CHAPTER 2

Private Investments for Infrastructure

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Abstract  The role of financial investors in infrastructure financing is key to closing the infrastructure gap and to sustaining growth since public budgets do not allow sufficient financing. This chapter reviews existing instruments for private infrastructure financing and discusses the policies that can be put in place to attract private investors. These policies include blended finance mechanisms that are intended to crowd-in money at industry/regional level, as well as more specific measures that sustain the attraction of capital at project level.

Keywords  Infrastructure financing • Policies to attract investors • Project financing • Project bonds • Moral hazard

2.1  INVESTING IN INFRASTRUCTURE

Both PPP projects and privatized infrastructures are financed through a mix of debt and equity. As described in Chap. 1, equity can be invested in the project by corporate/industrial investors (listed or not listed), whose core business is the management of PPP/concession contracts, or by financial investors, such as infrastructure funds (listed or unlisted):
• Corporate industrial investors can invest directly by entering themselves into the contract with the contracting authority (CA), without setting up an SPV. Otherwise, they invest indirectly, by setting up an SPV. Their capital is fundamental during the investment stage, when the risk is higher; thanks to their industrial know-how they can manage and mitigate such risks.

• Financial investors generally invest equity in SPVs, especially during the management phase or in brownfield projects, where risks are limited or more predictable; otherwise, they invest in the equity of corporate/industrial players, especially into listed ones.

On the debt side, fundamentally, there are two approaches: either corporate financing or project financing. In corporate financing schemes, debt is raised directly by the industrial/corporate player, and the set-up of an SPV is not usually needed; in project-financing schemes, the SPV itself borrows capitals through a syndicated loan granted by a pool of banks or from bondholders when the SPV issues project bonds. The SPV is indeed a requirement in the case of a project-financing debt structure because it ring-fences the cash flow generated by the project, which, in principle, is the main form of guarantee provided (Gatti 2013), thus ensuring the provision of debt on a no- or limited-recourse basis. The assets of the SPV become collateral for the loans although they play a secondary role compared to project cash flows. This is in contrast to corporate finance where lenders rely on the borrower’s creditworthiness for their loans. Furthermore, rights and obligations associated with an investment project are related to the SPV only.

For the reasons above, project financing is usually a much higher leveraged transaction compared to corporate financing. In a typical PPP project, up to 70%–80% of financing is procured in the form of senior debt while the share of equity does not normally exceed 20%–30%.

A higher financial leverage allows for optimization of the cost of the overall financial structure (Table 2.1).

One of the main challenges in infrastructure financing is attracting financial investors, such as infrastructure funds and pension funds. Their role is key to closing the infrastructure gap and to sustaining growth since public budgets do not allow sufficient financing, even more so after the Covid-19 pandemic. Conversely, global financial assets are
sufficient to meet the infrastructure financing needs, but the challenge is how to channel them, by enhancing the risk-return profiles of new and sometimes vulnerable investments and generating sustained impact on the ground.

Private capital can be more easily attracted to infrastructure operated in a competitive environment or for privatized infrastructure, such as markets that are dominated by private players, often listed and, therefore, able to raise funds from capital markets. In PPP/concession contracts, where private players are selected to build/revamp infrastructure and operate the service, financing is more critical. This is particularly true for bond financing, which represents a small fraction (about 10%) of the overall debt financing (Gatti et al. 2019) (Box 2.1).

### 2.2 Blended Finance: A Meso-Level Partnership to Attract Investors (also) in Infrastructure

As explained in Chap. 1, blended finance (BF) is a form of meso-level cooperation used to crowd-in private capitals in riskier investments, such as infrastructure PPPs, especially in emerging countries. This form of finance is also used to attract investors in impact investing and SMEs financing. BF is a “structuring approach” rather than an investment approach; it means

| **Corporate financing** | **Project financing** |
|-------------------------|-----------------------|
| Guarantees for financing| Assets of the borrower| Project assets |
| Effect on financial elasticity | Reduction of financial elasticity for the borrower | No or heavily reduced effect for sponsors |
| Accounting treatment | On-balance sheet | Off-balance sheet (the only effect will be either disbursement to subscribe equity in the SPV or for subordinated loans) |
| Main variables underlying the granting of financing | Solidity of balance sheet | Future cash flows |
| Degree of leverage utilizable | Profitability | Depends on cash flow generated by the project (leverage is usually much higher) |
| | Depends on effects on borrower’s balance sheet | |

Source: Gatti (2014)
Box 2.1 How to combine loans and bonds to improve private capital attraction

In order to ensure a sufficient amount of private capitals to contribute to the closure of infrastructure gap, in the framework of new banking rules (Basel III rules), there is the need for capital market instruments, such as project bonds, to complement bank funding. In addition, securitization of bank loans could support lending, broaden the investors’ base, and diversify risks, while also developing capital market instruments (Gatti 2014).

