

Conceptual Framework and Recent Trends in Project Financing

Dr. Sunil Kumar¹, Dr. Ashish Kumar²

¹Assistant Professor, I.G.P.G. Regional Centre, M.D.University
 Meerpur, Rewari, Haryana, India
brightsunilkumar@gmail.com

²Assistant Professor, Sh. L.N. Hindu College, M.D.University
 Rohtak, Haryana, India
ashish_pri@yahoo.com

Abstract

Project financing is a non-recourse financing which provides leverage, contractual structure, creates a special purpose vehicle and considers the revenue generated by the project not the general assets of the business at the time of financing. Project financing technique is prominently used for mines, toll road, pipeline, power station, hospital and other infrastructure projects. Past studies show that the Public-Private-Partnership, Take-out Finance, Bond Finance, Securitisation, Viability Gap Funding, and Infrastructure SPV are the prominent project finance structures being used now a day. The foremost advantage of project financing is that it is a non-recourse financing which results in high leverage for the firms. It also helps in distributing the risk and provides efficient returns in comparison to conventional financing techniques. The shortcoming of project financing is that it is a time consuming process which is relatively expensive. Also, the transactions of project financing are very complex in comparison to traditional corporate financing. With the impact of privatization, deregulation and spread of globalisation project finance has emerged as a key financing technique throughout the world. A year wise analysis of the project finance investment shows that in the year 2004 project finance investment rose by 466.59% over 1994. Region-wise analysis of project financing in the world shows that Western Europe and North America contributed nearly 53% of the total investments in the year 2000 but it was reduced to 36% only by the year 2004. Sector-wise analysis shows that Power sector accounted for maximum project finance followed by Infrastructure, Oil & Gas, Petrochemicals and Telecom etc. The study further reveals that project finance is catching up steadily in India because of emphasis given to infrastructure given to infrastructure by the government. At present nearly 300 PPP projects are going on in the country.

Key words: *Project Finance, Public Private Partnership*

1. Introduction

Project Financing by Financial Institutions in India assumes significance in context of the fact that India is world's second fastest growing economy. To maintain the tempo of growth in the coming years, it is imperative to have an uninterrupted flow of funds to industrial and infrastructure sectors. The socio-economic development of any State can only be ensured by the adequacy and timely availability of funds, efficient and reliable financial system. Currently, Indian economy is flourishing at the rate of about 8 per cent per year and needs to be sustained over the next twenty five years, so as to eradicate poverty. To deliver a sustained growth rate of 8 percent through 2031-32, India needs to increase the project finance flow. Traditional methods for funding capital expenditure requirements such as corporate bonds, term loans, asset-based security funding, security funding, equipment leasing, venture capital and IPOs/FPOs are paving way for project financing because of its leverage effect.

2. Project Financing Defined

Project Financing refers to a non-recourse or limited recourse financing structure in which debt, equity, and credit enhancement are combined for construction and operation, or the refinancing, of a particular facility in a capital-intensive industry, in which lenders base credit appraisals on the projected revenues from the operation of the facility, rather than the general assets or the credit of the sponsor of the facility, and rely on the assets of the facility, including

any revenue producing contracts and other cash flow generated by the facility, as collateral for the debt (Hoffman, 2001). The concept of project finance is very simple, as it involves a capital investment on the merits of the asset's returns, but despite the simplicity of the concept, there is no definite definition agreed upon by the financial community. A financing of a particular economic unit in which a lender is satisfied to look initially to the cash flow 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 [Nevitt & Fabozzi (2000)]. Project financing is a term that typically refers to money lent to build power plants or oil refineries [Pacelle et al (2001)]. 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 [Esty & Sesia (2005)]. Standard & Poor's Risk Solutions (2002) states that "a project company is a group of agreements and contracts between lenders, project sponsors, and other interested parties that creates a form business organisation 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." Project finance is finance for a particular project, such as a mine, toll road, railway, pipeline, power station, hospital, which is repaid from the cash-flow of that project. Project finance is different from traditional forms of finance because the financier principally looks to the assets and revenue of the project in order to secure and service the loan. Unlike normal borrowing situation, in project financing the financier has no recourse to the non-project assets of the borrower/sponsors of the project. In this situation, the credit risk associated with the borrower is not as important as in an ordinary loan transaction; what are most important are the identification, analysis, allocation and management of every risk associated with the project.

