The Strategic Management of Large Engineering Projects

Shaping Institutions, Risks, and Governance

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The allocation of risk is one of the most important aspects of the management of LEPs. Indeed, it is viewed by investment bankers and lawyers involved in project financing as the central consideration in securing financing. As noted in chapter 3, the overall risk of an LEP should be split into its constituent risks, and each risk should be allocated to the party that is best able to control or bear that particular type of risk. Direct and complete allocation, however, may not always be feasible. Some risks will emerge that are large, difficult to foresee, and not contractible. The contracts allocating risk will, by necessity, be silent or unclear as to the consequences of some events that may occur, or they might not be appropriate were these events to occur. There will therefore be the need to renegotiate initial contracts.

The thesis developed in this chapter is that the financial architecture of a project—as represented by its use of debt, equity, recourse, and guarantees—has the dual role of allocating risk and making effective renegotiation possible.

To illustrate this dual role, consider an IPP. The sale of a large equity stake in the IPP to an operator serves to allocate much of the operation risk to that party, thereby providing it with the incentive to operate efficiently. For example, National Power of the United Kingdom owns 27 percent of the equity of Pakistan's Hub power project, of which it is the operator. Similarly, the sale of a large debt stake in the IPP to a major commercial bank or a multilateral institution such as the World Bank serves to allocate much of the risk of expropriation of the IPP to that institution, thereby providing it with the incentive to resist any attempt on the part of the host government to renegotiate to its own advantage the terms of the agreements entered into by it and the IPP. An example of such renegotiation is arguably provided by the ongoing negotiations between the government of Pakistan and the
World Bank about the Hub power project. The World Bank is a subordinated debt-holder in the project and a guarantor of senior debt against political risk.

The financing of large projects therefore involves not only the traditional goal of obtaining the cheapest funds possible but also strategic goals such as structuring of ownership and control and the organization of governance to allocate risk and make effective renegotiation possible. These are achieved through the choice of financial architecture for the project.

Modern corporate finance holds the view that financing choices such as the amount of leverage in a project cannot be separated from incentive and control considerations. For instance, the amount of leverage affects the incentives of managers; the structure of ownership provides the setting for renegotiation; and the type of debt affects the level of risk in the project. The choice of financial architecture, therefore, is complex, multidimensional, and dynamic. A variety of solutions and goals are sought: to allocate risk; to provide incentives; to design an effective governance structure; to set the stage for efficient renegotiation; and to obtain the cheapest funds possible. Some of these goals may conflict. Others may be somewhat ambiguous. In particular, what exactly are “cheap” funds and how is risk priced?

**Financial Architecture: The Potential for Strategic Effects**

Sponsors of large projects seeking to raise capital often appear to be of the view that bank debt is cheaper than equity and frequently bemoan the difficulty of raising the desired amount of debt. Yet, the classic work by Modigliani and Miller (1958), which provides the basis for the modern analysis of capital structure, states that debt is not intrinsically cheaper than equity. Although equity requires a higher return than debt does, it also bears a greater amount of risk. Once return is adjusted for risk, the returns to debt and equity effectively must be the same in a well-functioning capital market.

As an example, compare the interest rate on debt with the return on equity required by investors in infrastructure projects. The former rarely exceeds 12 percent even for highly leveraged projects, whereas the latter is 18 to 25 percent. A simple comparison of these two rates however, is, misleading, for the greater return required by equity-holders is compensation for greater uncertainty about the cash flows
that they will receive: the payments to debt-holders are contractually fixed, whereas those to equity-holders are not.

Furthermore, an attempt to exploit debt’s presumed cheapness by increasing a project’s reliance on debt financing would likely be ineffective, for the concentration of much of the risk of the project on a reduced equity base will increase the return required by equity-holders. The high rates of return required by equity-holders in highly leveraged infrastructure projects are therefore simply the consequence of that degree of leverage. Indeed, Modigliani and Miller show that the increase in that return will be exactly such as to leave the project’s overall cost of capital—that of debt and equity—unchanged.

