Facing budget constraints and recognizing their failure to provide infrastructure services efficiently, governments in many developing countries are increasingly relying on the private sector to provide infrastructure services. Private cross-border finance for infrastructure projects in developing countries grew from $0.1 billion in 1988 to $20.3 billion in 1996. More than one hundred governments have involved the private sector in areas such as power, gas, telecommunications, water, roads, railroads, ports, and airports.

But infrastructure projects are often risky: they are typically long term and subject to political pressures to keep service prices low. To cover these risks, investors often ask for— and sometimes receive—government guarantees against risks such as changes in the political or regulatory climate, reneging on contracts by state enterprises, cost overruns, low demand, or changes in exchange and interest rates. (Here the term government guarantee refers to any undertaking by government to assume risk.) For example, to attract private investment in power generation, the Pakistan and Philippine governments have committed to honor the payment obligations of public utilities to purchase power at predetermined prices, regardless of demand. In the recent El Cortijo-El Vino toll road project in Colombia, the government agreed to reimburse the concessionaire if traffic was less than 90 percent of the specified level. The Colombian government also provided a minimum revenue guarantee when it awarded a build-operate-transfer concession for a new runway at Bogotá’s El Dorado airport.

Such guarantees can undermine the benefits of privatization. First, they can blunt private investors’ incentives to choose only good projects and to run them efficiently. If the government bears the risk of project failure—for example, by guaranteeing demand—the private investor has little incentive to choose financially sound projects. Second, guarantees may impose excessive costs on the host country’s taxpayers or consumers. Because government guarantees—a contingent public liability—rarely show up in government accounts or budgets, governments are more willing to assume risks that are better borne by investors. (For more details on contingent liabilities, see PREMnote 9.) Governments may not even know the extent of their risk exposure. At worst, the issue of guarantees could lead to a fiscal crisis by encouraging excessive risk-taking (“heads the investor wins, tails the government loses”).

Reducing project risks
Governments are often forced to bear risk because of shortcomings in current and
expected policies. By improving policies, government can avoid granting guarantees while still being able to attract private infrastructure investment. For example, stable macroeconomic policies reduce the likelihood of large changes in exchange and interest rates, reducing pressures on government to provide exchange rate guarantees or discontinue currency convertibility or transferability. Similarly, the regular disclosure of timely, reliable information on the economy and government finances makes it easier for investors to forecast revenues.

Firms are less likely to insist on guarantees if a country has a good regulatory framework, nonpolitical regulatory agencies, and a strong and independent judiciary. Firms investing in the United States, for example, do not need government guarantees against opportunistic government behavior because they are confident that the courts will protect them in the event of expropriation or regulatory takings. A firm operating in a competitive environment or under tariff regulations enforced by an independent regulator is less likely to insist on guarantees on tariffs. By the same token, permitting international arbitration eases investors’ fears that they will be mistreated by local courts that are not independent.

Few industrial countries find it necessary to provide government guarantees for infrastructure projects. In addition, some developing countries have been able to attract private infrastructure investment without assuming risks. In Argentina, for example, restructuring and privatization of the power industry have enabled the government to attract private investment without assuming major risks or issuing guarantees. In Chile, private firms recently invested in telecommunications, power, and gas without government guarantees.

In many cases, however, good policies cannot be brought about overnight, and private investment is unlikely to be forthcoming unless government assumes certain risks or provides subsidies. How should governments decide whether to bear risks in a private infrastructure project? If they decide to bear risks, which risks should they take on? Is a government guarantee preferable to a budget subsidy?

Guidelines for allocating risk

Two factors determine whether an agent should bear risk: the degree to which the agent can influence or control the outcome at risk and the agent’s ability to bear risk. Other things being equal, risk should be allocated to agents who can best control the risky outcome and to agents who can bear the risk at the lowest cost. But these two factors often push in different directions—the entity that has the most control over the risky outcome may not be in the best position to bear the risk. Other factors to consider are whether the entity assuming a risk has an incentive to reduce it and what alternatives there are to a government guarantee. How can these principles guide the allocation of common types of risk?

Political and regulatory risks

Expropriation and currency inconvertibility or nontransferability are under direct government control, and there is good reason to encourage governments not to create losses associated with these risks. Thus it makes sense for government to assume these risks. But regulatory risks—whereby government commits not to change the laws and regulations affecting an investment project, or to compensate if it does—are trickier. While they are under government control, it is sometimes desirable for government to change laws in ways that adversely affect investment projects. It may be beneficial to increase taxes to fund needed public investment, or to impose regulations that mitigate newly recognized environmental problems. Regulatory risks are best handled on a case-by-case basis following the principles above.

Quasi-commercial risks

When an investor contracts with public suppliers or purchasers that may renege on contractual commitments (as in the Pakistan and Philippine power projects), the decision on whether the government should assume that risk depends on the degree to
Demand and construction cost risks
In road, bridge, or tunnel projects, governments are often asked to bear demand and construction cost risks. The rationale for such support is weak. The concessionaire usually has much more control than the government over construction costs. And even though government policies can influence demand, assigning demand risk to government reduces investors’ incentives to screen projects carefully.

Government can, however, reduce demand risk for some infrastructure projects. Instead of auctioning the right to operate a service for a fixed period, as is typical, the term of an operating concession can be allowed to vary with demand. If demand is higher than expected, the concession will be shorter; if demand is lower, the concession will be longer. The method has been used in the United Kingdom for bridges. An ingenious variant of this method is to award the concession to the bidder seeking the lowest present value of revenue, calculated with a discount rate specified by government. The concession ends when the concessionaire’s revenue reaches the present value it sought. The concessionaire still bears some demand risk—if demand is too low, revenue may never reach the target value—but it is much less.