However, considering their long-term expertise in infrastructure financing, banks will continue to play a significant role as lenders during the construction phase of an infrastructure project finance transaction. Indeed, institutional investors are less familiar with the complexities of infrastructure projects and the risks assessment. Instead, they are more interested in the opportunity to invest in assets with a stable cash flow. Therefore, the role of the latter could be to step in during the operational phase by refinancing existing bank loans with a project bond issue.

Bank loans have several advantages vis-à-vis bonds to finance the construction phase:

1. Banks provide a fundamental monitoring role as watchdog.
2. Infrastructure projects need a gradual disbursement of funds (the drawdown of debt is consistent with the implementation of works during the investment phase) and sometimes debt restructuring is needed to cope with project changes that may occur; bank lending offers such required flexibility.

Once the project moves into the operation phase and project risks are lower, loans can be refinanced with other capital market instruments, such as project bonds. This also allows banks to recycle capital to be invested in other greenfield projects.
that it is meant to structure together layers of money coming from different investors, with different profiles, mandates, and expectations. Such structuring approach is based on mixing public and private capital in a common and complementary investment scheme where public or philanthropic sources are used as a catalyst to increase private sector investments and sustainable development, mostly in developing countries.

BF mechanisms involve the following actors:

- public investors, both those with a development mandate and those with a commercial and development mandate—such as various multilateral development banks (MDBs);
- private investors;
- philanthropic investors (such as foundations).

A BF approach is based on three principles: Leverage, Impact, and Return.

- Leverage: meaning using scarce development finance and philanthropic funds to attract private capital through de-risking mechanisms.
- Impact: BF is aimed at generating financial additionality to fund investments able to drive social, environmental, and economic progress; blending mechanisms also allow for the mixing of public and private skills to increase the effectiveness of development-related investments.
- Returns: investments have different returns, ranging from concessional (see below) to market rate, depending on the type of investors involved; the goal of BF mechanisms is to generate returns for private investors in line with market expectations based on the level of perceived risk.

BF mechanisms are intended to support bankable or quasi-bankable projects. For bankable projects, those that meet the expectations of lenders, BF is meant to increase available funding (the so-called financial add-onality) or to provide technical assistance for maximizing the impact as well as reducing political/regulatory risks. For quasi-bankable projects, those that are potentially interesting for lenders, BF allows risk mitigation to attract private capital. Non-bankable projects are not the focus of blended finance since the probability of failure and financial loss is much too high (Convergence 2020).
The most used blended finance models are the following:

1. Co-investment of concessional capital and private capital is the most used type. Public or philanthropic investors provide funds on below-market terms (also known as, on a concessional basis) within a capital structure in order to lower the overall cost of capital, thus making the project viable, or to provide an additional layer of protection to private investors, thus attracting them. Concessional capital includes first-loss debt or equity, investment-stage grants, and debt or equity that bears risk at below-market financial returns, to mobilize private sector investment. The use of concessional capital allows for the financing to be structured with different layers of risk, through:

- A-shares and senior notes to attract institutional investors;
- B-shares, such as mezzanine capital to attract private investors with an appetite for risk;
- Junior tranches of debt and first-loss equity shares dedicated to development finance investors (MDBs, donors, or impact investors).

The capital structure can also include a grant. The combination of grant, guarantee (which is a second form of BF structure), and concessional debt or equity provide greater protection to traditional investors who provide common equity and senior debt.

2. Guarantee and insurance. Public or philanthropic investors provide credit enhancement through guarantees or insurance on below-market terms.

3. Technical assistance facilities. The transaction is associated with grant-funded technical assistance that can be used before or after completion of the investment, to strengthen its commercial viability and impact.

