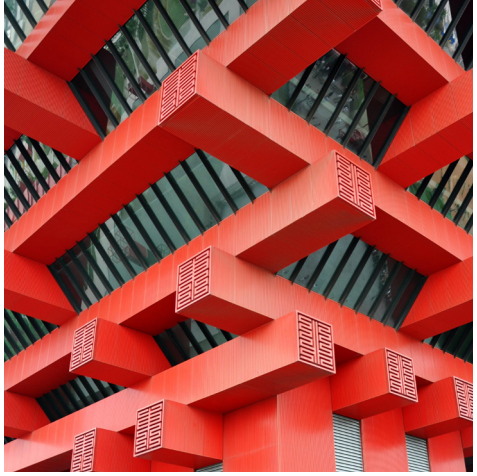

China Report
2018

IJGlobal

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PPP in China Written by René Lavanchy for *IJGlobal*

Introduction

China's PPP market is in a state of flux. PPPs of one kind or another have been undertaken since the 1980s, beginning at first with build-operate-transfer (BOT) projects in the power and water sectors as well as concessions of existing assets. Since 2014, however, new guidance and encouragement from central government has given PPPs new drive. PPPs have expanded into every conceivable sector, and project pipelines have exploded. However, not all of these projects could be accurately described as PPPs, as discussed below. This report seeks to provide a snapshot of that rapidly changing market in 2018. It draws on not only the Chinese government's databases of PPP projects, but also data collected at source from public authorities to build a comprehensive picture of the PPP pipeline, at what may turn out to be an inflection point in history[1].

PPP with Chinese characteristics

A comprehensive discussion on the characteristics of Chinese PPP is outside the scope of this report, but some features are worth highlighting. What makes a project in China a PPP ultimately comes down to the decision of the public authority (usually a municipality, a county or a province) to describe it as such and to add it to the central government database maintained by the Ministry of Finance. That is not to say that there is no legal and regulatory framework defining PPP, but the current framework is piecemeal, it continues to evolve, and there is a great deal of variation in how closely projects follow it.

In practice, PPPs can be delivered in a variety of sectors. One piece of defining legislation, the Measures for the Administration of Infrastructure and Public Utility Concessions which took effect in 2015, specifies the energy, transport, water conservation, environmental protection and "municipal engineering" (discussed below) sectors, but adds that "other infrastructure and public utilities fields" are also covered by the legislation. Some of the fields where PPPs are procured, such as wastewater and transport, are recognised as core infrastructure by the global PPP industry; others, such as forestry, agriculture and energy (typically power generation) are more esoteric. All sectors have been included in this report. We have also included contracts of all types apart from management contracts, which we have excluded as they only last up to three years.

Probably the most controversial aspect of Chinese PPP projects, however, is the role of the public sector. As discussed below, state-owned enterprises (SOEs) play a much bigger role in China's PPP market than in probably any other. PPP is defined in one legal text as a partnership between government and "social capital", where "social capital" can refer to state-owned as well as private enterprise, providing that it is run at arm's length from government. It does not follow, however, that central government intends PPP to be a largely public-public affair. On the contrary, since 2014, government has made it clear through the 2015 Measures and elsewhere that it expects PPPs to be contestable between private and state-owned bidders; to be bankable; and to transfer key risks over the project life-cycle. This message has been progressively reinforced by successive guidance intended to promote private sector participation in PPP.

Nevertheless, as our interviews bear out, there has been a gap to date between theory and practice. Very often, according to widespread anecdotal reports, projects with no real risk transfer and few (or no) life-cycle obligations have been awarded to local state-owned construction firms, not necessarily in a competitive procedure, while still being badged as PPP. This is the so-called "fake PPP" phenomenon, which the Chinese government has now launched a crackdown on. Fake PPPs cannot obviously be identified by sector or contract type, although they are likely to predominate in sectors where SOEs are strongest. Data is not available on how many PPPs deserve this description, although some scholarly observers suggest they account for well over half of all PPPs launched[2]. Thus we cannot say that "fake PPP" projects have been excluded.

[1] Projects delivered before 2014 have been excluded. Since they began collecting the data, Roca Consulting has taken 'PPP' to refer to projects that were implemented after the Chinese government began intensively using and promoting the term in 2014. While *IJGlobal* does not necessarily endorse this definition, there is no data available on earlier projects.

[2] In this report, the word 'implementation' in respect of PPP projects follows the definition used by the Chinese government. PPPs in the implementation phase are projects that have been awarded to a bidder and for which an SPV has been set up. While this includes projects that have reached financial close and are under construction or in operation, projects in implementation have not necessarily reached those stages. In addition, data relating to project investors includes projects that have not necessarily reached the implementation stage (where the bidding is complete but the SPV has not been set up yet), so is not a precise sub-set of implementation-stage projects.

