



Introduction to Project Finance for Engineers

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Author:
Tünde Jenei

Proofreading:
Prof. Dr. Edit Szűcs

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1. DEFINITION OF PROJECT FINANCE

The term “project finance” is used loosely by academics, bankers and journalists to describe a range of financing arrangements. Often bandied about in trade journals and industry conferences as a new financing technique, project finance is actually a centuries-old financing method that predates corporate finance. However with the explosive growth in privately financed infrastructure projects in the developing world, the technique is enjoying renewed attention. The purposes of this chapter are to contrast project finance with traditional corporate financing techniques; to highlight the advantages and disadvantages of project finance and to propose that a single structure underlies every project finance transaction; to explain the myriad of risks involved in these transactions.

Project financing techniques date back to at least 1299 A.D. when the English Crown financed the exploration and the development of the Devon silver mines by repaying the Florentine merchant bank, Frescobaldi, with output from the mines. The Italian bankers held a one-year lease and mining concession, i.e., they were entitled to as much silver as they could mine during the year. In this example, the chief characteristic of the project financing is the use of the project’s output or assets to secure financing.

Another form of project finance was used to fund sailing ship voyages until the 17th century. Investors would provide financing for trading expeditions on a voyage-by-voyage basis. Upon return, the cargo and ships would be liquidated and the proceeds of the voyage split amongst investors. An individual investor then could decide whether or not to invest in the sailing ship’s next voyage, or to put the capital to other uses. In this early example the essential aspect of project financing is the finite life of the enterprise. In corporate finance terms, we can also think of this mandatory liquidation as a fixed dividend policy. The idea of project finance predated the idea of permanent capital entrusted to a group of professional managers who would decide rather autonomously between paying dividends and reinvestment.

Project financing has evolved through the centuries into primarily a vehicle for assembling a consortium of investors, lenders and other participants to undertake infrastructure projects that would be too large for individual investors to underwrite. The more recent prominent examples of project finance structures facilitating projects are the construction of the Trans-Alaskan pipeline and exploration and exploitation of the North Sea oil fields. In the late 1990s, the technique has become rather prevalent and is frequently used to finance independent power plants and other infrastructure projects around the world as governments face budgetary constraints. There is no singular definition of project finance. In an article in the *Harvard Business Review*, Wynant defined project finance as “a financing of a major independent capital investment that the sponsoring company has segregated from its assets and general purpose obligations.” A major player in sponsoring infrastructure projects and providing financing in developing countries, the World Bank defines project finance as the “use of nonrecourse or limited-recourse financing.” Further defining these two terms, “the financing of a project is said to be *nonrecourse* when lenders are repaid only from the cash flow generated by the project or, in the event of complete failure, from the value of the project’s assets. Lenders may also have *limited recourse* to the assets of

a parent company sponsoring a project.” These two definitions along with the historical examples above begin to establish the characteristics of project finance. In building a more robust picture of project finance, it is helpful to articulate the full list of characteristics and to contrast project finance with corporate finance.

1.1 How can a project financing be identified?

What details should we expect to find about the transaction? Not every project financing transaction will have every characteristic, but the following provides a preliminary list of common features of project finance transactions.

- **Capital-intensive:** Project financings tend to be large-scale projects that require a great deal of debt and equity capital, from hundreds of millions to billions of dollars. Infrastructure projects tend to fill this category.
- **Highly leveraged:** These transactions tend to be highly leveraged with debt accounting for usually 65% to 80% of capital in relatively normal cases.
- **Long term:** The tenor for project financings can easily reach 15 to 20 years.
- **Independent entity with a finite life:** Similar to the ancient voyage-to-voyage financings, contemporary project financings frequently rely on a newly established legal entity, known as the project company, which has the sole purpose of executing the project and which has a finite life “so it cannot outlive its original purpose.” In many cases the clearly defined conclusion of the project is the transfer of the project assets.
- **Non-recourse or limited recourse financing:** The project company is the borrower. Since these newly formed entities do not have their own credit or operating histories, it is necessary for lenders to focus on the specific project’s cash flows. That is, “the financing is not primarily dependent on the credit support of the sponsors or the value of the physical assets involved.” Thus, it takes an entirely different credit evaluation or investment decision process to determine the potential risks and rewards of a project financing as opposed to a corporate financing. In the former, lenders “place a substantial degree of reliance on the performance of the project itself. As a result, they will concern themselves closely with the feasibility of the project and its sensitivity to the impact of potentially adverse factors.” Lenders must work with engineers to determine the technical and economic feasibility of the project. From the project sponsor’s perspective, the advantage of project finance is that it represents a source of off-balance sheet financing.
- **Controlled dividend policy:** To support a borrower without a credit history in a highly-leveraged project with significant debt service obligations, lenders demand receiving cash flows from the project as they are generated. This aspect of project finance recalls the Devon silver mine example, where the merchant bank had complete access to the mine’s output for one year. In more modern major corporate finance parlance, the project has a strictly controlled dividend policy, though there are exceptions because the dividends are subordinated to the loan payments. The project’s income goes to servicing the debt, covering

operating expenses and generating a return on the investors' equity. This arrangement is usually contractually binding. Thus, the reinvestment decision is removed from management's hands.

- **Many participants:** These transactions frequently demand the participation of numerous international participants. It is not rare to find over ten parties playing major roles in implementing the project. The different roles played by participants is described in the section below.
- **Allocated risk:** Because many risks are present in such transactions, often the crucial element required to make the project go forward is the proper allocation of risk. This allocation is achieved and codified in the contractual arrangements between the project company and the other participants. The goal of this process is to match risks and corresponding returns to the parties most capable of successfully managing them. For example, fixed-price, turnkey contracts for construction which typically include severe penalties for delays put the construction risk on the contractor instead on the Project Company or lenders. The risks inherent to a typical project financing and their mitigations are discussed in more detail later.
- **Costly:** Raising capital through project finance is generally more costly than through typical corporate finance avenues. The greater need for information, monitoring and contractual agreements increases the transaction costs. Furthermore, the highly-specific nature of the financial structures also entails higher costs and can reduce the liquidity of the project's debt. Margins for project financings also often include premiums for country and political risks since so many of the projects are in relatively high risk countries. Or the cost of political risk insurance is factored into overall costs. Another means of understanding project finance is to relate it to corporate finance. Kensinger and Martin draw this comparison, Generally when a corporation chooses to undertake an investment project, cash flows from existing activities fund the newcomer; and management has the option to roll over the project's capital into still newer ventures within the company later on - without submitting them to the discipline of the capital market. With project financing, by contrast, the assets and cash flows associated with each project are accounted for separately. Funding for the new project is negotiated from outside sources, and creditors have recourse only to the assets and cash flows of a specific project. As the project runs its course, furthermore, the capital is returned to the investors, and they decide how to reinvest it.

Most actual projects probably fall somewhere between the two theoretical definitions. The following chart summarizes the key differences between the two types of financing.

	Corporate finance	Project finance
Financing vehicle	Multi-purpose organization	Single-purpose entity
Type of capital	Permanent - an indefinite time horizon for equity	Finite - time horizon matches life of project
Dividend policy and reinvestment decisions	Corporate management makes decisions autonomous from investors and creditors	Fixed dividend policy - immediate pay out; no reinvestment allowed
Capital investment decisions	Opaque to creditors	Highly transparent to creditors
Financial structures	Easily duplicated; common forms	Highly-tailored structures which cannot generally be re-used
Transaction costs for financing	Low costs due to competition from providers, routinized mechanisms and short turnaround time	Relatively higher costs due to documentation and longer gestation period
Size of financings	Flexible	Might require critical mass to cover high transaction costs
Basis for credit evaluation	Overall financial health of corporate entity; focus on balance sheet and cash flow	Technical and economic feasibility; focus on project's assets, cash flow and contractual arrangements
Cost of capital	Relatively lower	Relatively higher
Investor/lender base	Typically broader participation; deep secondary markets	Typically smaller group; limited secondary markets

Table: 1.1 Congenialities and differences between corporate finance and project finance

1.2 Project finance: when and why?

The advantages of project finance as a financing mechanism are apparent. It can raise larger amounts of long-term, foreign equity and debt capital for a project. It protects the project sponsor's balance sheet. Through properly allocating risk, "it allows a sponsor to undertake a project with more risk than the sponsor is willing to underwrite independently." It applies strong discipline to the contracting process and operations through proper risk allocation and private sector participation. The process also applies tough scrutiny on capital investment decisions.

On the other hand, the financing technique also presents certain disadvantages. It is a complex financing mechanism that can require significant lead times. High transaction costs are involved in developing these one-of-a-kind, special-purpose vehicles. The projects have high cash flow requirements and elevated coverage ratios. The contractual arrangements often prescribe intrusive supervision of the management and operations that would be resented in a corporate finance environment.

In this section we take into account the advantages and disadvantages of project finance.

1.2.1 Advantages

- **Non-recourse/limited recourse financing:** Non-recourse project financing does not impose any obligation to guarantee the repayment of the project debt on the project sponsor. This is important because capital adequacy requirements and credit ratings mean that assuming financial commitments to a large project may adversely impact the company's financial structure and credit rating (and ability to access funds in the capital markets).

- **Off balance sheet debt treatment:** The main reason for choosing project finance is to isolate the risk of the project, taking it off balance sheet so that project failure does not damage the owner's financial condition. This may be motivated by genuine economic arguments such as maintaining existing financial ratios and credit ratings. Theoretically, therefore, the project sponsor may retain some real financial risk in the project as a motivating factor, however, the off balance sheet treatment *per se* will effectively not affect the company's investment rating by credit rating analysts.

- **Leveraged debt:** Debt is advantageous for project finance sponsors in that share issues (and equity dilution) can be avoided. Furthermore, equity requirements for projects in developing countries are influenced by many factors, including the country, the project economics, whether any other project participants invest equity in the project, and the eagerness for banks to win the project finance business from adverse developments.

- **Risk sharing:** Allocating risks in a project finance structure enables the sponsor to spread risks over all the project participants, including the lender. The diffusion of risk can improve the possibility of project success since each project participant accepts certain risks; however, the multiplicity of participating entities can result in increased costs which must be borne by the sponsor and passed on to the end consumer – often consumers that would be better served by public services.

- **Collateral limited to project assets:** Non-recourse project finance loans are based on the premise that collateral comes only from the project assets. While this is generally the case, limited recourse to the assets of the project sponsor is sometimes required as a way of incentivizing the sponsor.

- **Lenders are more likely to participate in a workout than foreclose:** The non-recourse or limited recourse nature of project finance means that collateral (a half-completed factory) has limited value in a liquidation scenario. Therefore, if the project is experiencing difficulties, the best chance of success lies in finding a workout solution rather than foreclosing. Lenders will therefore more likely cooperate in a workout scenario to minimize losses.

1.2.2 Disadvantages

- **Complexity of risk allocation:** Project financings are complex transactions involving many participants with diverse interests. This results in conflicts of interest on risk

allocation amongst the participants and protracted negotiations and increased costs to compensate third parties for accepting risks.

- **Increased lender risk:** Since banks are not equity risk takers, the means available to enhance the credit risk to acceptable levels are limited, which results in higher prices. This also necessitates expensive processes of due diligence conducted by lawyers, engineers and other specialized consultants.

- **Higher interest rates and fees:** Interest rates on project financings may be higher than on direct loans made to the project sponsor since the transaction structure is complex and the loan documentation lengthy. Project finance is generally more expensive than classic lending because of:

- the time spent by lenders, technical experts and lawyers to evaluate the project and draft complex loan documentation;
- the increased insurance cover, particularly political risk cover;
- the costs of hiring technical experts to monitor the progress of the project and compliance with loan covenant;
- the charges made by the lenders and other parties for assuming additional risks.

- **Lender supervision:** In order to protect themselves, lenders will want to closely supervise the management and operations of the project (whilst at the same time avoiding any liability associated with excessive interference in the project). This supervision includes site visits by lender's engineers and consultants, construction reviews, and monitoring construction progress and technical performance, as well as financial covenants to ensure funds are not diverted from the project. This lender supervision is to ensure that the project proceeds as planned, since the main value of the project is cash flow via successful operation.

- **Lender reporting requirements:** Lenders will require that the project company provides a steady stream of financial and technical information to enable them to monitor the project's progress. Such reporting includes financial statements, interim statements, reports on technical progress, delays and the corrective measures adopted, and various notices such as events of default.

- **Increased insurance coverage:** The non-recourse nature of project finance means that risks need to be mitigated. Some of this risk can be mitigated via insurance available at commercially acceptable rates. This however can greatly increase costs, which in itself, raises other risk issues such as pricing and successful syndication.

- **Transaction costs may outweigh the benefits:** The complexity of the project financing arrangement can result in a transaction whose costs are so great as to offset the advantages of the project financing structure. The time-consuming nature of negotiations amongst various parties and government bodies, restrictive covenants, and limited control of project assets, and burgeoning legal costs may all work together to render the transaction unfeasible.

2. PARTICIPANTS OF PROJECT FINANCING

There are several parties in a project financing. Here is a list, describes the role of these major participants.

Project Company: The project company is the legal entity that will own, develop, construct, operate and maintain the project. The project company is generally an SPV created in the project host country and therefore subject to the laws of that country (unless appropriate ‘commissions’ can be paid so that key government officials can grant ‘exceptions’ to the project). The SPV will be controlled by its equity owners. The control mechanism may be defined in a charter, a joint venture agreement or partnership agreement and may also be subject to local laws. Its only activity will be to own and operate the project.

Project Sponsor/owner: The project sponsor is the entity that manages the project. The sponsor generally becomes equity owner of the SPV and will receive any profit either via equity ownership (dividend streams) or management contracts (fees). The project sponsor generally brings management, operational, and technical experience to the project. The project sponsor may be required to provide guarantees to cover certain liabilities or risks of the project. This is not so much for security purposes but rather to ensure that the sponsor is appropriately incentivized as to the project’s success.