4. Design/Preparation funds that provide grants to support the design or preparation of the transaction.

Blending money can happen at fund or project level. In most cases, the preferred option is to blend financing at fund level in order to generate a higher leverage effect in terms of increased attraction of private capital.
Funds are pools of private or public-private capital, where blending occurs at the capital structure level for public-private funds or at project level (Convergence 2020). Public development resources (sometimes including support from philanthropic investors) come in the majority of cases from facilities, which are earmarked allocations of money; these resources can be invested in development projects through a range of instruments, including the purchasing of shares in collective vehicles such as funds. There is no blending of money in facilities; instead, facilities provide finance to blend money further down at the fund or project level.

2.3 Specific Policy Measures to Attract Investors in PPP Transactions

If BF mechanisms are intended to crowd-in money at industry/regional level, especially for the achievement of development goals, many governments and some supra-national institutions, such as MDBs, also in mature economies, have introduced specific measures to respond to and counterbalance the shortage of capital for infrastructure development, especially targeted to PPP projects. Such measures may be based on five different mechanisms (Gatti et al. 2019; Hellowell et al. 2014; Vecchi et al. 2017), namely:

1. grants, to reduce the capital requirements of the project or to integrate revenues;
2. availability-based payments, to neutralize the demand risk while leaving the performance risk with the private investor;
3. credit-enhancement, such as the very common “minimum payment guarantee,” to reduce or eliminate the credit default risk for lenders, that is, either banks or (more specifically) project bondholders;
4. direct provision of debt and equity capital by government, public financial agencies, or development banks, to offset the liquidity gap;
5. other measures, among them, favorable taxation.

These facilities are not an alternative to blended finance mechanisms since they offer support to specific projects and, therefore, can be combined with blended mechanisms to sustain a stable capital attraction. Table 2.2 provides details of these five main measures.
| Policy measures       | Features                                      | Effects                                                                 |
|-----------------------|-----------------------------------------------|-------------------------------------------------------------------------|
| 1. Grant              | 1. Lump sum capital grant                     | Reducing the need for private capital                                   |
|                       | 2. Revenue grant:                            | Increasing the revenue volume and stability, when the economic operator (EO) retains the demand risk and tariffs are set at socially acceptable levels. It may generate moral hazard, by reducing the incentive for a performing operation |
|                       | 2.1 Periodic fixed amount (mitigating the demand risk) |                                                                 |
|                       | 2.2 Revenue integration (it leaves the demand risk on the private player) |                                                                 |
|                       | 3. Grant on debt interests                   | Reducing the amount of interests due to the debt provider. Rarely used   |
| 2. Availability payment | 1. Availability payment is typical in the social infrastructure sector, where the main user is the public sector. In some cases, availability payment can be used also for economic infrastructure, in which case the service can be delivered free of charge to users or tariffs are collected by the public authority | Eliminating the demand risk Generally, the EO bears the performance risk. It is recommended especially for economic infrastructure instead of the minimum revenue payment |
| 3. Guarantee on debt | 1. Minimum revenue guarantee                 | The demand risk is partially retained by CAs, committed to guaranteeing a certain level of revenues, generally those necessary to ensure the debt service at a pre-set level of DSCR (debt service cover ratio) |
|                       | 2. Guarantee in case of default              | The guarantee covers the payment of outstanding debt (both principal and interest) in the case of private player’s default |
|                       | 3. Guarantee in case of refinancing          | In the context of “mini perm” financial structure (i.e. a debt structure that can—soft mini perm—or must—hard mini perm—be refinanced after the construction phase), the guarantee repays lenders if the private player fails to refinance the loan at maturity, especially in the event of increased interest rates or changed market liquidity |

(continued)
The role of MDBs proves fundamental to facilitate access to private capitals and financial markets, for example, to bond financing, especially in emerging markets, where regulatory, construction, and demand risks can be significantly high. However, facilities to attract investors must be designed to prevent situations of moral hazard. Any form of guarantee that limits the construction risks can seriously reduce the incentives to deliver the infrastructure on time and on budget and, at the same time, generate public debt. In this context, the role of MDBs can be fundamental to crafting balanced facilities and to supporting governments in developing a feasible projects’ pipeline and strengthening the applicable legal framework. As regards the need for mitigation of the demand risk, the use of availability charge payments could be a useful solution, as experienced in Europe after the financial crisis (Vecchi et al. 2015). Availability charge could represent the dominant payment mechanism of the PPP transaction.
Alternatively, the competent authority could use it during the ramp-up period according to a statistical approach based on previous tolls paid by users, keeping the option to switch it to regular toll-based payment, cashed in by the concessionaire when the demand becomes more stable and mature.

