Identifying Main Sources of Funding for Infrastructure Projects with Private Participation in Developing Countries
A Pilot Study

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Executive Summary

Governments are increasingly relying on Public Private Partnerships (PPP) or Private Participation in Infrastructure (PPI) arrangements to attract private investment and financing to infrastructure sectors. While these arrangements are successful at attracting private capital, governments frequently remain involved in the financing or paying for infrastructure services. The extent of the fiscal support ranges from direct contribution to cover the project cost to other forms of fiscal support such as: guarantees, in-kind grants, and tax-breaks. While there has been relatively good information on the level of investment commitments under PPP or PPI, there has not been much on the public and private sector contributions to these investment commitments. This pilot study aims to fill that gap by providing data on sources of funding in PPI projects in developing countries to the extent that such information is available in public information sources. The results indicate that information on funding sources that cover project cost, as defined in the PPI/PPP contract, is not available for most PPI/PPP projects in public sources. Information on other public sector contributions such as guarantees is even scarcer in publicly available sources.

Despite the limited information, some conclusions on funding sources can be drawn for investment in projects in their year of contractual or financial closure. Across developing countries, the private sector was the main source of funding for new PPI projects, but public sources contributed a significant share. In the aftermath of the global financial crisis, the share of public sources in funding PPI investment grew; driven by the increased PPI activity in Brazil and India, countries in which local public financial institutions have traditionally played a key role in long-term infrastructure financing. The remaining developing countries continued to rely primarily on private sources of funding, but their PPI activity declined in the aftermath of the crisis and donor funding became more prominent. By sector, energy and transport explained the global trends. In water, the limited PPI activity was funded primarily by public sources before and during the crisis. In low income countries and Sub-Saharan Africa, private sources were also the main funding source but their funding was directed mainly to telecommunications while donor and domestic public funding played a key role in energy and transport projects. In the aftermath of the global financial crisis, debt/equity ratios became more conservative across the board with only projects in India and Europe and Central Asia being able to obtain funding with debt equity ratios of 80/20 or higher.
Acknowledgements

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A. Introduction

Since 2005 developing country governments have regained interest in Public Private Partnerships (PPP) or Private Participation in Infrastructure (PPI) arrangements as a mechanism to attract private investment and financing to infrastructure sectors. After experiencing a sharp slowdown in 1999–2004, annual investment commitments in infrastructure projects with private participation in developing countries more than doubled between 2004 and 2009, reaching their highest level ever in 2008 before the full onset of global financial crisis. Project structures have become more diverse and complex than those of the mid-1990s; government programs have moved from focusing on divestitures and concessions relying solely on user fees to recover costs, to designing a range of arrangements that include different forms of government support to cover part or all of project costs.

The Private Participation in Infrastructure (PPI) Database, a joint product of PPIAF and the World Bank, has tracked private activity in infrastructure in developing countries since the mid-1990s, and is now the most comprehensive source of information on this topic. It records total investment commitments (hereafter investment) in projects with private participation, but does not typically record the breakdown of those investment between the public and the private sectors. In some projects in the database, all the financing comes from the private sector. In others, however, the government provides grants or loans that supplement private sources of finance. Moreover, multilaterals or other foreign official sources also provide funding for some projects.

As a result there is a growing interest in knowing the public sector contribution to investment in PPI projects in developing countries. To respond to this demand, the World Bank and PPIAF undertook a pilot study to gather data on the funding sources that finance the investments stipulated in the PPI and PPP project or contracts as a first approximation to measure the public sector contribution. Therefore, this pilot study provides only a partial measure of the public sector contribution to PPI or PPP investment in infrastructure. It does not include the often substantial public sector support that comes in the form of: preparatory work, in-kind grants, tax breaks, and guarantees.

The pilot study quantifies the contributions to PPI investment in 2006–09 as defined by the PPI Database from: the private sector, the host country public sector, and foreign official sources. Similar to the PPI Database, the pilot study collects project data from publicly available sources. This approach is used in order to publish the data collected, without restrictions, and to cover the maximum number of projects in a cost effective manner. Given that the full onset of the global financial crisis (hereafter crisis) occurred in the second half of 2008, the study assesses the changes in the mix of sources of funding the crisis caused. This note summarizes the findings of the study.

The remainder of the paper is organized as follows. Section B underlines the global trends, section C highlights the trends by sector, section D discusses trends by country income groups, section E summarizes regional trends, section F summarizes trends by type of private participation, section G discusses the limitations of the study, and section H summarizes the conclusion of the study. The scope and the methodology of the study are discussed in Annex A.
B. Global trends

Even basic information on sources of funding is relatively difficult to find in publicly available sources for most PPI projects. Compared with the universe of PPI projects, projects with data on sources of funding represent just over a third of PPI projects that reached contractual or financial closure in 2006–09. While some sectors and regions have higher percentages of data on sources of funding, in no sector or region is the percentage as high as two-thirds (table 1), suggesting that even basic funding information (such as quantifying the contributions to the cost of investment by the private sector, the host country public sector, and foreign official sources) is not generally available in publicly available sources.

Table 1 Share of infrastructure projects with private participation in developing countries with information on sources of funding, by sector and region, 2006–09
(As a percentage of PPI projects in the PPI database)

<table>
<thead>
<tr>
<th>Year of financial closure</th>
<th>Total</th>
<th>Energy</th>
<th>Telecomm</th>
<th>Transport</th>
<th>Water and sewerage</th>
<th>EAP</th>
<th>ECA</th>
<th>LAC</th>
<th>MENA</th>
<th>SA</th>
<th>SSA</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>32</td>
<td>31</td>
<td>33</td>
<td>45</td>
<td>7</td>
<td>15</td>
<td>42</td>
<td>35</td>
<td>5</td>
<td>51</td>
<td>20</td>
</tr>
<tr>
<td>2007</td>
<td>32</td>
<td>41</td>
<td>40</td>
<td>40</td>
<td>7</td>
<td>12</td>
<td>32</td>
<td>53</td>
<td>67</td>
<td>43</td>
<td>42</td>
</tr>
<tr>
<td>2008</td>
<td>42</td>
<td>52</td>
<td>64</td>
<td>48</td>
<td>12</td>
<td>20</td>
<td>48</td>
<td>41</td>
<td>80</td>
<td>61</td>
<td>53</td>
</tr>
<tr>
<td>2009</td>
<td>41</td>
<td>47</td>
<td>45</td>
<td>46</td>
<td>8</td>
<td>15</td>
<td>69</td>
<td>30</td>
<td>38</td>
<td>63</td>
<td>70</td>
</tr>
<tr>
<td>Total</td>
<td>36</td>
<td>43</td>
<td>41</td>
<td>44</td>
<td>9</td>
<td>15</td>
<td>46</td>
<td>39</td>
<td>59</td>
<td>53</td>
<td>40</td>
</tr>
</tbody>
</table>

Despite the limited information, conclusions on funding sources can be drawn for investment commitments in new projects, but not for total annual investment commitments in PPI projects. Projects with data on sources of funding represented two-thirds of investment commitments in new PPI projects, but just one-third of total annual investment in PPI (figure 1). Not much data on funding sources for additional investment in previously implemented projects was found as these investments tend to be funded on a corporate finance basis and many companies are not publicly traded (further discussion can be found in Annex A). Additional investment in previously implemented projects represented 65% of total PPI investment in 2006–09, of which most was invested in the telecommunications sector.

Project finance is the most common funding structure and commercial banks were the primary sources of debt. More than 70% of projects and 70% of investment with data on funding sources used project finance structures (figure 2). Such a share is not surprising given that project finance is commonly used for capital-intensive projects with relatively transparent cash flows, two features that are common among infrastructure projects. Project finance structures ring-fence a project from the other investments (businesses) of the sponsors and limits liabilities of a sponsor to its contribution to the project. Project risks are allocated among the involved parties, usually with the objective of assigning risk to the contractual counterparties best able to control and manage them. Project finance also facilitates the use of more detailed loan covenants than conventional (corporate) finance, which makes lenders’ monitoring easier and reduces moral hazard on the part of the project company’s management.