2.1 Certain Accepted Indian Project Finance Structures

Following are the some prominent Project Finance Structures generally accepted in our country:

1. Public-Private Partnerships Finance Model & General Structures: Public-Private Partnership (PPP) is increasingly becoming an accepted model for developing and financing infrastructure projects in India. While the public sector faces the budgetary constraints and lacks required expertise, the private sector faces problems in land acquisitions, obtaining environment pollution, forests permits and other clearances from govt. offices, securing approvals from local authorities and overcoming inordinate delays caused by the central/state/local govt. authorities. Both public and private sector complement each other in facing these often daunting project impediments. Some of the structures under the PPP Finance model include - **BOO** (Build Own and Operate i.e. without any obligation to transfer) (Bangalore International Airport Limited is a good illustration of this model), **BOT** (Build Own and Transfer) (Large scale Indian Infrastructure projects use BOT model to access direct private sector funds), **BOOT** (Build Own Operate and Transfer), **BOR** (Build Operate and Renewal of concession), **BLT/BRT** (Build Lease/Rent and Transfer), **BT** (Build and Transfer), **BTO** (Build Transfer and Operate), **DBFO** (Design Building Finance and Operate), **DCMF** (Design Construct Manage and Finance), **MOT** (Modernize Own/Operate and Transfer), **ROO** (Rehabilitate Own and Operate), **ROT** (Rehabilitate Own and Transfer).

2. Take-Out Finance: It is an innovative technique which refers to the transfer of the project loan liability from one lending agency to another in order to receive better financial benefits and a suitable allocation of risks between different lenders.

3. Bond Finance - Sponsors and Developers have begun approaching the Indian bond markets for their borrowing needs. As the Indian capital markets mature, bond financing mechanisms could lower the cost of capital by creating the desired financing flexibility through different debt instruments.

4. Securitisation - Securitisation is a significant financing tool in the future in India. However, as

of now, it is not much popular. Nevertheless, companies have realised its potential benefits.

5. Viability Gap Funding - In a recent initiative, the GoI has established a special financing facility, called “Viability Gap Funding” under the Department of Economic Affairs, Ministry of Finance, to provide support to PPP infrastructure projects that have at least 40% private equity committed to each such project. Viability Gap Funding can take various forms such as capital grants, subordinated loans, O&M support grants and interest subsidies.

6. Infrastructure SPV - The GoI very recently provided for the establishment of a SPV to finance infrastructure projects in specified sectors such as roads, ports, airports and tourism. The projects will be appraised by an inter-institutional group of banks and financial institutions. The SPV will lend funds, especially long-term debt, to eligible projects.

Project financing is now a well recognised financing technique throughout the world. **Chen et al, (1989)** documented more than \$ 3 billion worth of project financings between 1987 and 1989 and identified 168 projects being financed on this format, including 102 projects for power production. Project financing can be used to finance the infrastructure requirement of the 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 like roads, electricity generation and telecommunication etc. The use of project finance is not a new concept in India but it has yet to spread its wings in the country stage. The use of project finance in our country goes back to the 19th century as the development of railways in 1880 was principally financed by private entities whose investments took the form of project finance (**Benouaich, 2000**). In the recent years the Indian government has realised that to develop the infrastructure in the country, they have to embrace the private sector through the Public-Private-Partnership (PPP). In the recent past the use of project finance has increased in India and it is not only used for infrastructural financing as for Dabhol Power Company (now Ratnagiri Gas and Power Private Ltd.), Noida Toll Bridge Company, but is being used by many corporate for financing their requirements as Reliance Petro Investments, the

SPV formed by Reliance Capital and Reliance Industries to bid for IPCL, Global Steel Holdings (GSHL), an SPV controlled by Pramod and Vinod Mittal of Ispat group, has acquired the Turkish Electric Arc Furnace (EAF) steel maker, etc.

