Closing the Infrastructure Finance Gap: Addressing Risk

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1. Introduction

The links between infrastructure and development are well established. They include the impact of infrastructure on poverty alleviation, equity, growth and specific development outcomes such as job creation, market access, health and education (Calderón and Servén 2004, 2008, 2010; Straub 2008). These relationships are complex and dynamic; even with respect to growth and job creation, infrastructure's effects are felt through multiple channels.[1] The demand for infrastructure is rising with the accelerating pace of globalisation and urbanisation. Every month in the developing world more than five million people migrate to urban areas. This demand trend is compounded by the growing need for low CO_2 and climate-resilient investments to combat the challenges of climate change (Fay and Toman 2010; Bhattacharya and Romani 2013).

Since the onset of the global financial crisis, fiscal constraints in many economies have meant that government budgets – traditionally the major source of financing for infrastructure – cannot alone be expected to finance infrastructure needs in emerging markets and developing economies (EMDEs). Yet the volume of private participation in financing infrastructure projects in EMDEs remains modest.

While private sector financial commitments to infrastructure projects have risen to about US$180 billion per year in EMDEs, this is less than 20 per cent of overall current infrastructure investment in these economies. There are a number of current and emerging challenges that are expected to further undermine the attractiveness of long-term private investments, such as infrastructure. For example, internationally agreed financial regulatory reform is expected to have a negative impact on private demand for longer-term and less-liquid investments, such as infrastructure (FSB 2013). In addition, the weakness in and deleveraging of European banks is likely to persist into the medium term, which implies a growing mismatch between the time horizon of available capital and that of productive long-term investment projects (World Bank 2013).

Even under more normal credit conditions, the costs and risks faced by private investors in infrastructure are high, particularly in EMDEs where economic and financial conditions tend to be weaker and less stable. From a public policy perspective, given the positive economic, social and environmental externalities that quality infrastructure can provide, efforts to lower the overall riskiness of infrastructure investments and enhance the availability of efficient risk-sharing instruments can have important efficiency and distributional implications. At the same time, there

1 See Agénor and Moreno-Dodson (2006) for an overview and Schwartz, Andrés and Dragoiu (2009) and Ianchovichina *et al* (2013) for a treatment of infrastructure's effects on jobs and growth.

is a need to ensure that efforts to encourage private sector participation in infrastructure offer optimal benefits but do not impose an inappropriate burden on the public sector.

Against this background, this paper aims to assess the different forms of risk that constrain private financing of both public and private infrastructure. The paper then identifies the various tools and risk mitigation measures that can help reduce and better share risk, with an eye to identifying areas where additional efforts may be required if the private sector is to play a larger role in financing infrastructure development in EMDEs.

2. Risks in Infrastructure Investments

While there is no single, consistent definition of risk in the literature on infrastructure, it is often defined as the probability of a loss or unwanted outcome. Another definition is that a risk is a potential problem, which can be avoided or mitigated. This paper focuses on common risks faced by the private sector when they are involved in infrastructure projects. Therefore, risk is defined as a situation or condition of investment that leads to consequences or costs for external investors that require mitigation, management or offsetting returns.

Many governments have published their own guidance notes or manuals to foster greater efficiency and better management of public-private partnerships (PPPs). These documents generally set out various generic categories of risk faced by public and private sector agents as a tool for providing a structure for managing PPP-related risk. The presentation is often in the form of a 'risk allocation matrix'.

While the relative importance of particular types of risk will differ across jurisdictions and sectors, there is considerable commonality in the various types of risk that governments have identified in undertaking PPPs. This can be seen by sampling publicly available documentation. Some kinds of risk are consistently identified in country guidance. These include: design risk (i.e. the risk that design will be unable to meet the expected performance and service requirements); market demand/volume risk (i.e. the risk that projected demand for services may diverge from expectations); political risk; regulatory risk; and residual value risk (i.e. the risk that the value of the facility at the end of the project may be less than anticipated). However, even a small sample shows that risk categorisation and classification across countries can be quite heterogeneous, making comparisons across approaches difficult, and limiting the potential to compare and contrast the strengths of various frameworks. Comparisons are made more challenging by the frequent overlap between various categories of risk.