Borrower: The borrowing entity might or might not be the SPV. This depends on the structure of the financing and of the operation of the project (which will themselves be determined by a host of factors such as tax, exchange controls, the availability of security and the enforceability of claims in the host country). A project may in fact have several ‘borrowers’, for example, the construction company, the operating company, suppliers of raw materials to the project and purchasers (off-takers) of the project’s production.

Financial adviser: The project sponsor may retain the services of a commercial or merchant bank to provide financial advisory services to the sponsor. The financial adviser theoretically will be familiar with the project host country and be able to advise on local legal requirements and transaction structures to ensure that the loan documentation and financial structure are properly assembled. A financial consultant can also advise on how to arrange the financing of the project, taking into consideration streaming cash flows, creation of shell offshore companies, tax avoidance, currency speculation, desirable locales for the project and capital required. Consultants can add the imprimatur of legality to the creation of such convoluted structures and provide help with accounting issues relating to the above other issues, such as the expected cost of the project, interest rates, inflation rates, the projected economics of operations and the anticipated cash flow. The financial adviser finally can assist in the preparation of the information memorandum regarding the proposed project. As the name suggests, the information memorandum provides information on the project, and is presented in glowing positive terms as an inducement for banks to participate in the financing, and achieve a successful syndication (despite disclaimers stating to the contrary that the memorandum is not a recommendation to participate in the facility and no responsibility can be taken for the accuracy of the information provided therein).

Lenders: The large size of projects being financed often requires the syndication of the financing. The syndicated loan exists because often any one lender individually does not have the balance sheet availability due to capitalization requirements to provide the entire project loan. Other reasons may be that it wishes to limit its risk exposure in the financing or diversify its lending portfolio and avoid risk concentration.

The solution is to arrange a loan where there are several lenders forwarding funds under a single loan agreement. Such a group of lenders is often called a *syndicate*. A syndicate of banks might be chosen from as wide a range of countries as possible to discourage the host government from taking action to expropriate. The syndicate can also include banks from the host country, especially when there are restrictions on foreign banks taking security in the country.

There are various categories of lenders in a loan syndication, typically:

- **The arranger:** The bank that arranges the syndication is called the arranging bank or lead manager. The bank typically negotiates the term sheet with the borrower as well as the credit and security documentation.
- **The managers:** The managing bank is typically a title meant to distinguish the bank from mere participants. In other words, the bank may take a large portion of the loan and syndicate it, thus assuming some of the underwriting risk. Managers can therefore broaden the geographic scope of the syndication. This role is reflected in the title which then features in the facility tombstones and any other publicity relating to the facility.
- **The facility agent:** Exists to administer the administrative details of the loan on behalf of the syndicate. The facility agent is not responsible for the credit decisions of the lenders in entering into the transaction. The agent bank is responsible for mechanistic aspects of the loan such as coordinating drawdowns, repayments, and communications between the parties to the finance documentation, such as serving notices and disseminating information. The Facility Agent also monitors covenant compliance and, when necessary, polls the bank group members in situations where a vote is needed (such as whether to declare a default or perfect security arrangements) and communicates these decisions to the borrower.

The security trustee: Exists where there are different groups of lenders or other creditors interested in the security and the coordination of their interests will call for the appointment of an independent trust company as security trustee.

Technical adviser: Technical experts advise the project sponsor and lenders on technical matters about which the sponsor and lenders have limited knowledge (oil, mining, fuel, environmental). Such experts typically prepare reports, such as feasibility reports, for the project sponsor and lenders, and may monitor the progress of the project, possibly acting as the arbiter in the event of disagreements between the sponsors and the lenders over the satisfaction of the performance covenants and tests stipulated in the finance documents.

Lawyers: The international nature and complexity of project financing necessitates the retention of experienced international law firms. Project finance lawyers provide legal experience with specific experience of project finance structures, experience with the underlying industry and knowledge of project contracts, debt and equity documents, credit enhancement and international transactions.

Project finance lawyers provide advice on all aspects of a project, including laws and regulations; permits; organization of project entities; negotiating and drafting of project construction, operation, sale and supply contracts; negotiating and drafting of debt and equity documents; bankruptcy; tax; and similar matters. It is advisable to involve the lawyers at an early stage to ensure that the structure of the financing is properly conceived from the outset and is tax-efficient. Local lawyers in the host country of the project are also necessary in opining on various local legal matters in connection with the project financing. They are particularly useful with respect to assessing the enforceability of claims on project assets located in the host country.

Equity investors: These may be lenders or project sponsors who do not expect to have an active management role as the project goes on stream. In the case of lenders, they are putting equity alongside their debt as a way to obtain an enhanced return if the project is successful. In most cases, the equity investment is combined with agreements that allow the equity investor to sell its equity to the project owner if the equity investor wishes to get out. Third party investors normally look to invest in a project on a much longer time scale than a contractor who in most cases will want to sell out once the construction has reached completion. Many third party investors are development or equity funds, which diversify their portfolios by investing in a number of projects. They may seek to manage the project by appointing members of their own organizations to the board of the project company.

Construction Company: Since most project financings are infrastructural, the contractor is typically one of the key players in the construction period. Construction can be either of the EPC or ‘turnkey’ variety. EPC, or engineer, procure, and construct, is when the construction company builds the facility as per an already designated specifications. Turnkey, on the other hand, is when the contractor designs, engineers, procures and constructs the facility, assuming all responsibility for on-time completion. In both cases, it is important that the construction company selected has a track record of successful project management and completion. In many large projects, consortia of constructors may become involved either for sheer economies of scale or for political reasons. In such cases, lenders prefer members of the consortia to undertake joint and several liability since the risk of failure of performance is the total responsibility of each member of the consortium. Most projects are structured on the basis that only one turnkey or EPC contractor will be employed. The various designers, contractors and subcontractors participating in the project will therefore be under the overall control of the project manager. This enables the coordination and streamlining of reporting lines.

Regulatory agencies: Projects naturally are subject to local laws and regulations. These may include environmental, zoning, permits and taxes. Publicly owned projects also will be subject to various procurement and public contract laws. It is important to ensure that a project has received all the requisite permissions and licences before committing financial resources. In many markets, such ‘roadblocks’ may require

extensive and time-consuming preparation for applying for the requisite government permission followed by indeterminate waiting. Another possibility is the lobbying of local political figures or the payment of large ‘commissions’ to persons in the host country’s government which may or may not have the clout to obtain the requisite approval.

Government: The local government is the government of the country in which the project is located. The host government is typically involved as an issuer of permits, licences, authorizations and concessions. It also might grant foreign exchange availability projections and tax concessions. In some projects, the local government is an owner of the project, whether majority or minority, or will become the owner of the project at the end of a specified period, such as in a build-own-transfer (BOT) structure. It might also be involved as an off-take purchaser or as a supplier of raw materials or fuel.

Construction contractors: These include the engineers and contractors responsible for designing and building the project. Any or all of these parties may be contractually part of the financing. The contractor is the entity responsible for construction of the project; to the extent construction of a facility is a part of the overall project. It bears the primary responsibility in most projects for the containment of construction-period costs.

Suppliers: Suppliers provide raw materials or other inputs to the project, since supply arrangements are key to project success, project sponsors and lenders are concerned with the underlying economic feasibility of supply arrangements and the supplier’s ability to perform the contracts. Closely linked to inputs are the matter of appropriate transportation links and the ability

Customers: In large infrastructure projects, the project company will seek in advance to conclude long term agreements to sell the good or service being produced by the project (e.g. selling coal to electric power plants).

Leasing companies: If capital allowances are available for the writing-down of plant and machinery or other assets, the project structure might involve one or more financial leasing companies. Their role will be to lease out assets to the project company in return for a rental stream. In addition to the tax advantages are the financial ones of keeping the assets off the project company’s balance sheet.

Insurers: The sheer scale of many projects and the potential for incurring all sorts of liabilities dictates the necessity of arranging appropriate insurance arrangements. Insurers therefore play a crucial role in most projects. If there is an adverse incident affecting the project then the sponsor and the lenders will look to the insurers to cover them against loss.

3. FINANCING SOURCES USED IN PROJECT FINANCING

Just as financial instruments range from debt to equity and hybrids such as mezzanine finance, project finance can raise capital from a range of sources.

Raising financing depends on the nature and structure of the project financing being proposed. Lender and investor interest will vary depending on these goals and risks related to the financing. Commercial lenders seek projects with predictable political and

economic risks. Multilateral institutions, on the other hand, will be less concerned with commercial lending criteria and will look towards projects that ostensibly satisfy not only purely commercial criteria.

In assembling a project financing, all available financing sources should be evaluated. This would include equipment suppliers with access to export financing; multilateral agencies; bilateral agencies, which may provide financing or guarantees; the International Finance Corporation or regional development banks that have the ability to mobilize commercial funds; specialized funds; institutional lenders and equity investors; and commercial banks, both domestic and international.

Equity: Equity is often raised in the stock markets and from specialized funds. Equity, as it is well known, is more expensive than debt financing. Domestic capital markets provide access to significant amounts of funds for infrastructure projects, although capital markets in developing countries may lack the depth to fund large transactions. In such cases, the international capital markets can also provide access to significant amounts of funds for infrastructure projects. However, this is generally limited to transactions whose sponsors are large, multinational companies. Access to international capital markets by companies in developing countries is generally limited, due to their low name visibility in the international financial markets.

Developmental loan: A development loan is debt financing provided during a project's developmental period to a sponsor with insufficient resources to pursue development of a project. The developmental lender is typically a lender with significant project experience. Developmental lenders, who fund the project sponsor at a very risky stage of the project, desire some equity rewards for the risk taken. Hence, it is not unusual for the developmental lender to secure rights to provide permanent financing for the project as part of the development financing arrangement.

Developmental loans are typically advanced to the project sponsor on a periodic basis, based on a budget prepared to cover the development stage of the project. The developmental lender will typically require liens on all project assets including project contracts. Repayment of the loan is typically from proceeds of construction financing. Developmental loans are extremely risky for the lender since there is no assurance that the project can be developed. These loans are also risky because the value of the collateral is totally dependent on the ability to complete the project. That value can reduce to nothing at any point.

Subordinated loans: Subordinated loans, also called mezzanine financing or quasi-equity, are senior to equity capital but junior to senior debt and secured debt. Subordinated debt usually has the advantage of being fixed rate, long term, unsecured and may be considered as equity by senior lenders for purposes of computing debt to equity ratios. Subordinated debt can sometimes be used advantageously for advances required by investors, sponsors or guarantors to cover construction cost over-runs or other payments necessary to maintain debt to equity ratios, or other guaranteed payments.

Senior debt: Commercial banks and institutional lenders are an obvious choice for financing needs. Commercial banks tend to limit their commitments to 5–10 with floating interest rates based on LIBOR or US prime rate. Fixed interest rate loans for 5-

to 10-year maturities or longer are sometimes available.

Commercial bank loans for large projects are typically arranged as syndicated bank loans. The senior debt of a project financing usually constitutes the largest portion of the financing and is usually the first debt to be placed. Generally the senior debt will be more than 50% of the total financing. Senior debt is debt that is not subordinated to any other liability, in other words, the first to be paid out if the company or project is placed under liquidation. Senior debt falls into two categories: unsecured and secured loans.

- *Unsecured loans:* Unsecured loans basically depend on the borrower's general creditworthiness, as opposed to a perfected security arrangement. Unsecured loans will usually contain a negative pledge of assets to prohibit the liquid and valuable assets of the company from being pledged to a third party ahead of the unsecured lender.

The loan agreement may include ratio covenants and provisions calculated to trigger a security agreement, should the borrower's financial condition begin to deteriorate. An unsecured loan agreement may also contain negative covenants which limit investments and other kinds of loans, leases debt obligations of the borrower.

The loan agreement may also include affirmative covenants which are things that the company has to do: e.g. ensure that the business will be properly managed, proper books and records will be kept, financial information will be furnished, insurance coverage kept in force, and the business operated according to law.

Large unsecured loans are available only to the most creditworthy companies with long histories of commercially successful operation and good relationships with their lenders. Since projects tend to be new enterprises with no operating histories, projects rely upon the reputations of their sponsors, owners, and managers for standing in the financial community.

- *Secured loans:* Secured loans are loans where the assets securing the loan have value as collateral, which means that such assets are marketable and can readily be converted into cash. In a fully secured loan, the value of the asset securing the debt equals or exceeds the amount borrowed. The reputation and standing of the project managers and sponsors, and the probable success of the project, all enter into the lending decision. The lending, however, also relies on the value of the collateral as a secondary source of repayment. The security interest is regarded by lenders as protection of loan repayment in the unlikely event the loan is not repaid in the ordinary course of business. Because of the security interest, a secured loan is superior since it ranks ahead of unsecured debt. In the event of financial difficulties, the secured creditor in control of key assets of a project is in a position to demand that its debt service, payments of interest and principal continue, even if this means that unsecured creditors may be left with nothing. The enforceability of security interests requires a practical word of caution. Inexperienced lenders sometimes confuse the right to realize security with the ability to realize it. It is important to distinguish between the two since the ability to enforce a right can come up against technical and practical difficulties of doing so – especially in the case of seizing properties located in countries with underdeveloped legal systems.

Syndicated loans: Project finance typically occurs in two phases: construction and operation. In some circumstances, the construction and operation phases are governed by separate agreements:

- **The construction phase** begins when the lender disburses funds for the construction of the project (as per the construction agreement, contingent on the submission of appropriate drawdown requests with supporting documentation such as completion certificates). Since there is no operating revenue during this stage, interest is typically capitalized.
- **The operations phase** begins when the construction is complete. The lending banks will advance funds (as per the terms in the loan agreement), typically on the first day of commercial operations. Since the project is now ostensibly generating a cash flow, payments of interest and principle can begin. The loan amortization schedule will have been drafted beforehand based on the cash flow projections, actual payments will of course depend on the actual cash flow generated. To account for minor variations in cash flow generation, the lenders may extend a working capital line of credit. Major shortfalls may lead to the loan facility being restructured.