Modigliani and Miller’s argument has much wider applicability than the choice of leverage alone. Any financing choice that is made in a competitive market and that does not change a project’s cash flows and risks cannot change its value and cost of capital. Ultimately, the overall cost of capital of the project reflects the risk that must be borne by the parties financing it. Simply reallocating risk among these parties does not reduce the total risk that must be borne and therefore does not reduce the overall cost of capital. This is true of debt financing, which simply reallocates risk to equity-holders, and of government financing, which reallocates risk to taxpayers.

The ability of a government to finance a project entirely with debt, which is often raised at close to the risk-free rate, is at times contrasted with the private sector’s need to raise both debt and equity at rates that are generally well in excess of the risk-free rate, and leads to the conclusion that the government has a lower cost of capital than the private sector does. The government is therefore sometimes argued to have an advantage over the private sector in financing large, capital-intensive projects. For example, the government of Ontario chose to finance what became North America’s first electronic toll highway through direct provincial borrowing rather than have the project consortium finance the project. The government reasoned that its lower borrowing costs would make lower toll payments possible than if the project were financed by the consortium.

Such a view is mistaken, for it ignores the cost of the guarantee provided by taxpayers to lenders. It is this guarantee that allows the government to finance a project entirely with debt and to raise such debt at close to the risk-free rate. To illustrate the value of this guarantee to lenders and its possible cost to taxpayers, imagine that construction of
the English Channel Tunnel had been financed by government borrowing rather than by the shareholders and debt-holders in Eurotunnel. The huge losses that were and continue to be incurred would then have been borne by French and British taxpayers rather than Eurotunnel’s hapless shareholders and bankers. Properly accounting for the cost of the guarantee reveals that the government need not have a lower cost of capital than the private sector (Brealey, Cooper, and Habib 1998).

Modigliani and Miller’s argument thus provides a benchmark for thinking about the financial architecture of large projects. It states that simply reallocating a fixed pool of cash flows and risks among various parties does not, in general, create value or lower the cost of capital. But it admits that financing choices can affect value and affect the cost of capital if they have one or more of the following effects: they exploit sources of finance that are subsidized or not fully priced given their risk; they reduce the taxes paid by the project and its owners; they improve the operating performance of the project by improving incentives; they lower the expected cost of future renegotiation.

The first effect applies when a government is willing to guarantee or subsidize a loan for political reasons. As an example of the second effect, corporate taxes introduce a preference for debt. This is because corporate interest payments are tax-deductible in most jurisdictions, as interest is paid out of a project’s pretax income, whereas dividends are paid out of its aftertax income. The desire to exploit the tax advantage of debt may provide a partial explanation for the use of project financing in the United States. American power utilities are prohibited from having debt-equity ratios in excess of one. Such a constraint however, may, be circumvented by having a power utility enter into a PPA that commits the utility to buy the electricity produced by an independent power project, with the IPP having a debt-equity ratio as high as nine. The extremely high leverage of the IPP is made possible by the security provided by the PPA, and the tax shield it provides is reflected in the price paid by the utility for the electricity it has committed to purchase. But the view of corporate taxes as introducing a preference for debt ignores the personal taxes paid by investors in the project (Miller 1977).

The last two effects of financial architecture—on incentives and on renegotiation—are the focus of this chapter. To place this analysis in context, we first present the dimensions of financing and categorize the risks that are to be allocated and controlled.
The Potential for Transferring Risk

A sponsor that is considering a new project can proceed along many dimensions in financing this project. It must choose the proportion of debt and equity that it will use. While the sponsor, as equity-holder, will bear most of the risk of the project, some risk will nonetheless be borne by the project’s debt-holders, which would stand to lose at least part of their investment if the sponsor were unable to service the debt it has raised, either from the project’s revenues and assets or from those of its other operations.