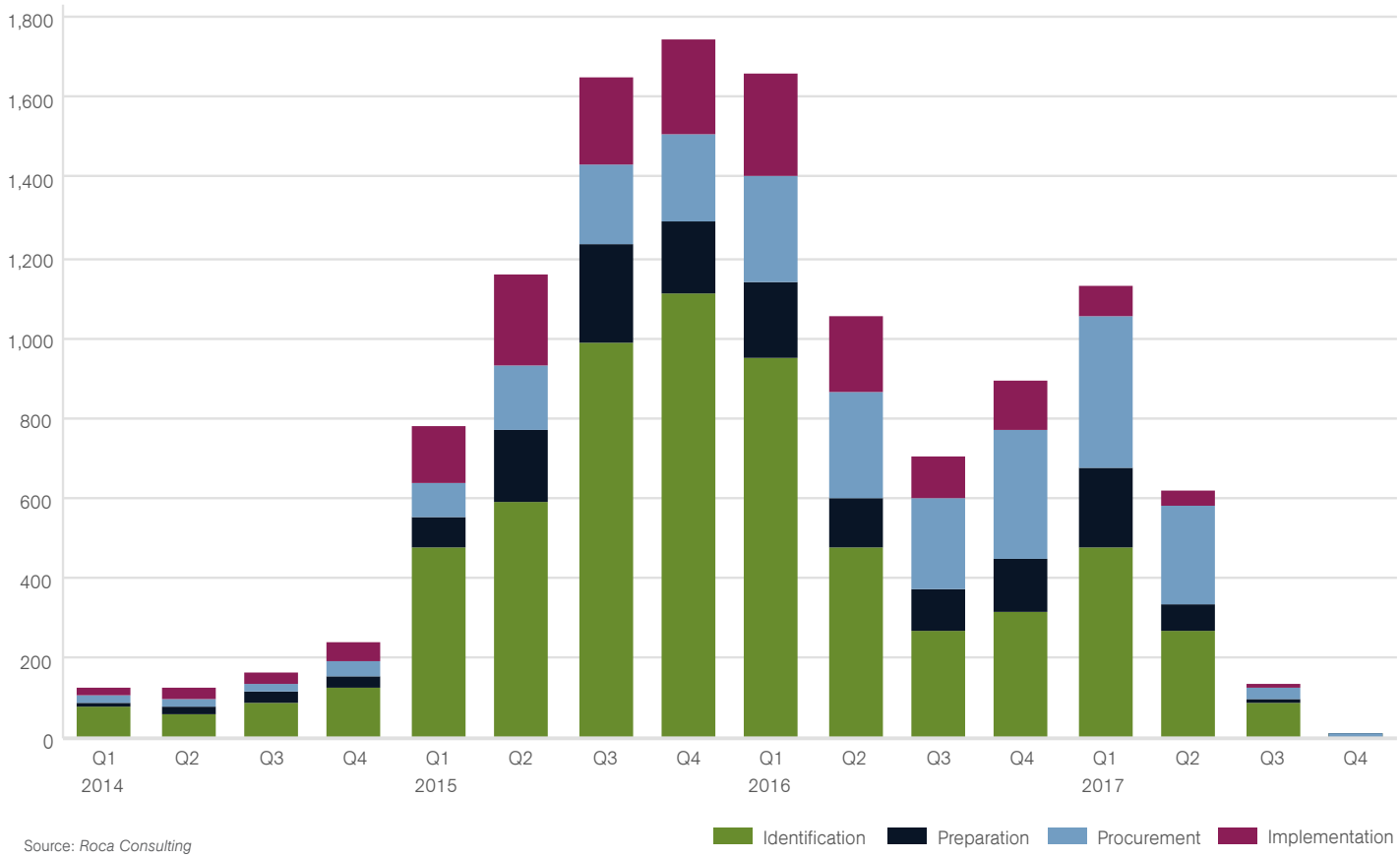
We have, however, excluded projects where 100% of the equity is owned by SOEs, except where otherwise specified. This is not enough to exclude "fake PPPs", since some of them are said to have (nominally) private investors and many may be at a pre-implementation stage. Thus, while not all projects in this report will meet international investors' definitions of what makes a PPP, for the reasons outlined above, they are at least capable of doing so by virtue of the fact that they include an element of private ownership. Another way in which public authorities have sometimes sidestepped official PPP norms is by rebadging commercial property developments as PPP projects, for example in the cultural sector. This practice was specifically outlawed by central government in 2017. It has not been possible to isolate such projects, although Roca Consulting informally estimates that they account for 5-10% of all PPPs (including entirely SOE-owned projects).

Deal flow

The scale of China's PPP ambition is impressive. The number of new PPP projects added to the central government database or otherwise announced by public authorities rose from 253 during the first half of 2014 to 2,804 in the second half of 2015 (Figure 1). But since then, the rate of new projects has collapsed to just six in the fourth quarter of 2017.

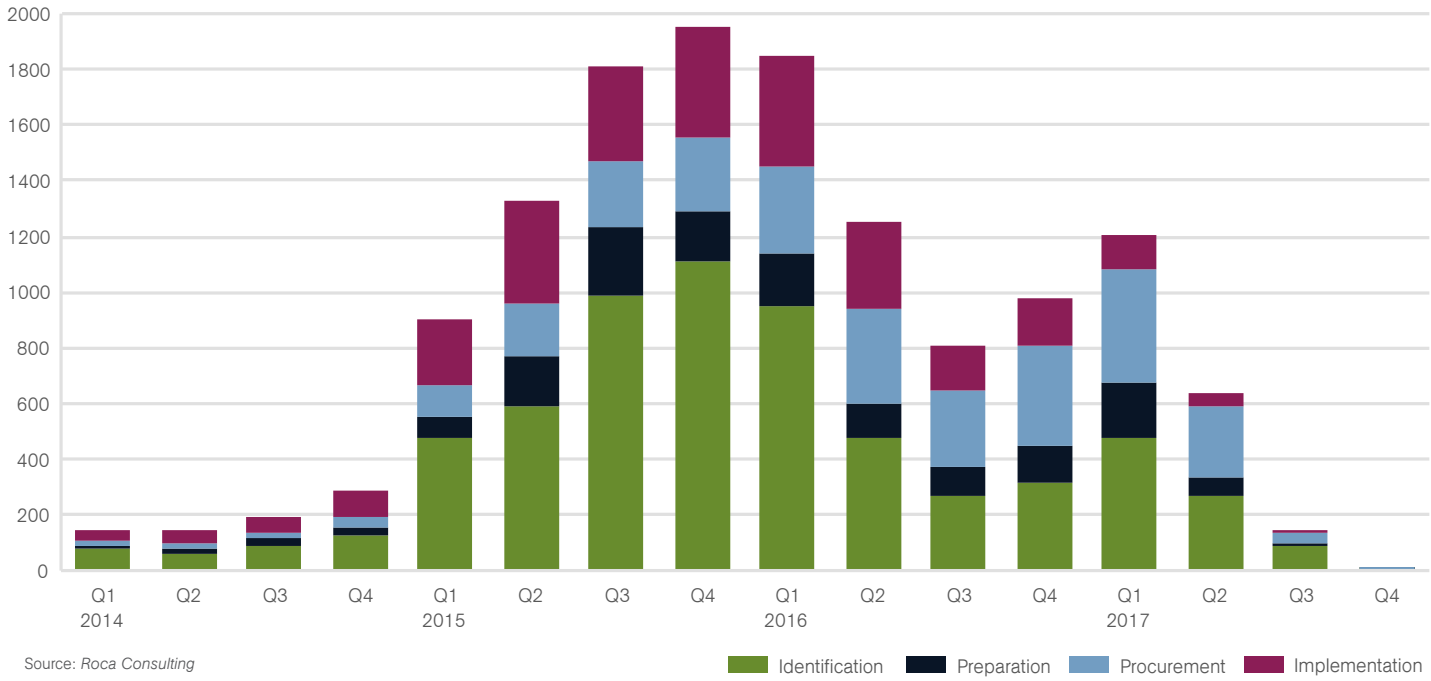
In all, according to our data, 12,562 PPP projects worth $2.28 trillion have been conceived in China since the PPP model first appeared, of which 12,180 PPP projects emerged between 2014 and 2017 (or 13,641 when fully state-owned projects are included). Just over half of all these projects were added in the 12 months between April 2015 and March 2016.