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1 The key characteristics of project finance include: cash flow generated by the project must be sufficient to cover payment for operating cost, service the debt (capital repayment and interests) and return on equity; lenders have only limited recourse (or no recourse) to the sponsors after the project is completed; sponsors’ liabilities are limited to their equity contribution (beyond that amount, sponsor are liable only in special conditions when finance is arranged on limited recourse basis); and, sponsors may be required to provide collateral to lenders. See Stefano Gatti (2008) Project Finance in Theory and Practice, page 2.

2 Loan covenants in a commercial loan are conditions that the borrower is required to fulfill or which forbid the borrower from undertaking certain actions. Violation of a covenant may result in a default on the loan being declared, penalties being applied,
In the project finance structures used for PPI projects, banks were the main debt providers with only 11 projects that obtained bond financing. The latter projects were located in East Asia and Latin America. Funding from institutional investors is also anecdotal. Consequently, private funding sources were primarily private commercial banks and equity contributions of private sponsors.

The PPI projects not using project finance structures were funded through either corporate finance (mainly used for telecommunications projects) or as part of a portfolio investment (sales of minority stakes through initial public offerings [IPOs]).

**Information on public support other than the cash to cover the cost of PPI projects tends to be very limited.** From the hosting government, information available is usually about subsidies to cover the project cost when they are defined in competitive tenders (such as a minimum subsidy or viability gap funding) or availability payments when they are used as bid criteria in a tender process. Information on government guarantees to the project is not commonly available. Information on foreign public support is also limited. For instance, of the 415 projects for which data on funding sources were available, only 14

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3 These bond issues were project-specific rather than sponsor-specific. They did not include bond issues that some infrastructure investors (sponsors) used to finance their equity contribution such as Hong Kong-based Hutchison (Hutchison’s sale of dollar bonds now at US$3 billion, The Wall Street Journal Europe, September 9, 2009), Russia’s MTS (MTS places fifth ruble bond, ENP Newswire, July 30, 2009), or Mexican IDEAL (IDEAL likely to pass on Farac 2A staple, Project Finance Magazine, Nov 19, 2009).

4 Generally IPOs are bought by two broad categories of investors: Institutional investors, in which the equity stake forms part of their overall [weighted] investment portfolio; and/or strategic investors—individuals and firms—that invest on the basis that they would add value to their equity stake through their expertise, market knowledge and experience, among others.

5 Another often used form of subsidy is an up-front capital government contribution to the project, typically through funding of land/route acquisition, civil works, capital equipment, etc.
also had information on guarantees available, and all 14 of these projects reported guarantees from multilateral or bilateral agencies.6

**Projects with data on funding sources tend to be those with the largest investments.** The average and median of investment in projects with data on funding sources were consistently larger than those of the projects in the PPI database in the four years reviewed (table 2). Statistical analysis also corroborates that, on average, projects with data on funding sources were larger than the average PPI project.7 Project data by investment size also showed that larger projects are the most likely to have data on funding sources. Of the investment in projects of US$1 billion or more, approximately 80% had information on funding sources in 2006–09. The share of projects for which information on funding sources is available fell to 60% for projects with investments between US$500 million and US$1 billion. And for projects of less than US$500 million, the share of projects for which information on funding sources is available dropped to 49% (figure 3).8

**Table 2 Mean, median and standard deviation of projects in the PPI and sources of funding in PPI databases, 2006–09**

<table>
<thead>
<tr>
<th>Statistics</th>
<th>2006 All projects</th>
<th>2006 Projects with funding data</th>
<th>2007 All projects</th>
<th>2007 Projects with funding data</th>
<th>2008 All projects</th>
<th>2008 Projects with funding data</th>
<th>2009 All projects</th>
<th>2009 Projects with funding data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>212</td>
<td>370</td>
<td>244</td>
<td>483</td>
<td>324</td>
<td>444</td>
<td>380</td>
<td>614</td>
</tr>
<tr>
<td>Median</td>
<td>80</td>
<td>141</td>
<td>75</td>
<td>223</td>
<td>142</td>
<td>207</td>
<td>138</td>
<td>283</td>
</tr>
<tr>
<td>SD</td>
<td>408</td>
<td>595</td>
<td>552</td>
<td>853</td>
<td>510</td>
<td>614</td>
<td>716</td>
<td>976</td>
</tr>
</tbody>
</table>

Source: World Bank and PPIAF, PPI and sources of funding in PPI databases.

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6 It should be noted that this is not a comprehensive list of guarantees provided by multilateral and bilateral agencies to PPI projects. Some bilateral agencies do not publish all information on their support to specific projects. In addition, some projects that obtained such support were not included because there was no information on sources of funding used to finance the project cost. For example MIGA provided a guarantee against the risks of transfer restriction and breach of contract to Cobra Instalaciones y Servicios of Spain for its equity investment in Serra da Mesa Transmissora de Energia, a Brazilian project that reached financial closure in 2008. However, this project was not included in the sources of funding database due to lack of information on its funding.

7 The project size averages, by investment, in the sources of funding database were statistically higher than those reported in the PPI database for each of the years under review. The statistical test used was T-test for differences between two means with unequal and unknown variance at a level of significance of 0.05.

8 Similar trend is observed within projects of less than US$500 million.
Private financing was the main source of funding for PPI projects until 2008. Since then, public funding sources increased their share driven by the growth in PPI activity in countries with strong public financial institutions such as Brazil and India, and the need to fill the vacuum left by private sector sources in the aftermath of the crisis. The share of private funding in PPI investment (with data on funding sources) was above 70% from the first half of 2006 to the first half of 2008, then it fell to 45% in the first half of 2009, but showed some recovery in the second half of 2009 (figure 4a). The decline in absolute volumes of private funding explains the falling share of private funding in PPI investment. By contrast, investments in new PPI projects showed some resilience throughout the crisis thanks to the increased funding from public financial institutions and to some extent from the multilateral and bilateral agencies, which offset the decline in funding from private sources (figure 4b).

In the entire period of 2006–09, private sources provided almost two-thirds of the funding, and local public financial institutions contributed with one-fourth of the funding (figure 5). The contributions of multilateral and bilateral agencies occurred mainly in the aftermath of the crisis. In this period, not only did the amount of total funding from public sources grow but the number of PPI projects funded primarily from public sources also grew. The share of new projects getting 50% or more of their funding from public sources grew from 36% in 2006–07 to 50% in 2009.

This global picture, however, masks two different stories across developing countries. One is that of Brazil and India, where funding to PPI investment came primarily from local public financial institutions before and during the crisis. The other is of the remaining developing countries, where funding to PPI

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9 Local public financial institutions include local development banks and government owned financial institutions, such as, commercial banks.

10 Multilateral and bilateral funding does not include corporate loans to infrastructure investors because, in most cases, such funding cannot be attributed to specific projects, and as such funding may be used as equity contribution to some projects or debt structuring and to include it in multilateral and bilateral funding would risk double counting.

11 In Mexico, there is anecdotal information on the key role that public banks (such as Banobras) played in funding PPI/PPP projects, particularly during the crisis. However, this review does not capture much of such support because there is limited or no publicly available information on the public bank support at project level in Mexico.
investment came primarily from private sources before and during the crisis. Brazil and India experienced strong growth in PPI investment throughout the most acute phase of the crisis (late 2008 and 2009) facilitated by both a rapid growth of funding from public financial institutions and the resilience of private sector funding (figure 6).