3. Recent Trends in Project Financing

With the impact of privatization, deregulation and spread of globalization in the early 1990s, project finance emerged as key financing technique throughout the world (**Esty, 2005**). Up to very recently project finance was primarily used for mining and natural projects, has been used for new types of projects also. In developing countries, because of limited public funds, the governments decided to privatize the state-owned companies or infrastructure development. In India too, sovereign guarantees and counter guarantees at the Government of India and State government levels have been found to be woefully inadequate and difficult to implement in a range of infrastructure projects. Moreover, the respective Central and State governments have refused to burden their balance sheets with these security mechanisms. According to **World Bank study (2004)** on Public Policy for Private Sector, Private Infrastructure, from 1990 to 2003, investment in infrastructure projects with private participation in developing countries was \$890 billion. According to various publications of IFC on its supported projects, many developing countries have been benefited by project finance. The deregulation and globalization also forced the companies to look for new ways to raise funds to satisfy their capital requirements. Besides this, the scarcity of natural resources also forced the companies to look for untapped areas for development to overcome this problem. In this scenario, project finance industry witnessed growth since the beginning of the new millennium. It reached to all time high in the year 2001 but took a downturn in the year 2002 because of worldwide slow down. Projects which were exposed to market, currency and political risks licked the dust and many of them defaulted. The most significant being the defunct \$3 billion Dabhol Power Plant, which defaulted the payment in 2001. The impact of market, currency and political risk is responsible for non-performing assets by defaulted projects and had forced many participants viz. sponsors,

bankers and investors to leave the industry. But despite all these hiccups industry looks promising. From a meager investment of \$10 billion in late 1980s, it touched the mark of \$234 billion in the year 2004. In the year 2004 project finance investment rose by 36% over previous year and a rise of 466.59% over 1994. From 1994-2004, investments grew every year with the exceptions of year 1998 and 2002 because of Asian Crisis and Global Recession respectively. In spite of this the 5 and 10 yearly CAGRs for the investments were 8% and 19% respectively. **(Refer Table I)**

Region wise analysis shows that Western Europe and North America contributed nearly 53% of the investments in the 2000 but their relative dominance was reduced in 2004 as these two regions collectively accounted for 36% of the financing only. On the other side, Asia, Middle East and Australia & New Zealand contributed only 17% in 2000 and 46% in 2004. The 4 year CAGR was highest for Asia and Eastern Europe with 34% each, closely followed by Middle East with 31%.

(Refer Table II)

Sector wise assessment demonstrates that Power sector accounted for maximum project finance throughout the period from 2000 to 2004. The share of Telecom sector which was nearly 31.3% in the year 2000 got reduced to 6.3% only. Infrastructure and Oil & Gas sectors showed a rise of 76% and 142.9% from 2000 to 2004. However, project finance in Power and Telecom sector got reduced during the period from 2000 to 2004. Project finance increased by 163.47% and 326.83% respectively for Petrochemicals and Leisure & Property sectors for the said period. **(Refer Table III)**

