

How Much Equity is Enough in Project Financing?

Success in the competitive marketplace depends not only on building a better mousetrap, but also on getting the financing right. A firm financing a new business venture must seek a competitive mix of debt and equity based on the pricing of these funds in the capital market and the appetite for risk among the investors who provide them. The chief financial officers of major firms are preoccupied with balancing debt and equity in the corporate balance sheet. In the world of project finance, this balancing act is even more difficult owing to the structure of project financing deals, their greater risks, and the incentives that guide their sponsors. These factors weigh heavily in deciding if there is enough equity in a project finance deal.

Limited Recourse versus Full Recourse Financing

In traditional corporate finance, a company will keep a project on its balance sheet or fund it through a new company with the backing of the parent firm. The added comfort of having full recourse to the parent lowers the cost of capital because it lowers the market's perception of risks. Traditional project financing, on the other hand, limits the recourse to the parent firm or firms by setting up a legally distinct "special purpose company." As captured by its name, limited recourse financing keeps the project debt off the balance sheet of the sponsors and relies instead on the project's cash flows to raise debt and equity funds. Insulating the parent firm from the project, however, entails a cost. Markets correctly perceive the greater risk of default in the absence of stronger links to the sponsor and, therefore, charge higher interest on the debt and demand a greater return on equity.

Capital Structure of Project Financing

Both corporate and project finance deals draw capital from equity (permanent capital) and some form of debt (temporary capital) either long-term, short-term or quasi-equity. The mix of these forms of financing and their cost make up the cost of capital to the firm or project. Evaluating the capital structure of a project is complicated, but simply put, the capital structure is the proportion of equity in the total financing package.

Why is Capital Structure an Issue?

In theory, with perfectly competitive capital markets and the absence of bankruptcy costs there would be arbitrage between the different sources of funds. The cost of capital in a project would not depend on the relative amounts of debt and equity. In a less-than-perfect world, with imperfect markets and substantial bankruptcy costs, the amounts of debt and equity do affect costs and, therefore, the project's financial viability. For example, the higher the ratio of debt-to-equity (leverage) in a project, the higher the potential return to owner's equity (see Box). At the same time, raising the level of debt also increases the risks to equity since a project's cash flow is variable and returns are paid after operational costs, taxes, and debt service.

How Much Equity is Enough?

Initially at least, the overall capital cost of a project is decreased by replacing equity with cheaper debt. However, default risk also increases with the amount of indebtedness. At some point, higher levels of debt raise the cost of borrowing owing to the greater risk premia

on both debt and equity. What, then, is the optimal amount of debt and equity? Unfortunately, in practice it is extremely hard to assess the cost of debt and equity as related to the capital structure of a project. In principle, equity should be provided up to the point that the debt service can be **consistently** supported by the project's cash flow under a variety of events, while allowing an adequate return to shareholders. Some factors in selecting the right level of indebtedness, which in turn determines the level of equity, can be identified.

Cash Flow Level and Variability:

Because the debt must be serviced first to avoid default, the more variable the cash flow of a project the less debt can be carried. For example, a power project that has a guaranteed price and output contract with a public utility can carry more debt than a project selling to a spot market where both price and demand fluctuate. As well, the more positive the correlation among inflows or outflows and the more negative the correlation between inflows and outflows, the lower the level of debt.

Debt Maturity and Cost:

Although total interest payments are greater for long-term debt, yearly amortization payments are lower than for a similar amount of short-term debt. As projects, tend to build up cash flow slowly, it is crucial for debt to be long term and have a grace period, especially during the construction phase. Surprisingly, cost is a relatively minor issue when dealing in the same currency, since the cost variations between sources of debt are not likely to have a sizable impact on debt capacity.

Availability of risk hedges:

If a project can hedge some of the risks (reduce the variability or the harmful correlations), it may increase the level of debt it can carry. For instance, guaranteed input prices, forward sales of output, or currency swaps to make all flows denominated in the same currency will increase the debt capacity of a project by lowering risk.

Capital at Risk

Beyond concerns about the amount of equity are those issues related to type of equity participation. A sponsor whose earnings are primarily from dividends paid on equity, will have a longer-term view than, say, the sponsor who has sizable up-front fees for advisory and/or construction services. Where there is sizable fee-based income, sponsors are likely to exaggerate the debt capacity of a project and thus raise its long-term riskiness-after all, they get their returns at the beginning. If markets worked perfectly, these incautious sponsors would be "weeded out" through competition. However, asymmetries in information and imperfect competition do exist, so that lenders, who themselves receive up-front fees, may accept higher levels of risk at rates that are incompatible with project fundamentals. One way to ensure the longer term viability of a project is to have sponsor or equity holders remain as managers of the project. The continued presence of those who have capital at risk in the project assures more realistic cash flow projections and their realization through good project management. The concept of capital at risk differs from that of the total equity because it refers to only those own funds that sponsor-managers have invested in the project and that are exposed to project risk. In the case where the original equity holder is part of a construction consortium, equity capital may come from earnings on the construction contract. In effect, the sponsor's exposure is only for those funds obtained from the project. Once a reasonable return on its risk capital is earned, the sponsor may abandon or neglect the project, even when it apparently has a higher equity participation. Creditors, both public and private, should consider the incentives that guide the key players in a project before committing their own funds. The payback period for capital at risk (or the time required to

get their money out) is the clearest signal to the lender of the underlying interests of each party. Viewed from the perspective of capital at risk, it is possible to see how the lack of long-term financing for projects may reflect the lack of a long-term commitment by sponsors. As a rule, the shorter the pay back period the lower the amount of debt lenders should be willing to provide.

Antonio Vives and Paulina Beato,
Infrastructure & Financial Markets Division