Debt therefore provides a sponsor with the ability to transfer at least part of the risk of a project. The extent of this transfer can be increased by raising debt in a nonrecourse form, which limits the revenues and assets that are used to service the debt to those of the project alone; this denies the project’s debt-holders recourse to the revenues and assets of the firm’s other operations, even in the case of failure to service the debt. The extent of the transfer of risk, through either recourse or nonrecourse debt, will evolve over time in line with the changing debt-equity ratios of the project and the sponsor. This reflects changes in the values of the project and the sponsor, and in the face value of the debt as old debt is repaid and new debt is raised. The repayment of all debt ends this particular form of risk transfer.

The sponsor need not limit the external financing of the project to debt. It can, for example, undertake the project jointly with another firm, thereby transferring part of the risk through equity. As in the case of debt, neither the terms of the transfer nor the transfer itself need be permanent, for the shares of the partners may evolve over time and the joint venture may eventually be dissolved.

Whether done in the form of debt or of equity, financing may involve numerous other parties. Debt may be raised from a syndicate of lenders rather than a single lender. Similarly, equity stakes may be sold in a project company set up for the specific purpose of undertaking the project. At the limit, debt and equity may be raised from a large number of investors through publicly traded bonds and shares.

The sponsor can further decrease the fraction of the risk of the project that it bears by entering into a variety of contracts. It can hedge its currency and interest-rate exposure, enter into long-term purchase or supply agreements, require guarantees, and purchase various forms of insurance. Although such contracts are not true forms of financing, they nonetheless have a bearing on the choice and terms of financing
available. Lenders to an IPP, for instance, generally will not finance the project in the absence of a PPA. Furthermore, some such contracts can essentially be transformed into financing contracts. For example, the expected revenues from a long-term supply contract can be securitized, enabling the sponsor to receive the present value of these revenues at the outset, thereby decreasing its initial financing requirements. Finally, the transfer of risk through contracts need not be permanent and may involve a large number of parties, as do exchange-traded contracts.

Sources of Risk

The preceding discussion has noted the use of financing and contracts in transferring risk, but it has not specified the nature of the risks that would thus be transferred. In large infrastructure projects, these are construction risk; operation risk; demand and supply risk; regulatory, institutional, and political risk; and macroeconomic risk (see chapter 3 for a description of these risks).

Regulatory, institutional, and political risks are often of overriding importance. They may delay the completion of a project, compromise the operation of the project and its profitability, or result in de jure or de facto expropriation of the project. A government may expropriate investors in a project either directly through nationalization or indirectly through regulation that lowers prices to the extent of precluding investors from recovering their initial investment.

Thus the Hub power project in Pakistan was delayed by the Gulf War and by uncertainty over the conformity of its financing structure with Islamic Shariaa law; the Dhabol power plant in the Indian state of Maharashtra was delayed by the coming to power of a party that was committed to renegotiating the contract signed by the previous state government; and the construction of highways and railroad lines in England is bitterly opposed by environmental activists and, in many cases, local residents. Similarly, accusations of corruption made by the government of Pakistan against managers of the Hub power project have thrown the future of the project into doubt, and changes made to the regulatory framework of privatized utilities in the United Kingdom have decreased shareholders’ returns below what they might have expected at privatization given the then prevailing framework.
Macroeconomic risk is related to demand risk, in that dramatically changed economic conditions such as those brought about by the Asian crisis will surely affect demand for the products and services provided by a project. But macroeconomic risk is more general than demand risk. For example, a devaluation of the local currency would increase the cost of servicing the project’s foreign debt even in the absence of any change in demand.

Risks matter because they affect a project’s cash flows: the initial investment (construction risk; regulatory, institutional, and political risk), operating costs (operation risk; regulatory, institutional, and political risk), and revenues (demand risk; regulatory, institutional, and political risk; macroeconomic risk). The project’s success therefore depends on controlling these risks. This, in turn, depends on the allocation of the risks.