4. Project Finance in India

Project Finance is rising steadily in India as well with the emphasis given to infrastructure by the government. The important mode of encouraging project finance in our country is Public Private Partnership (PPP). Development and use of PPP for delivering infrastructure services has now at least 11 years of precedence in India, with the majority of projects coming in line in the last 5 years. Policies in favor of attracting private participation as well as innovation with different structures have met with varying degrees of

success. Some sectors like telecommunications, power, and ports and roads, have done very good progress compared to limited success in other sectors. Some states have undertaken far more PPPs than others, and a much heavier use of PPPs in some sectors than others. Current status of projects in place states that there have been at least 450 PPP projects in the main sectors of focus where a contract has been awarded and projects are underway – in the sense that they are either operational, have reached construction stage, or at least construction/implementation is imminent. The total project cost is estimated to be about Rs. 2, 24,175.75 Crore (as on Nov. 15, 2009). (Source: Report of Department of Economic Affairs, Ministry of Finance, Govt. of India) **Table IV** provides a bird eye-view of the major PPP projects running in the country.

In India sector-wise project financing it has been observed that road projects accounts for 60% of the total number of projects and 45% by total value because of the small average size of projects. Ports though account for 10% of the total number of projects have a larger average size of project and contribute 30% in terms of total value. It is noteworthy that if ports and central road projects are excluded from the total, there is in fact a relatively small value of deal flow, at only Rs 55757.02 crore in basic infrastructure PPPs to date, suggesting a significant potential upside for PPP projects across sectors where states and municipalities have primary responsibility. Across states and central agencies, the leading users of PPPs by number of projects have been Karnataka, Andhra Pradesh, and Rajasthan, with 95, 63 and 49 awarded projects respectively and the National Highways Authority of India (NHAI), with about 77 projects. In terms of main types of PPP contracts, almost all contracts have been of the BOT/BOOT type (either toll or annuity payment models) or close variants. In terms of approach to provider selection, almost all the projects in the sample were competitively bid (either national or international competitive bidding) with the negotiated ones (through MOUs) primarily coming from the railway PPP projects, which is understandable given the lack of clear policy framework and standard contract still date. In terms of contract award method the International Competitive Bidding yielded 39% of total investment in India followed by

Domestic Competitive Bidding with 33%.
 (Refer Table V and VI)

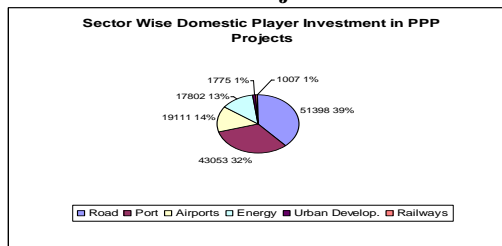
4.1 Domestic versus Foreign Private Players Participation in PPP Projects

Private sector targeted towards financing, designing, implementing, and operating infrastructure facilities and services that were traditionally provided by the public sector have been a success story so far with the Government of India leading the process of promoting Public-Private Partnerships (PPPs) in India. The Central Government is working with the State Governments and all other stakeholders to expand the horizon of PPPs in infrastructure development in the country. It has created a favourable atmosphere, provided fiscal incentives and facilitated funding of PPP projects. The Government now allows FDI in most infrastructure sectors to the extent of 100 percent.

4.2 Domestic players’ participation in PPP projects

On aggregate level the domestic players have dominated the PPP projects both in terms of numbers and investment, in a sample of 300 projects (made by Department of Economic Affairs, Ministry of Finance) 278 projects with investment of Rs. 134145.57 crore have been funded by domestic players. The road sector has dominated investment by domestic players with aggregate investment of Rs. 51,398 crore. The port sector with total domestic player investment of Rs. 43053 crore comes second and airports at Rs. 19,111 crore. The energy space that includes hydro based power plants is dominated by domestic private players Rs. 17,802 crore.