This trend also reflects the implementation of ambitious PPP/PPI programs in these two countries. After almost a decade of limited new PPI activity and declining total investment in infrastructure, Brazil launched its Growth Acceleration Program (PAC) to increase infrastructure investment in 2007 and started raising public credit available for long-term infrastructure investment, including private investment. As part of this renewed interest in infrastructure investment, Brazil implemented the second phase of its federal road concession program. In India, the tenth five-year plan (2002-07) included investment of US$222 billion (5% of the GDP) in infrastructure, of which the private sector was expected to contribute 20%. To this end, the government of India: established a new financial institution (India Infrastructure Finance Company Limited, IIFCL) to provide long-term debt financing to infrastructure (with a focus on PPPs); established a Viability Gap Fund to encourage the broader use of PPPs by state and local governments and central agencies; and improved its framework for PPPs by issuing guidelines on the design, appraisal and approval of PPP projects, model bidding documents and model contracts. For the eleventh five-year plan (2007-12), India expects to more than double the investment in infrastructure and increase the private sector contribution to 30%. The rapid economic growth that these two countries are experiencing is creating an urgent need to expand the physical infrastructure to avoid or reduce bottlenecks. Brazil’s GDP growth rate was above 5% before the crisis, dropped to minus 0.2% in 2009, but recovered to 7.6% in 2010 and is expected to remain above 4% onwards. India’s GDP growth rate slowed from 9% in 2007 to 5.1% in 2008, but then recovered to 7.7% in 2009 and to 9.5% in 2010, and is projected to be over 8% in the coming years.

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13 Véron, Adrien and Jacques Cellier (2010).
15 India’s Secretariat for the Committee on Infrastructure (2009).
The large share of funding PPI investments provided by local public financial institutions in Brazil and India also reflects the structure of the local financial markets and government measures to reduce the impact of the crisis. Brazil has the largest and most sophisticated financial system in Latin America, but it is one in which public institutions play a major role. BNDES in particular has been the main source of long-term and low-cost funding for infrastructure projects while private commercial banks have participated in the financing of infrastructure projects alongside BNDES, with the banks’ shares usually being limited by higher interest rates and shorter terms than those of BNDES.17 As part of the countercyclical policy response to the credit constraints the crisis caused, local public financial institutions in Brazil continued their real credit growth while foreign institutions contracted.18 As a result, public financial institutions raised their share in the private sector credit market from 35% in 2008 to 40% in 2009. The credit expansion was primarily implemented through BNDES, which doubled its gross disbursements between 2007 and 2009.19

In India, the commercial banking system is dominated by public sector banks. The 27 public sector banks account for three-quarters of the assets of the banking system.20 The public banks provide most of the funding for PPI projects. A previous study on financing PPP in India also found that public sector banks provided most of the debt for PPP projects that reached financial closure in 1995–2007.21 Funding to PPI projects in India in the aftermath of the crisis was also facilitated by the central bank’s interventions to improve liquidity in the financial market and by the countercyclical fiscal stimulus package launched by the national government, which amounted to 3% of the GDP, and aimed to lessen the impact of the crisis on the Indian economy.22

The remaining developing countries had a different story. Most of the investment in this group relied primarily on private sector sources to fund PPI investments before and during the crisis. PPI investment declined substantially after the full onset of the crisis which coincided with the fall of private sector funding. The drop in private funding was partially offset by an increase in funding from multilateral and bilateral agencies, whose share in PPI investment (with data on funding sources) rose from less than 10% in 2006 and 2007 to over 20% in 2009. Funding from multilateral and bilateral agencies was more significant for low-income countries than middle-income countries (see income group trends). In the latter group of countries, funding from public financial institutions remained marginal in the aftermath of the crisis.23

17 Fitch Rating Brazil Infrastructure Sector Balancing Opportunities and Risk, November 6, 2010.
18 IMF (2010) Regional Economic Outlook Western Hemisphere: Heating up the South, Cooler in the North, October 2010.
19 The Economist, Brazil’s Development Bank nest egg or serpent’s egg?, August 5, 2010.
21 “Of the senior debt in PPP projects in India, commercial banks provided 70%, and four-fifths of this by public sector banks.” See Clive Harris and Sri Kumar Tadimalla (2008) Financing the boom in private-public partnerships in India infrastructure trends and policy implications, PPIAF Gridline Note No. 45 December 2008.
23 For instance in Latin America, while many countries have public banks, only in a few of them (Argentina, Brazil, Chile, Costa Rica, Dominican Republic, Uruguay, and Venezuela) account for more than 10% of banking system assets. In addition, credit from public banks had been declining across the region before the Lehman collapse. Since then credit from public banks has played a significant role in a few countries (Brazil, Chile, and Costa Rica). Regional Economic Outlook Western Hemisphere: Heating up the South, Cooler in the North, October 2010.
Funding to new PPI investment after the full onset of the crisis became more conservative; projects raising financing were able to do so at lower debt/equity ratios. The percentage of projects with debt/equity ratios of 80/20 or higher (from those with available debt/equity data) fell from around 30% in 2006–07 to 17% in 2009 (figure 7a). Measured by dollars of investment, the drop in the share of projects with debt/equity ratios of 80/20 or higher was even more pronounced from 45% in 2007 to 17% in 2009 (figure 7b).

The move towards more conservative structures (lower debt/equity ratios) in the aftermath of the crisis occurred across all developing countries (figure 8). Brazil and India were among the few countries that were still able to maintain nearly the same amount of funding with ratios of 80/20, while actually increasing the total level of investment in PPI projects in both 2008 and 2009 with most of the additional investment in PPI being through more conservatively funded (i.e. 60/40 and low-70/30 projects). By source of funding, private sector funding experienced the most pronounced move toward conservative structures. In 2007, most PPI investment (with data on funding sources) that was funded primarily through private sector sources (50% or more of project cost) was directed to projects with debt/equity ratios of 80/20 or higher. By contrast, almost no investment funded primarily through private sector sources went to projects with debt/equity ratios of 80/20 or higher in 2009 (figure 9). This analysis, however, should be taken with caution given that investment with data on debt/equity ratios represents only 40% of investment funded primarily through private sector sources.

Public sector funding also became more conservative with the bulk of that investment being directed to projects with debt/equity ratios of 70/30 or lower. Another interesting trend in 2009 was the increase in absolute values of the investment in projects funded primarily through public sector sources with debt/equity ratios of 80/20 or higher. This trend might reflect the willingness of public sector funding to step into some projects as private sector funding retreated. This might also explain the fact that donor funding (multilateral and bilateral agencies) became more willing to participate in projects with debt/equity ratios of 80/20 or higher in the aftermath of the crisis.
Figure 8 Investment in new PPI projects in developing countries with funding, by debt/equity ratio and group of countries, 2006–09

2009 US$ billions*

Brazil and India

Rest of developing countries

50s/50s or lower
60s/40s
Low 70s/30s
High 70s/30s
80s/20s or higher
Not available

Source: World Bank and PPIAF, PPI Project and Sources of Funding databases.

* Adjusted by US CPI.

Figure 9 Investment in new PPI projects in developing countries, by source of funding and debt/equity ratio, 2006–09

2009 US$ billions*

Source: World Bank and PPIAF, Sources of Funding databases.

* Adjusted by US CPI.

With 50% or more of public funding

With 50% or more of private funding

With multilateral or bilateral donor funding

With 50% or more of public funding

With 50% or more of private funding

With multilateral or bilateral donor funding

50s/50s or lower
60s/40s
Low 70s/30s
High 70s/30s
80s/20s or higher
Not available
C. Sector trends

Energy and transport were the sectors with the most available information, having over 40% of new projects with information on sources of funding. These projects with available information accounted for 60% and 50% of total PPI investment in energy and transport, respectively. Higher percentages of new projects have information regarding their sources of funding in both sectors (figure 10). Telecommunications also had 40% of new projects with data on funding sources, but those projects represented just 7% of the total investment in the sector. Water and sewerage had the opposite situation: less than 10% of the projects had data on funding sources, but they represented 45% of the sector investment.

While the private sector was the main funding source for energy and transport projects until 2008, public sources provided a significant share of the funding, and that share increased in the aftermath of the crisis. In energy, private sector sources provided around 70% of the funding for PPI investment (with data on funding source), while the public sector (local and foreign) accounted for the remaining 30% in 2006–07. Since then public sources have funded most of the growth in PPI investment in energy, accounting for more than 50% of sector investment in 2009 (figure 11). Transport saw similar trends. The share of private funding in PPI investment in transport (with data on funding source) was around 70% in 2006–07, and public sources accounted for the remaining 30%. Since then, private funding fell faster than PPI investment in transport, and, consequently, the share of private funding in sector investment dropped to less 50% in 2009.

