

PROJECT AND INFRASTRUCTURE FINANCE

CORPORATE BANKING PERSPECTIVE

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Features of

Exhibits

Most chapters in the book consist of exhibits that provide additional information related to the ongoing discussion.

EXHIBIT 3.1 EPC Sector

According to an Ernst and Young Report, the EPC sector is expected to generate opportunities worth ₹17.1 trillion during the 12th five-year plan.

Key highlights of the Indian EPC sector

- The private sector has taken a leading role in the development of the EPC sector. Indian players have taken the inorganic route to venture into international markets, as global construction giants are also increasingly attracted to India's growth story.
- Many EPC contractors now find it attractive to diversify into other businesses or bid for projects themselves. They have also inked technical partnerships with foreign players. This becomes critical, as power sector and urban infrastructure and telecommunications are expected to attract major investments in the coming years.

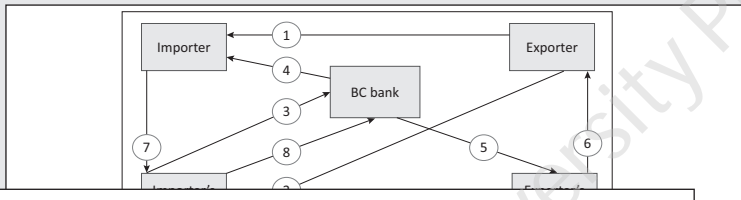


Table 8.2 Market Risk—Quantities

Risk	Factor
Market	Demand reduces/ceases, competitors emerge (labelled by some as competition risk), alternative routes, etc.
Off-taker	Off-taker reduces purchases, Off-taker goes bankrupt
Operating	Quality of service/product declines, quantity of output/delivery d

Figures and Tables

Figures and tables are provided in most chapters for helping readers better understand the concepts being discussed.

CASE STUDY 12.2 Power Sector Financing in India

Southern Energy Limited

1. The Indian power sector after liberalization: In 1991, as part of India's liberalization effort, the power sector was identified as one of the key infrastructure sectors to be developed to spur economic growth. As a result, the generation sector was opened up first, since it was more amenable to private-sector participation. The transmission and distribution sectors were opened up later.

THINKING OUT LOUD

Is it possible for the project lenders to step in to do so for some reasons? Can this execute the project if the developer/promoter fails to in the appraisal note?

Case Studies

The incorporation of case studies in most chapters in the book helps students in visualizing their ability to evaluate and apply the concepts discussed.

Thinking Out Loud

Discussion questions related to case studies are added to the respective chapters for readers to test their knowledge and understanding of concepts.

the Book

Chapter-end Exercises

The chapters include numerous concept review questions and critical thinking questions to assess what they have learnt in the chapters.

CONCEPT REVIEW QUESTIONS

1. What are the most critical objectives of project monitoring? What are the parties responsible for monitoring?
2. What are the stages in project monitoring? Highlight one key fact for each stage.
3. What are the key early warning signals? Can you show how the existing MIS in banks can help to identify them?

CRITICAL THINKING QUESTIONS

1. What are the ALM issues for a bank carrying out project lending? What is the alternative provided by PSBs and FIs in order to arrest the ALM mismatch?
2. What are the risks for a unit availing project term loan in foreign currency?

TERM SHEET

STRICTLY PRIVATE AND CONFIDENTIAL

SUMMARY OF TERMS AND CONDITIONS

ABC LIMITED

ABC Ltd.
Mumbai - 400026.

Date

Dear Sirs,

Monitoring and Follow-up of Project

ANNEXURE

RBI GUIDELINES REGARDING DEBT RESTRUCTURING, MANAGEMENT OF
DISTRESS ASSETS AND RELATED ASPECTS

Annexures

A model term sheet and a mandate letter are added at the end of chapter 9, and Reserve Bank of India's important guidelines regarding debt restructuring and management of distress assets is added at the end of chapter 11.

Learning Objectives and Concept Check

All chapters begin with learning objectives, which provide an idea about the topics that are discussed in that particular chapter, and end with point-wise concept check discussing the broad contents of the chapter.

LEARNING OBJECTIVES

By now we know the basics of structuring a project, valuing cash flows, and conducting a preliminary appraisal, it is time to get down to business and learn to prepare an appraisal note.

After reading this chapter, you will be able to understand:



CONCEPT CHECK

- The borrower's request, background of the entrepreneur and project, present business activities, industry prospects, feasibility of the project, past performance, and future projections, the cost of project and means of finance, compliance of lending norms, etc., are important components for project appraisal.
- If it is decided to sanction the conditions have to be indicated.
- There is no standard format for appraisal/process note. However, the note is carefully prepared after considering all the aspects of the borrower and his project.

Preface

Project finance is a well-established technique for raising funds for large stand-alone projects that require huge initial investments but have long pay-offs. The pay-offs to the financiers come from the cash flows of the project, as the sponsors of these projects often ring-fence their balance sheets from the risks of the project. Therefore, it requires some asset-specific financial structuring so that the risks are minimized and fund providers get their expected returns.

Although project finance is often branded by investment bankers, trade journals, and academicians as a new and innovative technique for funding under the umbrella term 'Structured Finance', it will be interesting for the readers of this book to keep in mind that the concepts we are looking at predate even corporate finance. Project finance was used as early as 1299 to develop Devon silver mines and since then large investments such as toll roads, power plants, mineral processing facilities, and even renewable energy projects have been project financed.

Prof. Srivastava, who has been teaching, training, and consulting in the field of project finance for over a decade and a half, often felt a need to relate the practice of project finance with sound conceptual knowledge as it often helps managers take better decisions.

The book is an attempt to bridge the theory and practice of project finance. Given its enormous market value, the subject is an important value addition to the skill set that all students of finance should have. Therefore, students and practitioners should not only study this book but also refer to it as a guide while taking decisions on funding large assets.

About the Book

The book is not about project appraisal or project management, but it is about raising finance for risky assets and large-scale investments that governments and companies plan.

Much of this book is concerned with providing insights to both students and practitioners on creating asset specific financing structures that help in preserving value created by these assets. In this regard, the book carries a strong corporate banking perspective as bank finance is the largest source of initial risk capital for projects, especially in India.

The audience of the book includes:

- Students of full time and executive management programmes at postgraduate and undergraduate levels
- Practising corporate and investment bankers
- Finance managers who are responsible for arranging funds for their companies' projects
- Government officials who are responsible for raising funds for infrastructure projects
- Investors who commit funds for special purpose vehicles and even manage portfolio of assets for large funds

Salient Features

The following are the salient features of the book:

- Each chapter of the book includes an introductory preview, a summary, and the references that can be a ready source of further reading.

- It includes tips and suggestions to prepare appraisal notes and information memorandum for project finance and an illustrative term sheet for practising bankers and students.
- The book comprises chapter-end concept review and critical thinking questions that will encourage students and readers to conduct further research.
- Exhibits added to most chapters help students to understand the concepts in a better way.
- Mini cases at the end of some of the chapters and two exhaustive cases at the end of one chapter that will help the students appreciate the intricacies of practical project funding.

Online Resources

To aid teachers, the book is accompanied with online resources that are available at <https://india.oup.com/orcs/9780199465002>. The content for the online resources is as follows:

- Instructor's Manual
- PowerPoint Slides

Organization of the Book

The book is divided into 12 chapters.

Chapter 1 introduces the concept of project finance and differentiates it from other means of financing large-scale investments. The Reserve Bank's circular on the definition of infrastructure sector is given as an annexure.

Chapter 2 establishes the economics of public private partnerships and the fact that project finance as a technique finds its maximum use in funding large-scale infrastructure assets. The chapter describes in detail the sources of finance available to fund infrastructure, both equity and debt.

Chapter 3 lays down the framework for structuring a contractual bundle around the project to ensure optimum risk sharing and mitigation. For bankers, cash flow trap mechanisms such as escrow and trust and retention accounts are discussed in this chapter.