Direct and Indirect Allocation of Risks through Financial Architecture

The general principle for allocating risk in LEPs is that stated in chapter 3: a given risk should be allocated to the party or parties that can best control or bear that particular type of risk, which provides the incentive to do so. Thus, construction risk should be allocated to the contractor of the project, operation risk to the operator, and political risk to a government or a multilateral institution. This last consideration may explain why political risk insurance is generally provided by the public sector. It is important to note, however, that the party that can best control a given risk is not necessarily the same as the one that can best bear that risk. This is perhaps best illustrated by the tale of mid-nineteenth-century railroad contractor-promoters such as Thomas Brassey and Samuel Morton Peto. These contractors provided much of the financing needed for the construction of new railway lines through borrowing or by relying on their own funds. The resulting overexposure to a relatively limited number of projects led to Peto’s collapse in the crash of 1866 (Barker and Savage 1974). Risk-bearing considerations alone suggest that a given risk should be divided among a large number of parties each of which would each bear only a small fraction of that risk.

Such fragmentation is in direct conflict with the need to induce the parties to control the risk, because a party that bears only a small frac-
tion of a given risk has a correspondingly small incentive to control that risk. There is therefore a trade-off between the control and the bearing of risk that is of fundamental importance to the overwhelming majority of financing and risk-management choices. Only in the case of a risk that cannot be controlled is there no trade-off. Such a risk should be divided among a large number of parties. For example, the risk of freely floating currencies should generally be borne by banks or by the futures and options markets.

In contrast to chapter 3, where the direct allocation of risk through contracts is discussed, we consider the indirect allocation of risk through financial architecture. Admittedly, financing arrangements are contracts in their own right; however, their object is an entire project rather than a specific aspect of the project, as is the case for contracts. Contrast, for example, the claim for payment by an investor in a project to that by the project’s contractor. The former is a claim on the general payoff of the project, whereas the latter is a claim on the specific facility or plant that the contractor has built.

The need for the indirect allocation of risk exists when contracts that would allocate risk directly cannot be written, perhaps because of the complexity of the task involved. For example, it may be difficult to describe in meaningful contractual terms what the efficient operation of a project entails. Furthermore, some manifestations of political risk, such as revolutions and civil wars, likely imply the inability of the government to enforce contractual agreements. Nonetheless, the desired allocation of risk may be achievable through financial architecture: by the operator in the first case and by the government in the second. Both the operator and the government have a stake in the success of the project.

The allocation of risk through financial architecture also sets the stage for renegotiation, which is made necessary by the incompleteness of both the direct and the indirect initial allocation of risk, and by changes in circumstances that may make the initial allocation of risk no longer appropriate. Financing implies ownership and ownership generally entails control. Control clearly affects renegotiation. Financing should therefore be provided by, and ownership and control should reside with, the parties whose importance to efficient renegotiation is greatest.

Part of the ownership of a major infrastructure project should reside with a large bank or multilateral institutions whose considerable clout likely would deter an attempt at opportunistic renegotiation on the
part of the host government. Four elements of financial architecture are now discussed, with particular emphasis on their capability to cope with risk and renegotiation.

**The Choice of Ownership Vehicle**

The first important decision that a sponsor considering an LEP must make is whether to do so through a special-purpose vehicle such as a joint venture, consortium, or project company or as a wholly owned, integral part of the sponsor. Clearly, the entire equity of the project is provided by the company in the last case, and there can therefore be no transfer of risk through equity. There is also little transfer of the risk of the project through debt, as lenders have recourse to the revenues and assets of the company’s other operations. Any transfer of risk in the case of a wholly owned project is therefore limited to that which can be achieved through contracts. This suggests that a project will be wholly owned when a single party—the project’s sponsor—can best control and bear all of the risks of the project or when they can be transferred through contracts.

In contrast, when there is a need to rely on financing to transfer risk, a project will be undertaken through a special-purpose vehicle for only in such cases is the transfer of risk through financing possible. Such a vehicle makes it possible for the parties to which risk is to be transferred through equity to acquire equity stakes in the project alone, and for the parties to which risk is to be transferred through debt to make a loan to the project alone.