Graph 1
Sector Wise Domestic Players Investment in PPP Projects



Source: Ministry of Finance, Government of India

L&T is leading with a total investment of Rs. 3498 crore in road projects, followed by GMR Infrastructure with an investment of Rs. 1288 crore. In case of small road projects on BOT basis Sadbhav Engg. with investment in 11 projects with total investment of 2085.68 crore leads the domestic scene. The Delhi based DS Constructions Limited is second, with total investment of Rs. 320 crore. Mumbai based MSK Projects (India) Limited is third in terms of investment, with 15 projects and total investment of Rs. 238.84 crore. Among these three players they shared 30 projects out of 300 sample projects. (Refer Table IX)

4.3 Foreign player Participation in PPP projects

As per available records, foreign multinationals have equity participation only in 22 PPP projects in the sample of 300, where contracts have already been awarded and projects are underway. Malaysian companies are leading investors in public private partnership (PPP) projects in India, involving nearly six major infrastructure ventures. Followed by the United Kingdom with four projects, Mauritius (three), two each for France, Germany, United Arab Emirates and the Philippines, and one each for the United States and Switzerland.

Foreign equity participation of 27 foreign companies in PPP projects was only at Rs 1,725.85 crore which is meager 1 per cent of the total project investment. Prominent PPP projects where foreign companies have an equity stake include modernisation of Mumbai and Delhi international airports, Delhi-Noida toll bridge, Pipavav port, Bangalore international airports and JNPT container terminal etc.

Mauritius-based ACSA Global (Airports Company South Africa), for example, has Rs 160 crore equity stake in modernization of Mumbai international airport project. Apollo Enterprises from UK has equity stakes of Rs 48 crore and Rs 11 crore in Lucknow-Sitapur road project and Raipur Durg expressway respectively. (Refer Table VII and VIII)

4.4 Benefits of using Project Finance

This is a billion dollar question that why project finance be considered superior to other forms of traditional finance available in a particular economy. Understanding the fact that long term demand for capital and infrastructure is very strong and the present magnitude and growth clearly indicates that the future prospects of project finance are very strong and positive, therefore it becomes imperative for the financial managers, bankers, officials of government to learn the advantages of project finance and creating leverage by using the same. The main reasons for surge of project finance can be explained as under:

1. Distribution of risks - According to Bruner et al (1995), project financing is a way of distributing risk and returns more efficiently than under conventional financial strategies; those who have specialised ability to bear specific kinds of project risk are paid to do so. The use of project financing can help the companies to invest in risky projects which the company may have to forego because of the increased incremental distress cost. 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 case of project finance as it differs from traditional finance management strategies because it involves a change in organisation form rather than the use of financial instruments or derivatives (Esty, 2003). Project financing helps in hedging various kinds of risks. In project finance structures, specific contracts can be formulated in which the risk can be shared by other parties which specialise in the specific domain. By the 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 & Myres, 2003).

2. Investment opportunity for Leveraged firms - The highly leveraged firms have more trouble in financing attractive investment opportunities because of existing high fixed financial burden. The use of corporate debt as per traditional finance can further increase corporate leverage resulting in increased financial risk for the company resulting in a

failure to raise funds at all or at reasonable terms or cost, thereby forcing the investments being non-profitable to the firms and this in turn can lead to firms being vulnerable to underinvestment. But project finance allows the firms to preserve scarce corporate debt capacity and borrow more economically than it could otherwise. The use of secured debt can also reduce the leveraged-induced underinvestment by allocating returns to new capital providers (Stulz & Johnson, 1985). Project finance also provides the same result through separate incorporation and non-recourse debt (Berkovitch & Kim, 1990; John & John, 1991; Flannery et al, 1993). But the use of project finance is more effective in comparison to secured debt as the lenders of secured debt have residual claim on the corporate balance sheet and reduces the corporate debt capacity, while project finance eliminates all resource back to the sponsoring firms. John & John (1991) have developed a model based on the works of Myres (1977), which indicates that outstanding debt results in an underinvestment situation, thereby forcing the managers to pass up positive NPV projects in situations where the projects would operate to the benefit of the debt holders but to the detriment of shareholders. In that situation issue of new equity seems to be the only viable option for financing investment opportunities but this equity may be issued at a discount only to make it more attractive due to high financial risk and may even be turned down by 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.