For example, the US Department of Transportation's Federal Highway Administration identifies 18 types of risk across 3 broad categories (the development, construction and operation phases) (FHWA 2012). The South African National Treasury identifies 24 separate types of risk in 10 categories (National Treasury 2004). The Indian Ministry of Finance sets out 19 generic types of risk in 5 categories (pre-operative task, construction phase, operation phase, handover and other risks) (Ministry of Finance 2010). In Australia, the Queensland Government (2008) produces a risk allocation matrix with 45 specific risks for PPPs across 10 broad risk categories. The Philippines Public-Private Partnership Center identifies 11 specific types of risk across 4 broad categories (general, pre-commissioning, post-commissioning and project lifetime risks) (PPP Center 2012).

2.1 Type of risks

Despite this heterogeneity of structure, some risks surface consistently as defining concerns for investors in PPPs. Based on a review of manuals and guidance notes, the framework used in this paper groups the risks in the following categories (see Table 3 for definitions of some of the listed risks):[2]

External market volatility risks: These risks relate to global or regional financial crises that may be beyond the control of individual countries and economies. The recent global financial crisis is an example. Although it did not originate in the developing world, it caused a 'flight to quality' that resulted in outflows of funds that had been involved in the private participation in infrastructure (PPI). Proportionately, these flows were more concentrated in larger and lower-risk countries (such as Brazil) and higher-return sectors (such as energy). These risks with cross-border spillover effects may include:

- banking crises
- energy crises
- abrupt changes in the stance of monetary policy in advanced economies
- regional wars or catastrophes.

Political and macroeconomic risks: These include country-specific factors that can reduce the profitability of doing business in a country, either by adversely affecting operating profits or the value of assets. These risks include:

- political risk
- regulatory risk
- breach of contract risk
- interest rate risk
- inflation risk
- exchange rate risk.

Sector risks: These include economic or other factors that affect one sector more specifically than another. For example:

- market, demand or volume risk
- technology risk.

Project risks: These refer to those circumstances that may have an effect on the responsibilities of each party to the PPP agreement and the benefits they may achieve from the project. These risks include:

- financing risk
- design risk
- construction risk
- completion risk

2 Adopted and expanded from Mandri-Perrott (2009) and a review of published PPP risk matrices.

- operation and maintenance risk
- project cost overrun risk
- environmental/social safeguards risk.

Risks specific to PPP arrangements: These arise from situations where counterparties to the PPP agreement are not able to meet their responsibilities under the agreement. These risks include:

- residual value risk
- sponsor risk
- default and termination risk.

In choosing a framework as part of a toolkit for managing and allocating risk, it is important to be able to distinguish between risks faced purely by the public sector (e.g. insolvency risk and residual value risk), the private sector (e.g. political risk, regulatory risk and sub-contractor risk) and both sectors (e.g. *force majeure* risk, technology risk and design risk).

2.2 Magnitude of risk

The risks associated with a specific infrastructure project generally arise from the nature of the underlying asset itself and the environment in which it operates. The magnitude of a risk varies depending on the country (and its underlying investment climate), sector (and its institutional maturity) and project (and its complexity).

Risks also vary across the life of the project. Some risks are important early on in the bidding process and some will continue to exist until the end of the project life. These considerations obviously affect the optimum risk allocation. The three distinct periods that affect risk allocation for projects are the:

- project development phase (before bid submission and between bid submission and financial close of the deal)
- construction phase
- operational phase.

Risks are usually the highest during the project development phase and tend to decrease as projects move toward the operational phase, as more information becomes available. For example, the quality of the infrastructure build, operational efficiency and the actual demand for services start to be observed as the project becomes operational. Figure 1 shows a typical infrastructure project risk profile across different phases.