An example of a wholly owned project is the Nanko power plant, built and operated by Kansai Electric Power in Osaka, Japan. IMEC research noted that Kansai was observed to possess “all the competencies to do the project from early planning to operation—except for equipment manufacturing.” This suggests that Kansai was the party best able to control the entire risk of the project. With stable technologies, it is arguable whether equipment manufacturing is truly part of the project. In any case, such risk appears to be satisfactorily allocated through contracts for equipment that uses tried-and-tested technology. There was therefore no need for the transfer of risk, either through contracts or through financing, and the plant was financed entirely through retained earning and traditional, full-recourse debt.

The Navotas I power plant in the Philippines was undertaken though a special-purpose vehicle. The equity in the project company
was shared among Hong Kong’s Hopewell, the operator and majority shareholder; Citibank; the Asian Development Bank; and the IFC. The debt was provided in the form of nonrecourse financing by Austria’s Osterreichesche Landerbank; France’s Indosuez and Credit Lyonnais; Girozentrale; the IFC; and the Asian Development Bank. A PPA committed National Power Corporation (Napocor) of the Philippines to make fixed-capacity-charge and variable-energy-charge payments to the project company. Napocor further committed to supply fuel to the plant. These contractual obligations were guaranteed by the government of the Philippines.

Comparison of the Nanko and Navotas I projects raises the question of why two seemingly identical projects should have been structured and financed in such different ways. The answer relates to the allocation of risk and incentives. A number of financial and organizational constraints combined to make Napocor reliant on private infrastructure providers such as Hopewell for the generation of electricity. Hopewell’s majority stake in the project company provided it with the incentive to perform that task efficiently. Transmission and distribution, however, remained Napocor’s responsibility. This implied that, in the absence of any contract between Napocor and the project company, demand risk for the power produced by the project would be borne by investors in the project, whereas control over that risk, to the extent that such control is possible, would reside with Napocor. This was especially true as the plant was intended for peak-load operation, with plant dispatch determined by Napocor. The PPA was therefore necessary to transfer demand risk to the party that could best appraise and control that risk—Napocor.

The guarantee provided by the government of the Philippines was intended to provide it with the incentive to hold state-owned Napocor to its contractual obligations. Financing of the project company in the form of nonrecourse debt by multilateral institutions and commercial banks was, in turn, intended to provide these parties with the incentive to hold the government of the Philippines to its own contractual obligations. Their involvement was desirable because of their greater clout, compared to Hopewell, in renegotiation with the government stemming from their ability to cut a defaulting borrower off from all credit.

Renegotiation of the terms of the contract was a distinct possibility in the case of Navotas, for the project was a high-cost power plant built at great speed to remedy acute power shortages. This high cost was the
price to be paid for speedy completion, but Napocor may have no
longer been willing to pay this price once new, lower-cost plants had
been built, yet before investors in Navotas had recovered their invest-
ment. None of the above issues existed in the case of Nanko (see
Trujillo et al. 1998).

The Choice between Debt and Equity: Upside and Downside Risks

The role of financing in allocating risk has been discussed, but not
whether a risk that should be allocated through financing should be
allocated through debt or through equity. Thus, to return to two types
of risks that have often been referred to, operation risk and expropria-
tion risk, note that we have not justified the assertion that the former
should be allocated through equity, whereas the latter should be allo-
cated through debt. Why not allocate both through equity, or through
debt, or allocate the risk of expropriation through equity and that of
operation through debt?

To answer these questions, and more generally to provide guidance
for choosing between debt and equity when allocating risk through
financing, we need to introduce some grouping of the risks discussed
here. In particular, we wish to distinguish between upside risks and
downside risks. Both operation risk and expropriation risk, for
instance, affect the value of a project. There are therefore benefits to
controlling both, but there is a difference in the benefits to controlling
each. There is no upper limit to the benefit of controlling operation
risk: the more efficiently the project is operated, the more valuable the
project. In contrast, there is an upper limit to the benefit of controlling
expropriation risk: the value of the project can be no greater than its
intrinsic value, absent any risk of expropriation.