Chapter 4 focuses on creation of cash flow models (with sector-wise tips). The chapter lays down techniques for valuing projects using free cash flow and capital cash flow techniques. It lays down the framework for an initial assessment of project viability and feasibility.

Chapter 5 lays down a framework for carrying out due diligence and gives practical tips that will help the reader to understand several studies and reviews that are always a part of project documentation.

Chapter 6 discusses the critical issues to keep in mind while preparing an appraisal note. The chapter discusses in detail project appraisal done by banks and financial institutions and explains critical success factors.

Chapter 7 focuses on working capital finance and discusses in detail with a lot of live problems and examples the methods that banks use to assess and structure need-based working capital, letter of credit, and bank guarantee facilities.

Chapter 8 looks at the generic strategies to mitigate risks in project finance and has a detailed discussion on interest rate risks, foreign currency risk, and use of derivatives and swaps to hedge these risks.

Chapter 9 looks at syndicated loans and enables the readers to have a 360° understanding from the point of view of bankers, corporate finance executives, and investment professionals. A model term sheet and a mandate letter are also provided as annexures at the end of the chapter.

Chapter 10 discusses credit risk management, the key underlying concepts and the role that bank capital plays to absorb risks. Concepts of risk based pricing of loans are introduced in this chapter.

Chapter 11 focuses on the key aspect of project monitoring, project implementation, and reasons for delay. Important Reserve Bank of India circulars are given as an annexure to this chapter.

Chapter 12 is the final chapter of the book that enables the reader to develop a perspective on the sectoral issues. Readers are introduced to issues in power and highway sectors. The chapter closes with two exhaustive case studies on power and highway sectors. The cases may also be read as typical appraisal notes that banks prepare while lending to projects.

Any suggestions, feedback, and comments for the improvement of the book are welcome.

Vikas Srivastava
V. Rajaraman

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Vikas Srivastava

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1 Introduction to Project and Infrastructure Finance

LEARNING OBJECTIVES

Project finance has become the most critical component of infrastructure investments across major emerging economies in Asia and Latin America. Business in these countries is no longer dependent on government finance to fund big-ticket investments in infrastructure and other large projects. A wide new opportunity exists in the project finance markets. Project finance differs both in structuring as well as risk management from traditional finance solutions for large-scale investments. This chapter introduces the concept of project finance.

After reading this chapter, you will be able to understand:

- the concept of project finance and differentiate it from other means of financing large-scale investments
- the need to choose project finance as a means to finance the right kind of assets
- the advantages and disadvantages of and the key motivations behind using project finance

INTRODUCTION

It will be a good way to begin this book by looking into the reasons as to why a company would undertake projects. All companies want to grow or expand, and they can grow only if they create new assets. Any new project implies that a company decides to invest in new assets. All assets produce cash flows. Some assets, called long-term assets, produce cash flows for more than a year and some others, called short-term assets, get liquidated within a year. If the cash flows that the new assets produce are more than those expected by the investors, it creates what we refer to as 'growth assets'.

There are six ways by which growth assets can be created:

- Expand along the value chain.
- Develop new related products and/or services.
- Develop new distribution channels.
- Enter new global markets.
- Address new customer segments.
- Move into the 'unknown space' or a value innovation.

Sometimes, we are tempted to call these investments *brownfield* or *greenfield* projects. The core of a brownfield project is expansion or modernization; there may be an existing structure, a product, and a supply chain, and the new project increases the effectiveness. A greenfield project starts from scratch, with no prior work, and adds value. For example, modernization of the Delhi or Mumbai airport may be called brownfield, as there was an existing airport, whereas the Kochi or Bengaluru airport project is greenfield, as it started from scratch.

However one may define it, at its core, any project is a temporary endeavour, having a defined beginning and end (usually constrained by date, but can be by funding or deliverables), undertaken to meet unique goals and objectives, usually to bring about beneficial change or added value. However, the temporary nature of projects stands in contrast to business in general or operations that involve repetitive, permanent, or semi-permanent functional work to produce products or services.

In practice, therefore, management of these two types of projects is often found to be quite different, and the temporary nature of projects makes them more risky.

Let us have a basic understanding of project risks. A brief description of project risks follows.

Symmetric Risks

The presence or absence of these risks directly affects project cash flows either way. For example, if the demand for project output is more, project cash flows increase, and if the demand is less, the project cash flows go down. The following is a list of such risk factors:

- Demand, price
- Input, supply
- Currency, interest rate, inflation
- Reserve (stock) or throughput (flow), particularly in mining or road projects

Asymmetric Downside Risks

The presence of these risks can disturb project economies only on the downside. However, unlike the case with symmetric risks, mitigating these risks does not increase project cash flows in any way. The following is a list of asymmetric risk factors:

- Environmental
- Creeping expropriation

Binary Risks

These risk factors are binary. If they are present, the project fails, and if they are mitigated well, the project stands a chance to succeed. This implies that the results are binary (success/failure). The following is a list of binary risk factors:

- Technology failure
- Counterparty failure
- Regulatory risk
- Force majeure
- Direct expropriation

To summarize, one may say that because projects are inherently risky and face constraints of time, budget, and optimization, their financing and governance structures have to be different from those of an ongoing concern.

Projects require customized capital structure/asset-specific governance systems to minimize cash flow volatility and maximize firm value.

Now, we introduce the concept of project finance as a means of creating optimum governance and financing structure that in turn creates an optimal risk–return trade-off for all investors and project parties.

1.1 DEFINITION OF PROJECT FINANCE

Project finance is a well-established technique for financing large capital-intensive projects, particularly for infrastructure assets. Funds are raised on a project basis. That is, the project assets are economically separable capital investment projects, and the providers of funds primarily look for cash flow from the project as the source

of funds to service their loans and provide the returns to the equity investors. It is arranged when a particular facility or a related set of assets is capable of operating profitably as an independent economic unit. The sponsor or sponsors of such a unit usually form a new legal entity to construct, own, and the operate the project.

If sufficient cash flows are predicted, a project company can finance construction of the project on a *project basis*, which involves issuance of equity securities (generally to the sponsors of the project) and debt securities that are designed to be self-liquidating in nature from the revenues derived from project operations. Thus, the project is financed on a standalone basis, often on a non-recourse or limited-recourse basis (which means that the finance provider gets no or limited charge on the balance sheet of sponsors, and the charge is limited to project assets and cash flows).

The concept of project finance is very simple. It involves a capital investment on the merits of the asset's returns and a debt-equity ratio that matches the expected cash flows from the assets. However, despite the simplicity of the concept, there is no common definition agreed upon by the financial community. According to Nevitt and Fabozzi (2000), project finance is '[t]he financing of a particular economic unit in which a lender is satisfied to look initially to the cash flow and earnings of that economic unit as the source of funds from which a loan will be repaid and to the assets of the economic unit as collateral for the loan'. According to Pacelle et al. (2001), 'It is a term that typically refers to money lent to build power plants or oil refineries'. According to Esty and Sesia (2005), 'It involves the creation of a legally independent project company financed with equity and non-recourse debt for the purpose of financing a single-purpose capital asset, usually with a limited life'. Lastly, as per Standard & Poor's Risk Solutions (2002), 'A project company is a group of agreements and contracts between lenders, project sponsors, and other interested parties that creates a form of business organization that will issue a finite amount of debt on inception; will operate in a focused line of business; and, will ask that lenders look only to a specific asset to generate cash flow as the sole source of principal and interest payments and collateral'.

All these definitions of project finance highlight some basic characteristics of the project financing method (Fig. 1.1).

- Project finance leads to creating a separate entity popularly known as *special purpose entity (SPE)* or *special purpose vehicle (SPV)*. The SPV has a defined objective and definite life.
- It shows an *equity holding pattern*, which may involve three or four equity sponsors.