3. Structured Solutions for Risks - In traditional financing, companies use the concept of raising the project's hurdle rate, based on the past experience, by an arbitrate amount to obtain a new hurdle rate, commonly defined risk adjusted rate of return (RAR). As per this criterion, increased returns compensate the firm for bearing additional risk. This approach sometimes results in rejection of a potential sound investment project since its NPV turns negative because of high cut off rate. The project finance structural approach provides a better platform for overcoming these 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 increasing hurdle rate, uses the concept of paradox of infrastructure investment (Wells & Gleason, 1995) and reduces the risk through careful structuring. The use of debt structuring and using carefully selected lenders can reduce the sovereign risk e.g. by incorporating IFC or any other multilateral agencies, which lend only to projects rather than corporations, in the lenders can force the government not to go for expropriation because future lending for the host nation may become a difficult task if any project financed with the funds made available by these agencies, is expropriated. Also because of the presence of leverage element in project finance it becomes costly for the host government to expropriate and thereby reduces the overall risk. In a project related decision a manager has to deal with large number of issues such as competitive strategy, business to government relations, marketing and sales strategies, ethical and social responsibilities etc. and all these issues, if not dealt with individually, can turn a profitable venture into a loss making invest exercise. Using a risk adjusted hurdle rate by adding a risk premium to the cost of capital may not offset the impact of these issues, but the structuring through project finance can address these issues individually and hence provide a better way to optimally take investing, financing and operating decisions.

4. Reduced cost of financing - In traditional financing the debt is available at a less expensive rate to the companies with proven track record and financial standing in the market, because of its full recourse nature. But this advantage is offset in project finance by the high leverage provided by it. Also as the project finance is dependent on highly contractual agreements, therefore it is possible to increase gearing ratio and obtain favourable terms on the debt agreement also; e.g. in case of toll roads financing, if the toll arrangement is based on annuity, the lenders are willing to provide as high as 90% of the total cost as non-recourse debt and because of the secured and guaranteed payments even the rate of interest can be lower than the normal project finance deals. These benefits are not available in traditional financing since the financing is made to the company not to the project.

5. Wide availability around the world - The major advantage of project finance is its world wide availability. Project Finance Debt is provided in many forms by hundreds of companies around the world. It is traditionally sourced from Investment Banks, Commercial Banks, Infrastructure Funds, Government Export Credit Agencies, Development Banks, Multilateral Agencies and Hedge Funds. As lenders become more comfortable with the nature of infrastructure project risk and the appropriate risk mitigation measures to address such concerns, a whole range of financing opportunities are available. Moreover, developing economies like that of India are giving top priority to infrastructural projects for which huge amount of funds are required. As, it is not always possible for government to supply funds to meet-out entire financing requirements plethora of project financing institutions have opened up to take benefit of such situation.

6. Free Cash Flow Availability - When a project is traditionally financed, the assets are considered as a part of the existing portfolio of income-generating assets and the free cash flow from the new project increases the internal cash flow of the company. This amount can only be utilized only after obtaining the consent of board of directors, appointed to safeguard the shareholders' interest. The use of project finance eliminates this consent requirement and the investors are free to invest this free cash flow as the project finance deals are structured off-balance sheet.

4.5 Drawbacks of Project Finance

Project Finance is a great solution to many funding requirements; however it does have several drawbacks. These drawbacks force the companies not to go for project financing but opt for the traditional finance. The main shortcomings of project finance have discussed below:

1. Complex Transactions - Project finance transactions are more complex than traditional corporate or public financing, typically involving many more parties and resulting in significantly higher transaction costs.

2. Time Consuming Process - Structuring project-finance deal, which involves many

parties, involves considerable long time as compared to structuring a corporate finance deal or traditional finance deal. In traditional finance, the deal is finalized by the internal team involving few members, while because of involvement of independent players, each trying to safeguard their interests delay the process of structuring the project finance deal. This incremental delay in time negatively affects the project viability measures such as NPV, IRR and PI etc.