FIGURE 1: **PPP PROJECTS IN CHINA BY DATE OF PROJECT INCEPTION, 2014-2017. COLOUR INDICATES PROJECT STATUS AS AT EARLY 2018**



Source: *Roca Consulting*

FIGURE 2: **PPP PROJECTS IN CHINA BY DATE OF PROJECT INCEPTION, 2014-2017 (INCLUDING 100% SOE-INVESTED PROJECTS)**



Source: *Roca Consulting*

Industry observers agree that the boom in PPPs since 2014 has been mainly inspired by positive reactions and guidance from central government, which amongst other things encouraged authorities to deliver PPPs in many more sectors than hitherto. "In China, if the central government puts it in writing to promote certain industries, saying 'we encourage you to do this' together with measures or policies in favour of that industry, [it] will become a booming industry, and that's what happened… local government followed the central government's guidance," according to Helena Chen, partner and joint head of China at law firm Pinsent Masons.

Restrictions on local government borrowing from 2014 added to the impetus, according to Ma Xiaoding, PPP expert at the National Development and Reform Commission, China's central economic planning body: "After the promulgation of PPP-related polices by central government, local governments deemed the PPP model… as the best way to resolve a lack of local funding and speed up the construction of infrastructure and public services."

The decline in the rate of new projects since mid-2016 is likely to reflect a clampdown by central government on non-compliant projects and budgetary over-commitment, according to market observers. Since 2015, guidance has limited governments' annual expenditure on PPPs to 10% of their general public expenditure, and outlawed projects that had not passed through the necessary preparation stages, were unbankable, or which lacked risk transfer or a public service remit. In early 2017, the Ministry of Finance reportedly removed 338 projects from its PPP database for reasons including a failure to find investors, and at the end of that year, the ministry began vetting all new additions to the database.

Despite that pruning, many of the remaining projects have not made progress. Over half of all projects remain at the earliest – 'identification' – phase, and only 1,794, around 15%, have reached the final 'implementation' phase recognised in the database (Tables 1 and 2). Of the projects still in identification, 657 were launched as far back as 2014.

TABLE 1 **PPPS BY CURRENT PHASE EXCLUDING SOE-OWNED PROJECTS, PROCUREMENT-STAGE PROJECTS INCLUDE SOME AWARDED PROJECTS** (SEE NOTE 2 ABOVE)

Project phase	Number	Total investment ($ Billion)
Identification	6604	1061.61
Preparation	1652	337.64
Procurement	2512	510.16
Implementation	1794	368.65
Total	**12562**	**2278.06**

TABLE 2 **PPPS BY CURRENT PHASE INCLUDING 100% SOE-OWNED PROJECTS, PROCUREMENT-STAGE PROJECTS INCLUDE SOME AWARDED PROJECTS** (SEE NOTE 2 ABOVE)

Project phase	Number	Total investment ($ Billion)
Identification	6604	1061.61
Preparation	1652	337.64
Procurement	2920	640.09
Implementation	2871	772.23
Total	**14047**	**2811.57**

Speaking in early 2018, Professor Wang, chief expert at Tsinghua University's PPP Lab, expected the rate of project delivery to slow even further this year, as non-compliant projects are abandoned in the face of central government opposition. "Even if a project is awarded, the project will be difficult to reach financial close, especially during late 2017 and early 2018." Speaking late last year, Professor Wang did not think any more projects would be signed, implemented or would reach financial close in Q1 2018.

Wang also attributed the low rate of project execution to poor project structuring, noting that less developed regions like the west and north-east have sought to procure projects that rely on government revenue payments, without having the budget to do so. "If a project doesn't have enough cash flow, a bank will certainly refuse to finance the project and an investor will not do it," he said.

Projects by province and sector

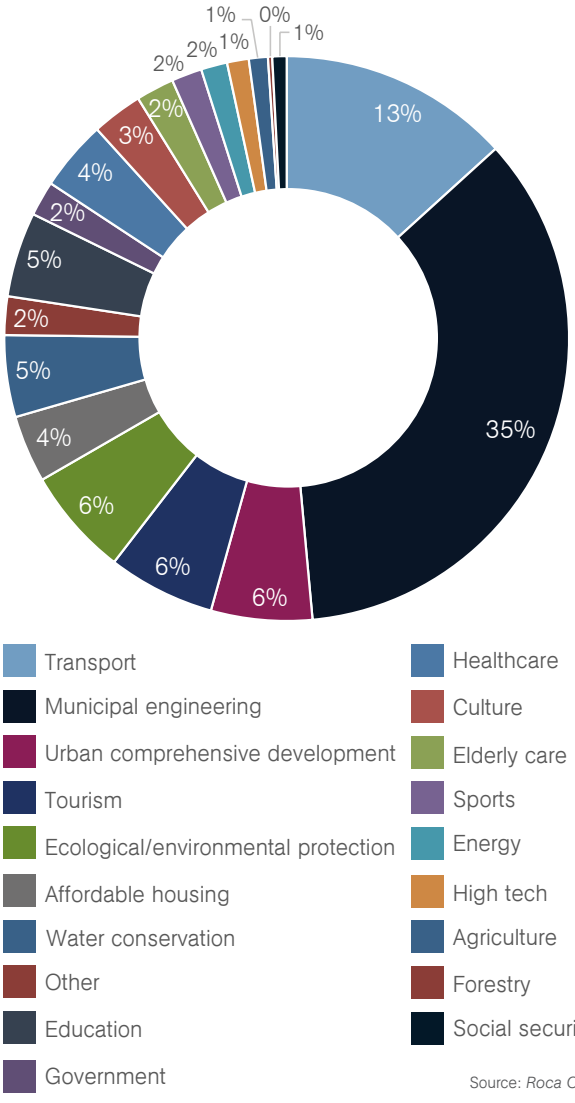
There is a weak correlation between the GDP per capita of a Chinese province and the number of projects identified, in which the number of projects broadly rises as the GDP falls. The correlation is similar when absolute GDP figures are used instead. Guizhou and Xinjiang, which rank first and third in project cost terms, are the tenth and third smallest economies in both per capita and absolute terms.