Public funding played even a bigger role in water projects, but a minimum role in telecommunications projects. Water and sewerage was the sector that attracted the lowest PPI investment and most of that investment was funded by public sources. Private sector sources funded just one-third of PPI investment in the sector (with data on funding sources) while the remaining two-thirds was funded by public sources (figure 12). The limited data in telecommunications indicates that new telecommunications projects continued to rely on private sector sources for funding.
The mix of public funding sources varied across sectors and countries. Energy projects obtained public funding primarily from domestic financial institutions, which accounted for 30% of total energy investment (with data on funding sources) in 2006–09. Donor funding represented 8% of that investment, driven by its contribution in 2008. Government funding (grants or equity contributions) accounted for 1% of energy investment. Public funding (domestic and foreign) to energy projects was primarily directed to power plant projects that relied on power purchase agreements (PPA) with public entities as a main source of revenue (figure 13). Power plants with PPA with public entities accounted for most of the private activity in energy.

The main funding sources for PPI activity in energy, however, varied across countries. Two countries (Brazil and India) accounted for most of the growth in PPI investment in energy and the increasing role of public funding sources (figure 14). The remaining developing countries saw PPI investment in energy fall overall in the aftermath of the crisis. In these remaining developing countries private sector sources continued to be the main funding source for investment in energy after the crisis. For these countries, funding from multilateral and bilateral agencies became more significant in the aftermath of the crisis, raising their share in investment in energy (with data on funding source) from around 10% in 2006–07 to 18% in 2008 and 15% in 2009.
Transport projects also obtained public funding primarily from domestic public financial institutions, which accounted 16% of transport investment (with data on funding source) in 2006–09. Donor funding represented 9% of that transport investment, thanks to its contribution during the most acute phase of the crisis. Government funding accounted for 8% of transport investment but was concentrated in one project: the US$3.5 billion Gautrain light rail concession in South Africa. Funding from local public financial institutions was primarily concentrated in projects relying on user fees as a main source of project revenue, while multilateral and bilateral funding support was concentrated on projects relying on government payments such as road concessions with availability payments (figures 15 and 16). Railways and roads were the subsectors with the largest share of public funding, which represented 50% of the investment in railways and one third of the investment in roads in 2006–09. Public funding to airports and ports accounted for around 20% of the investment to these subsectors in the same period.

The primary funding sources for transport projects also varied across countries. In Brazil and India, funding came in almost equal shares from local public financial institutions and private sources in 2006 and 2009, the two years with most available data (figure 17). In 2008–09, investment in transport projects in the other developing countries dropped 60% from 2006–07 levels. The reduced investment in 2008–09 was funded almost entirely by private sources (65%) and donor agencies (30%).
Water projects had public sources as their primary source of funding as these sources provided 61% of funding for investment in water projects (with data of funding source) in 2006–09. Local financial institutions by provided 34% of that water investment followed by government funding with 14% and donor funding with 13% (figure 18).

Debt/equity ratios became more conservative in energy than in transport projects in the aftermath of the crisis. The share of highly-leveraged energy investment (projects with debt/equity ratios of 80/20 or higher) fell from over 40% of energy investment (with data on funding sources) in 2006–07 to around 15% in 2008–09 (figure 19). In transport, the share of highly-leveraged investment dropped from 50% in 2007 to 33% in 2008–09. The limited activity in water also showed a move toward more conservative debt/equity ratios (figure 20).

Projects with revenues guaranteed by the government (through purchase agreements with public entities or payments from the government) were able to maintain funding at higher debt/equity ratios than projects without such guarantees. Among energy and water projects relying on purchase agreements with public entities as a main source of revenue, the share of investment with debt/equity ratios of 80/20 or higher remained around 20% from 2007 to 2009 (figure 21). By contrast, such a share for projects relying on purchase agreements with private entities fell from 50% in 2007 to 1% in 2009. A similar trend occurred in transport where projects relying on payments from the government (availability payments, or payment to cover project cost, etc) were able to raise most of the funding with debt/equity ratios of 80/20 or higher throughout the crisis (figure 22). By contrast, projects relying on user fees as main source of revenue saw the share of investment with debt/equity ratios of 80/20 or higher fall from 46% in 2007 to 12% in 2009. The high debt/equity ratio in projects relying on government payments in developing countries is consistent with the experience in developed countries. For instance, PFI projects in UK are typically funded with 90% of debt and 10% of equity.24

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Figure 21 Investment in new PPI projects in energy and water with available information on funding sources, by revenue source and debt/equity ratio, 2006–09

Source: World Bank and PPIAF, PPI Project and Sources of Funding databases.

Figure 22 Investment in new PPI projects in transport with available information in funding sources, by revenue source and debt/equity ratio, 2006–09

Source: World Bank and PPIAF, Sources of Funding databases.
D. Income group trends

Low-income countries were the group with most available information, having 55% of new projects with data on funding sources, which accounted for 29% of total PPI investment and approximately 75% of the investment in new projects (figure 23). Lower and upper-middle income countries had smaller shares of new projects with data on source of funding, representing around 30% of total PPI projects in each group. But they accounted for 72% of the investment in new projects in upper-middle-income countries and 63% in lower-middle-income countries.

The mix of funding sources varied across income groups and by sectors within them. In low-income countries, the private sector was the main provider of funding, contributing 60% of the investment in new projects (with data on funding sources) in 2006–09, (figures 24a). Multilateral and bilateral agencies followed by funding 32% of the investment. The remaining 8% was evenly distributed between government and local public financial institutions. Telecommunications accounted for most private funding to PPI (figures 24a).

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Figure 23 Investment in PPI projects in developing countries, by income group, implementation status and availability of data on funding sources, 2006–09

Figure 24a Investment in PPI projects in low income countries, by subgroup and funding source, 2006–09

Figure 24b Investment in PPI projects in low income countries, by sector and funding source, 2006–09

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25 Countries are classified by income group as low-income (2008 GNI per capita of US$975 or less), lower-middle-income (US$976–3,855), or upper-middle-income (US$3,856–11,905) as defined by the World Bank country classification published in July 2009.
Energy was the primary beneficiary of donor funding. Multilateral and bilateral agencies provided 60% of the funding to new energy projects (with available data) in 2006–09. Private sources provided 28% of the funding, local public financial institutions 10%, and government the remaining 2%. This analysis includes 90% of the investment in new energy projects in low-income countries.

Transport also saw strong donor funding but most came from private sources. Private sources provided 66% of the funding to new transport projects (with available data) in 2006–09. Donor agencies contributed 23% and governments funded 11%. Most of the PPI investment in transport was directed to port projects (over 60%). This analysis includes 80% of the investment in new transport projects in low-income countries. Funding for PPI activity in IDA countries saw similar trends across sectors.26

In lower-middle-income countries, the private sector contributed 52% of the funding for the investment in new projects (with data on funding sources) in 2006–09 (figure 25a). Local public financial institutions followed by funding 38% of the investment. Multilateral and bilateral agencies provided 7% and government the remaining 3%. Energy benefited the most from local public financial institution funding, which accounted for 47% of funding in new energy projects (with data on funding sources) (figure 25b). Private sources followed with 44%. Donor agencies accounted for 9% of the funding and government for the remaining 1%. This analysis accounts for 72% of total investment in new energy projects in lower-middle-income countries. India accounted for most of the funding from public sources. If India were excluded, the private sector would have contributed 76% of the funding for investment in new projects, followed by donor funding with 16%.

Transport data suggest that private sources were the main source of funding, accounting for 60% of investment in new projects (with data on funding sources). Local public financial institutions followed with 32%, and the remainder was evenly distributed between government and donor funding. This analysis, however, should be taken with caution as the available data represents only half of the investment in new transport projects.