Figure 1: Risk Profile over the Project Cycle

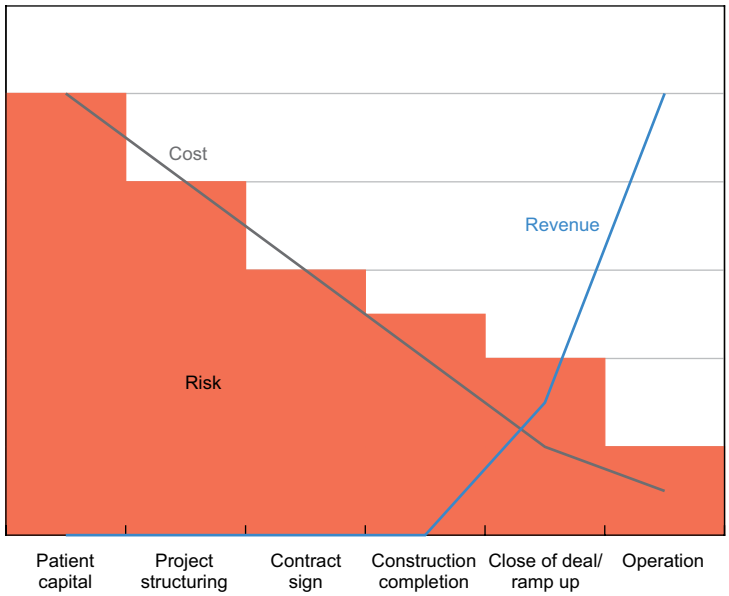


Table 1 categorises the main risks by the different stages of project development during which they are most likely to be relevant.

Table 1: Key Risks at Each Phase of Project Development

Development phase Pre-construction	Construction phase	Operational phase Including contract term
Planning and environment	Engineering	Demand
Project design	Changes in market conditions	Competing facilities
Political	Cost overrun	Operation and maintenance
Change of law	Construction delay	Appropriation
Regulatory		Financial default risk to public agency
Site		Refinancing
Permitting		Political
Procurement		Regulatory
Financing		Handback/residual value

For policymakers trying to leverage private capital and obtain operational efficiencies in infrastructure and basic service provision, understanding the underlying factors that influence the level of PPI is of central importance.

There is a considerable literature in economics and finance that attempts to explain the determinants of investment and the relationship between investment and risk. However, the literature on infrastructure investment and risk is thinner, and is mainly focused on political and macroeconomic risks. In the case of PPI transactions, Hammami, Ruhashyankiko and Yehoue (2006) utilise the World Bank PPI database to analyse the considerations for using PPPs: government constraints; political environment; market conditions; macroeconomic stability; institutional quality; the legal system; and past experience with PPPs. The paper concludes that lower levels of corruption and a more effective rule of law are the variables associated with more success in getting private sector involvement through PPPs. Both of these risks are particularly associated with the development and operation phases.

Araya, Schwartz and Andrés (2013) find that country risk ratings are a reliable predictor of infrastructure investment levels in EMDEs. The results suggest that a one standard deviation difference in a country's sovereign risk score is associated with a 27 per cent higher probability of having a commitment of PPI, and a 41 per cent higher level of investment in dollar terms, as weighted by GDP. On average, private participation in energy-related infrastructure investments exhibits a higher correlation with country risk than private participation in other infrastructure projects, such as transport, telecommunications and water investments. This analysis also finds that concessions are more sensitive than greenfield investments to country risk, although country risk is a good predictor of investment levels for both contractual forms.[3]

An analysis of PPI patterns for those countries emerging from conflict reveals that they typically require six to seven years to pass from the day that the conflict is officially resolved before they attract significant levels of private investment in infrastructure. Private investment in sectors where assets are more difficult to secure – such as water, power distribution or roads – is slower to appear or simply never materialises. The levels of investment overall in conflict-affected countries are lower than in other EMDEs in both absolute terms and as a ratio to per capita income. This is despite the low per capita income levels associated with this subset of EMDEs.