The incentive to control expropriation risk therefore resides in the
desire to preserve the value of the project, whereas the incentive to
control operation risk resides in the desire to maximize the value of the
project. In other words, the concern of operation risk is the upside of
the project, whereas that of expropriation risk is the downside of the
project.

The other types of risk fall between these two extremes. Thus, con-
struction risk is likely to be partly upside risk and partly downside
risk; it is upside to the extent that better, more timely, and more cost-
effective construction increases the value of a project or makes feasible
a project that was hitherto considered to be uneconomical. For exam-
ple, innovative construction techniques and forms of organization for development of marginal oil fields in the North Sea have yielded substantial capital-cost reductions (Lascelles 1996). Construction risk is downside for construction projects for which there is little scope for innovation, in which case the primary concern is the avoidance of delays and cost overruns. The same holds true for demand and supply risk; regulatory, institutional, and political risk; and macroeconomic risk; although these are probably more in the nature of downside risk as their control is necessary not so much to increase the value of a project as to avoid jeopardizing that value.

The differing characteristics of upside and downside risks suggest that these should be allocated through different forms of financing—equity and debt, respectively. Like the benefit of controlling upside risk, the payoff to equity has no upper limit. Like the benefit to controlling downside risk, the payoff to debt does have an upper limit: the sum of principal and interest. Any increase in the value of the project above that limit accrues to equity-holders in its entirety, while any shortfall below that limit is borne by debt-holders in its entirety. This suggests that equity-holders will be induced to control upside risk and debt-holders will be induced to control downside risk. Indeed, we find that among the main equity-holders in project companies are operators, contractors, and, to a lesser extent, suppliers. We find that among the main debt-holders are commercial banks (naturally), multilateral institutions, and export credit agencies. The latter two often provide debt financing indirectly in the form of loan guarantees rather than directly in the form of loans.

As upside risk is allocated through equity financing and downside risk through debt financing, the relative importance of these two types of risk should be a major determinant of a project’s leverage. Projects with a high ratio of tangible to intangible assets will tend to have high leverage. Such projects present greater downside risk than do projects with a low ratio of tangible to intangible assets, for tangible assets are at greater risk of being expropriated than are intangible assets. Similarly, projects with low operation risk, such as bridges, will tend to have higher leverage than do projects with higher operation risk, such as power plants. Indeed, the project company that operates the Northumberland Strait Crossing between New Brunswick and Prince Edward Island in Canada has 81 percent leverage, whereas the project company that operates the Novatas I power plant has 73 percent leverage.
There are other determinants of a project's leverage: taxes, the ability to bear risk, and regulations all play an important role. We have already mentioned the regulatory constraint that limits the leverage of power utilities in the United States. For an example of a regulatory constraint that has a diametrically opposite effect, consider the Third Dartford Crossing in the United Kingdom. The terms of the concession preclude any dividend payment to equity-holders. Not surprisingly, the project has been financed with near 100 percent debt.

We have also mentioned the need to trade off the ability to control risk with the ability to bear risk. This provides one explanation for the allocation of downside risk, such as construction risk, to commercial banks through bank debt. Risk-control considerations alone would dictate that this risk be allocated to contractors, and risk-bearing considerations alone would dictate that it be shared among a large number of investors through bond financing. Naturally, changes in the relative importance of risk control and risk bearing will be reflected in changes in the source and form of financing. Thus, completion of a project and the consequent decline in the need to control construction risk suggest that risk-bearing considerations should increase in relative importance, thereby accounting for the frequent replacement of much bank debt by bonds following completion.