IDA is a concessional lending category for the World Bank Group. IDA eligibility depends on a country’s relative poverty, defined as GNI per capita below US$1,135 in fiscal year 2010. IDA also supports some countries, including several small island economies, which are above the operational cutoff but lack the creditworthiness needed to borrow from IBRD.
In upper-middle-income countries, the private sector contributed 76% of the funding for investment in new projects (with data on funding sources). Local public financial institutions followed with 13% of the investment, donor agencies provided 6% and government the remaining 5%. Energy accounted for most of private funding sources, which provided 78% of funding in new energy projects (with data on funding sources) (figure 26). Local public financial institutions followed with 16% of funding. Multilateral and bilateral agencies accounted for 4% of the funding and government the remaining 2%. This analysis accounts for 73% of the investment in new energy projects in upper-middle-income countries.

In the transport sector, private sources were also the primary source of funding for investment in new transport projects, accounting for almost 73% of investment in new projects (with data on funding sources). Multilateral agencies followed with 12% and then government sources with 10%. The remaining 5% was funded by local public financial institutions. This analysis accounts for 67% of the investment in new transport projects in upper-middle-income countries.
E. Regional trends

South Asia (SA) and the Middle East and North Africa (MENA) were the regions with the most available information, having over 50% of new projects with data on sources of funding. Europe and Central Asia (ECA), Sub-Saharan Africa (SSA), and Latin America and the Caribbean (LAC) had around 40% of the projects with data on sources of funding, while in East Asia and the Pacific (EAP) only 15% of the new projects had data on sources of funding. New projects with information on sources of funding represented low shares of total PPI investment in all developing regions, ranging from 21% in SSA to 45% in SA. However, in most regions these projects accounted for three-quarters or more of investment in new PPI projects (figure 27). The only exceptions were LAC and EAP where such projects represented 62% and 40% of investment in new PPI projects, respectively.

While the private sector was an important source of funding to PPI investment in all regions, its share varied significantly across regions. In ECA and MENA, private sector sources provided 90% and 64% of the funding to PPI investment (in new projects with available data on funding source), respectively, in 2006–09 (figures 28 and 29). The remainder of the funding was provided primarily by multilateral and bilateral agencies in ECA and by the three sources of public funding (local public financial institution, government, and donor agencies) in roughly similar shares in MENA.
There was some sector concentration in the funding provided by public sources. In ECA, donor funding was primarily directed to transport projects implemented in the aftermath of the crisis (figure 30). In MENA, public sources of funding provided one-third of the funding for new investment in energy and transport projects and almost all of the funding for new water projects (figure 31).

In SA over the 2006-09 period, local public financial institutions were the main source of funding, accounting for 60% of the funding (in new projects with available data on funding source), and private sector sources played a complementary role, providing 40% of the funding to PPI investment. A similar trend was reported in activity measured by number of projects, with two-thirds of the projects obtaining more than 50% of funding from public sources. Most of the activity in this region was concentrated in just one country: India. The energy sector accounted for most of the public funding and showed a strong growth throughout the most acute phase of the crisis (figure 32). The investment growth reflects the strong PPP program in India rather than no effect of the crisis in the financial closure of new projects. Projects in advanced stages of development during the most acute phase of the crisis were adversely affected by the decrease in credit availability and risk aversion prevalent in financial markets. Foreign debt availability dried-up while domestic lenders took a relatively longer time (than during the pre-crisis period) lengthening the timeframe for achieving financial closure by about six months. Equity financing was the hardest hit among sources of financing for PPI/PPP projects.

In SSA over the 2006-09 period, private sector sources contributed 50% of the funding to PPI investment (in new projects with available data on funding source) while public sources contributed the remaining 50%. Telecommunications accounted for most of the private funding. Most of the public sector funding came from government, and was directed to one project: the US$3.5 billion Gautrain light rail concession. Nevertheless, activity measured by number of projects also saw strong public sector support; with 45% of the projects obtaining more than 50% of their funding from public sources. Another interesting feature of the region was the key role that multilateral and bilateral agencies played. These agencies provided 17%

of the funding to PPI investment in new projects with most of this funding going to energy and transport projects (figure 33). In energy, multilateral and bilateral agencies contributed 54% of the direct funding to cover investment commitments in 2006–09. The private sector provided 45% and the government funded 1%. The remaining 5% of energy investment did not have information on sources of funding.

In LAC over the 2006-09 period, private sector sources contributed 67% the funding to PPI investment (with data on funding source), and public sources 33%. But, just one country (Brazil) drove most of public funding to PPI. If Brazil were excluded, private sector sources would have funded 90% of regional investment in new PPI projects (with available data on funding sources). Local public financial institutions provided most of the funding to PPI investment in new energy and water projects (figure 34). In both cases, Brazil accounted for a large share of PPI activity. In transport, the share of private funding is difficult to assess given that half or more of the annual investment in three of the four reviewed years did not have information on sources of funding. Many of the projects without information on funding sources were concessions of existing assets, primarily roads, in which the private sponsors took over the operation of the assets with limited short-term finance such as bridge loans until the private sponsors were able to raise long-term finance. In Brazil, for example, some new concessionaires have used short-term financing from private sources to finance the items not eligible for BNDES’s long-term financing (e.g. expropriation and environmental costs, upfront concession fees, imported equipment).28

In EAP, the limited data permit one to make only an observation regarding the funding sources for energy projects. In the two years for which most of the investment to energy projects had information on sources of funding (2006 and 2009), the bulk of the funding to energy projects came from the private sector (68% in 2006 and 66% in 2008) and multilateral and bilateral agencies (19% in 2006 and 31% in 2008)(figure 35). In the other two years under review (2007 and 2009), less than half of the investment in energy projects had information on sources of funding so data provide only a partial picture. For investment with funding data, private sources were almost the only funding source in 2009 while donor funding was the main source of funding in 2007.

Debt/equity ratios became more conservative across developing regions with only ECA and SA being able to finance projects with high debt/equity ratios in the aftermath of the crisis. The share of highly leveraged investment (projects with debt/equity ratios of 80/20 or higher) was over 50% (of investment with available debt/equity ratio data) in ECA and 20% in SA in 2009 (figure 36). In SA, such a share represented a significant decline from the level experienced in 2006–07 (over 30%). In ECA, it is difficult to assess the change from the pre-crisis period given the limited information of debt/equity ratios of projects implemented in 2006–08.
F. Type of PPI

Approximately one-third of new greenfield projects and concessions had data on sources of funding, but these projects represented 70% of the investment in new greenfield projects and 50% of all investment in new concessions (figure 37). Among divestitures, half of all new projects had data on sources of funding, accounting for 80% of the investment in new divestitures.

The mix of funding sources also varied across types of PPI. Greenfield projects, which accounted for most of the new PPI activity, got roughly equal funding from public sources (52% of new investment with data on sources of funding) and private sources (48%) in 2006–09. Local public financial institutions were the main source of public funding for new greenfield projects and accounted for most of investment growth in greenfield projects in 2009 (figure 38). Multilateral and bilateral agencies also played an important role, contributing 11% of the funding. By sector, energy (primarily power plants) accounted for most of the greenfield activity.

Across countries, Brazil and India accounted for almost all funding from local public financial institutions and almost all of the growth in investment in the last few years (figure 39). The remaining countries saw investment in new greenfield projects decline while the funding from multilateral and bilateral agencies became significant. These agencies provided more than 25% of funding for investments in greenfield projects in the remaining countries in 2008–09. Divestitures obtained almost all the funding from private sources. Almost all new activity in divestitures took place in countries other than Brazil and India (figure 40).
The data on concessions suggests that most of the funding came from private sector sources, but it was hard to ascertain if this was an accurate trend given that more than half of the new investment in most years did not have data on source of funding data. Transport accounted for most of the activity in concessions. Brazil and India accounted for almost all funding from local public financial institutions to concessions while the remaining countries relied primarily on private sector sources (figure 41).