Foreign direct investment – in finance, services, manufacturing and extractive industries – is not nearly as sensitive to country risk as infrastructure investment. This points to the unique features of infrastructure investment, including the long return periods, the social and political sensitivity of basic services, and the exposure to local currency through tariffs and user fees. In Nigeria, for example, recent press suggested that over 100 000 barrels of oil are stolen per day from the supply chain of this important export commodity. And yet direct investment into that sector continues unabated. In contrast, in Niger's power sector, recent attempts to reduce financially unsustainable subsidies by raising tariffs resulted in riots, which had a negative impact on the likelihood of electricity sector investments in retail distribution and, for any investments in electricity generation, this is likely to have increased the cost of capital and need for government guarantees. This analysis suggests that perceptions of sovereign risk and stability are a key driver of infrastructure investment levels and this is usually supported by perception surveys.

There are various sources that attempt to measure the perception of risk through investor surveys. For example, the 2013 Multilateral Investment Guarantee Agency-*Economist* Intelligence Unit (MIGA-EIU) Political Risk Survey finds that investors classify macroeconomic instability and political

3 A concession is a legal arrangement in which a firm obtains from the government the right to provide a particular service.

risk as the main constraints for investing in EMDEs. Among political risk components, the survey finds that regulatory issues (58 per cent) and breach of contract (45 per cent) remain the most important concerns for investors over the next three years (MIGA 2013).

To examine factors that trigger breach of foreign-investment contracts, Nose (2014) constructs a large contract-level dataset. He finds that after controlling for regional and sector fixed effects, less-democratic and resource-dependent governments are more likely to breach contracts, especially after large global shocks, notably natural disasters. These factors are similar to those found to affect outright expropriation. Furthermore, although investors' bargaining power becomes obsolete as contracts mature, contracts can be designed to mitigate the risk of a breach by involving multilateral organisations and creating buffers to absorb commodity price shocks.

As previously discussed, private sector participation is crucial to reduce the infrastructure financing gap, not only by providing direct financing to the infrastructure sector but also by improving efficiency. Andrés, Schwartz and Guasch (2013) find that independent regulation and private sector participation help improve elements of performance in infrastructure service provision, particularly in terms of quality of services, which, over time, might reduce some social risks. However, PPI does tend to lead to a rise in household consumer prices (with commercial prices coming down slightly), probably due to reductions in cross-subsidies among consumer classes.

The nature and the quantum of risk affect the cost of capital. The expected return of an investment in infrastructure should equal the rate on a risk-free security plus a risk premium that compensates for the risks faced (as reflected in a capital asset pricing model). The higher the risk premium, the higher the expected return for the investment to be undertaken.

Risk, and therefore the cost of capital, can be reduced in a number of ways. First, risk can be reduced through diversification. As highlighted by Sawant (2010) and Rothballer and Kaserer (2012), infrastructure is characterised by significant exposure to idiosyncratic risks despite the lower competition in infrastructure industries. This peculiar risk profile can be partly explained by construction risks, operating leverage, the exposure to regulatory changes and the lack of product diversification.

The risk and return characteristics of infrastructure assets vary widely as the underlying assets often have very different cash flow profiles, risk profiles and capital structures. A government-mandated utility with extremely stable long-term cash flows will have very different risk and return characteristics to a toll road asset, where cash flows will be affected by fluctuations in traffic volume. These differences highlight the potential benefits of diversified infrastructure portfolios, advanced risk management capabilities and efficient mechanisms for sharing risk between the private and public sectors.

Another way of lowering and allocating risk optimally is to reduce the risk premium and, therefore, the cost of capital. In regulated sectors, this can be done by using tariffs that can be charged to users of the service and are periodically determined by the regulator (these are often linked to inflation). However, dividends from utilities are likely to be affected by other risks, such as political, economic and regulatory risk, and investors will therefore require a higher return profile. In order to price that risk premium, investors will consider both the likelihood of a risk occurring and the monetary impact of the risk, should it occur. A higher risk premium will need to be funded through higher user fees or taxes.