Changes in the source and form of financing also reflect changes in the relative importance of upside and downside risk, or in the identity of the party that can best control a given risk. Thus, the project company that operates the Northumberland Strait Crossing increased its leverage following completion of the project since construction risk that had been allocated through equity no longer existed. Similarly, transfer of project ownership from the project company to the host government in BOT schemes may represent an admission on the part of project investors of their inability to control expropriation risk indefinitely in the absence of wholesale privatization. More generally, the maturity of the form and the source of financing will be determined by the period of time over which the risk allocated by the chosen form of financing is to be controlled by the chosen source of financing.

Recourse versus Nonrecourse Debt

As noted above, lenders to a project may have full recourse to the total assets and revenues of the firm that has undertaken the project, or they may have recourse limited to the project's assets and revenues only.
They may also have loan guarantees, which are a form of recourse. The question then arises as to whether a project’s debt financing should be provided in the form of recourse or nonrecourse debt.

It is clear that debt should be nonrecourse if the project’s debt-holders are also the parties that are best able to control the project’s downside risk. Only nonrecourse debt will be effective in inducing these parties to control downside risk, for only in the absence of recourse will the loans made by the parties be jeopardized by their failure to control that risk.

But the debt-holders of a project are not always the parties best able to control the project’s downside risk. For example, in a case where the choice of leverage has been driven primarily by tax considerations, the parties best able to control downside risk may well be equity-holders in the project rather than debt-holders. Providing debt-holders with recourse to equity-holders induces the latter to control both downside and upside risk. Similarly, in a case where the government has been prevented by budgetary or other considerations from becoming a major debt-holder in the project in spite of the importance of political risk, recourse from debt-holders to the government in the form of loan guarantees induces the government to control that risk.

The Role of Government and Multilateral Agencies

As noted, governments and multilateral agencies may be an important source of debt financing, for such debt provides them with the incentive to control regulatory, institutional, and political risk and to see to the success of the project. Such incentives are in addition to that provided by tax revenues. Financing by a government or multilateral agency need not take the form of the direct provision of debt financing; it may be in the form of loan guarantees, guaranteed rates of return, or grants and subsidies. These are used especially in the presence of important externalities or in the case of what are essentially social projects, such as infrastructure projects intended to serve small and isolated communities. Thus, the bonds issued to finance construction of the Northumberland Strait Crossing are guaranteed by the government of Canada, for the bridge, like the ferry service it replaced, is explicitly political in nature and would not be viable in the absence of government subsidies.

The presence of guarantees arguably controls the risk that the government may reduce or terminate the subsidies, for an attempt to do
so would likely precipitate default of the project company, leaving the government to indemnify bondholders. In contrast, the third Dartford Crossing was financed without any government guarantee. The agreement that the concession would last until all debt incurred in building the bridge was repaid precluded any “creeping” expropriation by the government. (Strictly speaking, the concession period is to be the shorter of either twenty years or the period needed to repay the debt.)

Financing by a government or multilateral agency may also help lend legitimacy to a project, especially in the case of institutions such as the World Bank or the European Bank for Reconstruction and Development, which are known to decline taking part in the financing of projects that do not satisfy relatively stringent environmental and social conditions. Thus, the three oil companies that are considering developing the Doba oil field in Chad have, in the face of fierce criticism by environmental and human rights groups, made their project conditional upon World Bank participation in the project. Interestingly, the bank’s participation is to take the form of a US$115 million loan to the Chad and Cameroon governments, enabling them to acquire a 3 percent equity stake in the project (Corzine 1997).

Designing a financial architecture with instruments such as equity, debt, covenants, recourse, government guarantees, and the participation of bilateral and multilateral agencies is much more than bringing money to a project. In fact, a well-thought-out financial architecture will allocate risks to parties with comparative advantage, provide incentives to respond to events in the appropriate manner, and ensure that a project is governable enough to survive crises by restructuring. The contention here is that the allocation of risk should be such as to maximize the value of the project and to minimize the costs of renegotiation.