Not all the most active users of PPP are poorer provinces, but overall they clearly lead in project identification. Guizhou, one of China's least developed provinces, is something of an outlier and the majority of its 1,745 projects are in the identification phase, so it is questionable how many of the projects will ever reach the market. By contrast, Shanghai, mainland China's most populous city, has a mere four PPP projects.

"Financially strong city governments such as Shanghai have the ability to finance by themselves. Also, they started PPP back in the early 2000s, much earlier than other cities," Hisaka Kimura, principal investment specialist in the Asian Development Bank's private sector operations department, comments, pointing out that China has been procuring BOT projects since the 1980s.

The recent boom in PPPs has focused on less developed areas that had not previously made much use of the PPP model, Kimura suggests. "PPP itself is not new… provincial capitals and first tier cities have already tried PPP before, but late starters, such as inland provinces and also smaller cities have more untapped infrastructure needs, thus private sector participation potential."

FIGURE 3: **PPPS BY GOVERNMENT-DEFINED SECTOR** (INCLUDES 100% SOE-OWNED PROJECTS)



Source: *Roca Consulting*

The two biggest sectors by number of projects and amount invested to date are transport and the rather heterogeneous "municipal engineering" sector, which together account for 47% of all recorded PPPs (and 48% if SOE-invested PPPs are included; Figure 3). As defined by central government, the latter includes urban roads, metro systems and car parks as well as solid waste management, water and wastewater, and district heating, gas and power distribution.

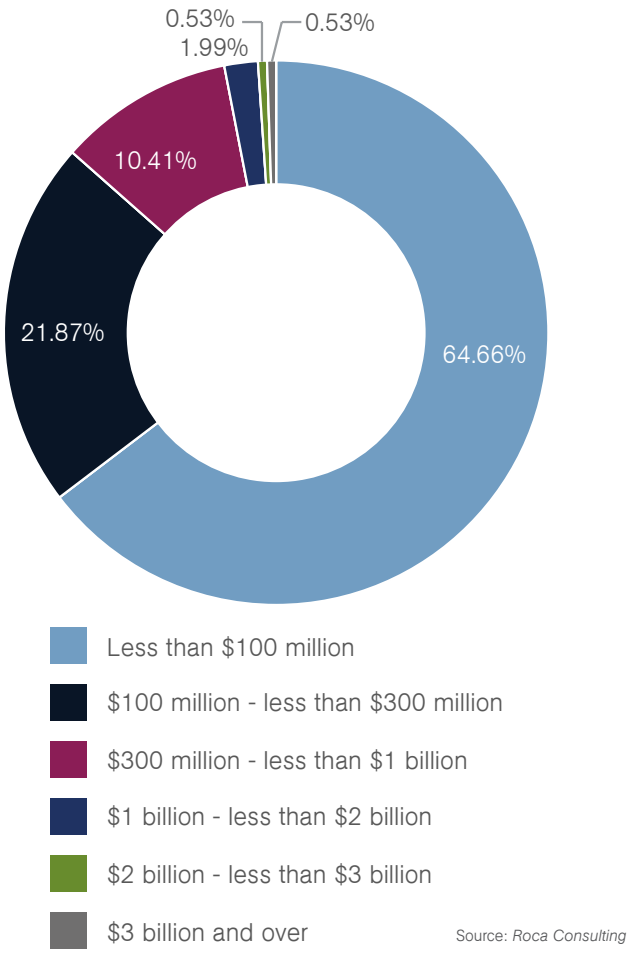
For Wang Shouqing, the dominance of these sectors reflects the priorities of local rather than central government, as well as market appetite. "In western or north-eastern provinces especially, poorer areas, transport like highways and railways is important for the economic growth and improvement of quality of life. In developed regions, due to the huge population and improvement of quality of life, there is market demand for transport, especially subways and high-speed railways."

Ma Xiaoding adds: "Companies are more willing to participate in transport projects, which have better expectations for financial returns, in particular expressway projects. However, public service projects with limited direct financial revenue due to government's control of price on the grounds of extensive public interest, including education, healthcare and others, are less attractive."

The municipal sector is first in project number terms (4,363) and second in project value terms (around $570 billion, mean project cost $130 million). Transport is second in numbers terms (1,532) and first in value terms ($655 billion, mean project cost $428 million). With the mean cost of a PPP project around $180 million, the cost of transport projects is therefore well above average, suggesting a preference for larger projects. Transport tops the rankings of the very biggest PPP projects, and if, contrary to government classification, the sector were to include metro projects, it would also account for eight of the top 10 (Table 3).

This highlights the current appetite for building new highways and for metro projects among third-tier cities in less developed provinces. Despite their impressive size, megaprojects do not dominate the figures for all PPPs. Projects worth more than $1 billion account for less than 4% of all PPPs by value (Figure 4).