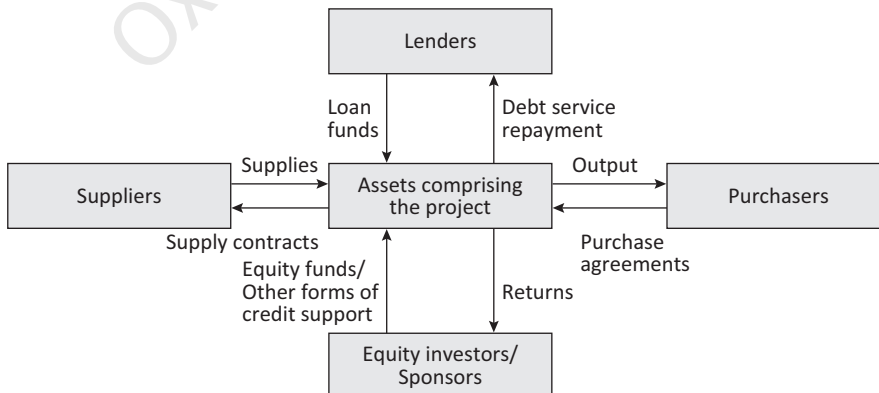


FIG. 1.1 Basic Characteristics of Project Finance

- It consists of a *non-recourse debt*, which implies that the debt component provided by lenders is of non-recourse nature and the lenders have no claim on the equity sponsors for the repayment of debt service, but fully rely on the project cash flows for the debt service.
- It has a high leverage (a very high debt–equity ratio) and complex contractual structure (creating a win-win situation for all project parties).

1.1.1 Basel II Guidelines

Basel II guidelines, which have been adopted by many banks worldwide, call project finance as specialized lending (SL). As per Basel II guidelines [since adopted by the Reserve Bank of India (RBI)], the corporate asset class that banks lend to includes, but is not limited to, four separate sub-classes of SL: project finance, object finance, commodities finance, and income-producing real estate. These sub-classes are briefly described here (BIS 2001).

Project finance This involves financing for large, complex, and expensive installations (e.g., power plants, mines, transportation, and infrastructure).

- Lender is usually paid solely or almost exclusively out of the money generated by the contracts for the facility's output (e.g., electricity sold by a power plant).
- Borrower, usually an SPE, is not permitted to perform any function other than developing, owning, and operating the installation.
- Consequence: repayment depends on project cash flow and collateral value of project assets.

Object finance This includes methods of funding for the acquisition of physical assets (e.g., ships, aircrafts, and satellites).

- Repayment depends on cash flows generated by the specific assets financed/pledged/assigned to lender.
- If exposure is to a borrower whose condition enables it to repay the debt without undue reliance on the specifically pledged assets, exposure is to be treated as corporate exposure.

Commodities finance This is structured short-term lending to financial reserves, inventories, or receivables of exchange-traded commodities (e.g., crude oil, metal, or crops), where the exposure is repaid from the proceeds of the sale of the commodity and the borrower has no independent capacity to repay.

- The value of the commodity to be encumbered to the lender, however, has to be treated more as a risk mitigate than as a source of repayment.
- Inventory/book debt will have to be charged to the lender under hypothecation/assignment as may be considered legally appropriate.

Income-producing real estate This involves financing real-estate projects.

- Funding real estate where the prospects for repayment and recovery on the exposure depends on the cash flows of the asset or the borrower.
- Funding commercial real estate exhibits high loss rate volatility as compared to other types of specialized lending.

However, as further discussion will be more on project finance bank loans, it may be good to know the RBI definition of infrastructure lending, given in the Addendum at the end of the chapter.

Put simply, for a lending banker, project financing means the process of appraising the commercial/economic viability of the project, identifying risks and mitigations for the project, tying up of funds through

equity and long-term loans for implementing the project, and monitoring the implementation, operation, and debt servicing of the project. Lenders base credit appraisals where the source of repayment is the projected revenue/cash flows from operations of the facility rather than general assets or the balance sheet of the sponsor. They rely on the assets of the project facility, including revenue-producing contracts and other cash flows generated by the facility as collateral for the debt.

At the heart of project financing is the performance of the project, both technical and economic, and, therefore, the debt terms are not based on the sponsor's balance sheet, collateral, or value of physical assets of the project. The financial package is unique to the project, and often the interest rates and spreads are not proportionate to the risks involved in the project; they depend on the cash flows expected by the project and whether the cash flows can support the debt-service burden. Repayment profiles, creation of reserves, and contingency triggers, such as cash sweep and cash trap, are sculpted around expected cash flows.

The term *project financing* is widely misused and perhaps even more widely misunderstood. It is important to clarify what the term project finance does not mean: raising funds to finance a project that is economically weak and may not be able to service its debt or provide an acceptable rate of return to its equity investors.

Let us now look at the background of how these decisions were taken earlier.

1.2 BACKGROUND: CAPITAL EXPENDITURE DECISIONS

The growth of any firm is directly related to its resource allocation. The firm allocates its resources in anticipation of the future benefits and to achieve the desired growth. To achieve the objective of maximizing the firm's value, the capital resource allocation or expenditures should result in 'good' investments rather than 'bad' ones.

The definition of capital expenditure, therefore, is not what is normally defined by accounting norms. According to accounting practice, this is an expenditure that is shown as an asset in the balance sheet and is to be depreciated over the life of the project. This narrow view of capital expenditure fails to identify the outlays on research and development, reconditioning of plant and machinery, and so on, even though these are targeted to encash future opportunities and have long-term impact on the firms.

These decisions, because of their long-term impact, are classified as 'strategic' investment decisions as against 'tactical' decisions (which involve only a relatively small amount of funds). Therefore, these capital expenditures may result in a major departure from what the company has been doing in the past. This in itself can be a risk, as it will involve significant changes in the company's expected profits. Many of India's traditional business houses and their foray into infrastructure sectors such as power production, telecom, and airlines can be viewed in this light.

These changes are likely to lead shareholders and creditors to revise their evaluation of the company. The same was illustrated by McConnell and Muscarella in a study in 1985, which indicated that an increase in capital expenditure intentions, relative to prior expectations, resulted in increased stock returns around the time of announcement, and *vice versa* for an unexpected decrease.

The project always has a risk profile that may be higher than the risk profile of the sponsoring organization.

These expenditure decisions determine the future destiny of the firm. The capital expenditure, because of the amount involved, can become a defining amount for most companies. The large capital expenditures have an effect not only on the decision makers in the companies or companies executing these projects, but also on the communities and nations where they are established and operated. They can improve the social and economic conditions of the region by providing an unexpected upswing to the development rate, not anticipated earlier, or can even cause disasters for the nations.

For instance, Enron's Dabhol power plant's failure created an unmanageable power crisis in Maharashtra and a negative impact on the credit-worthiness of India. Additionally, it is reflected on the political risk management system due to the instability of the government decision-making process.

However, Exhibit 1.1 highlights one of the success stories.

EXHIBIT 1.1 Mozal, A Success Story

The success of the US \$1.4 billion Mozal Project in Mozambique provided the much-needed economic boost to the development in one of the poorest countries of the world.

To elaborate, Mozal's share of gross domestic product (GDP) was 3.2 per cent in 2003 and contributed 5 per cent to the country's economic growth and 15 per cent to Mozambique's export earnings, which increased from US \$220 million to around US \$1 billion. Mozal also doubled Mozambique's exports, providing in excess of US \$811 million in foreign exchange earnings. The net positive impact on external trade was US \$400 million at a steady state; the direct impact on the manufacturing industry's gross output was 49 per cent. The net positive impact on the balance of payments stood around \$100 million at steady state; direct job opportunities were created for 1150 employees and 1600 contractors; the indirect employment creation was estimated at 10,000 jobs. It is relevant to note here that the Mozal project was envisioned at a time when Mozambique was struggling for development after 17 years of civil war and had a GDP of US \$1.7 billion.

