This has undermined efforts to estimate the proportions of public and private investment in infrastructure across markets, regions, project types, and sectors.

Two recent efforts have aimed to close this knowledge gap. First, Fay, Han, Lee and Mastruzzi (2019) draw on several data sets (primarily fiscal and national accounts data) to estimate overall infrastructure investments, which are estimated to be between US$0.8 and US$1.2 trillion. This report represents the second effort—a bottom-up, project-level analysis of investment commitments made to infrastructure projects. The analysis examines investment commitments made in 2017, by both public- and private-sector participants in infrastructure development, for infrastructure activities that are conceptualized on a ring-fenced, project basis (i.e., the data set excludes informal or rolling, non-project infrastructure spending).

Data for this study combines investment information gathered from two sources—the World Bank’s existing PPI database and a new, purpose-built data set of state-owned enterprise (SOE) and public sector-funded projects (“SPI”). This SPI data set has been developed with support from Public-Private Infrastructure Advisory Facility (PPIAF), with an initial data collection exercise for SOE and public projects in 2017 and is designed to be complementary to the PPI database. The combined data set allows an examination of relative proportions of investments in infrastructure projects by public and private sector sources, as well as the number of projects for which public or private participants act as the primary sponsor. It is not meant to be representative of public-infrastructure investment as a whole, because it only covers public investments channeled through a project vehicle.

1 In this analysis, a project is considered a ‘PPI project’ if its majority partner(s), with respect to investment commitment, is/are from the private sector. Conversely, a project is considered an ‘SPI project’ if the majority investor(s) is/are SOE or government entity. In analyzing investment levels, any investment made by either type of participant (public or private) to any project (regardless of proportion of ownership) is counted towards the recorded measure of PPI or SPI investments.
Global Highlights (2017)

The 2017 SPI and PPI data sets confirm that infrastructure development is dominated by the public sector. Both project sponsorship (i.e., the number of projects being implemented) and the volume of infrastructure project investments are overwhelmingly attributed to the public sector. While the public sector continues to drive overall infrastructure investment and project implementation, private participation plays an important role in offsetting financing shortfalls and injecting much-needed management and technical expertise into public services, and their dominance is observed in certain sectors like the renewable-energy and ports subsectors.

Public sector ‘SPI’ investments\(^2\), including investment by government entities and state-owned enterprises (SOEs), accounted for 83 percent of the US$0.5 trillion of infrastructure project investment commitments in EMDEs in 2017. Private sources, on the other hand, accounted for only 17 percent of investments.\(^3\) Moreover, the number of projects with majority public sponsorship, known as SPI projects, far exceeded PPI projects, for which the majority ownership was private. In 2017, 1,806 new projects were wholly, or majority sponsored by the public sector, compared to 305 PPI projects.

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2 “SPI investment” refers to investment commitments to infrastructure projects made directly by the public sector through ministries and treasuries or indirectly through SOEs, while “PPI investment” or “private investment” refers to investments in private sector-sponsored projects or “PPI projects” as defined in the PPI Database.

3 “Investment” refers to investment commitment to infrastructure project recorded at a stage at which construction for the project can begin, after all conception, planning, documentation and contracts, financing (if any) and alignment of counterparties and contractors has concluded. It is reported for energy, transport, water and ICT backbone projects serving the public in low- and middle-income countries, including natural gas transmission and distribution, but excluding oil and gas extraction.
More specifically, state-owned enterprises serve as primary sponsors for less than a quarter of the projects initiated in 2017 (488 of 2,111), but still make up the largest proportion of global infrastructure investment commitments, accounting for 55 percent of overall infrastructure investment, and 66 percent of public investment. But interestingly SOEs. This is because SOE investments are concentrated in large-expenditure projects in a handful of markets. In fact, almost half of SOE investment was accounted for by just 12 transport and energy mega-projects (each valued at more than US$5.0 billion) in seven countries, including four projects in China.

With respect to project types, greenfield projects captured most of the investment from corporatized sponsors in both the private sector (company investors) and public sector (SOEs). Whereas the public sector, overall, invested almost equally in greenfield and brownfield projects, the private sector revealed a clear preference for greenfield investments (84 percent), particularly in the energy sector. This is not surprising, because energy-sector projects are often characterized by short construction phases and relatively quick recoupment of investments.

The commercial appeal of greenfield projects to corporatized entities was duly reflected in the investment choices within the public sector: SOEs committed to more greenfields (384) than brownfields (108), whereas non-SOE public entities committed to more brownfields (754 brownfields versus 558 greenfields).

All infrastructure investments were heavily concentrated at the national level (87 percent of SPI projects and 80 percent of PPI projects), though SPIs and PPIs both sponsored a fair number of sub-national projects, albeit at lower average levels of required project investments. More specifically, half
of all SPI-sponsored projects were sponsored by state-level entities, and 23 percent of PPI projects were initiated at the municipal level, but these accounted for only eight percent of private investments.

**Regional Highlights (2017)**

Whereas global infrastructure investment patterns show the clear dominance of public-sector investment (particularly by SOEs), there are important regional differences in the relative share of public and private investments, as well as investment distributions—investments are typically concentrated in a few regions. Perhaps most importantly, East Asia and the Pacific—particularly China—account for a large proportion of infrastructure-investment commitments.4

With respect to the distribution of public versus private investments, public (SPI) investments accounted for more than three quarters of investment in all regions, except Latin America and the Caribbean (LAC), where the public sector accounted for 60 percent of investment. At the opposite end of the spectrum, SPI investments accounted for an overwhelming 95 percent of investment in Sub-Saharan Africa (SSA).