FIGURE 4: **PPP PROJECTS BY COST RANGE**

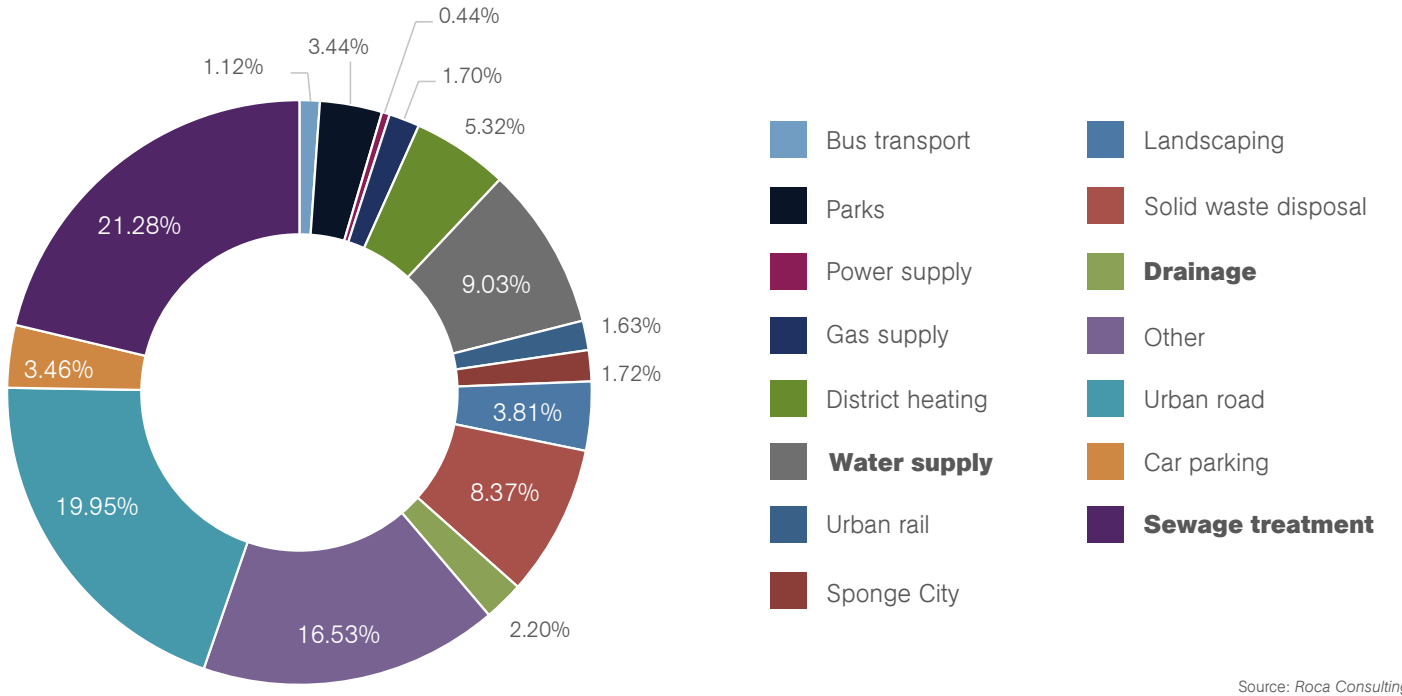


Source: *Roca Consulting*

TABLE 3: **TOP 10 PPPS BY PROJECT COST**

Project name	Province	Sector	Investment cost ($ Billion)
Taihang Mountain Expressway	Hebei	Transport	14.25
Beijing Metro Line 16	Beijing	Transport	7.86
National space industry base of Xinzhou District, Wuhan, Hubei	Hubei	Urban comprehensive development	7.17
Industrial new town project of Nanxun District, Huzhou, Zhejiang	Zhejiang	Urban comprehensive development	7.14
Beijing Metro Line 14	Beijing	Transport	7.06
Qingdao Metro Line 1	Shandong	Transport	6.35
Harbin City Rail Transit Line 3 phase 2	Heilongjiang	Transport	4.2
First phase project of line 2 line of Harbin, Heilongjiang	Heilongjiang	Transport	3.25
Heyang to Tongchuan, Wuqi to Huachi Expressway Projects in Shaanxi Province	Shaanxi	Transport	3.15
Guiyang Rail Transit Line 2 phase 1	Guizhou	Transport	3.09

FIGURE 5: **MUNICIPAL ENGINEERING PROJECTS BY SUB-SECTOR. WATER-RELATED PROJECTS LISTED IN BOLD TYPE**



Source: *Roca Consulting*

The large number of municipal engineering projects reflects in part the importance of water and wastewater projects – which account for 49% of the sector (Figure 5) – in the development of PPP in China. Many of China's earliest PPPs are in the water sector, highlighted in the fact that 766 of the 1,794 PPPs under implementation (43%) are in municipal engineering. Other municipal sub-sectors, such as gas supply, were among the first to be identified by central government as open to PPP delivery.

"There was the first boom [in PPPs] after 2004-2006… thanks to a concession agreement template which supported municipal environmental infrastructure such as waste management, water and wastewater treatment, natural gas distribution and district heating across China to be opened up to private sector participation. It's quite unique in Asia," Hisaka Kimura says.

Contract types

Unsurprisingly, the archetypal BOT contract predominates in Chinese PPP, being the first type of greenfield project contract to have been officially recognised in central government legislation and policy guidance, going back to the mid-1990s (Figure 6). The 2015 Measures, one of the most important pieces of regulation in the current PPP framework, officially recognises BOT, BOOT and BTO contracts, but enables the state to permit other unspecified contract types.

Other officially-recognised contract types include rehabilitate-operate-transfer (ROT), in which the sponsor takes over and renovates an existing government asset over a long-term contract, transfer-operate-transfer (TOT) and management contracts (which have been excluded from this report, as mentioned above).

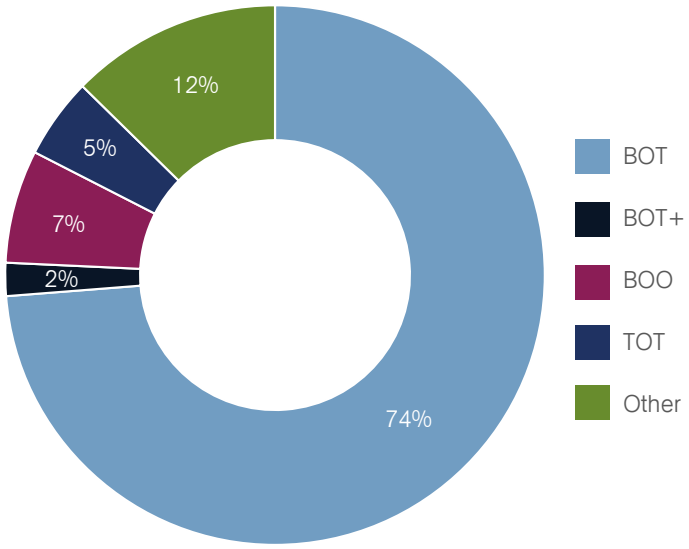
A small number of contracts, designated BOT+, involve the different treatment of individual assets, for example BOT of a greenfield asset combined with operation and maintenance of an existing one, or build-lease-transfer of a separate greenfield asset. This may reflect the recent trend for procuring several different assets under one PPP contract.

The role of the state

By any measure, state-owned enterprises dominate the Chinese PPP market. Of the top 10 investors in PPP projects, eight are SOEs (Table 4). Of the roughly $930 billion-worth of projects with investors in place, SOE-only projects account for nearly 60%, and SOEs hold stakes in a further 17% of projects (Figure 8).

Including projects they wholly own, SOE investment accounts for just under 72% of attributable investment cost (debt and equity) across PPPs with investors in place.