Exchange and interest rate risks
Because many infrastructure investments are funded by floating-rate loans in foreign currency, profits are highly sensitive to changes in exchange and interest rates. Should government accede to investor demands to assume exchange and interest rate risks? At first glance it appears that government should do so because it can better control exchange and interest rates and doing so will give it a stronger incentive to follow stable macroeconomic policies. But several other factors suggest that investors should bear these risks.

First, a government guarantee may encourage an investor to expose itself to excessive exchange and interest rate risk. Losses from currency depreciation, for example, could be blamed on the government, which allowed the currency to fall, or the firm, which left itself exposed by borrowing in foreign currencies. Second, exchange rate guarantees may change government behavior for the worse—for instance, discouraging governments from allowing their currencies to depreciate in the wake of a terms of trade shock. Third, many governments and the taxpayers who back them may already be exposed to the risks associated with exchange and interest rate shocks. An adverse terms of trade shock, for example, might lead to both a depreciation and a drop in local incomes, forcing the government to compensate investors just when its tax base has shrunk. Finally, the private sector may have more incentive to manage the risk. For example, if foreign banks had borne the exchange rate risk in Spain’s highway projects in the 1960s and 1970s, they would have hedged the risk at a much lower cost than the $2.7 billion that it eventually cost Spanish taxpayers.

Measuring and budgeting guarantees
Whichever risks government takes on, it needs to measure them accurately and incorporate them in its accounts and budgets. Otherwise, it is difficult to make good decisions about whether and which risks to assume, and could lead to financial disaster.

Identifying and listing guarantees
The first and simplest step that governments can take to improve the monitoring and management of risks is to compile and publish a consolidated list of their contingent liabilities and the maximum amounts they stand to lose. The New Zealand government, for example, presents this information in its statement of contingent liabilities (see http://www.treasury.govt.nz).
Calculating expected losses
While helpful, the listing of guarantees and associated maximum possible losses does not indicate what losses government should expect. For example, if a government guarantees a $10 million payment by a state enterprise and there is a 10 percent chance of the enterprise defaulting (and a 90 percent chance of full payment), the expected cost to the government of the guarantee is $1 million. In more realistic cases, however, it is harder to calculate the expected cost. There may be more than two relevant possibilities, and estimating the probabilities may be extremely difficult. Still, it is sometimes possible to calculate expected losses using straightforward techniques. Where a government has issued a large number of similar guarantees for many years and has recorded information on defaults, the expected cost of the guarantees can be estimated actuarially in the same way as, say, car insurance premiums. In other cases econometric modeling or outcome simulations based on multiple scenarios with different probabilities (Monte Carlo studies) may be feasible.

The techniques developed in the past 25 years to value financial derivatives (options, futures, swaps) can also be used to value guarantees and contingent liabilities. The value of a guarantee can be used to calculate the government’s expected loss. Extending a credit guarantee, for example, is equivalent to the government selling—at zero cost—a put option to the lender. This option can be valued using option pricing techniques. The valuation of some guarantees is difficult, however, requiring the skills of financial specialists. Moreover, the feasibility of timely, reliable, and cost-effective valuation has not been widely tested. But the possibilities are not merely theoretical—guarantees have already been valued using option pricing techniques in Colombia and the United States.

Valuing the government’s guarantees and other contingent liabilities—and not simply noting maximum exposure—has important advantages. By calculating the expected cost of government guarantees, the government and observers can more easily compare guarantees with cash subsidies. When guarantees are not valued, a government may prefer to provide a guarantee instead of a subsidy, even when the guarantee is more costly than the subsidy, because the costs of the guarantee are hidden and may be borne by a future administration. When guarantees are valued, decisions are more likely to be based on real rather than apparent costs and benefits.

Incorporating expected losses in accounts and budgets
Once expected losses can be reliably calculated, they should be incorporated in government accounts and budgets. Most government budgets and accounts are cash-based. While it is possible and desirable to note guarantees and other noncash items in cash-based budgets and accounts, fully incorporating them requires moving away from cash-based systems. With standard accrual-based accounts and budgets, many noncash expenditures show up in the government’s budget and operating statement, and the government has no fiscal incentive to prefer noncash to cash expenditures. But although standard accrual accounting discloses guarantees, it records them as expenses only if the loss is considered probable and can be quantified. From an economic point of view this distinction between probable and improbable losses is not always useful; a 10 percent chance of losing $10 million is worse than a 90 percent chance of losing $1 million. More useful is an estimation of the present value of the expected loss arising from the contingent liability. An ideal system of accounting and budgeting would record the expected present value of all contracts into which the government has entered. Under such a system government would have no fiscal incentive to issue guarantees instead of giving subsidies of equivalent value, because both would show up as expenditures affecting the deficit and both would require appropriation by the legislature. While full present value accounting and budgeting is not feasible, the adoption of accrual accounting—and the systematic recording of present values...
where they are significant and quantifiable, even when losses are not probable—appears to be a crucial step toward the better management of guarantees.

Further reading

This note was written by Mateen Thobani (Principal Economist, PREM Unit, Latin America and the Caribbean). Please contact Hana Polackova (x30182) if you want to participate in the Quality of Fiscal Adjustment Thematic Group, which focuses on the analysis, management, and fiscal implications of contingent government liabilities.