![Figure C: SOE, Public Entity and Private Project Investment as a Share of Total Infrastructure Project Investment by Region, 2017](image)

It is also important to note that more than half of global investments committed in 2017 were concentrated in five countries—China, Indonesia, Russia, India and Bangladesh—whose investments accounted for 62 percent of total global public (SPI) investment commitments and 57 percent of private infrastructure-project investment commitments.

Whereas most countries recorded higher government commitments, in line with global results, 10 countries recorded higher private investment commitments than public investment commit-

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4 See Table 3 in Section 4.3 for comparison with other sources on overall regional spending in infrastructure as a share of GDP
ments. Cambodia, Mongolia, the Philippines, Ghana, Jordan, Egypt, Turkey, Colombia, Brazil and Mexico each drew greater PPI than SPI commitments, potentially attributable to policies aimed at promoting private-sector participation.

**Sectoral Highlights (2017)**

The vast majority of infrastructure investments committed in 2017 were attributable to transport (50 percent) and energy projects (45 percent). However, sector investments were concentrated in different regions. Both public- and private-sector investors in the Middle East and North Africa (MENA), the South Asia Region (SAR), and SSA invested heavily in energy, whereas the Europe and Central Asia (ECA) and East Asia and Pacific (EAP) regions directed more investment into transport. LAC displayed a clear public-private division in the sectoral distribution of investments: public investment was mainly used for transport projects, whereas private investment was primarily allocated to energy projects.

### FIGURE D

**Total Infrastructure Project Investment by Sector, 2017**

- Energy: 50%
- Transport: 45%
- Water: 4%
- ICT: 1%

Within the energy sector, the public sector (primarily SOEs) focused investments on conventional energy, whereas the private sector showed a clear preference for renewable energy. Private investors accounted for 95 percent and 85 percent of total wind and solar project investments, respectively, but hydropower remains predominantly public, with only a 10-percent private-investment share. The public sector dominated investments in natural gas (concentrated in large-scale SOE projects in Indonesia), whereas coal projects received almost an equal share of investment from the public (SOE) and private sectors.

Transport investments were largely attributable to SOEs for rail transport, public entities for roads and airports, and public-private sector investment for ports.\(^5\)

Water and ICT projects represented only four and one percent, respectively, of all project investments. Water-investment commitments (totaling only US$20 billion) were largely made by public entities (80 percent), because their high input costs and low cost recovery levels have dampened private investors' appetite. In fact, private investment commitments to water projects were recorded only in EAP and LAC, mainly for treatment plants in China and water utilities in Brazil. Conversely, ICT commitments were primarily private (76 percent).

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\(^5\) SOEs accounted for almost 80 percent of railway investments, mainly on account of Chinese SOE projects, whereas road-transport investments were 86 percent public (52 percent public entity and 34 percent SOE). SOEs made road investments in only 14 countries, with 72 percent of investments taking place in China and Indonesia.
Financing Highlights (2017)\textsuperscript{6}

This analysis examined not only project sponsorship, but also the primary sources of financing raised by public-sector and private-sector participants to fulfill the infrastructure commitments. Financing for project commitments in 2017 was derived largely from public and development-finance-institution (DFI) sources:

- Public sources of finance, including public banks and equity, accounted for 73 percent of total project investment commitments for SOE-sponsored projects, 49 percent for public-entity-sponsored projects, and 25 percent for PPI projects.
- DFIs were the second-largest overall source of finance, serving as a significant source for both PPI and SPI projects. In terms of volume, DFIs allocated significantly more resources to public-entity and SOE investment commitments (US$205.7 billion) than to PPI projects (US$12.6 billion), but DFI finance accounted for approximately 30 percent of the investment commitment volumes in both publicly and privately sponsored projects.

Private sources accounted for very little of the public investments—six percent and three percent of SOE and public-entity investments, respectively. Interestingly, even for PPI projects, most of the financing came from non-private sources (30 percent from DFI sources and 25 percent from public banks and public equity), with private sources (commercial banks and private equity) financing 45 percent of PPI investments.

Nearly three quarters of SOE investment commitments were financed by public banks and public equity (73 percent), whereas commitments made by non-SOE public entities were almost entirely backed by public sources and DFIs, with near-equal distributions.

Apparent patterns emerged with respect to the use of equity versus debt to underpin investment commitments. Whereas equity financing was prevalent in public investments (59 percent of public/SOE projects), debt was more common among private projects (70 percent).

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\textsuperscript{6} Based on available financing information from 98 percent of total projects (2,066 out of 2,111).
For projects financed by debt, SPI projects relied primarily on DFI debt (72 percent), whereas private projects relied more on commercial debt (36 percent). These patterns are not surprising—governments often have better access to lower-priced DFI loans, and commercial debt is often easily raised by private projects that are perceived to be more bankable.

Sources of finance also differ regionally and by sector. Whereas DFIs accounted for the largest shares of debt for public entity and SOE projects in most regions, higher dependence on commercial debt in ECA (44 percent) and public bank debt in EAP (47 percent) was due to the characteristics of the infrastructure projects in those regions. In ECA, two large natural-gas transmission projects with high proportions of commercial debt tipped the regional balance toward private sources of debt. In EAP, on the other hand, the prevalence of Chinese public-sector banks resulted in high levels of public-bank debt financing in that region (86 percent of regional debt for public/SOE projects went primarily to China).

Generally speaking, international sources of finance far outstripped local sources. Local sources of finance played a significant role in SOE investments (44 percent of finance), primarily because of projects in China financed by the country’s four large public banks. For public-entity and PPI investments, more than three quarters of financing came from international sources.

Sources: SPI and PPI databases, World Bank, as of November 2018