As discussed earlier, capital expenditures are considered an act of 'commitment' that can establish (or destroy) a trajectory of sustainable competitive advantage. These are also classified as bet-the-company type of investments; for example, when Airbus decided to develop an A380 aircraft at an anticipated cost of US \$13 billion, the company had booked sales of only US \$17 billion and a failure could have resulted in bankruptcy. The *bet-the-company* proposition is because of the irreversible nature of the capital investments, and if reversed, it would have been at a huge cost. For example, Enron's bankruptcy resulted in the acquisition of more than US \$200 million Enron's stake in Dabhol Power Company by GE and Bechtel for only US \$22 million. The large capital expenditures incurred have an effect not only on the reputation of decision makers in the companies or the companies executing these projects, but also on the communities and nations where they are situated or established.

At the heart of all of these is a very simple concept. The main objective of these capital expenditures is to invest the current resources in view of the anticipated future benefits. The capital expenditure investments involve a current outlay or a series of outlays of cash resources in return for an anticipated flow of future benefits, and, in turn, these investments influence the firm's growth and affect the risk profile. This in turn depends on whether these expected cash flows are stable and generate a return that is higher than the return expected by the providers of long-term funds.

If one carefully reads through all the examples, it becomes clear as to what we are driving towards. We are saying that for project financing to be effective, it has to be used for projects and assets that are large. How large? One cannot give an approximate figure. But then it has to be so large in terms of size and finance that the host government or a local company cannot take it on their balance sheets. Historically, project finance is used for industries and infrastructural projects such as toll roads, power plants, mines, pipelines, oil fields, and telecommunications. Such large projects are usually risky. The risk is compounded when the project involves a resource deposit that is difficult and expensive to access or requires a lot of clearances or an innovation in technology. It is riskier for a single firm to finance it. It is riskier because of political jurisdictions. These projects also involve complex contractual relationships among the various parties. These projects sometimes require expert financial and legal assistance.

Students and practitioners should note a point here. Non-recourse does not mean that the financiers now bear the risk of the project. It is only the nature and risk of the asset that determines whether it merits project or corporate finance. Using corporate balance sheets to fund assets that we have described above can be so counterproductive.

This is an important point that one should remember while reading this book.

Now, we will look into financing strategies for such large projects.

1.3 TRADITIONAL ON-BALANCE-SHEET FINANCING/ CORPORATE FINANCE

Traditionally, companies were using methods such as corporate bonds, term loans, asset-based security funding, equipment leasing, venture capital, and, most common of all, initial public offerings (IPOs) or subsequent offerings of equity capital for funding their capital expenditure requirements. Now, there are more conventional ways by which firms raise new debt or equity capital.

For debt, the lenders provide funds to the parent company (the investing firm), and then the parent company invests the funds in the project assets. In this form of financing, commonly known as corporate financing or the balance-sheet financing, although the financing is done for the project, the lender looks at the cash flows and assets of the whole company to service the debt and assure security of funds. In addition, lenders open the loan account in favour of the corporate rather than the project, and the repayment is also from the balance sheet of the corporate. A lot of assets and their resultant cash flows contribute towards a corporate balance sheet, and the lender may not be sure that the repayment is coming from only that cash flow from that specific project that they have financed.

In the case of default, the lenders have full claim on the total assets of the parent company, including the new project assets for which new debt is being issued. In this way, the lenders have full recourse on the parent company for the repayment of the debt. Therefore, the financial credibility and standing of the parent company plays a major role in deciding the amount disbursed and the conditions and characteristics of the loan. The parent company is exposed to risk for the full amount required for the investment. In other words, the existing shareholders are exposed to an additional risk by this act, and the claim of the shareholders is further reduced due to the additional financial risk. This kind of arrangement can result in risk contamination, and the parent company may be termed as a potential defaulter. Lenders look to the corporate's entire existing asset portfolio to generate the cash flow to service their loans. Therefore, the assets and their financing are integrated into the firm's assets and liability portfolio.

1.4 FROM CORPORATE TO PROJECT FINANCE

The critical distinguishing feature of project financing is that a project is a distinct legal entity, particularly in the case of infrastructure sector. The sponsoring company provides bankruptcy remoteness to project assets, contracts, and cash flows. The financial structure allocates and mitigates returns and risks more efficiently than a conventional financing structure.

For instance, if a sponsor/promoter is implementing four road projects, there would be four new corporate entities of the sponsor/promoter, that is, four SPVs. On the other hand, if a corporate manufacturing cement decides to implement a brownfield project for capacity expansion even at a different location, the new project assets may be taken in the existing balance sheet instead of forming a new corporate entity/SPV of the sponsor/promoter.

Again, the concept here is simple. For certain large capital-intensive and risky assets that are capable of standing alone, it may be a good idea to bundle them into an economically separate identity and to arrange finance on the basis of *project assets*. The finance should match the asset that is funded and the expected cash flows. Economically, separate entities are important, as it provides bankruptcy remoteness. This means that if the new set of risky assets, now the project, does not do well, the existing shareholders and debt providers are protected and if something wrong happens to the sponsor company, the project financiers need not worry. It is a win-win situation.

The rise of project finance provides strong *prima facie* evidence that financing structures do, indeed, matter.

Given the fact that it takes longer and costs more to structure a legally independent project company than to finance a similar asset as part of a corporate balance sheet, it is not immediately clear why firms use project finance (Srivastava and Kumar 2010).

For it to be rational, project finance must entail significant countervailing benefits to offset the incremental transaction costs and time. Yet, these benefits are not well understood, nor have they been accurately described in the academic or practitioner literature. Nevitt and Fabozzi (2000), for example, claim that, 'project financing can sometimes be used to improve the return on the capital invested in a project by leveraging the investment to a greater extent than would be possible in a straight commercial financing of the project'. While it is true that leverage increases expected equity returns, this motivation for using project finance fails to recognize that higher leverage also increases equity risk and expected bankruptcy costs. By itself, this explanation does not provide a compelling reason to use project finance.

There is, therefore, a strong reason to use project finance for the sectors where cash volatility is deemed low. Infrastructure assets, at least in theory, are essentially 'utilities' and can work as 'monopolies'. This means that the cash flow is guaranteed to a large extent, as there will be a definite demand and offtake of the infrastructure services, and the technological risk is low. If that is so, then the bankruptcy risks both direct and indirect are low and the amount of debt needs to be structured in such a manner that the expected cash flows amortize it.

If that is true, then in the case of a utility, a high leverage ratio may be justified. Debt funding has three advantages: a tax shield on the interest, increased discipline of debt (managers do not run amok because of debt covenants), and a lower cost of capital. Therefore, if you increase the debt–equity ratio, the cost of capital for the project decreases as cost of debt is less than equity and the projects are largely funded by debt. As we have already discussed that the cash flows are kind of guaranteed, because the project works such as utility, the direct and indirect bankruptcy costs are minimum. Therefore, the project vehicle takes the advantages of debt, while minimizing its disadvantages.

The above paragraph is quite revolutionary. What we are saying is that because of definite offtake of services and low technology risks, let us say in a power purchase agreement (PPA) with a state electricity board or an annuity-based toll road, the volatility of cash flows reduces (at least theoretically). If that is so, this sector can afford to be funded by highly debt-driven project finance mechanism. That is why perhaps you see many infrastructure companies funded by debt. A higher debt ratio, with low probability of distress ideally reduces cost of capital. A win-win situation for all developers.

However, if the product offtake is not a utility like most industries in the fast moving consumer goods (FMCG) sector, the cash flows may depend on so many factors and thus the company should have a debt-driven project finance kind of funding.

In addition to this, project-financing structure allows for optimum risk sharing, allocation, and mitigation. On one hand, though the lenders do not get tangible collaterals, the contractual structure and control on project assets and cash flows works like a second line of defence. Most of the time when a party decides to make use of project finance as a funding strategy, they lose substantial control of ownership of assets and cash flows. This structure allows lenders to take control of project assets and parties and also the cash flows through a trust and retention and escrow accounts.