FIGURE 6: **PPPS BY CONTRACT TYPE**



Source: *Roca Consulting*

TABLE 4: **TOP 10 PPP INVESTORS BY TOTAL PROJECT INVESTMENT COST**

Rank	Investor	Total projects value (all debt and equity, $ Billion)	Number of projects	Company nature	Listed
1	China State Construction Engineering Corporation	41.70	64	State - owned	Yes
2	China Communications Construction Company	32.95	19	State - owned	Yes
3	China Fortune Land Development	27.22	8	Privately-owned	Yes
4	Beijing Orient Landscape & Environment	14.47	55	Privately-owned	Yes
5	China Railway Construction Corporation	10.09	20	State - owned	Yes
6	Power Construction Corporation Of China	8.83	23	State - owned	Yes
7	Beijing MTR Corporation[3]	7.86	1	Foreign (Hong Kong)	No
8	Metallurgical Corporation Of China	7.74	16	State - owned	Yes
9	China Railway Group	7.73	16	State - owned	Yes
10	CRRC Changchun Railway Vehicles[3 4]	7.45	2	State - owned	No

[3] MTR Corporation is not included here as an overall investor, because the data follows the convention that, where a subsidiary of a parent company PPP investor is less than wholly-owned by that investor, the subsidiaries are listed instead of the parent company. In addition, MTR's other PPP projects in mainland China were excluded because they did not conform to the definition of PPP employed by Roca Consulting when the data was collected (see note 1). The amount shown here represents the total investment cost of MTR's Beijing Metro line 16 PPP. If the known values for MTR's other PPPs were included (Beijing Metro lines 4 and 14, and Hangzhou Metro line 5) the total for MTR would be $23.34 billion. Values for MTR's two other Chinese PPPs were not available.

[4] As with MTR (note 3 above), parent company CRRC is not listed as it does not wholly own this subsidiary. Other CRRC-invested PPPs would bring the total for CRRC to $8.06 billion.

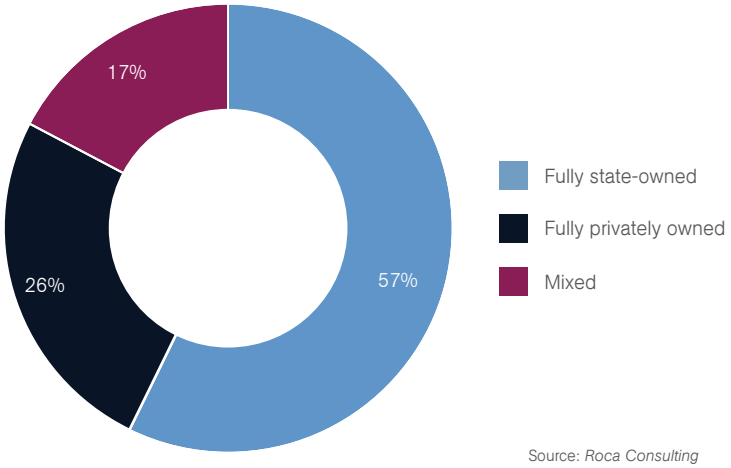
Larger projects in particular tend to favour SOEs, market observers agree, because they tend to have larger balance sheets. "A strength [of SOEs] is their creditworthiness," Wang Shouqing comments. "They are government-backed companies, so for the SOEs borrowing money from banks is easy. For the private sector, borrowing money has not been easy, except a few publicly-listed or giant companies or those in the real estate sector."

China's private sector remains dominated by small and medium-sized companies. Even though most PPPs in China have an investment cost less than $100 million (Figure 4), they may still be out of the reach of many private sector bidders. According to Wang Shouqing, private firms play to their strengths by focusing on sectors such as high-tech projects and environmental protection, where project costs are lower and operational efficiency is more important.

This becomes evident when viewing how the relative share of public and private investment in each PPP sector changes when 100% SOE-invested projects are excluded.

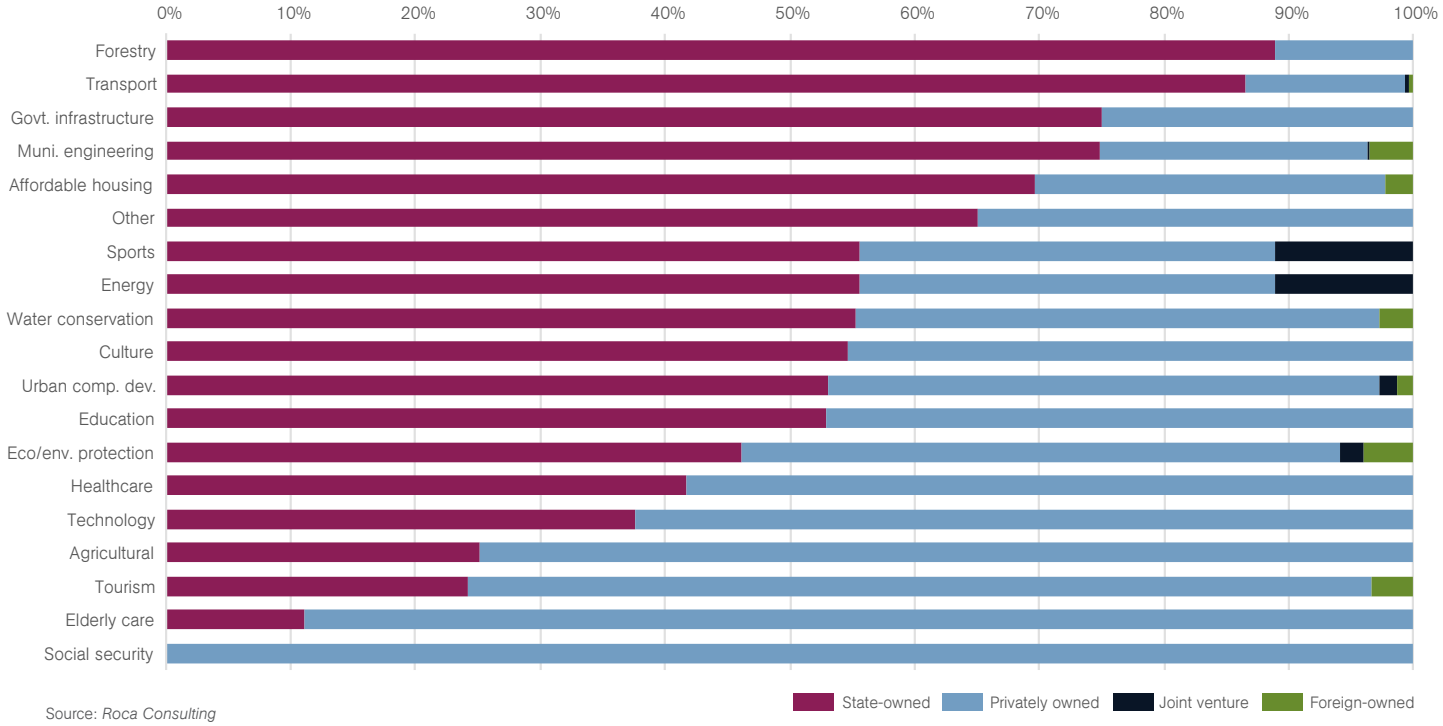
With those projects included, SOEs account for the majority of investment in most sectors, including those with by far the most projects, transport and municipal engineering (Figure 8).