Another aspect of managing risk effectively is to measure costs, benefits and the impact of risk factors as accurately as possible. Often risks are underestimated and allocated to parties without the knowledge, resources and capabilities to manage them effectively. Risks that private firms are more capable of managing should be transferred to the private sector. It is appropriate for the private sector to bear some level of risk to ensure that incentives remain supportive of efficiency and project quality. This is unlikely to be the case if the public sector is expected to carry most of the risks associated with project development.

3. Risk Mitigation Measures

There are a number of measures and mechanisms that could be taken to reduce and/or share risk optimally.

Upstream measures to improve sectoral planning, prioritisation and project preparation are crucial to lower overall sectoral risk and project risks. Risks associated with the particular characteristics of a project or a PPP arrangement can also be lowered by reducing the severity of the loss or the likelihood of the loss occurring. To do this requires improving project preparation and strengthening PPP frameworks. For example, construction risk can be reduced by better project preparation involving comprehensive feasibility studies that provide more accurate technical, social, environmental and economic information on the particular project. However, it is important to note that risks cannot be fully eliminated as unforeseen events may happen. Risks that cannot be mitigated should be allocated optimally (i.e. government retains it, transfers it to the private sector or shares it with the private sector).

Macroeconomic and political risks can be reduced by improving the overall investment climate. The investment climate is, in turn, affected by many factors, including political stability and regime certainty, rule of law and judicial access, property rights, government regulations, taxes, and government transparency and accountability. A more stable and predictable environment in which both domestic and foreign investors can operate efficiently will reduce the macroeconomic and political risks. Again, however, these types of risks cannot be completely removed and any remaining risks should be allocated efficiently.

There are risks that the private sector is not willing to accept because they are perceived as excessive or beyond their control. In those circumstances, certain defined risks can be transferred from project financiers (lenders and equity investors) to creditworthy third parties (guarantors and insurers) that have a better capacity to accept such risks. The financial instruments used to transfer those risks are called 'risk mitigation' instruments. When they are effectively used, it becomes possible to undertake commercially viable projects which would not get financing otherwise.

Risk mitigation instruments can be categorised by: (i) type of beneficiary (debt providers or equity investors); (ii) type of risk that they cover; and (iii) by coverage (full or partial). The applicability of different types of risk mitigation instruments depends on the nature of infrastructure financing selected for a particular project. Table 2 matches risk mitigation instruments to the underlying risk.

Table 2: Risk Mitigation – Matching Instruments to the Underlying Risk

	Multilateral development banks		Export credit agencies	Bilateral donors	Private guarantors and insurers
	Public	Private arms			
Sovereign debt	Partial credit guarantee	Political risk insurance (non-honouring of sovereign financial obligations)	Political risk or comprehensive insurance/ guarantee		Credit guarantee (wrap)
Corporate debt	Partial credit guarantee	Partial credit guarantee	Political risk or comprehensive insurance/ guarantee	Partial credit guarantee	Credit guarantee (wrap)
Project finance					
Debt	Partial risk guarantee (or partial credit guarantee)	Political risk insurance (or partial credit guarantee)	Political risk or comprehensive insurance/ guarantee		Credit guarantee (wrap) or political risk insurance
Equity	Partial risk guarantee (through deemed loan)	Political risk insurance	Political risk insurance		Political risk insurance
Debt and equity	Partial risk guarantee (through letter of credit to benefit all financiers)				
Eligibility	Sovereign indemnity	Partial credit guarantee: acceptable credit Political risk insurance: sovereign link	Sovereign indemnity or link (tied to nationality)	Acceptable credit (untied but specific targets)	Investment-grade political risk insurance (acceptable sovereign track record)
Pricing	Uniform cooperative base (backed by sovereign indemnity)	Market base	Market base	Market base	Market base