It is needless to say that knowledge of the risks and the structures of project finance to handle risk are paramount in achieving the best deal for both sides. A project financing deal requires careful financial engineering to allocate the risks and rewards among the involved parties in a manner that is mutually acceptable.

If we have the concept straightened out now, let us look at how it has been applied over a period of time to fund infrastructure assets.

However, before you go further, just read Table 1.1 for the key differences between corporate financing and project financing.

Table 1.1 Key Differences between Corporate and Project Financing

Criterion	Corporate Financing	Project Financing
Organizational structure	In a corporate form, on the existing balance sheet. It is not possible to distinguish cash flows coming from specific project in a consolidated company balance sheet	The project is organized as a separate company where parent/sponsors show their equity investments as 'investments in other companies'. As equity is often deconsolidated, no one holds controlling right and the project company is not a subsidiary. It can be organized in a corporate form, partnership or limited liability company to utilize tax benefits
Leverage	Debt–equity ratios depend on assets and follow an industry benchmark	Debt–equity ratio is high and depends on the strength of expected cash flows
Nature of assets and the need for control	Often used to fund assets where borrower has an expertise or the borrower wants to retain control over assets, cash flows and operations. This, therefore, provides better flexibility	Often used to fund risky assets in politically sensitive sectors. Borrowers often lose control on cash flows, contracts, and operations. This, therefore, needs sharing of more information
Allocation of risk	Creditors have full recourse, and risks are diversified over portfolio of projects that the company may have	Exposure is often non-recourse or limited recourse to the sponsor's balance sheets. Contractual agreements allocate risk to counterparty best suited to mitigate that risk
Monitoring	Often done internally	Often done by a third party
Transaction costs	Deals are arranged quickly	Takes a lot of time to structure a deal and transaction costs are higher

1.5 LEVERAGING PROJECT FINANCE TO FUND INFRASTRUCTURE: A HISTORICAL JOURNEY

The use of project finance to fund infrastructure is not a new phenomenon as considered by many. It has been an age-old practice for funding the capital expenditure. One of the earliest recorded applications of project finance was in 1299, when the English Crown enlisted a leading Florentine merchant bank to aid in the development of the Devon silver mines. The bank received a one-year lease for the total output of the mines in exchange for paying all the operating costs without recourse to the Crown if the value or amount of the extracted ore was less than the expected output (Kensinger and Martin 1988). In the current times, this type of arrangement is commonly known as production payment loan. In a way, the trading expeditions of the Dutch East India Company and the British East India Company for the voyages to Asia were project-financed. The providers of the funds were paid after which they were repaid according to their share of the cargo sold (Eiteman et al. 1998). In the 1930s, in the US, the 'wildcat' explorers in Texas and Oklahoma used production payment loans to finance oil-field exploration (Smith and Walter 1990).

The real estate developers were also building and developing commercial properties by using project structures. In the 1970s, project finance began to develop into its modern form, partly in response to several large natural resource discoveries and partly in response to the soaring energy prices and the resulting demand

for alternative energy sources. British Petroleum raised US \$945 million on project basis in the early 1970s to develop the 'Forties Field' in the North Sea. Around the same time, Freeport Minerals project-financed the Ertsberg copper mine in Indonesia and Conzinc Riotinto of Australia project-financed the Bougainville copper mine in Papua New Guinea (Esty 2005). The reasons for selecting project finance were the amount of investment required and the firm's balance sheet. The balance sheet of the firms provided a restriction to raise the amount required.

Chen et al. (1989) documented more than US \$23 billion worth of project financing between 1987 and 1989 and identified 168 projects financed in this format, including 102 projects for power production. Project financing can be used to finance the infrastructure requirement of countries (*Financing the Future* 1993; Forrester et al. 1994; Chrisney 1995). Project financing has long been used to fund large-scale natural resource projects. The use of project finance is primarily focused on the development of infrastructural requirements such as roads, electricity generation, telecommunication, water, airports, and so on.

The use of project finance is not a new concept in India, though it is still in its infancy, and it goes back to the 19th century. For the development of the railways in the 1880s, the British principally had recourse to finance from private entities whose investments took the form of project finance (Benouaich 2000). In recent years, the Government of India has realized that to develop the infrastructure in the country, they have to look towards the private sector *via* the public-private partnership (PPP) method. Presently, the use of project finance has increased in India and it is not only used for infrastructural financing as for Dabhol Power Company (now the Ratnagiri Gas and Power Private Limited) and Noida Toll Bridge Company, but also used by many corporates for financing their requirements, such as Reliance Petro-investments for the SPV formed by Reliance Capital; Reliance Industries to bid for IPCL; Global Steel Holdings, an SPV controlled by Pramod; and Vinod Mittal of Ispat group for acquiring the Turkish Electric Arc Furnace.

To sustain the GDP growth rate, India has planned an investment of almost ₹41,00,000 crore in infrastructure in the next five-year plan. Given the huge infrastructure investment needs, governments' limited resources, managerial constraints in the public sector, and buoyancy in the capital markets which gives access to other long-term funds, the role of the private sector and PPPs in enhancing infrastructure facilities has become critical.

PPP structures often mean that private parties will develop and operate a huge asset for the government and they may, in many cases, depending on the PPP structure, not get ownership of such assets during the construction or operation. Therefore, you would often see and in our opinion it is logical that private developers prefer financing on 'project basis' rather than on their existing balance sheets.

We will discuss more about this in a latter chapter, but the fact is well established that project finance is a preferred funding strategy for financing infrastructure for a very long time. It is only now that we are trying to put theory and concepts behind the practice.

In Section 1.6, we aim to further strengthen these concepts and give the students of finance an idea as to why this knowledge is so critical to their skill sets now. Let us answer this question in some detail.

1.6 WHY PROJECT FINANCE: RATIONALE AND SCOPE

To a student with an inquisitive mind, the following questions should occur: Why should banks use project finance to fund the infrastructure assets, as too much of debt may increase default risk? How is project finance superior to traditional recourse-based corporate financing?

As the long-term demand for capital and infrastructure is at a critical juncture and the present magnitude and growth clearly indicate that the future prospects of project finance are very strong and positive, the students should understand the advantages of project finance and take advantage to create value additions by using the same positive trends. They should also realize that project-finance-structured investment has a higher probability of providing the expected and targeted results in financial as well as operational scenarios.

We attempt to answer the questions here. The motivations and key rationale to use project finance are classified in the following sections.

1.6.1 Motivation and Advantages of Project Finance

Some of the major advantages of project finance are as follows:

Risk sharing motivation

A capital expenditure passes through the following three stages: development, construction, and operationalization. At each stage, because of uncertainties in the overall economic environment, the amount of risk is very high. The parties which can pose risk may vary from government (by full or creeping expropriation) to social activist groups (by forcing the project to forego some advantageous conditions because of societal issues), or customers (by not providing enough demand) to suppliers (by creating supply-related problems), etc. As the exposure involved in capital expenditure is very high and any risky venture might lead to financial distress, the companies following traditional financing, whereby the parent company is exposed to the entire risk, may decide not to give a green signal to the project because of the increased incremental distress cost (because of adding the project to the portfolio of existing projects).

The use of project financing can help the companies to invest in risky projects that the company may have to forego because of the increased incremental distress cost. This incremental distress cost either direct or collateral, if sufficiently large, can exceed the project's net present value (NPV), which makes the positive NPV turn into a negative NPV investment.

Project financing is a way of distributing risks and returns more efficiently than under conventional financial strategies. Those who have the specialized ability to bear the specific kinds of project risks are blessed with good returns. The application of separate entity helps in reducing the probability of risk contamination due to which an unsuccessful investment creates negative value for the otherwise financially healthy firm. This type of structural arrangement also helps in reducing ultimate distress cost in the case of actual default.