FIGURE 7: **INVESTMENT COST OF PPPS WITH INVESTORS IN PLACE** ($ BILLION), **BY INVESTOR MAKEUP**



Source: *Roca Consulting*

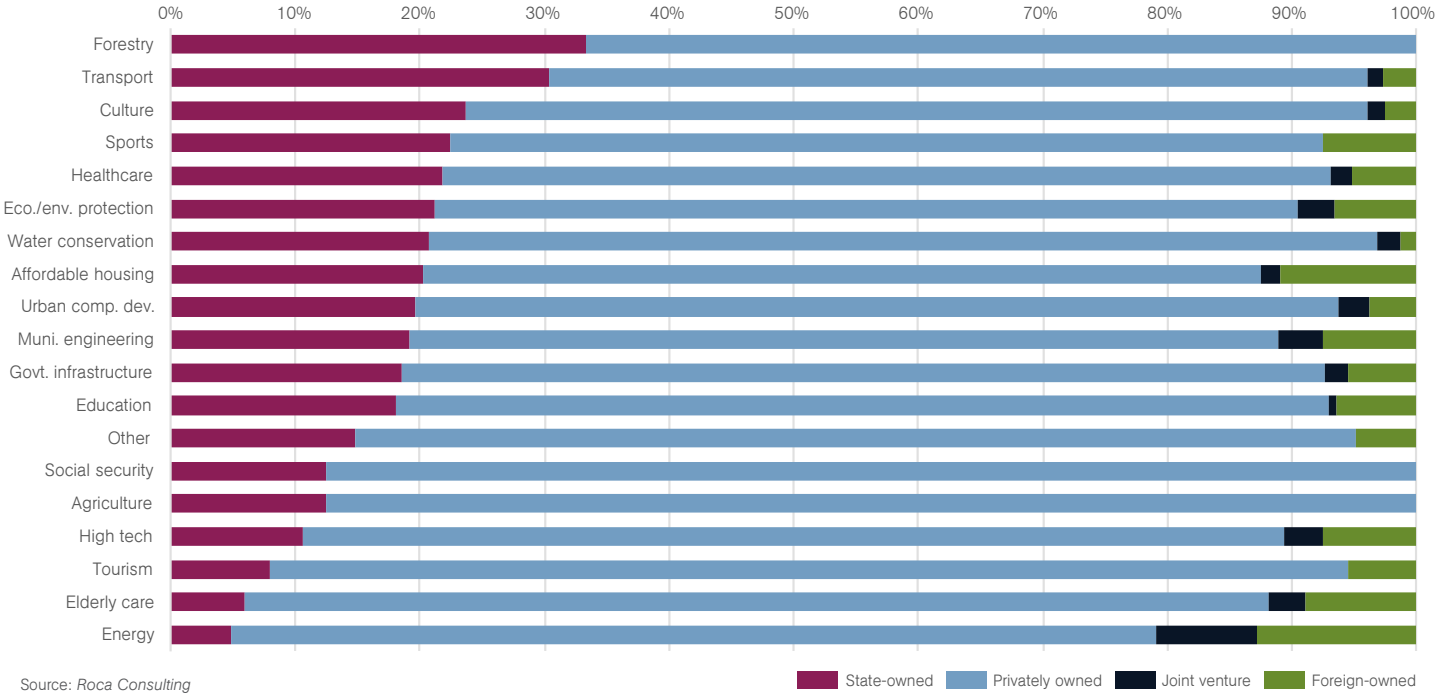
FIGURE 8: **PERCENTAGE SHARES IN PPP SECTOR INVESTMENT BY TOTAL PROJECT COST AND INVESTOR TYPE** (INCLUDING 100% SOE-INVESTED PROJECTS)[5]



Source: *Roca Consulting*

[5] In this chart and Figure 8, 'joint venture' refers to a category of PPP investor, namely a China-based company jointly-owned by foreign and domestic Chinese firms in order to meet Chinese rules for local partnership in foreign investment. It is not to be confused with firms that form a joint venture specifically to bid for, invest in, or provide services to, a PPP project.

FIGURE 9: **PERCENTAGE SHARES IN PPP SECTOR INVESTMENT BY TOTAL PROJECT COST AND INVESTOR TYPE** (EXCLUDING SOE-INVESTED PROJECTS)



Source: *Roca Consulting*

As previously mentioned, a great many PPP projects underway in China are thought to be so-called 'fake PPPs'. In such projects, the sponsor typically gets most of their costs repaid at – or shortly after construction – completion, removing any real operation and maintenance risk, while the debt and equity may be disguised local government borrowing. Not every project where SOEs hold all the equity deserves this description, but one of the characteristics of fake PPP is where an authority awards a project to an SOE it owns. Thus, one of the factors explaining the dominance of SOEs in Chinese PPP, and their tendency to hold 100% of project equity, must be the fake PPP trend.

However, times are changing. As previously mentioned, changes to central government policy and regulation since 2015 have emphasised the importance of genuine risk transfer and sought to suppress disguised local government borrowing, to limit the rise in public debt as well as to restore the integrity of the PPP model. Local authorities are no longer allowed to award projects to SOEs they own, unless the SOE has independent management and liability for its own debts.