A syndicated loan is a loan that is provided to the borrower by two or more banks, known as participants, which is governed by a single loan agreement. The loan is arranged and structured by an arranger and managed by an agent. The arranger and the agent may also be participants. Each participant provides a defined percentage of the loan, and receives the same percentage of repayments.

The syndicated lending market is international by nature – that is to say, many of the borrowers and projects being financed are international – taking place in Europe, Eastern Europe, Africa, the Middle East, etc. Furthermore, in order to place these large loans (e.g. up to several hundred million dollars) in the market, sometimes several banks are needed to participate in these loans.

Bonds: In recent years, the use of the bond market as a vehicle for obtaining debt funds has increased. Bond financings are similar to commercial loan structure, except that the lenders are investors purchasing the borrower's bonds in a private placement or through the public debt market. The bond holders are represented by a trustee that acts as the agent and representative of the bondholders. Bond purchasers are generally the most conservative source of financing for a project.

Investment funds: Investment funds mobilize private sector funds for investment in infrastructure projects. These specialized funds may be sponsored by governments or the private sector and include:

- asset funds or income funds;
- investment management companies and venture capital providers;
- money market funds.

Institutional lenders: Institutional lenders include life insurance companies, pension plans, profit-sharing plans and charitable foundations. These entities can be a substantial source of funding, particularly in the United States.

Leasing companies: Leasing companies, which use tax benefits associated with equipment ownership, can offer attractively priced leases for equipment, contributing to the overall pool of financing.

Vendor financing of equipment: Many equipment manufacturers have financing programmes to encourage the sale of their machinery and equipment. Credit terms and criteria may therefore be relatively competitive.

Contractors: Contractors are rarely able to participate significantly in the long term financing of large projects due to the relatively modest size of their balance sheet. However, they can provide support via fixed price contracts (e.g. building a project facility without cost overruns). Contractors can also assist their clients by providing advice on the financing of projects, since they have had considerable expertise in dealing with lenders, potential sponsors and various government agencies.

Sponsors: Sometimes, a direct loan or advance by a sponsor is the only way in which the project can be financed. Such direct loans may also be necessary as a result of cost over-runs or other contingent liabilities that the sponsor has assumed. A loan is preferable to a capital contribution, since it is more easily repaid. Sponsor loans can be at lower than market rates, moreover, some sponsors prefer to lend directly to a project rather than to guarantee a loan, because they view the credit exposure as being the same, but prefer to earn interest on their exposure.

Supplier financing: A supplier seeking a market for a product or a by-product which it produces is sometimes willing to subsidise construction, or guarantee debt of a facility that will use that product. This might, for example, be a steel plant that would use natural gas in the Middle East. The list of possible suppliers varies with each project. In such cases, a loan is made to the supplier, and the supplier quotes financing terms to the purchaser. Supplier credits usually require the supplier to assume some of the financing risk, although in practical terms, the supplier's profit margin may exceed the risk assumed.

Government: The local government can also be a direct or indirect source of financing.

- Direct sources are when the government loans funds to the project company.
- Indirect sources comprise tax relief, tax holidays, waiving customs duties for project equipment, etc.

There are a number of advantages to host country financing assistance in a project. These include reducing the impact of leverage; subordination; foreign exchange burden on the project sponsors. It also implies that the government support decreases political risk, which can help attract private capital.

4. RISKS AND RISK MITIGATIONS INVOLVED IN PROJECT FINANCING

Financing infrastructure projects, especially in developing countries, entails a formidable set of risks. It is the role of the project finance advisor, the project sponsor and other participants to structure the financing in such a manner that mitigates these risks. Lenders and investors always are initially concerned about financing immobile

assets in distant, politically-risky areas of the world. The project finance advisor's role is to carve out the risks, assigning them to the party who is best suited to be responsible for controlling them. The purpose of this section is to provide a checklist of the risks that a project finance transaction faces rather than a strict taxonomy of these risks. Therefore, some of the categories listed below are naturally related and it is possible that some overlap exists between categories.

Country: Country risks cover the political economy. Examples of country risk include civil unrest, guerrilla sabotage of projects, work stoppages, any other form of *force majeure*, exchange controls, monetary policy, inflationary conditions, etc. The country risk in some cases serves as the ceiling for a project's risk rating. For instance, Standard & Poor's credit rating agency limits specific project ratings by the sovereign credit rating that the agency assigns the country. That is, no project, despite its particular circumstances, can have a higher credit rating than the country's credit rating.

Specific mitigations might include political risk insurance against *force majeure* events or allocating risk to the local company. Involving participants from a broad coalition of countries also gives the project sponsors leverage with the local government.

Political: These risks cover changes within the country's political landscape, i.e., change of administration, as well as changes in national policies, laws regulatory frameworks. Environmental laws, energy policies and tax policies are particularly important to pipeline projects. These risks are not confined to the most unstable regimes in the developing world. It is a mistake to simplify political risks into only the most drastic actions such as expropriation. In the political environment of the 1990s, these drastic actions are rare. Nevertheless, infrastructure projects in developing countries continue to face significant political risks, albeit in more subtle forms "such as price regulation, restrictions on working permits for foreign managers, renegotiation of contracts, and even buyouts." In a recent article in *Harvard Business Review*, Louis Wells and Eric Gleason cite an example in Thailand where the government "unilaterally ordered a private toll road opened and lowered the amount its foreign owners could charge in tolls." The local sponsor, Thai Expressway and Rapid Transit Authority obtained a court order to force the project sponsors to open the toll road at a lower. It would be a mistake to confine these political risks to the developing world. State regulatory bodies in the United States can be just as fickle with rate regulations for power plants as any foreign ministry of energy. Mitigations include, again, political risk insurance as well as flexible tariff agreements that incorporate adjustments for these types of contingencies. An intimate acquaintance with the local political environment also increases a project sponsor's ability to foresee trouble spots.

Industry: Competitive forces within the industry represent significant risks to the project. It is necessary for project sponsors to analyse the potential risks that their particular project faces vis-à-vis global and local industries. The prices of substitute products, inputs and outputs are critical factors in determining the economics of the project. Other competing projects within the country or in the neighbouring region have competitive implications for the project. Standard and Poor's checklist for competitive forces for pipelines provides an example of the types of industry risks that creditors emphasize:

- the influence of other existing or planned pipelines in the area;

- cost of transportation - the economics of the pipeline to the end users;
- substitutes - other sources of energy that could compete with the fuel being transported;
- the potential for other uses and/or users of the feedstock being transported by the pipeline, which could render the pipeline obsolete;
- present and prospective commodity price and supply situation;
- potential for supply disruptions and exposure to price fluctuations.

The primary mitigation against industry or competitive risk is thorough industry analysis and insight into the industry's underlying dynamics.

Project: Project risk is generally associated with the adequacy and track-record of the concerned technology and the experience of the project's management. The chief mitigation in this area is the selection of contractors, developers and operators who have proven track records. Independent consulting engineers can play a role in assessing the technical feasibility of projects by making technical risks transparent to lenders.

Customer: The risk with customers is that demand for the product or throughput declines or widely fluctuates. Given the high fixed costs of infrastructure projects, it is difficult, if not impossible, for these projects to reduce costs to match lower demand. Thus, the chief mitigation against this type of risk is an offtake agreement, i.e., a contract which guarantees purchase of the throughput. Essentially, a project company agrees to sell a large share of its output (minerals, electricity, transportation services through a pipeline, etc.) to a customer or group of customers for an extended period of time. The price per unit of output can be fixed, floating or adjusted for inflation or other factors. The customer benefits from this arrangement by securing a long-term, guaranteed source of supply for the output, but generally forfeits a certain amount of flexibility in sourcing. The project company benefits by eliminating or substantially reducing its marketing risk.

Supplier: The general issue here is with securing supplies for the project - electricity, water, etc. - and, again, long-term agreements that guarantee that the project will have access to critical inputs for the duration of the project's life are the chief instruments used to mitigate the risk. The three critical dimensions of supply are quality, quantity and availability. Does the input meet the necessary quality requirements of the project? Can the project get enough of the input? Is the supply reliable or are interruptions likely? For pipeline projects, rights-of-way might also be considered critical inputs because without them the project company would not be able to build the pipeline.

Sponsor: The project sponsor is typically an entrepreneur or consortium of entrepreneurs who provide the motivating force behind the project. Often, the project sponsor is an entrepreneur without sufficient capital to carry out the project. In other cases, the sponsor might have the necessary capital but is unwillingly to bet the parent corporation's balance sheet on a high-risk venture. The primary risks with sponsors revolve around the sponsor's experience, management ability, its connections both

international and with the local agencies, and the sponsor's ability to contribute equity. Investors and lenders can mitigate these risks by carefully evaluating the project sponsor's track record with similar transactions.

Contractor: The principal construction risks are schedule delays and budget overruns. Standard & Poor's, in fact, "believes that it would be difficult for a project to achieve investment-grade ratings prior to substantial completion of the project and initial start-up." Mitigating these risks involves scrutinizing the contractor, specifically the contractor's experience with similar projects, reputation in the field, backlog of other projects and cash flow. The primary method of putting the burden of successful completion on the contractor, as opposed to on the lenders and investors, is a turnkey contract. A turnkey contract essentially binds the contractor to finish construction by a specified date for a fixed amount. The completed project must also meet the agreed upon technical specifications as certified by an independent engineer before payment is made. Additional mechanisms to ensure compliance with schedules and budgets include performance bonus and penalty clauses in the construction contract. Penalties for delays can be severe, as much as \$750,000 per tariff day. It is also important to review the contractor's bidding history. A contractor which has a history of consistently bidding too low presents a greater risk of cost overruns. Additionally, independent engineers can play a role in monitoring the project's progress and certifying that the contractor has achieved the milestones on schedule.

Operating risk: The operator is the company or entity charged with the responsibility of maintaining the quality of the assets that generate the project's cash flow. Of course, lenders and investors want to make sure that the assets remain productive throughout the life of the project, or more importantly from their perspective, the life of the loan or investment. Hence, operating risks centre around the efficient, continuous operation of the project, whether it is a mining operation, toll road, power plant or pipeline. Contracted incentive schemes are one way to allocate this risk to the operator.

Product: Product risks might include product liability, design problems, etc. The underlying risk here is unperceived risks with the product, e.g., unforeseen environmental damages. For instance, an electrical transmission project running through a populated area might carry the risk of affected the population through the detrimental health effects of the electro-magnetic radiation. Using older, tested designs and technologies reduces the risk of unforeseen liabilities.

Competitor: This risk is related to industry risk, however it focused more directly on resources with which the competitor might be able to circumvent competitive barriers. Exclusive agreements, offtake agreements and supply arrangements all contribute to defending a long-term competitive advantage.

Funding: The funding risk is that the capital necessary for the project is not available. For example, equity participants might fail to contribute their determined amount. Or, the underwriters might not be able to raise the target amount in the market. Another funding risk is re-financing which occurs if the duration of the initial funding does not match the duration of the project. Funding risks can also relate to the division between local and foreign currency funding. As funding is often the linchpin of project financings, it is difficult to reduce the risk of not finding the funding. The choice of an experienced financial advisor as well as seeking capital from a broad range of sources

represent two ways to mitigate this risk. Also, it is sometimes possible to restructure transactions to delay drawdown dates or to change the amounts of foreign versus local currency.

Currency: There are two currency risks facing project companies. The first risk is exchange rate fluctuation, i.e., devaluation erodes the value of a contract or payment in the project company's home currency, or the currency in which it must service its debt. The second risk is currency controls, i.e., the sovereign government limits the project company's access to foreign exchange or curtails its ability to make foreign currency payments outside of the country. Another possible means of mitigating currency risk is to engage in a currency swap.

Interest rate: Interest rate fluctuations represent a significant risk for highly-leveraged project financings. Arranging for long-term financing at fixed rates mitigates the risk inherent in floating rates. Furthermore, projects can enter into interest rate swaps to hedge against interest rate fluctuations.

Risk allocation: Just as important as identifying the risks, is the need to allocate the risks to the parties that are most suited to control and address the risks. Thus, risk allocation is a form of risk mitigation at the macro level. If the wrong parties are responsible for risks they are not suited to manage, the entire structure is at risk. Therefore, the difficulty of every project finance transaction is the proper allocation of risk. It might also be the most difficult aspect of assembling a transaction. As one project financial advisor argues, "the most significant characteristic of project finance is the 'art' of minimizing and apportioning the risk among the various participants, such as the sponsors, contractors, buyers and lenders." How are the risks in a project finance transaction allocated? The principal instruments for allocating the risks and rewards of a project financing are the numerous contracts between the project company and the other participants. "While often the cause of delay and heavy legal costs, efficient risk allocation has been central to making projects financeable and has been critical to maintaining incentives to perform."

5. CONTRACTS OF PROJECT FINANCE

The complexities of project finance are such that the project parameters and interrelations need to be managed within a clear framework, which is formalized via contracts. Project finance can therefore be subject to numerous subcontracts within the overall framework of the project financing. We consider below some of these contracts.

5.1. Pre-development agreements

Prior to commencing a project, several elements need to be already in place before the project can begin. Elements such as:

- **Licences and concessions:** In many cases, implementing a project financing in its building as well as operating phases depends on obtaining the appropriate licences, permits and concessions from the government of the country in which the project is based. The government may negotiate certain clauses which give it the right to revoke the licence or concession. Lenders should therefore seek

security via a variety of issues such as government approval of the financing and of the project, and enabling the lenders to take enforceable security, manage the project if necessary, and repatriate profits.

- **Concession agreements:** Concession agreements create the right and obligation to build, own and eventually transfer back to the grantor infrastructure used for the general benefit of the population. Concession agreements should therefore clearly state the rights such as terms and duration of the concession, ability to extend the concession even if there are changes in the law, termination of the concession should not be expropriator, and banks should be able to freely transfer the concession to a third party.
- **Shareholder agreements:** Given that interests differ, it is desirable to have a shareholder agreement in order to govern the relationship of the stockholders with respect to the project. Such agreements include management and voting; development, construction, and operating stage financing, working capital financing; amounts and dates of additional capitalization.
- **Partnership agreements:** Where a general or limited partnership form of ownership of a project is selected by the project participants, this will be governed by a partnership agreement. The agreement will prohibit anything that has a substantial adverse impact on the project, such as taking on additional debt, amending or modifying the loan agreement or important project contracts; waiving rights to security, selling the project, etc. without the approval of a specified number of the partners.
- **Joint venture agreements:** A joint venture agreement will govern the interrelations amongst the participants and specify issues such as the name and purpose of the JV, management and voting rights and other mechanistic aspects of the project to be defined, such as date and time of capital injections, transferability, sale, competition, etc.