However, when a project is heavily supported by public funds or guarantees, economic operators (EOs) may have no incentive to:

1. form optimal bidding consortia;
2. undertake careful and reliable assessments of the project’s features (e.g. capital, operational costs, and demand); or
3. select the best contractors and ensure the project’s overall efficiency.

In other words, public guarantees can undermine the EOs’ incentives to identify, monitor, and minimize project risks and thereby generate substantial additional fiscal burdens for governments and taxpayers (Box 2.2).

**Box 2.2 Strategic behavior in PPP contracts protected by guarantees and the role of public sector skills**

PPP contracts should be able to mitigate the principal-agent problems typically associated with traditional procurement, such as conflicting goals, information asymmetries, and diverging levels of risk aversion. PPP does so by transferring many project risks to private parties, thereby providing stronger incentives for the latter to perform accordingly. However, if incentives are weak, PPPs become similar to standard procurement contracts. In PPP, and in the public-procurement literature in general, evidence has been produced in relation to (1) comprehensive and rigorous contracts, (2) measurable output indicators, and (3) credible sanctions to manage the principal-agent relation (which is the basis of PPP transactions) and to prevent moral hazard by strengthening incentives to deliver high-quality services. These measures are generally suitable for transferring endogenous risks to the concessionaire, such as those related to design, construction, operation, and maintenance, thereby avoiding or reducing the risk of renegotiation. Contract renegotiation, which is defined as a change in the original contractual terms and
Box 2.2  (continued)

conditions (as opposed to an adjustment that takes place within a contract’s provisions), is one of the most pervasive problems in PPP because the underpinning contracts tend to be incomplete. Renegotiations of PPP contracts also result from imperfections in the judicial and regulatory system, economic shocks, and weaknesses in the institutional environment. The most problematic issues arises when a public authority retains the demand risk (partially or totally, directly or indirectly), which is an exogenous risk, as a consequence of revenue guarantees to make projects more bankable and appealing for institutional investors: in these cases, EOs have stronger incentives to adopt strategic behaviors. Strategic bidders are those who include technical or financial features in their bids, which they may not be fully able to meet, with the sole purpose of winning the contract. Such bidders assume the CAs will activate the guarantee and, ultimately, renegotiate or review the contract to ensure its success. In fact, public guarantees exacerbate the problem of adverse selection, which is quite common in the general public-procurement system, where the preferred bidder may be the most optimistic bidder rather than the best one (a situation known as “winner’s curse”). This situation arises from strategies of “low balling” and from optimistic bias in traffic, revenue, or cost forecasts. To overcome these problems public sector competence in PPP transactions proves fundamental to counterbalance the aggressive behaviors of the private sector. To understand the role of public sector skills, we can refer to the results obtained by an agent-based simulation model (Vecchi et al. 2016), based on 120,000 simulations. Figure 2.1 presents a plot of the results; it considers the probability of awarding the project to a strategic bidder (vertical axis) as a function of the environmental propensity for strategic behavior (horizontal axis) for different skill levels of the awarding authority (unskilled; skilled; highly skilled).

The simulation is not relevant for the reported figures on their own, which are the consequence of the specific values of each real scenario included in the simulation. Rather, it shows a robust trend highlighting the fact that the probability of awarding the contract to a strategic bidder falls as the skills of the authority increase, especially

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in contexts with a high propensity to strategic bidding, such as those with weaker institutions or high corruption.

As discussed above, when certain kinds of guarantees are offered in PPP contracts to attract private capitals (e.g., a minimum revenue guarantee, a credit guarantee, or an availability charge), the likelihood of strategic behavior among market participants and the risk of adverse selection may increase. Therefore, it is fundamental, as shown by the simulation, to involve skilled public managers or consultants in the design and implementation of a PPP awarding procedure to reduce information asymmetries or the risk of selecting a strategic contractor, who may rely on the guarantee in order to compensate for poor performance. The same is true also in contexts where there is a higher probability of strategic behaviors.

**Fig. 2.1** The role of skills to reduce strategic bidding (Source: Vecchi et al. 2016)
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