The motivation of risk management is considered to be consistent with the emerging issues of the magnitude of investment distortions (Parrion et al. 2005). Over the years, the concepts of market imperfections incorporated in capital structure and risk management theories are ignored in capital budget analysis (Stulz 1999). These concepts are addressed in the case of project finance, as it differs from traditional finance management strategies because it involves a change in organizational form rather than the use of financial instruments or derivatives (Esty 2003).

The introduction of a risky project in the portfolio of a healthy firm can have a negative impact on the overall financial and trading position of the firm. The addition of the risky project can lead to volatility in the presently stable cash flows generated by the firm. If the volatility is significant enough, it can hinder the progress of the ongoing investments (Froot et al. 1993; Lamont 1997; Minton and Schrand 1999). The increased risk of default due to this introduction can also encourage the existing suppliers and customers to review their business transactions (Titman 1984).

Due to these kinds of negative impacts, the managers of any company, having an objective of value-maximizing, can rationally choose to forego the investment if corporate debt is the only option. However, in project finance, these risks are hedgeable with financial and other contracts. In project finance structures, specific contracts can be formulated in which the risk can be shared by other parties which specialize in the specific domain, for example, a construction contractor can become a partner by sharing risk by putting equity interest; suppliers can become risk sharing partners by signing contracts for being the preferred suppliers. Even by signing some specific contracts, the risk can be mitigated, for example, a turnkey contract can transfer the entire construction and setting up of the plant to the turnkey contractor; in the case of a power plant, by signing a PPA; similarly an independent producer can be assured of the revenues.

This contractual agreement also provides the project sponsors a high gearing ratio as otherwise possible due to reduced risk on the project and risk sharing among various parties. By risk sharing among many partners as other sponsors or debt lenders, the incremental distress costs are reduced because there is a positive and convex relationship between distress costs and leverage (Brealey and Myers 2003). In addition, it helps sponsor companies of project vehicles to maintain their ratings, because risky debt is transferred to a new vehicle and maximize returns.

Reduced underinvestment problems

Over the years of financial research, it has been noted that firms with high leverage (Myers 1977), risk-averse management (Stulz 1984; Smith and Stulz 1985), and asymmetric information (Myers and Majluf 1984) have a greater tendency of underinvestment.

According to the concept of underinvestment, a firm has a tendency of not investing in borderline capital expenditures because of the fear that a negative impact might result in financial distress that can lead even to bankruptcy. The underinvestment occurs only when capital providers have asymmetric information about assets-in-place and investment opportunities (Myers and Majluf 1984). Project finance reduces asymmetric information by eliminating the need to value assets-in-place (Shah and Thakor 1987) as it separates the current assets and potential investment opportunities.

The highly leveraged firms have more trouble in financing attractive investment opportunities because of the existing high fixed financial burden. The use of corporate debt as per traditional financing can increase corporate leverage, but it will increase the existing financial burden further, resulting in a failure to raise funds at all or at reasonable terms or cost, thereby forcing the investments to be non-profitable to the firms and this in turn can lead to firms being vulnerable to underinvestment. However, project finance allows the firms to preserve scarce corporate debt capacity and borrow more cheaply than it could otherwise be possible.

The use of secured debt can also reduce the leverage-induced underinvestment by allocating returns to new capital providers (Stulz and Johnson 1985). Project finance achieves the same through separate incorporation and non-recourse debt (Berkovitch and Kim 1990; John and John 1991; Flannery et al. 1993). However, the use of project finance is more effective than secured debt since the lenders of secured debt have a residual claim on the corporate balance sheet which reduces the corporate debt capacity, while project finance eliminates all recourse back to the sponsoring firms.

John and John (1991) have developed a model, based on the works of Myers (1977), which indicates that outstanding debt gives rise to an underinvestment incentive, thereby forcing the managers to pass up the positive NPV projects into situations where the projects would operate to the benefit of the debt holders but to the detriment of shareholders. Under such a scenario, to overcome the problem of underinvestment, in the case of highly leveraged firms, the issue of new equity is the only viable option for financing investment opportunities due to non-availability of corporate debt capacity. However, this equity may be issued at a discount to make it attractive due to the high financial risk and may be turned down by the existing shareholders to avoid the dilution of their claims, which again leads to underinvestment as the projects may become unviable, if only financed by equity.

Reduced costly agency conflicts

The one phenomenon that has been assumed to have a great impact on the value-maximization proposition of the firms is the agency issues. The literature on corporate finance extensively devotes its time and resources in establishing the relationship between conflict of interest among claim holders and distortions in investment decisions. Studies such as Mello and Parsons (1992), Leland (1998), Parrino and Weisbach (1999), Moyen (2000), and Titman and Tsyplakov (2001) use the approach of calibrating a model on the database of public firms to estimate the magnitude of the impact of stockholder/debt holder conflicts on investment decisions.

An agency relationship exists when one party (principal) hires another party (agency) and delegates decision-making to the agent. In any firm, the shareholders are the principals and the CEO is the agent; if CEO is the principal, then managers are agents. Parrino et al. (2005) argue that the compensation mode also has an impact on the distortions in investment decisions. According to the study, a manager who receives equity-based compensation is likely to favour projects that lower the firm's risk even if they have a negative NPV and ignore the high-risk projects that have a positive NPV. This behaviour occurs even though low-risk (risky) projects transfer wealth to (from) debt holders from (to) stockholders. Ideally, the incentive to increase the risk should lead to the increase in share value, thus, leading to value maximization. If risk-taking incentives are high enough, relative to the incentives to increase the share price, then the manager has the option to invest in risk-increasing, negative NPV projects (Rogers 2005). However, if the manager also holds stock, this incentive will be reduced (Guay 1999).

Investments generating free cash flow can lead to inefficient investment and value destruction on a much larger scale (Jensen 1986; Harford 1999; Blanchard et al. 1994) because of sub-optimal effort and excessive perquisite consumption (Jensen and Meckling 1976). The costly agency conflicts arise when managers controlling the investment decisions and cash flows have different 'divergent objectives' as compared to capital providers or shareholders. As the traditional methods of discipline are not so effective in project companies, the issue of separation of ownership and control is of paramount importance in project settings. The mechanism used to discipline managers of start-up firms as an opportunity for a liquidating event, such as an IPO or an acquisition (Baker and Montgomery 1994), and the threat of staged-financing with contingent ownership (Gompers 1995; Kaplan and Stromberg 2002) are less effective in the context of project companies.

Structured risk mitigation

In the case of traditional financing, the managers use the concept of raising the project's hurdle rate, based on past experience, by an arbitrary amount to obtain a new hurdle rate, commonly defined as creating the risk-adjusted rate of return. According to them, the increased returns compensate the firm for bearing a substantial risk. This approach can at times convert a potential sound investment into a negative NPV investment, resulting in the firm deciding against investing. The structural approach of project finance provides a better platform for overcoming such issues. The most important remaining risk associated with any investment, after risk sharing, is the sovereign or political risk—the risk resulting because of either direct expropriation in the form of asset seizure or creeping expropriation in the form of increased government payments resulting in decreased cash flows to capital providers.

The structural approach, in contrast with the increasing hurdle rate, uses the concept of paradox of infrastructure investment (Wells and Gleason 1995) and reduces the risk through careful structuring. In addition, the presence of high leverage in project finance makes it more costly for the host government to expropriate and thereby reduces the overall risk.

Reduced overall cost of financing

Due to the full recourse nature of a debt, one of the advantages of traditional financing is that the debt is available at a less expensive rate to those companies that have a proven track record and financial standing in the market. However, this advantage is often offset in project finance by the high leverage, which, on an average, is 70 per cent. Moreover, as project finance is dependent on highly contractual arrangements, at times, it is possible to increase the gearing ratio and obtain favourable terms on the debt agreement also. For example, in the case of toll-road financing, if the toll arrangement is based on annuity, the lenders may be willing to provide up to 90 per cent of the total cost as non-recourse debt, and, because of the secured and guaranteed nature of repayments, even the rate of interest can be lower than the normal project finance deals. These advantages are not available in traditional financing, because the lenders are not providing the funds to the project *per se* but to the company, and at times they do not even raise concerns related to the usage of funds.