5.2. Construction agreements

The banks' wish list for a construction contract is fairly standard and predictable, but it should include the following aspects:

- The construction contract must be turnkey. No aspect of the construction and design should 'fall between the cracks'. So, there must be no nominated subcontractors or equipment specified by the project company (or, if there are, the contractor must take responsibility for the same).
- There should be a fixed price, incapable of being reopened, and the price should be paid in one lump sum on completion.
- Completion must occur within a fixed period.
- The force majeure events should be limited.

- Liquidated damages should be payable if completion is not achieved by a fixed date and those liquidated damages should be adequate and at least cover interest payable on the loan.
- There should be no (or large) limits on the contractor's liability.
- The contractor should give extensive guarantees and, if the contractor is to be released from liability for defects after a period, that period should be long and only run from the passing of a well-defined completion test.

5.3. Contractors bonds

Contractors bonds provide ways of incentivizing or securing the performance of contractors, subcontractors and suppliers. The types of bonds are:

- **Bid (or tender) bonds:** These bonds require the bidder to pay a penalty should they be awarded the contract and decide to withdraw. This mechanism is designed to prevent fraudulent bids designed solely to deprive competitors the work.
- **Performance bonds:** These effectively guarantee performance by the contractor for a certain proportion (perhaps 5% or 10%) of the contract price.
- **Advance payment guarantees:** The project company may have to advance funds to enable the contractors to purchase materials and begin working on the contract. In such cases, the contractor will provide an advance payment guarantee which means that if they do not begin (or complete beginning) working on the project, that they will have to refund the advance granted.
- **Retention guarantees:** The construction contract might provide for the project company to retain a specified percentage of the progress payments, in order to repair defects which may not immediately be apparent. Conversely, the contractor wishing to receive full payment may instead offer a guarantee for the equivalent amount of the retention guarantee.
- **Maintenance bonds:** These are bonds to cover defects which are discovered after completion of construction. Upon materialization of the defect, the bonds will be used to rectify the defects. Similar cover can also be obtained by extending the time frame of performance or retention bonds.

5.4. Operating and maintenance agreements

Sponsors try to mitigate supply risk via several mechanisms. The major provisions that lenders look for in operating and maintenance agreements are similar to those that the project company are concerned with.

These include:

- **Supply-or-pay agreements:** Also known as 'put-or-pay', these arrangements require the supplier to either provide the requisite input or provide cash compensation to enable the project company to obtain the requisite input.

- **Sales/off-take agreements** Projects generally try to minimize the effects of market volatility via off-take agreements. Such contracts should protect lenders from risk between the contracted price for the output and the market price. Mechanisms which can limit market risk include guaranteed capacity payments (sufficient to cover fixed and debt service costs) and guaranteed production levels.
- **Take-or-pay and take-and-pay contracts** Take-or-pay and take-and-pay contracts can be defined as long term contracts to pay for goods over a long term at a fixed price whether or not delivery occurs. The idea is that the purchaser ensures a steady source of supplies at a fixed price and the seller obtains some relief from price and volume volatility. Typically, the amount of the payments under a take-or-pay contract should be sufficient to cover all – or a defined part – of the operating costs and financing payments. It is essential that the ‘hell or high water’ obligation upon the purchaser be ironclad and enforceable. The rights under this contract will usually be assigned to the lenders who will have a direct claim under it should the borrower experience payment shortfalls.
- **Throughput agreements:** The concept of a throughput agreement is very similar to a take-or-pay contract except it typically is used by a facility where goods transit such as a road, port, pipeline, rail track, etc.

5.5. Sponsor support agreements

In some cases, it becomes desirable to conclude sponsor support agreements.

Some methods of providing sponsor support are:

- **Working capital, maintenance and cash deficiency agreements:** These provide comfort similar to a completion guarantee, except that they can remain in place (maintenance) beyond the completion date.
- **Letters of comfort** Lenders typically require letters of ‘comfort’, ‘support’ or ‘understanding’ from the ultimate shareholders of the project company or other interested parties. The legal position of these ‘letters of comfort’ is often misleading since, in reality, no guarantee exists. These letters are basically exercises in window dressing since they are unenforceable in court. If the lenders are looking for more than ‘moral commitment’, this should be clearly stated and reflected in a clearly worded document vetted by lawyers. Conversely, if sponsors do not intend to provide a legal undertaking, this should also be clearly stated. Ambiguous ‘letters of comfort’ are not only misleading, they are indeed a waste of time.

5.6. Management agreements

In some projects, the management of the project entity is governed by a separate document in which a project manager is appointed to manage the project. The project management agreement typically imposes on the project company certain management

conditions to be decided via negotiation. Typically, this might include management, preparing budgets and forecasts, financial and technical record keeping, reporting, construction management, etc.

5.7. Representations and warranties

The representation and warranty section of project contracts, including the project loan agreement, serves an important role in the project due diligence process. It basically confirms, legally, that certain conditions enabling the project to commence, are in place. A representation is a statement by a contracting party to another contracting party about a particular fact that is correct on the date when made. A representation is made about either a past or present fact, never a future fact. Facts required to be true in the future are covenants. A warranty is sometimes confused with a representation, but in practice the two terms are used together, the contracting party being asked to represent and ‘warrant’ certain facts.

Generally, a breach of a warranty could be enforced as a breach of contract. Because some courts blur the distinction between representations and warranties, the lenders typically require the borrower to ‘represent and warrant’ the same facts, and to state that the untruth of any representation or warranty *is* an event of default under the contract. It is important to note that linking this to an event of default enables the banks to exercise leverage over the borrower without necessarily having to initiate litigation. The two main conditions underlying the initial representations and warranties are:

- to ensure that the legal status of the company exists, as this governs the ability to enforce the contract against a presumed set of assets, and
- to ensure that the contracting party is duly authorized to enter into the transaction (*ultra vires* – subject to any corporate or partnership restriction relating to the transaction).

Some lenders decide to verify this information as an added measure of prudence.

5.8. Project loan/credit agreements

Loan agreements define and regulate the financing instruments and interrelations amongst the various parties participating in the project financing. Loan agreements may be supplemented with an intercreditor agreement which defines the rights that the project creditors will have in a default, including step-in and foreclosure.

Another role of loan documentation is to ensure that the initial credit risk profile remains unchanged over the life of the facility. This is achieved by implementing various conditions and covenants in the loan agreement which define what the management can and cannot do.

Loan agreements, via financial or ratio covenants, can also be used to oblige the borrower to maintain certain parameters such as liquidity, cash flow and other elements which may adversely impact the borrower’s (and project’s) risk profile.

The typical project finance loan agreement will govern several elements:

- mechanistic provisions (e.g. loan payments and repayments);
- interest rates and provisions;
- lender protection against increased costs and illegality;
- representations and warranties;
- events of default;
- miscellaneous provisions, including submission to jurisdiction.

The credit agreement moreover will address matters that reflect the transnational nature of the transactions, e.g. waiver of sovereign immunity (in the case of projects with a government component); identification of the currency for debt repayments. The goal of the project finance lender is to address the control over as many project risks as is possible. To the extent risks (economic/political) cannot be adequately regulated, these must be addressed in the interest rate and fee pricing of the credit.

5.8.1 Credit agreements – basic terms

Typically, terms of the credit agreement will include the following:

- **Conditions precedent:** These would include the delivery of certified copies of the borrower's constitutional documents, of any relevant board and shareholder resolutions and of any key documents and the delivery of legal opinions confirming, *inter alia*, that the loan agreement was within the borrower's powers and had been properly authorized.
- **Conditions precedent to each drawdown:** Specific conditions to satisfy prior to each drawdown of funds (e.g. obtaining a completion certificate or engineering progress report).
- **Drawdown mechanics:** The specificities relating to drawdowns (approvals, account numbers, dates, prorate allocations, etc.).
- **An interest clause:** Interest is charged by reference to base rate; the loan agreement should stipulate which bank's base rate is being used.
- **A repayment clause:** A term loan may be repayable in one bullet repayment or in instalments of fixed or variable amounts.
- **Margin protection clauses:** If a bank suffers an unexpected cost connected with making a loan, this will obviously erode its margin: Three main types of margin protection clause are included in loan agreements as a result: the gross-up clause, the increased costs clause and the market disruption clause.
- **The illegality clause:** This clause states that, if it becomes illegal for a bank to continue to make loans or otherwise participate in the loan agreement, the borrower must repay the loans made by that bank and the bank's obligations will be terminated.

- **Representations and warranties:** If things go wrong, the banks simply want their money back and the best way to do this is to give them a debt (and not a damages) claim. This is done by making the breach of representation and warranty under the loan agreement an event of default. The representations and warranties are often made ‘evergreen’, which means automatically renewable on a permanent basis.
- **Undertakings:** These are things that the lender must do. A loan agreement will contain various undertakings from the borrower, ranging from the purely informative (e.g. provide annual accounts) to the financially protective (e.g. an undertaking not to create security in favour of third parties). The three key undertakings in a typical loan documentation are the **negative pledge**, an **undertaking not to dispose of assets** (unless waived) and an undertaking by the borrower **not to change its business**. The purpose of these undertakings is to force the borrower to keep the risk profile he had upon entering the transaction.
- **Events of default:** Events of default in a typical loan agreement may include non-payment, breach of representation and warranty, breach of covenant, insolvency and ‘cross-default’. These are financial events of default which means that the borrower has failed to maintain or respect certain financial conditions. The cross-default clause basically comes into effect when the borrower defaults on borrowings or financial obligations with a third party. Since a cross-default is often an indication of serious financial problems, the cross-default clause enables the bank which is exposed to move to foreclose on the loan even if no default has occurred.

5.8.2 Significant provisions of the project finance credit agreement

The main provisions of project finance credit agreements are:

- **Additional indebtedness:** Project-financed transactions, on occasion, need to issue additional debt for various purposes, such as capital improvements, cost overruns, changes in environmental or economic legislation, etc. It is important that the banks exercise control and therefore additional indebtedness should only be permitted if the banks grant their approval. Limitations on additional indebtedness therefore typically figure in a project finance loan documentation.
- **Distribution of dividends:** In order to prevent funds from being siphoned out of the company, the loan documentation will typically put a limit on dividend payments. These limits will be defined in function of the borrower’s financial ratios such as available cash flow to financing payments. Here, the stronger the cash flow coverage, the higher the limit of dividends permitted. It is important however to have an overall cap on dividends in order to ensure that project proceeds are ploughed back into the company and not siphoned off steadily, resulting in long term weakening of the borrower.
- **Grace periods prior to default:** Due to the complex multinational nature of project finance, it is possible that payment delays may arise due to the trustee

having administrative difficulties. Therefore project lending documentation will also include grace periods for missed principal and interest periods. However, too much leeway may invite difficulties, this is why such grace periods should be no more than three to five days.

- **Restrictions on intercompany loans:** Project finance is, by definition, based on the use of a non-recourse vehicle providing certain off balance sheet benefits to sponsors. In order to ensure that the financial balance of such an arrangement is not upset, banks will require that there be restrictions on intercompany loans. This is to prevent the project sponsors of manipulating and weakening the project entity by making transfers to and from reserve accounts etc.
- **Reserve accounts:** Project financing documents typically require projects to maintain several accounts with the project trustee. This may include a reserve account, a debt service reserve account, or an environmental legislation reserve account. Complying with such reserve accounts ensures that the project entity is protected in the event of any future legislative or regulatory changes.
- **Insurance:** Project financings should ensure that all operating company and machinery is covered by reputable (investment-grade rated) insurance companies. It would be an added plus if the insurance company's claims settlement procedures not extend indefinitely in an effort to improve its 'liquidity management'.

5.9. Covenants

Covenants are undertakings given by a borrower as part of a term loan agreement. Their purpose is to help the lender ensure that the risk attached to the loan does not unexpectedly deteriorate prior to maturity.

Covenants may, for example, place restrictions on merger activity or on gearing levels. Breach of a covenant normally constitutes an event of default and, as a result, the loan may become repayable upon demand.

From the borrower's point of view covenants often appear to be an obstacle at the time of negotiating a loan and a burdensome restriction during its term. As mentioned, they may also precipitate default. In order to negotiate an appropriate set of covenants, however, it is important for the borrower to have an understanding of the logic underlying the lender's position.

In the first instance the lender is using covenants to protect itself against possible actions the borrower could take, especially in times of financial distress, which would damage the lender's position. These actions are looked at in more detail below. Taking this a stage further, however, it can be expected that if the lender is unable to achieve adequate protection via covenants it will seek compensation, for example by requiring a higher margin. In some instances the covenants ideally wanted by the lender may be unduly restrictive and it may therefore be cost-effective for the borrower to be prepared to pay more for a greater degree of freedom.

In other cases, however, it will be possible to negotiate an economically acceptable set of covenants in return for more favourable terms elsewhere in the contract. In instances such as these, debt covenants can be of benefit to both lender and borrower.

5.9.1. Types of covenants

The main covenants usually found in commercial bank loan agreements cover non-financial and financial covenants as well as events of default, which can be triggered by covenant violations.

Non-financial covenants: Four important non-financial covenants are:

- Negative pledge: this prevents the borrower from giving some future lender prior security over its assets.
- Guarantees provided by members of a group of companies for the debt of other members of that group.
- An undertaking to supply the lender with periodical financial information. Over and above the annual audited accounts, management accounts are the most frequently required, often on a quarterly basis.
- Restrictions on capital spending, acquisitions and asset disposals.