Debt/equity ratios became more conservative, primarily for greenfield projects. The share of greenfield projects with debt/equity ratios of 80/20 or higher fell from 40% in 2006, to 32% in 2007, and then to 15% in 2009 (figure 42). A similar trend was reported in greenfield activity measured by investment (figure 43). In the case of concessions, the share of projects with debt/equity ratios of 80/20 or higher remained around 30% throughout the reviewed period, but the investment associated to those projects fell substantially.
Figure 42 PPI projects with source of funding data, by type of PPI and debt/equity ratios, 2006–09

Source: World Bank and PPIAF, Sources of Funding databases.

Figure 43 Investment in new PPI projects with source of funding data, by type of PPI and debt/equity ratios, 2006–09

Source: World Bank and PPIAF, Sources of Funding databases.
G. Limitations of the pilot study

The pilot study is a first attempt to assess the available information on sources of funding for PPI projects that reached contractual or financial closure in all four infrastructure sectors in all developing countries. To make possible such sector and geographic coverage, the depth of the information was limited to the basic type of entities providing funding and amounts of funding. It is important to keep these limitations in mind when relying on this study.

Rather than an accurate measurement of public and private sector contributions to each project, this study aims to identify the contributions the main sources of funding made to the project cost (or investment) indicated in the PPI/PPP contract. Consequently, the study considers the project cost (or investment to be financed) as those stipulated in the PPI/PPP contract or project which might not include all costs of developing a project (such as land acquisitions that the granting government is responsible for). In those cases, the contribution of public funding might have been understated. Non-cash government contributions such as support through concessional loans, tax exemptions, or guarantees on payments, revenues, interest rates, and exchange rates also have not been included in the analysis.

The definition of each of the sources of financing used in this study (government, local public financial entities, donor community and private sector) was aggregated in an attempt to maximize the number of projects for which funding information is available. The data collected do not allow a distinction among the different types of private sources (sponsors, private banks, institutional investors, venture capital). Similarly, the data did not differentiate the nationality (domestic versus foreign) of the funding source.

The pilot study does not seek to analyze the factors that facilitate or hinder the financing of infrastructure projects in specific regions or countries. Instead, it provides a first approximation to identify sources of funding by assessing the extent to which contributions of different sources of funding are publicly available at the project level.

While the period of study includes different market environments (pre-crisis and crisis) and, therefore, some conclusions regarding the impact of the crisis on sources of financing have been drawn (such as changes in sources of funding and in debt/equity ratios), the study does not intend or represent an analysis of the crisis on the financing of PPI/PPP projects.

The analysis presented here is a snapshot of sources of funding at contractual or financial closure and, therefore, does not include changes through the life of the project. Infrastructure projects are often refinanced throughout the contract periods which range from 15 to 30 years or more.
H. Conclusions

This study documents the funding sources for PPI/PPP projects in developing countries and reveals interesting trends in the mix of private and public funding for medium and large PPI/PPP projects in 2006–09. Overall the private sector (via private commercial banks and private sponsors) was the primary, but not the only, funding source for new PPI/PPP projects. Public sources, such as: local public financial institutions, governments, and donor agencies, also made important contributions, particularly since the onset of the crisis. The mix of funding sources varied significantly across countries and sectors. Countries with strong public financial institutions (such as Brazil and India) relied on those institutions to fund a large share of the investment in PPI/PPPs. Low-income countries and most of SSA depended on donor and government funding to finance an important share of PPI/PPP projects. Most of the remaining developing countries relied mainly on private sources.

By sector, telecommunications and water presented the most contrasting situations. Telecommunications, the sector that accounted for the largest share of total investment in PPI/PPP, was almost exclusively financed by private sources. By contrast, water, the sector with the smallest (and declining) share in PPI investment, saw the limited investment in PPI/PPP being heavily supported by public funding from the government, local public financial institutions, and donors. This contrast in the mix of funding reflects the relative progress of these sectors to achieve commercial viability. Among infrastructure sectors, telecommunications has been the most successful in achieving and maintaining cost recovering tariffs. The water sector, on the other hand, has had the greatest difficulty in implementing cost recovering tariffs and commercial discipline to service providers. So long as these difficulties remain, private participation in water projects and private funding to those projects will remain limited. Most of the recent PPI activity in water was concentrated in small water treatment plants and concessions for small utilities with limited investment commitments from the private sector. The average and median investment of water projects in 2006–09 were US$45 million and US$14 million respectively.

Energy and transport—the sectors that accounted for most of the new PPI/PPP activity—showed more diverse sources of funding. In energy, private sources accounted for 60% of PPI investment in 2006–09, followed by local public financial institutions (30%) and donor agencies (8%). Most of funding from local public financial institutions went to projects in Brazil and India, while donor funding supported primarily projects in low-income countries and in EAP. Energy projects selling electricity through long-term purchase agreements with public entities attracted most of the overall funding and most of the private funding, reflecting the predominance of this type of project and also suggesting that public off-takers provide comfort to private lenders through either explicit or implicit government guarantees. Energy projects selling electricity through long-term purchase agreements with private entities also reported growing funding from both public and private sources, suggesting that adequate legal and regulatory frameworks also make those projects bankable.

In transport, private sources accounted for almost two-thirds of PPI investment in 2006–09, followed by local public financial institutions (16%), donor agencies (9%), and governments (8%). Similar to energy, most of the funding from local public financial institutions went to transport projects in Brazil and India. Donor funding was directed to most developing regions but it was more prominent in low-income countries and in ECA in the aftermath of the crisis. By subsector, roads and railways accounted for most of the public funding while airport and ports—activities with rapidly growing demand and tariffs set on, or linked to, a hard currency—relied primarily on private funding.
The period of this study covers two very distinctive phases regarding the conditions prevalent in the global financial markets. In the first phase (from 2006 to the first half of 2008), global financial markets were characterized by an excess of liquidity and some aggressive lending practices (higher debt/equity ratios, more flexible covenants); all of which made private funding more easily available. In the second phase (second half of 2008 and 2009), global financial markets were characterized by an abrupt reduction of liquidity and a consequent “flight to quality” of banks and other financiers.

While it is unlikely neither phase will be repeated in future conditions of global financial markets, trends within each phase provide some insights. In the first phase, most of the funding for PPI/PPP came from private sources (commercial banks), but projects implemented in difficult environments (due to affordability issues or underdeveloped legal and regulatory frameworks such as energy and transport projects in low-income countries) still required significant public funding from donor agencies and governments. In less favorable credit market conditions, private funding for this type of projects was even scarcer. In the second phase, private funding became very selective across the board and the financial conditions for projects able to raise financing became more stringent with lower debt/equity ratios, shorter tenors, and more conservative structures (e.g., banks are tightening the covenants in loans, transferring risk to borrowers). Highly-leveraged projects (with debt/equity ratios of 80/20 or more) became less common and were concentrated on projects with revenues guaranteed by the government (through purchase agreements with public entities or government payments) or with significant donor support.

Although the conditions of global financial markets have improved since 2009, the competition for reduced private credit is expected to continue as the demand for financing of PPI/PPP projects grows. Developing country governments have regained interest in PPI/PPP arrangements as a policy instrument to attract badly–needed investment for infrastructure from 2005 on. Annual investment commitments to PPI/PPP projects more than doubled in developing countries between 2004 and 2009. The rapid recovery of developing economies from the crisis has reenergized the interest in PPP and many countries are designing or launching PPP projects or ramping up their existing programs. The greater selectivity in global financial markets would imply that projects with strong financial and economic fundamentals and sound legal and regulatory frameworks are the most likely to obtain private financing.

An important caveat to this study is that it considered project cost from the private sector perspective, not the public sector perspective. In many cases the project cost from the public sector’s perspective is higher because it includes the cost of preparatory work to design and take the project to the market, as well as the cost of other forms of fiscal support (such as tax breaks, in-kind grants, and guarantees), which are often large but difficult to estimate. Regarding the preparatory work, usually the more a government spends on this, the better prepared a project is and, possibly, the more cost effective in the longer run. Conversely, limited project preparation might lead to, for instance, major cost revisions. The cost of other forms of fiscal support depends crucially on the quality of the government decisions to deploy public resources to PPI/PPP projects. Consequently, this analysis provides only a partial view of the government support to these projects.