Another advantage of using project finance method and a high gearing ratio is the reduced sovereign risk. In case a firm adopts traditional or conventional financing, it has a tendency of increasing the hurdle rate and accept those investments that provide sufficient returns. According to Wells and Gleason (1995), this approach increases the project's sovereign risk because the government may feel that the sponsors are earning exorbitant profits at the cost of society. The concept that high returns result in high risk is known as the 'paradox of infrastructure investment'. However, a highly leveraged investment in the project may result in the project being unviable, thereby forcing the government to rethink before deciding to expropriate the project. This can be best explained by the problems the Government of India is facing in the revival process of the Dabhol Power Company (DPC), which is assumed to be expropriated after the Maharashtra State Electricity Board (MSEB) decided not to honour the PPA signed between the MSEB and the DPC after a political shift in the state (Rangan et al. 2004).

1.7 DISADVANTAGES OF USING PROJECT FINANCE

Project finance has many advantages, but at the same time there are certain disadvantages associated with it. These disadvantages force the companies not to go for project finance, but have recourse to traditional finance. The main disadvantages are as follows:

Huge third-party costs

The project finance structures are very complex which result in huge third-party, up-front investments or dead-weight costs in various legal processes, which are required for designing and preparing the project ownership structure, loan documentation, and other contractual requirements. The financial advisors, selected to help structure the financing, normally charge advisory fees to the order of 50 to 100 basis points. These costs are incurred at the project development stage because of which these are not recoverable if the project fails to take off. In addition, at times, the feasibility studies may be conducted only to satisfy the other related parties that can increase the development costs.

Time-consuming process

Structuring a project-finance deal, involving many parties, takes considerable time as compared to structuring a corporate-finance or a traditional-finance deal. While in traditional finance, the deal is finalized by the internal team involving only a handful of people, in the case of project finance, the process of structuring the deal is unduly delayed because of the involvement of independent players, each one trying to safeguard his/her personal interest. This incremental delay not only affects the project's viability measures, such as NPV, and IRR, but may also result in missed opportunities.

Stringent covenants

One of the biggest disadvantages of project finance is the application of stringent covenants imposed by a number of parties involved to safeguard their interests. The covenants that largely affect the parties are (a) reduced flexibility in managerial decision-making and (b) disclosure requirements. The reduced flexibility is an outcome of the extensive set of operating and reporting requirements imposed on borrowers by the lenders. These provisions restrict the sponsor's ability to modify the design, admit new partners, dispose of assets, or respond to a large number of contingencies that invariably arise over the project's life. As a result, the firms are forced to delay their response to the lender's ever-changing demands and meeting environmental concerns.

The disclosure covenant requires the firms to disclose certain proprietary information about the deal to the lenders, which the sponsors may not feel comfortable with. The biggest problem lies in the syndicate loan process, whereby credit is provided by a group of banks by forming a consortium, which requires that all information be made available to all the members through the lead or mandate bank. The sponsors may force

the lenders to sign confidentiality agreements, since the potential for leakage will be high due to the number of parties sharing the information, as compared to traditional financing process.

In Exhibit 1.2, we give some sectors where project finance may work and may not work. Of course, we are of the opinion that it is all about the nature of assets. There are some assets that produce cash flows that have a guaranteed offtake (buyer). In such cases, the bankruptcy risks are not much and one can use debt-driven project finance. As a reader would infer from our illustrative risk, we give a suggestion to avoid project finance in sectors where the offtake is not guaranteed and the promoter may do well not to lose control on assets.

EXHIBIT 1.2 Sectors Where Project Finance may Work or may Not Work

Sectors Where Project Finance may Not Work

Manufacturing

- Where products are for domestic market only and/or multiple competitors and ease of entry into the market exists

Real estate/property

- Residential houses, hotels, theme parks, etc.

Mining

- Industrial minerals (where market = quality)
- Environmental issues

Pharma

- Low entry barriers

Consumer products

- Market is retail
- Telecom projects in roll out stage, which are vulnerable to dynamic completion, technology, and competitiveness issues

Sectors Where Project Finance May Work

Power

- Utility status and the presence of PPAs ensures cash flows
- Opex efficiencies from cogeneration/combined cycle power plants, especially from gas-filled plants also have low completion risk
- Repowering existing plants by adding gas turbines

Transportation

- Toll roads and airports

Telecommunication

- Fibre optic cable services and towers

Oil and gas

- Water treatment—If a contract is there with off-taker
- Mining—If quality and offtake are certain

We have laid the foundation, and now we need a deeper conceptual understanding of the complex world of project and big-ticket infrastructure finance. The key concepts are as follows:

- Infrastructure assets are large, risky, single-purpose, and stand-alone investments. The need for funds and expertise has brought in a lot of private sector investments, and thus started the PPPs, about which we will study in greater detail towards the end of the book. In the light of other long-term sources, both equity and debt, project finance bank loans have become critical for this sector.

- Private companies generally do not take these projects on their balance sheets. *For such capital-intensive assets, it is important for the sponsors to financially and organizationally make them distinct from their existing balance sheets.* The reason is that *bankruptcy remoteness* is critical to the development of such large assets for the existing debt and equity providers on the sponsor(s) balance sheets.
- The non-recourse aspect is thus prized for the sponsor, as it does not lead to contamination of existing balance sheet. However, non-recourse does not mean that the sponsor will also not give managerial and technical support to the project. For a lender it is critical to understand, that until the time the project does not pass the ‘completion test’ both physical and financial, the recourse should be limited to a contingent situation in amount, time, and event.
- Many a times, these large infrastructure assets work as ‘utilities’, which means at least theoretically their offtake (cash flows resulting from project) is guaranteed, as they are monopolistic in nature without many technological glitches.
- Therefore, in the case of a utility, a high leverage ratio may be justified. Debt funding has three advantages, a tax shield on the interest, increased discipline of debt (managers do not run amok because of debt covenants), and a lower cost of capital. Therefore, if you increase the debt–equity ratio, the cost of capital for the project decreases as cost of debt is less than equity and the projects are largely funded by debt. However, traditional corporate-finance theory says that because of increased bankruptcy costs as a result of higher debt, the cost of equity starts increasing at a higher rate. Now, herein, project finance is slightly different from corporate finance. If the cash flows are guaranteed, because the project works like utility, the direct and indirect bankruptcy costs are minimum. Therefore, the project vehicle takes the advantages of debt, while minimizing its disadvantages.
- In addition to this, project-financing structure allows for optimum risk sharing, allocation, and mitigation. On the one hand, though the lenders do not get tangible collaterals, the contractual structure and control on project assets and cash flows works like a second line of defence.
- Knowledge of the risks and the structures of project finance to handle risk is paramount for achieving the best deal for both sides.

CONCLUSION

To summarize, project finance is still in its evolving stage and has seen an exponential growth since the 1990s. The use and growth of project finance is considered a triumph of optimism over experience (Worenklein 2003).

How the companies finance an asset affects its value, which in turn suggests whether the asset should be financed. The authors do not suggest that the companies should start using project financing as a sole solution to all financing needs. In fact, they should consider adopting the new financing structures so that the objective of shareholder’s wealth maximization can be achieved. Companies should also try using project finance, if not already using it, for specific mega projects which, because of the amount invested, can have a material impact on the company’s earnings, debt ratings, and at times even their own survival.

Similarly, for projects in highly volatile areas, where the parent company is exposed to a high degree of political risks, such as war, strikes, terrorism,

sabotage, direct or ‘creeping’ expropriation, or currency inconvertibility, project finance would be feasible. Likewise, for proposed projects that are exposed to a high degree of legal risk in a country that does not have a sound legal system in place and as a result the company may not have the complete certainty of having recourse to a successful legal action undertaken (in case of a default), project finance would be ideal.