Financial covenants: The most common financial covenants used in UK bank lending stipulate minimum net worth, interest cover and gearing (ratio of borrowings to net worth). Current ratio, cash flow ratio (e.g. cash flow interest cover) and asset disposal/net worth covenants are also used, although less frequently. By way of contrast, gearing and asset disposal/asset covenants tend to predominate in UK bond and debenture issues, whereas direct dividend restrictions are common in US private lending agreements.

Events of default: Events of default are those events, which, should they occur, permit the lender to require all amounts outstanding to become immediately payable. The typical events of default clauses are:

- Failure to pay amounts owing to the lender when due.
- Failure by the borrower to perform other obligations under the loan agreement. It is due to this clause that a covenant violation triggers an event of default.
- Any representation or warranty made by the borrower proving to be untrue.
- Cross-default, i.e. where the borrower has triggered an event of default or has actually been put into default on any other loan agreement.
- Where a ‘material adverse change’ has occurred in the borrower’s financial or operating position. This is clearly a catch-all clause and there is a view that where a company has negotiated a meaningful set of covenants, it can legitimately refuse to accept a continuing material adverse change clause.

5.9.2. Project financing covenants

Because of the complexity of project finance, covenants in a project finance transaction are more complicated than those of a standard syndicated loan. They must cover all possible eventualities. The covenants are designed to:

- Ensure that the project company constructs and operates the project in the manner contemplated in the technical and economic assumptions that are the foundation of financial projections.
- Provide the lender with advance or prompt warning of a potential problem, whether political, financial, contractual or technical.
- Protect the lender's liens. These include covenants that the project will be constructed on schedule, within the construction budget and at agreed-upon performance levels; be operated in accordance with agreed standards; that project contracts will not be terminated or amended; and comply with operating budgets approved by the lender.

Covenants in a project finance loan agreement include many of the same covenants required by lenders in asset based loan transactions. However, unlike asset based transactions, project finance loan documents are designed to closely monitor and regulate the activities of the project company. Hence, there may be a bespoke nature to the covenants, the variety of which are only limited by the characteristics of the project being financed. Some of these are summarized below:

- **Reports on project construction and completion:** Progress reports are important in confirming that the project is proceeding as planned. These reports typically contain information on construction progress generally; status of equipment orders, deliveries and installation; construction progress meetings; force majeure events; and target completion dates. Completion categories include *mechanical completion* (when the project is completed to the project specifications), *operation completion* (when the project is operated at the levels guaranteed in the construction contract, and within environmental requirements), and *final completion* (when all provisions of the construction contract have been performed and the last minor portions of the work such as clean-up completed).
- **Notice of certain events:** Project finance loan agreements may contain provisions obligating the borrower to provide notice of certain events, including litigation, defaults, termination, cancellation, amendment, supplement or modification of any governmental permit, licence or concession, in order to provide the banks with advance notice so that corrective measures can be adopted.
- **Pay taxes:** All taxes and other governmental charges must be paid when due and payable.
- **Compliance with laws:** The project company will agree to comply with all laws applicable to it and to the project.

- **Obtain and maintain all approvals, permits and licences:** The project company will obtain and maintain all approvals, permits and licences necessary or advisable in connection with the project.
- **No merger or consolidation:** The project company will agree not to merge with or consolidate with any other entity. This is to ensure that the money is actually lent to the project entity and that the credit risks are not radically altered.
- **Engineering standards for construction and operation:** The project company commit to maintaining a specified standard of care and operation, typically ‘in accordance with good industry practice’.
- **Maintenance of properties:** The borrower typically commits to maintain the projects and the assets in good working order.
- **Environmental compliance:** The project company typically agrees to comply with the laws of the jurisdiction in which the project is located.
- **Insurance and insurance proceeds:** The project company will be required to obtain and maintain insurance to satisfy the requirements of the lender concerning form, creditworthiness of insurers, and suitability of named insured, loss payee and subrogation provisions, and other concerns.
- **Adhere to project performance documents:** The project company should agree to perform its obligations, and comply with each of the project documents, and not to intentionally create an event of default.
- **Amendment, modification, termination, replacement, etc. of project documents:** The project company will agree not to amend, modify or terminate, replace or enter into any project contract without the consent of the project lender.
- **Change orders:** Generally, significant changes, however, must be reviewed by the lenders to determine whether they affect the construction costs, schedule and reliability of the project and, if so, ensure that they do not cause an event of default.
- **Change of business:** The project company will agree not to engage in any business other than that assessed in the initial analysis – this is to avoid modifying the risk profile of the transaction.
- **Indebtedness:** Additional debt is not permitted without the approval of the project lenders. This is to avoid having the company’s debt service capability unduly eroded.
- **Investments:** The project company is prohibited to make any investments unless approval has been granted by the lenders.
- **Dividends and restricted payments:** Released profits to the sponsors should be closely controlled by the project lender. Once the money is released, the funds are not typically available for use at the project.

Release of profits is typically conditioned, there not being any default and all amounts required to be on deposit in various reserve accounts being present and the debt service ratios being adhered to.

- **Mandatory prepayment on the occurrence of certain events from excess cash flow:** Project finance credit agreements typically contain mandatory prepayment sections to allow the lender to have a priority claim on cash flow before any transfers can be made to the sponsors.
- **Financial tests:** Financial tests, such as debt service coverage ratios, minimum working capital requirements, net worth and the like, are the subject of negotiations that are typically tailored to the specific risks of the project. Financial tests can provide early indications of difficulties. One such test is the debt service coverage ratio; however, it is seldom viewed by project lenders as the only necessary covenant.
- **Special milestone dates:** These may include dates that relate to construction deadlines and termination dates under off-take purchase agreements. These are incorporated into the loan agreement with covenants requiring the borrower to take required actions if the action has not been completed by the date specified.
- **Change in the project:** The company may be prohibited from changing or altering the project. In such cases, the definition of ‘changes’ should be clearly defined in the loan documentation. Changes for example consist not only of the type of business but also the scale or production volumes.
- **Project support:** The borrowers may require that the project company supports the project in all respects, including completion.
- **Financial reporting:** This covenant requires the company to provide appropriate accounts to the lenders: audited annual statements, interim statements, pro forma statements, quarterly or monthly statements, internal management accounts, etc. It is essential to specify if the statements are to be audited, and if so, in accordance with internationally recognized standards (e.g. IAS).
- **Use of proceeds:** The project company will covenant that loan proceeds will be used only for their intended purpose (to be specified in the loan documentation). The project lender will want to avoid any use of proceeds for unapproved project changes or uses since that may be construed as assuming the liability in event of liquidation.
- **Security documents:** The borrower will covenant that it will take all action required to maintain and to preserve security structures created by the lenders.
- **Operating budget:** The project company is typically required to submit an annual project operating budget within 60 days of the beginning of the next financial year for approval by the lenders.
- **Trustee accounts:** It is typical for all project revenues to flow through a revenue control account maintained by a trustee. This enables the lenders to monitor the income flows into the project. The borrower should therefore be

required to establish this account and have all payments made to it transit via these accounts as a condition precedent to the loan agreement.

- **Capital expenditures:** Similar to investments, the project company is prohibited from making capital expenditures for the project, unless approval is granted by the lenders. This is to avoid any siphoning or diverting of funds earmarked for the project.
- **Transactions with affiliates:** Because the lender places restrictions on when profits can be distributed to the project sponsors, indirect distributions (for example, transactions with affiliates) are similarly disallowed.
- **Construction cost overruns:** In the event of cost overruns, the loan documentation should oblige the project company to apply those funds in a specific order, often reserving for the last application the most expensive options for the project.
- **Other covenants:** The loan agreement may contain other covenants, such as compliance with pension laws; limits on lease agreements; limits on sale and leaseback transactions, property disposals and transfers, etc.

6. FINANCIAL MODELLING AND EVALUATION

This chapter reviews the main building blocks of information and assumptions used for projections that are assembled to create inputs for a project financial model, the basic structure of, and outputs produced by, the model, and how the project and the financial model are affected by accounting and taxation issues.

The chapter also covers how the financial model is used by investors to evaluate their returns and by lenders to calculate the level of cover for their loans and to create.

The ways in which investors establish their return requirements, and how these may change over time, or because of the effect of a later sale of the investment or restructuring of the debt, are also considered.

An adequate financial model is an essential tool for financial evaluation of the project. It serves several purposes:

Pre-Financial Close

- Initial evaluation and re-evaluation of the project's financial aspects and returns for the Sponsors during the development phase;
- Formulating the financial provisions of the Project Contracts (including use as a bidding model to calculate a Tariff if the Sponsors have to bid for the project, checking LD calculations, etc.);
- Structuring the finance and reviewing the benefits to the Sponsors of different financial terms;
- As part of the lenders' due-diligence process;

- Quantifying critical issues in the finance negotiations;
- Providing the Base Case;

Post-Financial Close

- As a budgeting tool;
- As a basis for lenders to review the changing long-term prospects for the project and thus their continuing exposure;

The financial model covers the whole of the Project Company's operations, not just the project, and thus takes into account, for example, tax and accounting issues that may affect the final cash flow of the Project Company;

Although separate and parallel financial models may be developed by the Sponsors and the lenders, it is often more efficient for a single model to be developed jointly. This may mean that the Sponsors develop the model initially and then work on it jointly with the lenders, depending on the timing of the lenders' involvement in the project. The Sponsors may then use the model to calculate their own returns, taking into account the ownership structure of the Project Company, the results of which are not of concern to the lenders.

6.1 model inputs

The input assumptions for the financial model for the Project Company can be classified into five main areas:

- Macroeconomic assumptions;
- Project costs and funding structure;
- Operating revenues and costs;
- Loan drawings and debt service;
- Taxation and accounting;

These inputs need to take account of the terms of the Project Contracts, including expected and required completion of construction, timing of payments or receipts, and calculation of penalties or bonuses.

The basis for the inputs must be clearly documented; the standard way of doing this is for an "assumptions book" to be compiled. This takes each line of the financial model and sets out the source for the input or calculation of that line, with copies of the documentation to back this up.

These input assumptions are used to calculate projections of the project's cash flow, which serves as a basis for calculations of investors' returns and lenders' debt cover ratios. The model must be able to calculate a reasonable range of sensitivity scenarios. The inputs are usually entered in separate input sheets (e.g., one for specific assumptions such as project costs, and one for long-term macroeconomic and operating assumptions that cover the life of the project). Inputs should not be scattered throughout

the model, as someone not familiar with it will find it much harder to understand what is going on.

To calculate the investors' returns correctly the financial model should cover the whole period from when the initial development costs on the project are incurred to the end of the project life, although for the purposes of the lenders the model is only needed from Financial Close, with past expenditure on project development being "day 0 figures. The project life is either the term of the Project Agreement or the expected economic life of the project if it is not operating with such a contract. A residual value of zero, with the whole of the Sponsors' equity having been repaid by the end of the project life, is normally assumed unless there is good reason to the contrary. The model is usually prepared on the basis of 6-month periods. During construction, where this may not be detailed enough (e.g., including interest calculations, the precise timing of payments to the EPC Contractor. etc.), separate projections may be made on a monthly basis and consolidated in the main model.

6.2 Model outputs

The model outputs are a series of calculations:

- Construction phase costs;
- Drawdown of equity;
- Drawdown and repayment of debt;
- Interest calculations;
- Operating revenues and costs;
- Taxation;
- Profit and loss account (income statement);
- Balance sheet;
- Cash flow (source and use of funds);
- Lenders' cover ratios and investors' returns;

A summary sheet usually sets out the key results on one page, such as:

- Summary of project costs and funding;
- Cash flow summary;
- Lenders' cover ratios;
- Investors' returns;

6.3 Macroeconomic assumptions

Macroeconomic input assumptions are those that are not directly related to the project, but that affect its financial results. Such assumptions may include:

- Inflation;
- Interest rates;
- Exchange rates;

The macroeconomic assumptions for modelling projections should be taken from an objective source unconnected with the Sponsors; for example, most major banks produce general economic research with generic projections that can be used for this purpose.

Inflation should be taken into account in the financial model, as it may be misleading to draw up projections on a "real" basis. Different indices may need to be used as a basis for projections of inflation in different types of revenue or cost, for example:

- Consumer price inflation (CPI) in the Host Country for general operating costs;
- Indices of employment costs in the country of suppliers or providers of services to the project, in relation to these costs;
- Industrial price inflation for the cost of spare parts;
- Specific price indices for commodities produced by or purchased by the project (supply and demand in the commodity's own market may affect its price more than general inflation);
- Care should be taken to ensure that an artificial result is not produced by using higher inflation rates for revenues than for costs.

If the Project Company has a Project Agreement in which revenues are indexed against inflation, the financial model should also reflect this.

If the **interest rate** on the debt is to be fixed throughout the term of the debt the assumption for this rate should be used for projections. However, even in such cases, another floating (short term) interest rate will probably have to be projected for earnings on surplus funds held by the Project Company as security for lenders or prior to distribution to investors.

There are two approaches to projecting short term interest rates: either (a) an assumption can be made as to the rate itself, or (b) "real" interest rates (i.e., the interest rate after allowing for inflation) can be used for this purpose, and the actual interest rate is determined by the assumed CPI rate. In the latter case, as shown in Table 6.1, if a real interest rate of, say, 4% is used, the projected nominal interest rate is the real interest rate adjusted for the rate of inflation using the "Fisher formula:"

	Year 1	Year 2	Year 3
(a) Projected real interest	4.00%	4.00%	4.00%
(b) Real inflation rate	5.00%	4.00%	3.00%
Nominal interest rate [(1 + a) x (1 + b) – 1]	9.20%	8.16%	7.12%

Table 6.1: Interest Rate Projections

Exchange rates and currency of the model: If a Project Company raises debt and equity funding in its Host Country's currency, and all its construction and operating costs and revenues are in that currency, the question of exchange rates becomes

irrelevant. If this is not the case, the financial model should still be prepared in the Host Country's currency, with the ability to make assumptions about long-term exchange rate movements between this currency and other currencies used for the costs or funding of the project.