Moreover, key policy questions such as: the fiscal cost of PPPs, the value of contingent support (guarantees), actual government payments following PPP implementation, and the impact of PPP renegotiations on government obligations go beyond the scope of an initiative like this one which aims to capture global market trends. In-depth case studies of selected PPI/PPP projects are better equipped to analyze those policy questions and shed some light on them as those studies can usually access to much
more detailed information for subset of projects than a comprehensive exercise such as this pilot study can do.

While partial, the data from this study provides valuable insights into how PPI contracts have been funded and the variations across regions, sectors, and types. Updates of this study could be undertaken periodically to assess changes in the mix of sources of funding. Future exercises, however, could explore new information sources such as PPP units or ministries of finance, which could provide information on other forms of fiscal support (such as in-kind grants and guarantees).
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Annex A: Scope of the pilot study and methodology

Given that the universe of projects in the PPI database is fairly large (around 4,600 projects reported in 1990–2009), the pilot study concentrates on a subset of these projects. In order to capture the most recent trends on sources of project funding, the sample chosen includes projects that reached contractual or financial closure between 2006 and 2009. In the selected period, the PPI database reports 1,149 projects distributed across all sectors and developing regions as indicated in table 1. The pilot study also attempted to review sources of finance for additional investment of projects that reached financial closure before 2006.

Table 1.A Infrastructure projects with private participation in developing countries that reached financial or contractual closure, by sector and region, 2006–09

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>Energy</th>
<th>Telecomm</th>
<th>Transport</th>
<th>Water and sewerage</th>
<th>EAP</th>
<th>ECA</th>
<th>LAC</th>
<th>MENA</th>
<th>SA</th>
<th>SSA</th>
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</thead>
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<td>2006</td>
<td>329</td>
<td>120</td>
<td>3</td>
<td>119</td>
<td>7</td>
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<td>38</td>
<td>66</td>
<td>1</td>
<td>79</td>
<td>30</td>
</tr>
<tr>
<td>2007</td>
<td>329</td>
<td>122</td>
<td>30</td>
<td>95</td>
<td>82</td>
<td>123</td>
<td>50</td>
<td>57</td>
<td>12</td>
<td>1</td>
<td>26</td>
</tr>
<tr>
<td>2008</td>
<td>253</td>
<td>115</td>
<td>11</td>
<td>62</td>
<td>65</td>
<td>80</td>
<td>46</td>
<td>58</td>
<td>10</td>
<td>44</td>
<td>15</td>
</tr>
<tr>
<td>2009</td>
<td>238</td>
<td>139</td>
<td>11</td>
<td>50</td>
<td>38</td>
<td>35</td>
<td>69</td>
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<tr>
<td>Total</td>
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<td>85</td>
<td>326</td>
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<td>373</td>
<td>169</td>
<td>250</td>
<td>41</td>
<td>235</td>
<td>81</td>
</tr>
</tbody>
</table>

Source: World Bank and PPIAF, PPI Database

It might seem easy to get data on the sources of financing, but in fact it is difficult. In particular, public sector support for the financing of projects with private participation comes in many forms. In simple cases, the government contributes some of the cash that funds investment, for example as debt, equity, or construction grants. But governments and, more generally, the host country public sector, may also provide land or other inputs free of charge, exempt the project from taxes, protect the project from competition, guarantee loans to the project, guarantee revenue from project’s users, and—crucially—agree to purchase substantially all the output of the project at a predetermined price. A conceptual problem arises in determining which of these forms of support should be counted as public financing and a practical problem arises in getting reliable information on the relevant aspects of the project in a cost-effective way.

On the practical side, publicly available sources of information on projects usually do not provide information about all these aspects of a project. Even more, the sources sometimes disagree with each other, even about facts as basic as the total cost of the project. In principle, it would be possible to get the information by reviewing the contracts and interviewing people closely involved in the projects. But in practice this is usually too costly, and the confidentiality of contracts means that some relevant information may be impossible to obtain. And even if all the information on the project were available, quantifying the value of some forms of government support, such as guarantees, is difficult.

The conceptual problem of deciding what to count as public financing is similar to the problem that accountants face in deciding whether a privately financed project belongs on the government’s balance

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29 This section benefited greatly from the contributions of Timothy Irwin.

30 Initially the pilot study included projects that reached closure between 2006 and 2007, but the sample was extended to 2008 and 2009 to capture the impact of the crisis on the availability of sources of finance.
sheet or the project company’s balance sheet. Accountants have developed criteria that refer to the balance of the project’s risks and rewards or to control over the project’s assets. Using these tests, they have concluded that many privately financed projects in developed countries are essentially public projects for accounting purposes and belong on the public sector’s balance sheet. Taking a similar approach, one could try to classify projects as public or private according, say, to International Financial Reporting Standards (and IFRIC 12 in particular). But the accounting approach would be difficult to apply due to the limited available information on public sources on a project, and it does not do justice to the genuinely mixed nature of the financing of many projects.

Considering the practical limitations of measuring all public sector contributions and the goal of the study (to assess the level of available information in a cost-effective manner), the pilot study took a simplified approach by attempting to quantify some, but not all, of the public sector’s contributions and, consequently, does not aim to say whether a project is mainly public or private. In particular, the pilot study focused on:

- quantifying the contributions to the cost of investment by the private sector, the host country public sector, and foreign official sources;
- noting whether the project gets its revenue from users (as, for example, in an electricity distribution concession), from the public sector (as in a typical power generation project) or from a mix of the two sources (e.g. a toll road with an operating subsidy or a revenue guarantee);
- noting, but not estimating the value of, other forms of support provided by the government (e.g. contributions of land, tax breaks, loan guarantees);
- noting changes in the contributions to the cost of investment by the private sector, the host country public sector, and foreign official sources after June 2008 (as a first approximation on measuring the impact of the global financial crisis on the mix of sources of funding); and,
- determining if information on sources of funding in PPI projects can be obtained in a comprehensive and cost-effective manner so that the exercise can be done periodically.

Similar to the PPI database, the sources of funding in PPI database relies on publicly available sources for gathering its information. This approach was taken in order to assess how much information is available in the public domain, and to undertake the exercise in a cost-efficient manner.

The starting points were the PPI database, whose project description field has captured any financial information on a project that the PPI database research team found as part of the annual update, and the impact of the crisis on new PPI projects database, which tracked the projects that reached financial closure in the aftermath of the global financial crisis.31 The information on these two databases was complemented with a systematic review of the key commercial databases on infrastructure projects, including:

- Dealogic’s Projectware database,
- Infrastructure Journal’s project database,
- Project Finance International’s deal data,
- Global Water Intelligence’s PPP tracker,

31 “Impact of the financial crisis on PPI” database includes 1,080 infrastructure projects with private participation in developing countries that were trying to raise financing on a project finance basis or were at an advanced stage of tender between January 2008 and March 2010. See Izaguirre (2010), “Investment in new private infrastructure projects in developing countries slowed down in the first quarter of 2010”, PPI data update note 38, PPIAF and World Bank.
- Targeted searches in Factiva using combinations of project name, project company, sponsors, and
- Google targeted searches using project name or a combination of sponsor name, country, and sector.

Two types of review were conducted. First, all projects that reached contractual or financial closure in 2006–09 as reported in the above mentioned commercial databases were reviewed to collect available information on sources of funding. Second, for projects with at least partial information on funding sources, targeted queries were undertaken in the news and reports sections of the above mentioned commercial databases as well as in Google and Factiva. In addition, annual reports and financial reports such as annual filings to stock exchange regulators were reviewed for a selected number of telecommunication operators.32

The projects included in the sources of funding in PPI database are those that have adequate information on how the project cost or total investment commitments has been covered and the amount of debt and equity provided by each type of entity (public or private), and debt equity ratio, if applicable. Of the projects that reached contractual or financial closure in 2006–09, a total of 415 projects had sufficient information to be included in the sources of funding database. This has been broken-down by year, sector and region as indicated in table 2.