Lastly, a parent company planning joint venture with unknown partners, having weaker credit capabilities but otherwise sound technical expertise, in order to maximize the advantages of project finance, may benefit from project finance, thereby minimizing risks of exposure involved in these projects.

Before we actually go on and start giving you tips to appraise and value project finance bank loans, in the next chapter, we take a ‘time out’. We look at the sources of funds for project finance and try to comprehend as to how large the markets for project finance are.

✓ CONCEPT CHECK

- Project finance is an attractive financing alternative that enables project sponsors to shed risks to the banks or capital debt markets. To the owner or parent entity, the non-recourse aspect is prized, since it allows that company or group to go on to develop other projects—to become a serial developer.
- Knowledge of the risks and the structures of project finance to handle risk is paramount for achieving the best deal for both sides. A project financing deal requires a contractual bundle to allocate the risks and rewards among the involved parties in a manner that is mutually acceptable.
- This calls for a complete paradigm shift in project appraisal skills of the bankers from being a collateral/security-driven appraisal to cash flow and documentation-based assessment. Project finance is predicated on the necessity to provide for allocation and mitigation for each risk class.
- Risk in project finance is a matter of heavy negotiation and trade-off. Risk allocation is not just about allocating risk to ‘the party best able to bear it’. It is negotiated as far away as possible and mitigated in such a manner that it cannot spring back.

CONCEPT REVIEW QUESTIONS

1. Define project finance and differentiate it from traditional corporate finance.
2. In your opinion, what may be the nature of assets or sectors that can be funded using project finance. What are the sectors where project finance may not work? Can you list reasons for the same?
3. Clearly list out the key motivations and advantages of using project finance. What may be the disadvantages of using project finance?
4. What is meant by specialized lending? Can you list the types of SL?
5. Why do you think project finance may be an ideal vehicle to fund infrastructure sector? Can you cite a few live examples by your reading where a particular infrastructure asset is funded using project finance?

CRITICAL THINKING QUESTIONS

1. Given below is a list of ownership structures of project finance vehicles. Given that you now understand the advantages and disadvantages of using project finance, can you explain which ownership structure can utilize the maximum benefits of project finance as a funding technique the most (and why)?
 - Single-purpose corporate subsidiary (not SPV)
 - General or limited partnership
 - Limited or unlimited liability company
 - Joint venture
 - Undivided joint interest
 - Single-purpose, SPE
2. Clearly differentiate the following methods of financing a large-scale investment from project finance and give your reasons.
 - Secured debt
 - Subsidiary debt (debt taken on subsidiary balance sheet)
 - Asset backed securities
 - Vendor-financed debt (debt financed by vendors)
 - Lease finance
 - Commercial real estate finance
 - Project companies-holding company finance
3. Assume there is a capital expenditure of US \$10 billion. In Figs 1.2, 1.3, and 1.4, calculate the exposure that the parent company will have in these methods of financing. Make a comment about the risk exposure of the parent company in these alternative methods.

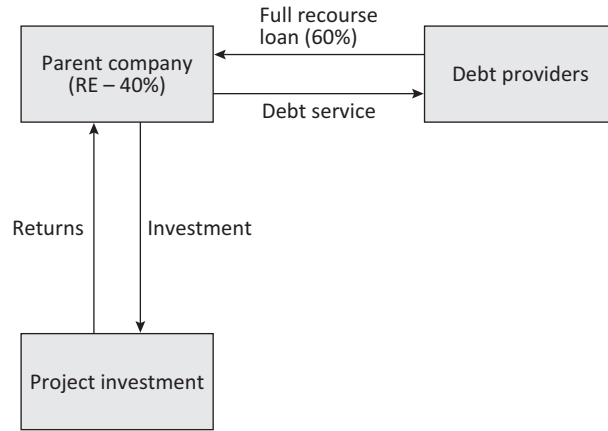


FIG. 1.2 Traditional Financing

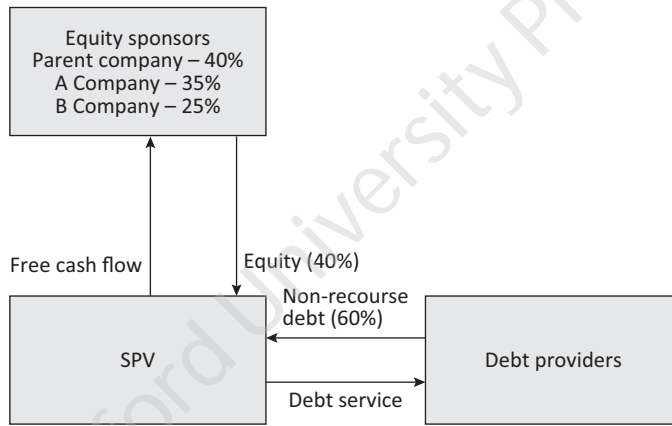
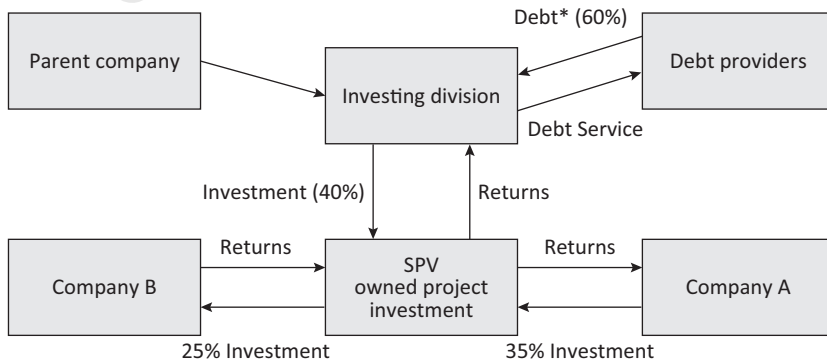


FIG. 1.3 Project Financing by Project



* Partial or non-recourse debt

FIG. 1.4 Project Financing by Division

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ADDENDUM

RBI Definition of Infrastructure Lending (RBI Circulars, 25 November 2013)

A credit facility extended by lenders (i.e., banks and select AIFIs) to a borrower for exposure in the following infrastructure sub-sectors will qualify as 'infrastructure lending'.

Category	Infrastructure Sub-sectors
Transport	<ul style="list-style-type: none"> • Roads and bridges • Ports • Inland waterways • Airport • Railway track, tunnels, viaducts, bridges¹ • Urban public transport (except rolling stock in the case of urban road transport)
Energy	<ul style="list-style-type: none"> • Electricity generation • Electricity transmission • Electricity distribution • Oil pipelines • Oil/gas/liquefied natural gas storage facility² • Gas pipelines³
Water & sanitation	<ul style="list-style-type: none"> • Solid waste management • Water supply pipelines • Water treatment plants • Sewage collection, treatment and disposal system • Irrigation (dams, channels, embankments, etc.) • Storm water drainage system
Communication	<ul style="list-style-type: none"> • Telecommunication (fixed network)⁴ • Telecommunication towers
Social and commercial infrastructure	<ul style="list-style-type: none"> • Education institutions (capital stock) • Hospitals (capital stock)⁵ • Three-star or higher category classified hotels located outside cities with population of more than 1 million • Common infrastructure for industrial parks, SEZ, tourism facilities, and agriculture markets • Fertilizer (capital investment) • Post-harvest storage infrastructure for agriculture and horticultural produce including cold storage • Terminal markets • Soil-testing laboratories • Cold chain⁶

¹Includes supporting terminal infrastructure, such as loading/unloading terminals, stations, and buildings.

²Includes strategic storage of crude oil.

³Includes city gas distribution network.

⁴Includes optic fibre/cable networks which provide broadband/Internet.

⁵Includes medical colleges, para-medical training institutes, and diagnostics centres.

⁶Includes cold room facility for farm-level pre-cooling, for preservation or storage of agriculture and allied produce, marine products, and meat.

Source: Reserve Bank of India