There are two approaches to projecting exchange rates between currencies, similar to those for projecting interest rates: either (a) specific assumptions can be made as to the future exchange rates, or (b) purchasing power parity rates can be used. The latter calculation takes the difference in projected inflation rates between the two currencies and adjusts the exchange rate accordingly, based on the assumption that the future exchange rate between the two currencies will move in line with their inflation differential (see Table 6.2). In year 1, with a difference between the two inflation rates of 6% in favour of Currency B, Currency A depreciates against Currency B by 6%, and so on.

	Now	Year 1	Year 2	Year 3
Projected inflation rates				
Currency A		9%	10%	9%
Currency B		3%	4%	3%
Projected exchange rates: Currency A/Currency B	10,0%	10,6%	11,24%	11,8%

Table 6.2: Purchasing Power Parity

6.4 Project costs and funding

The next stage in the detailed modelling process is the preparation of a budget for the construction costs from the Project Company's point of view and determining how these are to be funded.

6.4.1. Project costs

The project cost budget takes into account costs incurred since the beginning of the project development and covers the period until the project is complete and ready to operate. A typical budget for a process plant or infrastructure project is likely to include:

- **Development costs:** These are the costs incurred by the Sponsors (and charged on to the Project Company), or by the Project Company itself, in the period prior to Financial Close. Sponsors need to agree among themselves to a methodology for allocating their own costs to the project, including staff overheads and travel costs, which are likely to be significant over a long development period. Costs of the Sponsors' or Project Company's advisers also need to be taken into account.
- **Development fees:** Project economics may allow one or more Sponsors to take out an initial fee from the Project Company for developing the project, and thus realize an upfront profit. This figure may fluctuate (or be eliminated entirely) as the financial evaluation of the project develops.

- **Project Company costs:** These include costs after Financial Close such as:
 - Personnel costs;
 - Office and equipment;
 - Costs for Permits and licences;
 - Owner's Engineer costs (for construction supervision);
 - Training and mobilization costs (including any payments to the O&M Contractor);
- **EPC Contract price:** Payment of the contract price is normally made in stages: after an initial deposit, payments are made against the EPC Contractor reaching prearranged milestones, relating to items such a completing a major stage of the works or delivery of a major piece of equipment, or alternatively against the overall value of the work performed as a proportion of the total contract value. Payments may be made directly by the lenders to the EPC Contractor, rather than passing the funds through the Project Company's bank account. If export credits or other tied funding are being used, the EPC Contractor cannot change the arrangements for sourcing of equipment or services (as otherwise the Project Company may not have enough finance available).

Although in principle the EPC Contract price is fixed, there are some exceptions to this that usually allow the EPC Contractor to increase the price, e.g.:

- If the Project Company changes the required design or performance of the plant, or adds other new elements to the contract.
- If Owner's Risks cause additional costs (including the cost of delays to the construction program).
- If extra costs are caused by delays due to the discovery of fossils or archaeological remains.
- If changes in law require the design or construction of the project to be changed.

The EPC Contractor normally remains responsible for any problems with the geology of the site that cause extra costs, although the EPC Contractor may not accept liability for problems with projects being built in locations where mining has taken place and underground site conditions are uncertain.

The way in which the EPC Contract price is made up has in principle nothing to do with the Project Company, which is just paying a lump-sum price; however, it is sometimes necessary for the price to be broken up by the EPC Contractor for tax purposes.

- **Construction phase insurance:** In construction contracts that are not being project-financed, it is common for the contractor to arrange the main insurances for the construction phase of the project and to include this as part of the contract price. This is logical, because under a standard construction contract

the contractor is at risk of loss from insurable events: if part of the project is destroyed in a fire, the contractor is required to replace it, whether it is insured or not.

However, contractor-arranged insurance is not always suitable in project finance for several reasons:

- As will be seen, lenders require Delay in Start-Up insurance, which cannot easily be obtained by the EPC Contractor, who is not at risk of loss in this respect. If the Project Company takes out a separate insurance for this purpose, there is a risk that the two policies will not match properly.
- It is quite common in project finance to arrange insurance for the first year of operation as part of the package of construction phase insurances, to ensure that there are no problems of transition between the two phases; again this could not be done in the name of the EPC Contractor.
- Projects that complete construction in phases (e.g., two production lines in a process plant) have construction and operation insurances in place at the same time; these have to be handled as one package and therefore have to be arranged by the Project Company as the EPC Contractor has no interest in operating insurances.
- Lenders wish to exercise a close control on the terms of the insurance and on any claims, working through the Project Company, rather than leaving this to the EPC Contractor.
- Lenders normally control application of the insurance proceeds.
- There are a number of specific lender requirements on insurance policies that may be difficult to accommodate if the policy is not in the Project Company's name.

EPC Contractor-sourced insurance may appear cheaper, but this is usually because the coverage is less comprehensive than that required by lenders. However lender-controlled insurances may cause problems for the EPC Contractor. The EPC Contractor takes the risk of physical loss or damage to the project before completion and is thus responsible for making it good. The EPC Contractor would not be excused for a delay caused by waiting for an insurance claim to be settled, since this delay would not constitute *force majeure*, and may therefore have to order and pay for replacement equipment, even though it is unclear whether the claim will be met in full by the insurance company (the EPC Contractor may have no direct knowledge of the progress of the insurance claim), or the proceeds disbursed by the lenders (rather than used to prepay debt). This is likely to be an area for delicate tripartite negotiation between the Project Company, EPC Contractor, and lenders.

- **Start-up costs:** These are costs for any fuel or raw materials used by the EPC Contractor during the testing and start-up of the project, before final completion; in some projects it may also be possible to earn some revenue from the project's output during this period to offset these costs.

- **Initial spares:** These are costs for initial stocks of spare parts (if these are not included in the EPC Contract).
- **Working capital:** The working capital required for operation of the project is the amount of money required to cover the time difference over the Project Company's invoicing cycle between payment of operating costs and receipt of revenues in cash. In effect it is the short-term (usually 30-60-day) cash flow cycle of the project, which cannot be calculated directly in a financial model that runs for six monthly periods during the operating phase of the project. The initial working capital requirement can be calculated as the costs that the Project Company has to incur until it receives its first revenues. These costs may include:
 - Initial inventories of fuel or other raw materials;
 - Office and personnel costs;
 - The first operating insurance premium;
 - Any timing differences between payments for input supplies and product outputs;

Thereafter changes in the amount of working capital required are usually a product of major movements in sales or purchases of input supplies, which should be reflected in the general cash flow.

- **Taxes:** These include taxes payable on the various project costs, such as VAT or sales taxes.
- **Financing costs:** These include:
 - Loan arrangement and underwriting fees;
 - Loan or security registration costs;
 - Costs of lenders' advisers (both before and after Financial Close);
 - Interest during construction (IDC);
 - Commitment fees;
 - Loan agency fees;
- **Funding of Reserve Accounts:** The question is whether Reserve Accounts should be funded as part of project costs.
- **Contingency:** The contingency needs to be added to the project costs.

6.4.2. Project financing

Based on the cost plan, the funding plan is drawn up to cover the total amount of funding required, divided into debt and equity. If particular funding is only available for particular purposes (e.g., an ECA insured loan that can only be used to pay for an export contract with the ECA's country) the calculations need to take this into account.

The Project Company should not use a short-term loan to finance working capital. This is a permanent requirement, which should be covered by the long-term project finance. However it may be useful to have part of the project finance in the form of a revolving credit for working capital (i.e., allowing the Project Company to repay some of the financing when it has surplus cash, and borrow it again when cash is short). This may reduce the required level of Sponsors' equity and thus also be advantageous for this reason. Separate short-term funding may be required for VAT or other taxes payable during construction that are recovered from offsetting against taxes on revenues once operations begin.

6.5 Operating revenues and costs

Taking a process plant as an example, the main elements of operating cash flow may include:

- Operating revenues from sales of products;

minus

- Cost of fuel or raw materials;
- The Project Company's own operating costs (personnel, office, etc.);
- Maintenance costs;
- O&M Contract costs;
- Insurances;

The first stage in projecting the operating revenues, and the cost of fuel or raw materials, in the model is to identify the key operating assumptions-e.g., for a process plant:

- What is the initial output?
- How does this output change over time?
- How much time is needed for maintenance?
- How much time should also be allowed for unexpected downtime?
- What is the rate of consumption of fuel or raw materials?
- How does this consumption change over time?

The revenues from sales and the costs of fuel or raw materials are the product of:

- These operating assumptions;
- The terms of any Project Agreements, such as an Input Supply Contract or Off-take Contract;
- Assumptions about market prices in the absence of such contracts;
- The projections also have to take into account.

6.6 Loan drawings and debt service

During the construction period the model takes into account:

- The required ratio between equity and debt;
- The priority of drawing between equity and debt;
- Any limitations on the use of debt (e.g., ECA loans to be used only for exported equipment, or costs in one currency to be funded by loans in that currency) and having done so calculates:
- A drawdown schedule for both equity and debt;

Drawings on the debt give rise to interest payments (IDC), which also need to be funded.

During the operating period the model takes into account:

- Priorities for allocation of net operating cash flow;
- Allocation of cash for debt repayment;
- Calculation of interest payments, allowing for hedging contracts;

6.7 Accounting and taxation issues

Although the decision to invest in a project should be based primarily on cash flow evaluation, the accounting results are important to the Sponsors, who will not wish to show an accounting loss from investment in a Project Company affiliate. In fact, a Sponsor may choose to fund a project in a less than theoretically ideal way (e.g., through leasing) if this produces a better reported profit.

Thus although a financial model for a project financing is concerned with cash flows rather than accounting results, it is usually necessary to add accounting sheets to the model (i.e., profit and loss accounts [income statements] and balance sheets for each calculation period).

Apart from the need to check the effect on a Sponsor's reported earnings, there are a number of reasons why accounting results are needed in the financial model for the Project Company:

- Tax payments are based on accounting results rather than cash flow.
- The accounting results affect a company's ability to pay dividends and could affect its ability to keep trading.
- Adding a balance sheet is a good way of checking for errors in the model: if the balance sheet does not balance, there is a mistake somewhere.

7. EQUITY RETURNS

The standard measurements of return on equity for investors in a project are calculated on a cash flow basis, taking into account:

The timing of the cash investment: There may be a considerable gap between the time the equity is committed and the time it is actually invested in cash. Rightly or wrongly, most investors assess their return based on this cash investment, not on the funds they have at risk but have not yet invested in cash.

The timing of dividend payments: Similarly, it is not when the Project Company generates cash that matters, but when that cash is paid out to investors as distributions (i.e., dividends or interest and repayments on investors' subordinated debt): there may be a considerable gap between these two points (e.g., because the lenders may require cash to be held back in Reserve Accounts with dividend payments twice a year, based on the half-yearly cash flow results).

In order to measure the return to investors from cash flows occurring at different times it is necessary to reduce these to a common basis through discounted cash flow calculations. Two interrelated measures are commonly used: the net present value (NPV) of a cash flow, and the internal rate of return (IRR), both of which are measures of the value of a future cash flow adjusted for the time value of money. However these measures have to be used with care, and they may also be misleading if significant amounts of the investment are not drawn in cash. The companies also inevitably look at how their investment in a project will appear in their published accounts as well as these cash flow based calculations.

8. DEBT COVER RATIOS

The level of debt that can be raised for a project is based primarily on its projected ability to pay interest and repay loan principal instalments as they fall due, with a comfortable margin of safety. To assess this margin of safety, lenders calculate cover ratios, namely:

- Annual debt service cover ratio (ADSCR);
- Loan life cover ratio (LLCR);
- The averages of the ADSCR and LLCR over the term of the debt;
- The project life cover ratio (PLCR), or the Reserve Cover Ratio for a natural resources project;

It should be noted that none of these cover ratios can be calculated for a period before the Project Company begins operating, as they all deal with the relationship between *operating* cash flow and the level of debt or debt service requirements.

9. THE BASE CASE AND CHANGES IN ASSUMPTIONS

Once the lenders and Sponsors agree that the financial model's structure and calculation formulae reflect the project and its contracts correctly, the basic input assumptions are settled, and the financial structure and terms are agreed to and also incorporated in the model, the final run of the model on this basis is known as the "Base Case" or "banking case." This final calculation usually takes place just before signing or Financial Close, to enable the lenders to check that, using fully up-to-date assumptions and the final versions of the Project Contracts, the project still provides them with adequate coverage for their loan.

But the project does not stand still thereafter, and lenders continue to review their exposure. As will be seen, adverse changes in ADSCR or LLCR in the future may affect the ability of the Project Company to pay dividends to the investors or even put the Project Company into default on the loan. However, if a new projection is to be calculated once the project is under way, someone has to decide how the input assumptions previously used should be changed. If the Project Company is left to decide the assumptions, the lenders may not agree and *vice versa*.

There is no simple answer to this problem, but as far as possible it is usually best to use objective rather than subjective sources for revising projections where this is possible, e.g.:

- Macroeconomic assumptions (including commodity prices) can be based on an economic review published by one of the lenders or another outside source, so long as this is a general publication, not specific to the project.
- Changes in operating or revenue assumptions should generally be based on the actual performance of the Project Company.

Lenders usually have the greatest weight in the final decision on the assumption changes, but where possible investors should ensure that these decisions are based on and are required to follow specific advice from the Lenders' Engineer, market, insurance, or other advisers, who should have expertise on the issues involved, rather than leaving it to an arbitrary decision by the lenders.

10. Sensitivity analysis

The financial model also needs to be sufficiently flexible to allow both investors and lenders to calculate a series of "sensitivities" (also known as "cases") showing the effects of variations in the key input assumptions in the Base Case when initially reviewing the project. Such sensitivities may include calculating the effect on cover ratios and returns of:

- Construction cost overrun (usually based on a full drawing of the contingency funding);
- Payment of the LDs under the EPC Contract to cover delays or failure of the project to perform as specified;

- Delay in completion (say for 6 months) without LDs from the EPC Contractor;
- Reduction in performance without LDs from the EPC Contractor;
- Higher downtime or lower availability;
- Reduced volume of sales or usage of the project;
- Reduced sale prices;
- Breakeven sales prices;
- Higher input costs;
- Higher operating costs;
- Higher interest rates (where these are not yet fixed);
- Exchange rate movements;

In summary, the sensitivities look at the financial effect of the commercial and financial risk aspects of the project not working out as originally expected. Lenders also usually run a "combined downside case" to check the effects of several adverse things happening at once (e.g., 3 months' delay in completion, a 10% drop in sale prices, and 10% more downtime). This calculation of several different things happening at once is also called "scenario analysis."