Table 2.A Infrastructure projects with private participation in developing countries that reached contractual or financial closure and information on sources funding for project cost, by sector and region, 2006–09

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>Energy</th>
<th>Telecomm</th>
<th>Transport</th>
<th>Water and sewerage</th>
<th>EAP</th>
<th>ECA</th>
<th>LAC</th>
<th>MENA</th>
<th>SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>106</td>
<td>38</td>
<td>11</td>
<td>53</td>
<td></td>
<td>16</td>
<td>16</td>
<td>23</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>2007</td>
<td>106</td>
<td>50</td>
<td>12</td>
<td>38</td>
<td>6</td>
<td>15</td>
<td>16</td>
<td>30</td>
<td>8</td>
<td>26</td>
</tr>
<tr>
<td>2008</td>
<td>105</td>
<td>60</td>
<td>7</td>
<td>30</td>
<td>8</td>
<td>16</td>
<td>22</td>
<td>24</td>
<td>8</td>
<td>27</td>
</tr>
<tr>
<td>2009</td>
<td>97</td>
<td>66</td>
<td>5</td>
<td>23</td>
<td>3</td>
<td>10</td>
<td>24</td>
<td>21</td>
<td>3</td>
<td>32</td>
</tr>
<tr>
<td>Total</td>
<td>414</td>
<td>214</td>
<td>35</td>
<td>144</td>
<td>21</td>
<td>5</td>
<td>8</td>
<td>8</td>
<td>24</td>
<td>125</td>
</tr>
</tbody>
</table>

Source: World Bank and PPIAF, Sources of funding on PPI database

Using this set of projects, the report assessed how effective the reviewed public sources are to provide that data on sources of funding for PPI projects in a comprehensive and systematic manner. The analysis was undertaken at the global level as well as sector, regional and type of PPI levels.

Information on sources of funding for additional investment in previously implemented projects was difficult to find and assess. In some cases, information was not available because project companies and sponsors were not publicly traded companies and therefore did not have any obligation to file or publish any financial report. This was the case of many transport and water projects and their sponsors. In cases in which project companies or sponsors had financial reports publicly available, funding information was usually provided at holding level, involving many subsidiaries that might or might not be included in the PPI database, making it difficult to associate a source of funding with specific project companies (subsidiaries). In addition, in many cases this type of sponsors used corporate finance (at subsidiary or holding level) rather than project finance to fund network expansions and annual capital expenditure once a project became operational. Moreover, retained profits represented a key source of funding for capital expenditure of projects in operation. All of these features make it difficult to determine information on sources of funding for additional investment in previously implemented projects. By sector,

32 The methodological note of sources of funding in PPI database has more information on data sources and gathering process.
telecommunications was the most affected because additional investment accounted for most of the annual investment in the sector and this sector represented the bulk of additional investment in previous implemented projects (figure 1.A).

![Figure 1.A. Additional investment in previously implemented PPI projects in developing countries by sector, 2006–09](image)

The information on funding sources was captured using the following structure:

a) **Funding from private sources**: this is the amount of cash that is derived after deducting the total public cash (domestic and foreign public funding) from the total cost of the project. Because funding from private sources are calculated in this manner, the sources of funding in PPI database includes only projects that have adequate information on how the project cost or total investment commitments has been covered and the amount of debt and equity provided by each type of entity (public or private). It should note that if a private sponsor borrows, through the project company created to implement the project, from a public financial institution to fund its equity contribution (via quasi equity), such borrowing is considered funding from a public source. However, if the private sponsor undertakes such borrowing on its balance sheet, then the equity contribution is considered funding from a private source regardless the source of funding.

b) **Funding from government**: It records the amount of cash that the government provides in the form of a grant, loan or equity participation given by the state, central or local governments.

c) **Funding from local public financial entities or banks**: It includes loans and equity participation provided by government financial institutions and central banks, nationalized banks and state owned development banks and specialized public financial institutions. When a foreign state-owned bank finances a project, such funding is considered private funding from the host country point of view.

d) **Total public funding**: This field captures financing that comes from both domestic and foreign public sources. It is the sum of funding provided by the government, local public financial institutions, and donor (or multilateral and bilateral) funding.

e) **Donor (or multilateral and bilateral) funding**: this is the summation of the loan and equity financing amount provided by bilateral and multilateral agencies. In some cases a project might be financed only by a multilateral agency or a bilateral agency but it could be the case that a project is financed by both.
Multilateral agency agencies include multilateral development banks and Multilateral Financial Institutions (MFIs). The term Multilateral Development Banks (MDBs) typically refers to the World Bank Group and four Regional Development Banks:

- The African Development Bank
- The Asian Development Bank
- The European Bank for Reconstruction and Development
- The Inter-American Development Bank Group

The Multilateral Financial Institutions (MFIs). They differ from the MDBs in a narrower ownership/membership structure or in focusing on special sectors or activities. Among these are:

- The European Commission (EC) and The European Investment Bank (EIB)
- International Fund for Agricultural Development (IFAD)
- The Islamic Development Bank (IDB)
- The Nordic Development Fund (NDF) and The Nordic Investment Bank (NIB)

Bilateral agencies are agencies of individual countries that provide funding to projects and work in co-operation with multilateral agencies. Listed below are some of the bilateral agencies:

- Australian Agency for International Development (AusAID)
- Austrian Development Agency (ADA)
- Canadian International Development Agency (CIDA)
- Danish Development Agency (DANIDA)
- Dep't for Int'l Development Cooperation (Finland)
- Agence Française de Développement (AfD)
- Deutsche Gesellschaft fur Technische Zusammenarbeit (GTZ) GmbH
- Ireland Development Cooperation
- Japan Bank for International Cooperation (JBIC)
- Japan International Cooperation Agency (JICA)
- Kreditanstalt fur Wiederaufbau (KFW)
- Netherlands Development Cooperation
- New Zealand Aid Programme
- Norwegian Agency for Development Cooperation
- Swedish International Development Cooperation Agency (SIDA)
- U.K. Department for International Development (DFID)

f) **Guarantee from multilateral or bilateral agency**: The financial support that either a multilateral or bilateral agency provides in the form of a guarantee such as a political risk guarantee and a partial risk guarantee.

g) **Government guarantee**: A guarantee offered by government for events outside its control. Such a guarantee includes:

*Payment Guarantee*: When a government agrees to fulfill the obligations of a purchaser (typically a state-owned-enterprise) with respect to the private entity in the case of non-performance by the purchaser. The most common example of this is when a government guarantees the fixed payment of an off-take agreement (e.g. Power Purchase Agreement (PPA) or Water Purchase Agreement (WPA)) between a private entity and the state-owned enterprise.
Debt Guarantee: When a government secures the borrowings of a private entity. That is, a government guarantees repayment to creditors in the case of a default by a private entity.

Revenue Guarantee: When a government sets a minimum variable income for the private operator; typically this income is from user fee payments by end-use customers. This form of guarantee is most common in roads with a minimum traffic or revenue guarantee set by a government.

Exchange Rate Guarantee: When a government protects a private entity from fluctuations in the value of the local currency. For example, the government will agree to reimburse the private entity for losses on debt services if the value of the local currency dips by, say, 20 percent or greater.

Construction Cost Guarantee: When a government protects a private entity from potential cost overruns in the construction phase of a project.

Interest Rate Guarantee: When a government protects a private entity from fluctuations in interest rates. Basically, this is the same concept as an exchange rate guarantee with respect to local interest rates.

h) Debt/equity ratio: It records a project company's financial leverage when the project was finance on project finance basis. Debt/equity ratio is equal to long-term debt divided by common shareholders' equity, and is expressed as a ratio such as 70/30. In cases where grant financing is available, the debt equity ratio is modified to include the grant amount. If a project receives a grant equivalent to 10% of the project cost, and obtains debt equivalent to 70% of the project cost, debt/equity ratio would be 70/20/10 indicating debt, equity and grant portions of financing respectively.