Source: Matsukawa (2014)

Table 3 presents the definitions of the main risks previously discussed, and information on what risk mitigation instruments and mechanisms are available to mitigate the different categories of risk in infrastructure investment summarised in Table 1. While there are a variety of risk mitigation instruments offered by both private and public providers, many infrastructure projects, particularly in EMDEs, do not have full access to all these options. As a result, they face limits on the extent to which they can manage the risks inherent in a given project. The main constraint is related to the accessibility of the existing risk mitigation instruments for certain borrowers or projects, and the magnitude of the risk that could be covered.

Table 3: Risks and Risk Mitigation
(*continued next page*)

Risk category	Description	Mitigation measures/mechanisms
External market volatility risk		
Financial market crises	Possibility of spillover from external financial crises: demand, currency, inflation	*Transferred to taxpayers:* exchange rate shocks and capital flow volatility may require extraordinary support measures from government or central bank *Reduction of risk:* International Monetary Fund, World Bank and other multilateral development banks can provide assistance with structural reform to enhance resilience as well as precautionary and *ex post* balance of payments support; bilateral swap arrangements
Political risks		
Expropriation and repatriation of capital	Nationalisation of assets or service rights; imposition of restrictions on capital repatriation	*Priced in – private sector and ratepayers:* political risk insurance
Regulatory	Changes in regulations and laws, including extraordinary interference in tariff levels	*Priced in – private sector and ratepayers:* Contractual public obligations for tariff adjustment, and change in laws *Priced in and transferred to taxpayers:* Non-contractual regulation obligations
Breach of contract	Government does not comply with contractual obligations (e.g. availability payments, termination payment, capital grants, right of way, construction of supporting facilities, setting up of agencies)	Breach of contract cover offered by most international financial institutions (IFIs) and in-country guarantee agencies *Taxpayers:* guaranteed with government indemnity (e.g. partial risk guarantee) *Priced in – private sector and ratepayers:* guarantee instrument (non-honouring of sovereign obligations) – MIGA
Macroeconomic risks		
Interest rate	Interest rates move adversely, affecting availability and cost of funds	*Priced in – private sector and ratepayers:* hedging and rate lock-ins for commercial risks

Table 3: Risks and Risk Mitigation

(*continued next page*)

Risk category	Description	Mitigation measures/mechanisms
Inflation	Actual inflation exceeds projected inflation, eroding value of government transfers (more apparent during operations phase)	*Ratepayers:* inflation indexing of tariffs *Private sector:* inflation impact on operational expenditure covered by contractor's private insurance *Government or priced in:* tariff and availability payment adjustments cover through breach of contract guarantees
Exchange rate	Exchange rate fluctuations could affect cost of imported inputs to construction or operations Exchange rate between the currency of revenue and the currency of debt diverge resulting in an increase in the cost of debt	*Ratepayers:* inflation indexing to cover pass-through of exchange rate movement to inflation *Government or priced in:* exchange rate affecting the financing, capped risk exposure can be provided by either IFIs, such as the World Bank, and commercial banks; swaps, hedging and rate lock-in can be offered to project company by government or purchased on the market
Sector risks		
Market, demand or volume	Demand for services may be lower than projected	*Government or priced in:* minimum revenue guarantees, minimum traffic guarantees, off-take agreements and power purchase agreements
Technology	Non-performance*:* technology inputs may fail to deliver required output specifications Uncompetitive*:* technological improvements may render sunk assets uncompetitive	*Investor/operator:* outputs and performance risks would be covered under private insurance and performance bonds *Ratepayers:* in case of energy generation, 'stranded asset' compensation may be embedded in contract or regulation
Project risks		
Financing	Debt and/or equity required by private party for a project is not available in amounts and on terms anticipated	*Ratepayers/private sector:* bridge financing or higher equity until demand is proven *Taxpayers:* subsidised funding from government, including concessional funding, and capital grants
Design	Design may not achieve required output specifications/services at anticipated cost	*Private sector:* outputs and performance risks would be covered under private insurance and performance bond
Construction	Events prevent facility from being delivered on time and on budget (e.g. geological, land acquisition, equipment supply or resettlement)	*Private sector:* performance bonds *Government:* oversight and supervision *Reduced:* greater investment in project preparation, design and feasibility