11. Financial Structuring and Documentation

This chapter examines some of the main financial structuring issues likely to arise once the commercial fundamentals and risks of the project, and the cash flow that results from these.

The main elements in the financing negotiations between the Project Company and its lenders are likely to include:

- The debt: equity ratio;
- The term (length) of the debt and its repayment schedule;
- The drawdown schedule for debt and equity;
- The interest rate and fees to be charged by lenders;
- Lenders' control of the Project Company's cash flow;
- Provisions for prepayment;
- Lenders' security;
- Conditions precedent to Financial Close and drawings on the debt;

These conditions are set out first in a term sheet with the lenders (or an investment bank) and then in a loan agreement and associated security documentation. There is no merit in innovation for the sake of it in project finance. As is evident, this is a highly

complex form of financing, and innovative financing structures may just add to the time and cost of putting the deal together, or be too rigid if something goes wrong, or add extra risks that cannot be foreseen at the beginning. The financial structure should therefore be kept as simple as possible; for example, several different sources of debt should not be used if sufficient finance can be raised from one source, as it is far quicker and easier to deal with one group of lenders (e.g. avoiding intercreditor problems). As far as possible, financing should also be kept sufficiently flexible to accommodate changes in the project over time.

It is also easy for both Sponsors and lenders to get so carried away by the detail of structuring and negotiating the deal that the big picture of what really matters gets buried.

11.1 Debt: equity ratio

The essence of project finance is a high ratio of debt. Within prudent limits, therefore. Sponsors wish to limit the amount of equity they invest in a project, to improve their own return, and thus to raise the maximum level of debt.

Once the maximum level of debt a project can raise has been determined, the difference between this figure and project costs in principle determines the amount of equity acquired (although some of the gap may be filled with mezzanine debt or public-sector grants).

11.2 Debt service

Debt service (i.e., loan interest payments and principal repayments) is one of the biggest factors in the financing structure that influences an investor's rate of return. The faster investors in a Project Company are paid dividends, the better their rate of return. Investors therefore do not wish cash flow from operation of the project to be devoted to repayments to lenders at the expense of these dividends.

Lenders, on the other hand, generally wish to be repaid as rapidly as possible. Striking a reasonable balance between these conflicting demands is an important part of the loan negotiations.

The issues that come up in negotiating the debt repayment schedule are:

- The term of the financing;
- The average life of the financing;
- The repayment profile;
- Flexibility in repayment;

11.3 Drawdown of debt and equity

Once the debt equity ratio has been agreed to with the lenders, the question arises about which is to be spent first, debt or equity? Sponsors often prefer to delay putting their

cash equity into the project, since the later they invest their money, the higher their IRR (because the period of time between investment and return is shorter).

Lenders would obviously prefer the equity to be invested first, or *pro rata* with the debt, but will not normally object to the debt being put in first so long as the Sponsors are legally committed to invest the equity (and will do so immediately if the project goes into default). Bank guarantees or letters of credit may need to be provided as security for this uncalled equity. Thus the investors' risk is the same whether the equity is invested early or late, but nonetheless many investors evaluate their returns—rightly or wrongly—based on the timing of cash investments.

If pre-Financial Close development costs are included as part of the project costs, these can be treated as part of an initial equity investment, or refinanced by debt if equity is being injected last.

For investors who want to squeeze the maximum IRR benefit out of the timing of their cash equity investment, an equity bridge loan can be provided by the lenders. This is a loan to the Project Company for the amount of the equity, normally secured by corporate guarantees from the Sponsors. This loan is used to cover the equity share of the project costs, and at the end of the construction period the real equity is finally paid in and used to repay the bridge facility. The only disadvantage of not contributing the equity before debt is that project costs are increased because of the need to fund IDC. If there is any difficulty in raising the marginal amount of debt funding required for this (e.g., because the total funding available is limited, or because only tied funding that does not fund TDC is available), the Sponsors may have to go first.

Certain types of projects do require equity to be invested before any debt is advanced:

- If equity is to be obtained from a public issue of shares, lenders would also not consider it prudent to rely on a future public issue, even if this is underwritten, because such underwriting commitments are likely to have unacceptable qualifications (e.g., a provision that the underwriting can fall away in certain market conditions).
- In a project where revenue is being built up gradually as investment is being made in the system (e.g., a mobile phone network), lenders set targets for how much of the system has to be built out with equity funding, and what minimum revenue levels have to be achieved, before any part of the debt is advanced. This approach is suitable when the project does not consist of building one plant, but is a continuous process of investment.

11.4 Interest rates and fees

Apart from the lenders advisors' fees (and the costs of the rating agency if the debt is rated), the main financing costs payable by the Project Company are:

- If the loan is on a floating interest rate basis, the base interest rate (e.g., LIBOR) plus the interest margin, together with net payments under an interest rate swap;

- If the loan (or bond) is on a fixed rate basis, the interest rate;
- Advisory, arranging and underwriting fees;
- Commitment fees;
- Agency and security trustee fees;

International project finance loans at a floating rate based on LIBOR typically have interest margins in the range of 1-2% over LIBOR. Pricing is usually higher until completion of construction, reflecting the higher risk of this stage of the project, then drops down, and then gradually climbs back again over time. (Thus in a project with a loan covering a 2-year construction and 15-year operation period, the margin might be 1.25% for years 1-2, 1.1 % for years 3 -7, 1.2% for years 8-13, and 1.3% for years 14-17).

Commercial bank lenders also require standard "market disruption" and "increased costs" provisions in their long-term floating rate loans; these provide that if the cost base (e.g., LIBOR) is no longer available in the market, or does not represent their true cost of funds, or a change of law or regulation has increased the costs of funding the loan, the full cost is passed on to the borrower. If fixed-rate lending is being provided by an ECA or **IF1** on a subsidized or non-commercial basis, the rate will probably reflect the cost of funds for an **AAA** borrower plus a small margin. The rates for other types of fixed-rate lending, including bonds, are based on similar factors to those that affect the pricing of interest rate swaps. Bond pricing is usually quoted as a margin over the rate for a government bond with a similar maturity to the average life of the debt.

Arranging and underwriting fees charged by bank Lead Managers are derived from several factors:

- The size and complexity of the financing;
- The time and work involved in structuring the financing;
- The risk that a success-based fee may not be earned because the project does not go ahead;
- The bank's overall return targets for work of this kind (bearing competitive pressure in mind), taking into account both the fees earned and the return on the loan balance that it keeps on its own books;
- The length of time the underwriting bank has to carry the syndication risk for a variety of reasons there can often be a considerable time lag between the signing of loan documentation and hence underwriting, and syndication to other participating banks in the project finance market. The proportion of the fee that has to be allowed to underwriting or participating banks to induce them to join the syndication (which is itself a function of the time the participating bank spends reviewing it, the overall return the market requires for the risk, taking interest margin and fees together into account, and perhaps competition from other transactions in the market at the same time);

Roughly speaking, the overall level of fees may vary between 1-2% of the loan amount with the level of arranging and underwriting fee at about the same percentage as the interest margin. If the arranging bank is also acting as Financial Adviser, this may increase the fees by around 0.5-1%.

The considerations affecting bond arranging and underwriting fees are much the same, except that the investment bank underwriting the transaction does not intend to retain the bonds in its own portfolio and therefore does not take this into account in assessing return; also, the period of risk on the bond underwriting may be much shorter than for a bank syndication. Bond underwriting fees are therefore around two thirds of those for comparable loans.

Commitment fees are paid on the available but undrawn portion of the debt during the construction period (i.e., so long as drawings may be made on the loan). In project finance loans commitment fees are usually between 0.5% *p.a.* to half the interest margin. As most project finance loans are drawn very slowly (taking 2-3 years in most cases) banks need the commitment fee to give them a reasonable rate of return on their risk during the construction of the project. (Commitment fees do not apply to bonds or a loan drawn immediately after it is signed.) Finally there are the agency fees payable to the agent bank or security trustee.

The time that a bank has to spend on agency work can be quite considerable, and it is in the Project Company's interests to ensure that a reasonable annual agency fee covers this work adequately, but this fee should be based on a fair assessment of costs, not a major source of extra profit for the agent.

11.5 Control of cash flow

Just as during the construction period of the project the lenders only allow drawings to be made and costs to be paid when they are satisfied that these are for the budgeted and approved purposes, similarly, during the operating period, the lenders normally control the application of the cash flow of the project by controlling the way in which the cash is used. These controls include:

- An order of priorities in applying cash, known as the "cascade";
- Requirements for the Project Company to establish reserve (or escrow) accounts;
- Control on distributions of cash to investors;
- In some cases, cash sweep or cash clawback requirements;

11.6 Debt prepayments and refinancing

A cash sweep is a form of mandatory (compulsory) prepayment of the loan by the Project Company. Other mandatory prepayments are normally required:

- If the Project Company realizes cash from the sale of assets (unless the cash is used to replace the asset);

- If performance LDs are received from the EPC Contractor (prepayment is made to the extent necessary to maintain the lenders' cover ratios; any surplus LDs flow into the cash flow cascade-note that delay LDs flow straight into the cascade);
- If insurance proceeds are not applied to the restoration of the project;

In these cases the cash is applied directly to prepayment rather than passed through the cascade.

A mandatory prepayment of the loan is required if it becomes illegal for the lenders to continue with it; this is usually meant to cover the possibility of international sanctions against the country in which the Project Company is located. (The obligation may be limited to prepayment insofar as the Project Company has available cash flow.) The Project Company may also wish to reduce or prepay part or all of the loan voluntarily:

- The total funding raised may not all be needed;
- Cash distribution restrictions imposed by the lenders or for other reasons may make it cost effective for the investors to prepay part of the (expensive) debt rather than have funds trapped in the Project Company, which raises the issue of which loan instalments such prepayments should be applied against;
- The Project Company may wish to prepay the whole loan and refinance it on more attractive terms elsewhere;

11.7 Security

Lenders do not expect to be able to get their money back by selling the Project Company's assets, as in most project financings only the cash flow of a successful continuing operation will provide this repayment.

Foreclosure on project assets is seldom a solution to a problem with the project; however, security over the project as a whole remains important:

- To ensure the lenders are involved at an early stage if the project begins to go wrong;
- To ensure that third parties (such as unsecured creditors) do not gain any prior or pari passu rights over the project assets;
- To ensure that project assets are not disposed of without the lenders' agreement;
- Generally, to enable the lenders to encourage cooperation by the Project Company if it gets into trouble.

The lenders' security normally has four layers:

- Control of cash flow;
- The ability to step-in to the project under Direct Agreements;
- Mortgages and assignments of the Project Company's assets and contracts;
- Security over the Project Company's shares;

11.8 Financial close- conditions precedent

Signature of the financing documentation alone does not mean that the lenders will start advancing funds to the Project Company. In order to draw down any debt at all, the project must first reach Financial Close. This is the date at which all Project Contracts and financing documentation have been signed, and the conditions precedent to the effectiveness of the lenders' commitments have been satisfied or waived. The conditions precedent are effectively a checklist of documents the lenders require as the basis for their financing; when these are provided the lenders are obliged to advance funds. (This does not mean that lenders have no obligations before that date; for example, if the financing documentation requires the lenders to keep information about the project confidential, this is effective on signing.)

The list of conditions precedent documentation for a project finance can be of immense length, often running into several hundred documents and certificates.

Typical requirements by lenders (all of which must be satisfactory to them in form and content) include:

– **Corporate documentation**

- Corporate documentation, board resolutions, etc., for the Project Company;
- Similar corporate documentation for any other parties to Project Contracts or financing documentation, and providers of guarantees, bonding, or other security;
- Signed copies of the Shareholder Agreement(s) relating to the Project Company;

– **Project documentation**

- Evidence of title to (or right to use) the project site;
- Signed copies of all the Project Contracts and evidence that all their conditions precedent have been fulfilled and that they are in full force and effect;
- Contract guarantees, bonds, or other security;
- Signed Direct Agreements;
- Permits for the financing, construction, and operation of the project;
- Arrangements for construction of third party facilities and connections;

– **Financing documentation**

- Signature of all financing documentation: Bank loan agreement, agency agreement, Bond terms and conditions and trust deed, Fee letters, covering payment of arranging and underwriting fees, Any Sponsor Support Services Agreements or other guarantees;
- Security documentation;

- Registration of security;
- **Financial due diligence**
 - Evidence that all investor funding (equity or subordinated debt) has been paid or committed and any security for this is in place;
 - Evidence that any other parallel financing arrangements are in place and effective;
 - Evidence that interest swap or other hedging arrangements are in place, if these have to be concluded immediately at Financial Close;
 - Evidence that the Reserve Accounts and other banking arrangements are in place;
 - Evidence that the required insurance is in place;
 - Up-to-date financial statements for relevant parties;
 - Final reports from the Lenders' Engineer, insurance advisers, and any other advisers;
 - The financial model;
 - Model Auditor's report (including report on tax aspects of the project);
 - Final construction and funding budget and drawdown schedule;
 - Base Case projections;
- **Legal due diligence**
 - Legal opinions from lenders' lawyers (and in some jurisdictions also from borrowers' lawyers);
 - Confirmation that no event of default has occurred;
 - The Project Company is not the subject of any litigation;

Some of these conditions precedent are circular in nature (e.g., the right to issue a notice to proceed to the EPC Contractor may be dependent on Financial Close having been reached, and Financial Close cannot be reached until the NTP has been issued). In such cases the legal advisers to the various parties arrange a simultaneous closing of the documentation.