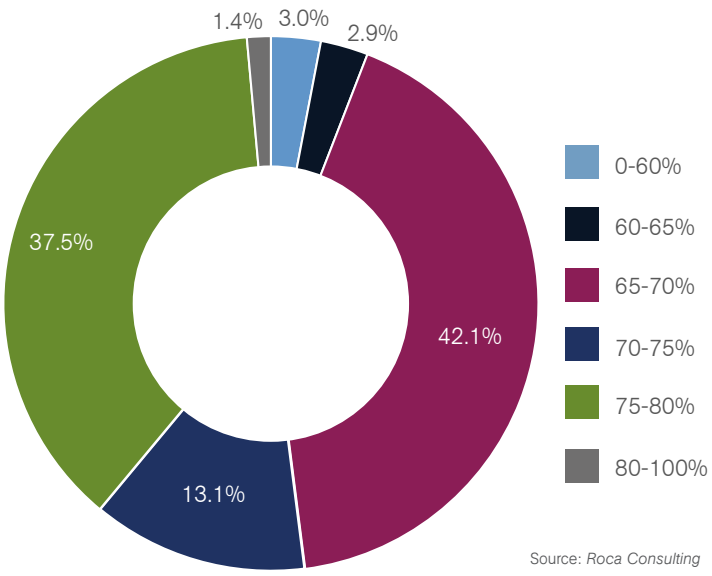
"Gradually, since the end of 2017, the central government's intention is that we should follow international PPP practice and let the second P really be private," Wang adds.

Financing

Detailed financing information about the majority of implemented PPPs in China is not yet available. Project debt figures have been obtained for 765 projects that have completed bidding, indicating that more than 90% of them have – or are expected to have – 65-80% leverage (Figure 10). The percentages do not change significantly when 100% SOE-invested projects are included (Figure 11).

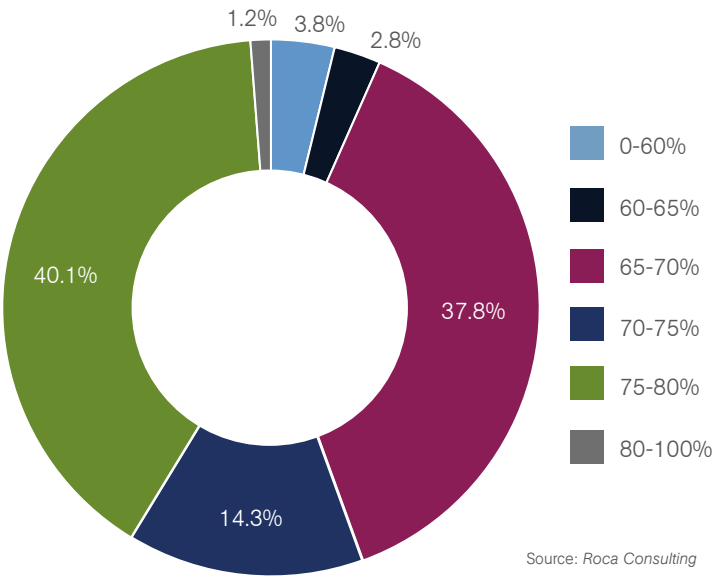
Leverages of more than 80%, on a par with availability-based PPPs in developed markets, are rare. In fact, one unusual characteristic of the Chinese market is that regulations now specify how much of a project's costs must be financed through equity. The amount is either 20%, 25% or 30% depending on the sector.

FIGURE 10: **PPPS BY DEBT LEVERAGE**



Source: *Roca Consulting*

FIGURE 11: **PPPS BY DEBT LEVERAGE** (INCLUDING 100% SOE-INVESTED PROJECTS)



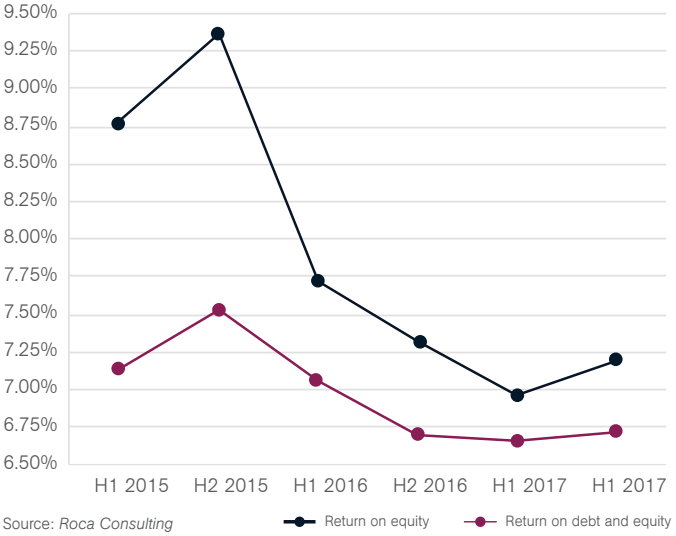
Source: *Roca Consulting*

China's commercial banks (including state-owned commercial banks) are able to offer aggressive interest rates for PPP projects. Of 49 project loans identified, 38 are clustered around the 4-6% range, compared with a central bank base rate of 4.35% as at March 2018. The big state-owned policy banks (China Development Bank, China Eximbank and Agricultural Development Bank of China) offer even lower rates, including some loans priced at 1.2% for 10-20 years. Those loans, however, have only been extended to 100% SOE-invested projects, hence this data has not been included. Policy bank funding comes with greater conditionality and is targeted at specific sectors, so is not always available to sponsors. In early 2018, Chinese interest rates were forecast to rise and anecdotal reports as of March suggest that project debt is often priced in double digits.

Market observers say that Chinese PPPs do not normally support project finance on terms that are common internationally. While PPPs are often financed on a limited recourse basis, a long-term offtake agreement is not usually available. "Long-term minimum offtake guarantees exist only for sectors such as wastewater treatment and waste management, but fee levels are regulated by local government rather than based on a formula," Hisaka Kimura notes. International banks may balk at this, but local players do not seem to mind. Another deviation from project finance is the widespread provision of corporate guarantees on projects, which authorities ask for "quite often", according to Helena Chen. Figures on the proportion of limited recourse financings could not be obtained.

Another quirk of the Chinese market is that equity rates of return for projects are sometimes lower than the weighted cost of capital, as suggested by the very thin spread between average and equity returns across the nation (Figure 12). This reflects the traditional preference of Chinese construction firms to make money on construction contracts rather than on equity returns. Some projects in the past were awarded on the basis of a zero equity return, which has now been outlawed. In addition, authorities sometimes contribute equity to a project without taking a dividend, in order to win a seat on the project board and look into the project's progress.

FIGURE 12: **RETURNS ON EQUITY AND ON BLENDED DEBT AND EQUITY**



Source: *Roca Consulting*

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