Table 3: Risks and Risk Mitigation
(*continued*)

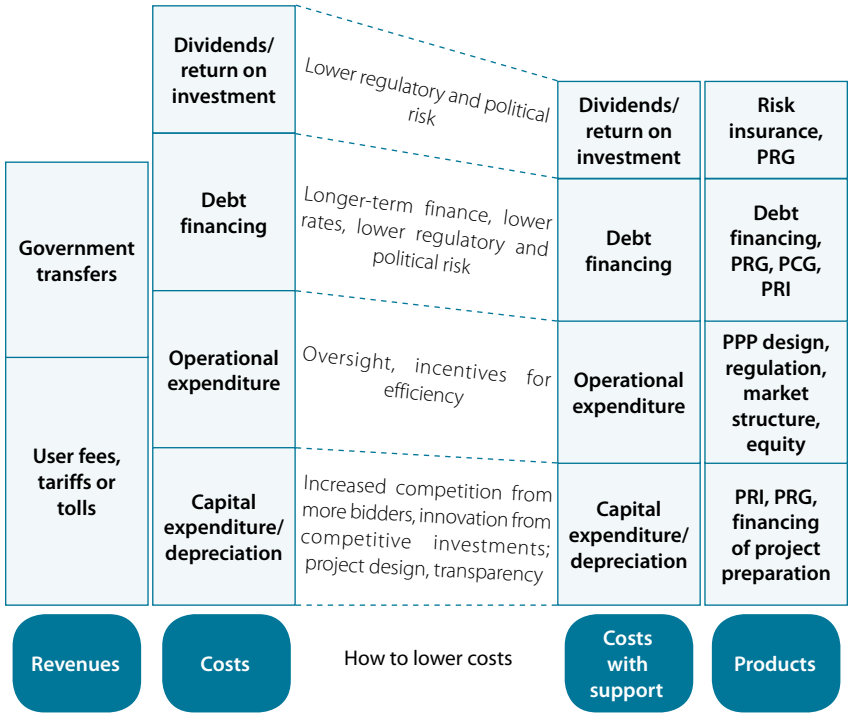
Risk category	Description	Mitigation measures/mechanisms
Completion	Project may not be completed or cannot be delivered according to agreed schedule	*Private sector:* performance bonds *Government:* oversight and supervision *Reduced:* greater investment in project preparation, design and feasibility
Operation	Any factors (other than *force majeure*) impacting on operating requirements of project (e.g. operating expenditure, technology failure or environmental incidents)	*Investor/operator and, eventually, ratepayers:* for factors related to regulation and policy, use guarantees *Private sector:* for factors relating to performance, should be covered in the operation and management contract and performance bond
Maintenance	Costs of maintaining assets in required condition higher than projected Maintenance not carried out	*Investor/operator and, eventually, ratepayers:* for factors related to regulation and policy, use guarantees *Private sector:* for factors relating to performance, should be covered in the operation and management contract and performance bond
Environmental/ social	Liability for environmental and socially caused losses/ damages arising from construction, operation or pre-transfer activities	*Investor/operator and, eventually, ratepayers:* for factors related to regulation and policy, use guarantees *Reduced:* safeguard policies for projects funded by IFIs; international commercial banks apply Equator principles
Risks specific to PPP arrangements		
Residual value	Project assets at termination or expiry of PPP agreement not having going concern value or being in the condition prescribed for hand back	*Private operator:* explicit clauses on valuation of undepreciated assets *Reduced:* ability to uphold contract clauses on handover value and conditions (e.g. independent regulator)
Sponsor (insolvency)	Private party unable to provide required services, becomes insolvent, or later found improper	*Financier:* step-in rights, replacement and termination *Reduced:* strengthening of credit rights and enforcement; regulatory framework to maintain financial-economic equilibrium
Default and termination	Loss of asset upon premature termination of lease, or breach of other contracts, and without adequate compensation	*Private operator:* government transfers staggered, or held in escrow *Reduced:* thorough due diligence on project company