The period between the signature of loan documentation and finally achieving Financial Close can become very lengthy. It is the Sponsors' responsibility to manage this process effectively, preferably by gathering as much of the condition precedent documentation as possible in advance of the loan signing, to ensure the minimum delay before Financial Close. Agreeing to conditions precedent documentation before signing the financing also ensures that there are no unexpected surprises from issues raised by lenders after the loan has been signed.

There may be further conditions precedent to each individual drawing of the debt, in particular:

- Confirmation by the Project Company and the Lenders' Engineer that the amounts payable to the EPC; Contractor are properly due and that the construction remains on schedule;
- That other amount to be paid from the drawing are within the agreed construction budget;
- That enough funds remain to complete construction;
- That continuing representations and warranties remain correct;
- That no change of law has taken place;
- That no event of default or potential event of default has occurred;

Lenders may also require that no material adverse change (MAC) to the project should have occurred after the financial documentation was signed, as a condition precedent both to Financial Close and subsequent drawings of the debt (this is known as a MAC clause). The problem with this kind of vague general provision is the Project Company may be left vulnerable to an arbitrary decision by the lenders to stop funding the project. Careful legal drafting is needed to ensure that if a MAC clause is inserted it is reasonably objective and limited in nature.

11.9 Representations and warranties

The facts that form the basis of the lenders' provision of the project finance are set out and confirmed in representations and warranties given by the Project Company in the financing documentation. As these are the basis for the financing, if any of the representations and warranties are later found to be incorrect this will create an event of default.

The representations and warranties are a check list of the key elements that lenders need to review in their due diligence to confirm that they are satisfied with the risks of the financing. Typical representation and warranties provisions in the finance documentation are that the Project Company:

- Is duly incorporated and has the power and has taken all necessary corporate actions to undertake the project and the financing?
- Is owned by the Sponsors in the proportions approved by the lenders?
- Has no business, assets, or subsidiaries, nor any contractual obligations, except those relating to the project (all of which have been disclosed to the lenders)?
- Has the capacity to enter into the various Project Contracts and other agreements, and that all these are legally valid and in effect, with no defaults outstanding; no event of force majeure has occurred affecting the Project Company or any Project Contracts?
- Has title to its property and all rights required to construct and operate the project?

- Has obtained all licenses and Permits required for the project and these are still valid?
- Is in compliance with the law in all respects and has paid all taxes due?
- Has not made, nor have the Sponsors nor any other party made, any corrupt payment?
- Is not in breach of any existing agreements?
- Is not insolvent, and there is no litigation outstanding or threatened against it
- Has no other debt, and the lenders have a valid prior charge over the Project Company's assets through their security arrangements; there are no other security claims on project assets.
- Has provided complete and accurate information on the project in an information memorandum, or by other means? The Project Company should only take responsibility for information that it provides directly, and not, e.g., summaries of the Project Contracts prepared by the Lead Manager(s) and their lawyers.
- Has provided complete and accurate financial statements, and no significant changes have occurred since the date of the statements?
- Has prepared budgets and projections in good faith using reasonable assumptions
- Believes that completion of the project will take place by the agreed date

Insofar as any of these statements are not correct when the representation is to be made, or the Project Company cannot fully subscribe to them, it must notify the lenders accordingly, and the latter may decide to waive the requirement (temporarily or permanently). If requirements are to be fulfilled later

(e.g., obtaining an operating permit), this may be covered in the covenants.

For its own protection, the Project Company may wish to exclude responsibility for "immaterial" errors in its representations and warranties (e.g., if a parking ticket for the plant manager's car has not been paid, does this mean the Project Company is not in compliance with the law?). Lenders are unlikely to accept any significant watering down of their requirement for the Project Company to take full responsibility for the basis behind the financing.

The Sponsors themselves may also be required to provide similar representations and warranties directly to the lenders; if so, the debt becomes a limited recourse loan, in the sense that the Sponsors may be liable for a loss suffered by the lenders relying on a representation that is not correct. The Sponsors should therefore ensure that their liability in this respect relates only to things under their direct control (e.g., their ownership of the Project Company).

These representations and warranties are made on signing of the financing documentation and are usually deemed to be repeated at Financial Close; they may also be deemed to be repeated when each drawing is made, and on each interest payment or

loan repayment date: if they are found incorrect at any of these times, it will be an event of default.

11.10 Covenants

Covenants are undertakings by the Project Company either to take certain actions ("positive" or "affirmative" covenants), or not to do certain things ("negative" or "protective" covenants). These undertakings by the Project Company are a characteristic of project finance, being more comprehensive and detailed than usually found in other types of financing. (These controls are typically less stringent for a bond issue.) It is through the covenants that the lenders exercise their continuing control over the construction and operation of the project, but they may need to take care that this control does not also make them liable for Project Company obligations to third parties; for example, in the United Kingdom, if lenders are deemed to have acted as "shadow directors" of an insolvent company, this could create liability for them towards other creditors. The main purposes of the covenants are:

- To ensure that the project is constructed and operated as agreed with the lenders.
- To give lenders advance warning of any problems that might affect the Project Company.
- To protect the lenders' security.

If the Project Company is not able to comply with a covenant, for what the lenders consider to be a good reason, a temporary or permanent waiver of the requirement can be given. Since many lenders have to go through a formal credit approval procedure for even quite small waivers of this type, the covenants on the Project Company should not be so restrictive that it has to keep requesting such waivers.

11.11 Events of default

Project finance lenders do not want to have wait to take action until the Project Company has run out of funds to service the debt; they therefore create a defined set of "triggers" that gives them the right to take action against the Project Company.

These are "events of default-once an event of default has occurred, the Project Company is no longer able to manage the project without lender involvement. Some of these events (such as failure to pay, insolvency, etc.) would apply to any corporate financing, but others (such as failure to complete the project) are peculiar to project finance.

It should be noted that these events do not of themselves put the project in default (i.e., bring the financing to an end and allow the lenders to enforce their security): a positive decision to take this next stage of action has to be made by the lenders after the event of default has occurred. The threat of moving to this next stage gives the lenders a lever that ensures that they can sit at the table with the Project Company and other project counterparts to find a way out of the problem, which either exists already or is indicated by the trigger events to be on the horizon.

Typical events of default are:

- The Project Company fails to make any payment under the financing documentation on its due date.
- Any representation or warranty made by the Project Company (or any other party such as a Sponsor) proves to have been incorrect or misleading.
- The Project Company does not fulfil any of its covenants or undertakings under the finance documentation.
- The Sponsors fail to fulfil any of their obligations or undertakings to the lenders or the Project Company.
- There is any change in the ownership or control of the Project Company prior to an agreed date.
- The Project Company, any Project Contract counterpart, or any Sponsor or other guarantor fails to pay any of its debts when due, or is subject to a court judgment for more than a de minimis amount, or to insolvency proceedings that are not discharged within a specified time.
- The project will not be able to achieve COD by an agreed "long stop" date.
- Insufficient funding remains to complete construction of the project.
- Any Permit or license is revoked
- The project is abandoned (for more than a specified period of time) or becomes a total loss.
- Any party defaults under a Project Contract, or the contract ceases to be in full force and effect.
- The Project Company loses title to the project site.
- Any of the lenders' security becomes invalid or unenforceable.
- The Host Government expropriates the project (including creeping expropriation), declares a moratorium on its foreign currency debt, or restricts the conversion or transfer of foreign currency (if the Project Company has borrowed in foreign currency)

Lenders may also wish to add a MAC clause as an event of default. As already mentioned, a MAC clause may be used as a condition precedent to prevent the project reaching Financial Close, or subsequent drawing on the loan. Adding this to events of default widens the uncertainty for the Project Company and its investors; lenders often take the view, however, that they cannot foresee everything that might go wrong with the project, and they need a catch-all provision to fill any gaps. If the Project Company agrees to such a provision, a material adverse change should be carefully defined; such an event should have a material adverse effect on the ability of any party to the Project Contract to discharge its obligations, or on the Project Company's operations, assets, or financial condition, *and* materially affect either the Project Company's ability to service its debt or the lenders' security interests.

Lenders may wish to include "potential events of default," i.e., an event of default that can be foreseen but has not yet occurred, thus allowing early action on the lenders' part. This should be acceptable to the Project Company provided that it is quite clear that the occurrence of the event is only a matter of time.

The Project Company needs to secure periods of grace to remedy the events of default, if remedy is possible. Non-payment is not the kind of default that can be allowed to drift on, and therefore a grace period of more than 2-3 business days (to allow for any technical problems in transfer of the funds through the banking system) is the normal maximum here. A reasonable period (say 30 days) should be given for other defaults that can be remedied; for example, failure to fulfil an undertaking to provide financial information. Similarly, some materiality limitation may be reasonable for some of the events of default: for example, a representation or warranty should have been misleading in a material respect to make it an event of default. This is usually an issue of much debate between Project Company and lenders. For example, the latter may argue that the whole loan should not be placed in default just because it does not fulfil the covenant to deliver the management accounts by a certain date; however, the lenders are likely to consider the failure to produce management accounts in a reasonable period of time a symptom of something seriously wrong with the Project Company's operations, and therefore this should give them a basis to intervene.

Lenders always make the point that they will not automatically use events of default to destroy the project (which is seldom in their interests), and that they are just there to get everybody around the table, but obviously once an event of default occurs, the Sponsors and Project Company are at a disadvantage in any discussions that take place with the lenders.

It will be seen that there is considerable potential for overlap between representations and warranties, covenants, and events of default, especially as a breach of a representation, warranty, or covenant is itself an event of default. There is little merit in duplication between them.

11.12 Waivers, amendments, and enforcement on default

Various courses of action are open to the lenders after an event of default partly depending on what stage the project has reached:

- To waive (i.e., ignore) the event of default.
- If the project is still under construction, to freeze any further drawings of funds-known as a "draw stop"
- If the project is operating, to require that all net cash flow be applied to reduction of debt or held in a separate reserve or escrow account under the lenders' control.
- To enforce the lenders' security.

Once the event of default has occurred it is entirely within the lenders' discretion which of these actions they choose to take. The Project Company may also ask the lenders to waive or amend a particular term of the financing documentation so it does not fall into

default in the first place. If there is a syndicate of banks or a group of bond holders providing the loan, there has to be a decision-making process, or one rogue lender could pull the house down by taking individual action against the Project Company while the rest are trying to find a solution. (Indeed, it is not unknown for a small lender to blackmail the larger ones by threatening to do this, so that the larger lenders will buy out the smaller lender's loan.) The agent bank or security trustee also needs to have clear instructions from the lenders as a whole on what action is to be taken on their behalf. Voting mechanisms therefore have to be agreed to in advance between lenders; the Project Company also has an interest in these arrangements, to try to ensure that one or two "hostile" lenders cannot dictate the action taken, against the wishes of the majority.

Voting arrangements need to cover:

- A decision to waive an event of default, so that no further action need be taken on the matter.
- An advance waiver (i.e., permission to the Project Company to take an action that would otherwise be a default; e.g., to issue a change order to the EPC Contractor, sell an asset above the de minimis level set out in the covenants, or amend some aspect of the Project Contracts).
- Amendments to the financing documentation, both to correct errors and to change the provisions to avoid future defaults or allow the Project Company to make some change in the project.
- Instructions to the agent bank or security trustee (e.g., to enforce security after an event of default).

Typical voting arrangements on such issues could be:

- **Waivers and permissions:** These usually require a "normal" majority, usually 66%-75% of the lenders (by value of their participation in the finance), except for "fundamental" defaults such as non-payment (and possibly fundamental changes to Project Contracts), for which 100% majority would be needed. (Individual banks may, however, retain the right to withhold further drawdowns if the Project Company is in default in the construction period, i.e., without a syndicate vote).
- **Amendments to financing documents:** Amendments that amend the lenders' security, repayment dates, repayment amounts, or interest rate require 100% consent; other amendments may be made with a 66%-75% vote.
- **Enforcement:** If the required majority is not achieved for a waiver, the agent bank or security trustee issues a notice of default: the next stage is enforcement action against the project security; there can be a sliding scale of voting for this: 75% of the lenders must vote for enforcement within, say, 90 days of the notice of default, 66% for the next 90 days, and 51% thereafter; however, some lenders may insist on the right to take individual enforcement action if the agent bank or security trustee does not do so once a notice of default has been issued, especially if the default is caused by non-payment.

The main practical problem with any voting arrangement is that usually a bank lending as a relatively small participant in a syndicate does not want to be bothered with voting on small issues: for most banks, this means the loan officer having to prepare and explain a paper on the issue to the bank's credit department, and for a minor or technical waiver this is not a very productive use of the loan officer's time. Therefore, actually getting banks to vote at all is difficult. As a result, if the hurdles for voting majorities on day-to-day amendments and waivers are set too high, the Project Company's business can be paralyzed.

One solution to this problem of inertia in voting is the "silence equals consent" route; if, for example, a 75% majority is required, this can be achieved by getting a 75% majority of those lenders who actually vote by a defined deadline, not of all lenders. This approach is not just beneficial to the Project Company, since paralyzing the Project Company's business through voting inertia is seldom in the interests of the lenders as a whole. The issue becomes even more acute where there are a large number of bond investors involved, who are likely to be less concerned about such issues than banks. In such cases some decisions may be delegated to the agent for the commercial banks, if any, or a special agent for the bond holders.

If a commercial bank's loan has full cover from an ECA, the bank has to vote as the ECA directs, but if there is political risk cover only, the bank should be free to vote as it wishes because such votes normally deal with commercial issues. A similar principle applies where there is a guarantee from an IFI. Having said this, however, an ECA or IFI will still expect to have a vote on any change in the project that could affect the risk it has agreed to take on. For example, if an ECA or IFI is relying on private-sector banks taking on the completion risks, these banks should have the right to make decisions on issues arising during the construction of the project, but not if these issues may affect the project's operation after completion. Thus drawing precise dividing lines between when the lenders can make their own decision and when the ECA or IFI's decision applies, may be a matter of some debate.

Tables

Table: 1.1 Congenialities and differences between corporate finance and project finance

Table 6.1: Interest Rate Projections

Table 6.2: Purchasing Power Parity

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