Source: various country guidance notes and manuals

Official development agencies, bilateral agencies (such as an export credit agency), guarantors and insurers are all exploring new applications of existing instruments or new instruments. The aim of this is to help countries raise finance, not only from traditional project sponsors and bank lenders, but also from new sources such as domestic capital markets, infrastructure funds and sovereign wealth funds.

The measures, mechanisms and instruments listed in this section could be useful in reducing, sharing and managing risk. Figure 2 illustrates how some of those measures could reduce the viability gap sufficiently to make it feasible for the private sector to participate. The reduction may also allow less dependence on taxes and/or user fees.

Figure 2: Risk Measures to Close the Project Viability Gap



Notes: PRG denotes partial risk guarantee; PCG denotes partial credit guarantee; PRI denotes partial risk insurance

4. Conclusions

In an environment characterised by constrained fiscal space, the challenge for governments pursuing economic and environmental goals through infrastructure development is to attract external sources of financing. While there may be plenty of liquid capital in the system, infrastructure investment requires longer-term, more patient financing than is frequently available, particularly for EMDEs. And while there may be considerable longer-term capital in the hands of institutional investors, the level of risk – both actual and perceived – associated with investing in infrastructure

in EMDEs has tended to make these investments unattractive. The challenge is, therefore, to find ways both to reduce the overall riskiness associated with infrastructure investment in EMDEs and then develop the tools necessary to foster an appropriate sharing of risk between the public and private sectors. This is the spirit behind the World Bank Group's approach to mobilising additional financing for infrastructure development.

Improving the underlying domestic investment climate – including by fostering greater transparency, confronting corruption (particularly at the sectoral level) and improving investor and creditor rights and protections – could significantly reduce economic and political risks that would otherwise imply extremely high risk premiums. Upstream measures to improve sectoral planning, prioritisation and project preparation are also crucial to lower overall sectoral and project risks. Risks associated with the particular characteristics of a project or a PPP arrangement can also be lowered by improving project preparation, applying transparent and internationally recognised safeguards and standards, and strengthening PPP frameworks.

In addition, there are a number of risk-mitigating and viability-enhancing instruments being implemented around the world to correct project-specific weaknesses, each designed to meet different ends. However, some of them are not available for certain borrowers or projects. Moreover, the lack of understanding of the nature of the instruments and the project-specific deficiencies they correct often results in their improper and sub-optimal use, and loss of government credibility vis-à-vis private markets.

The challenge is a political, technical and financial one. There is a need to improve the underlying infrastructure investment climate, planning, project prioritisation and preparation to reduce risks. At the national level, this takes political commitment, technical and institutional capacity building, backed by adequate and predictable resources. At the same time, the international community can help by improving the availability and accessibility of existing risk mitigation instruments, as well as by expanding the use of guarantees, risk insurance and innovative finance to crowd-in new investors and develop local capital markets.

As traditional sources of financing for infrastructure come under pressure, other sources of financing, such as institutional investors (including pension funds, insurance companies and sovereign wealth funds), will need market instruments and regulatory support to bring the risk profile of investment in infrastructure into better alignment with their own risk tolerance. Credit enhancements can help to attract this long-term capital. These enhancements would build local capital markets, and mitigate currency risk and specific regulatory risks that are both exogenous and endogenous to projects. Furthermore, pension funds in EMDEs have a larger role to play than they do in advanced economies, as their financial systems are mostly bank based and their financial markets are still small relative to their economies.

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