3. Project Finance is Expensive - The complexity of project finance deal also makes them very expensive. The due diligence process conducted by lenders, legal counsel, and other technical experts results in higher development costs, with higher fees and interest margins than what is typically charged. In project finance lenders typically demand 150 to 500 basis points over the normal lending rate, depending upon the nature of industry, project type, location and maturity. In such a scenario, the firms prefer traditional financing because it is available at cheaper rate.

4. Protracted Negotiations - Negotiations on various aspects of the project are usually very protracted and may be quite contentious. This is especially true for road projects, which typically are politically sensitive, have high visibility and retains strong public interest and participation.

5. Stringent Covenants - One of the biggest disadvantages of the project finance is the application of stringent covenants imposed by a number of parties to protect their interests. These covenants are reduced flexibility in managerial decision making and disclosure requirements. Reduced flexibility in managerial decisions arises from the extensive set of operating and reporting requirements on borrowers imposed by lenders. The disclosure covenant on the other hand requires the firms to disclose certain proprietary information about the deal to the lenders, which the sponsors may not feel comfortable. The biggest problem being the use of syndicate loan process whereby the loan is provided by a group of banks by forming a consortium and the information has to be made available to all the members through the lead or mandate bank. The sponsors may force the lenders to sign the confidentiality agreements; the potential for leakage will be high as compared to orthodox financing due to the

number of parties sharing the information is higher.

5. Conclusions

Project finance is a relatively new, yet large and rapidly growing field of finance. Project finance has seen a growth since 1990s because of opening up of our economy and more importance given to infrastructure. The use and growth of project finance is considered as a triumph of optimism over experience (Worenklein, 2003). But this growth has been hindered by the recent difficulties in specific sectors and geographical areas and the failure of large projects such as Dabhol, Eurotunnel etc. The future of project financing looks bright as the world economy has improved and developing economies increasingly understand the importance of project finance in augmenting their economic development. In particular, firms use project finance to reduce costly agency conflicts and the opportunity cost of underinvestment in positive NPV assets. The agency cost motivation for using project finance recognizes the benefits of creating an asset-specific governance system to mitigate free cash flow problems and prevent opportunistic behavior. At the sponsor level, project finance helps reduce the investment distortions cause by debt overhang and incremental distress costs—the debt overhang and risk management motivations, respectively. The fact that the motivations for using project finance relate to the asset (agency cost), the sponsoring firm (debt overhang), and an interaction between the two (risk management), helps explain why previous attempts to create a single, universal reason for using project finance have failed. Understanding these various motivations explains why such a wide range of firms (from low rated firms trying to avoid the debt overhang problem to high-rated firms trying to minimize distress costs) use project finance for a variety of assets (from pipelines to mines to toll roads) in a variety of countries (from developed countries like the U.S. to developing countries like India). As the world is heading towards a global integrated market and the failure of governments as well as the demand for private capital in infrastructure projects is increasing, project finance will continue to play an important role in both developed and developing markets.

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TABLE I
PROJECT FINANCE INVESTMENT (YEAR-WISE) (US \$ BILLION)

Year	Investment	% change
1994	41.31	-
1995	63.88	54.64
1996	95.12	48.90
1997	138.54	45.65
1998	124.87	-9.87
1999	155.68	24.67
2000	213.40	37.08
2001	217.47	1.91
2002	135.36	-37.76
2003	172.10	27.14
2004	234.06	36.00

Source: Esty & Sesia Jr., 2005

TABLE II
PROJECT FINANCE BY REGION (US \$ BILLIONS)

Region	2000	2001	2002	2003	2004
Western Europe	33.61	37.35	23.36	29.40	25.69
North America	36.10	31.88	10.32	5.55	16.37
America S.	16.70	15.60	6.22	7.24	12.59
Asia	7.79	7.17	10.61	12.44	24.85
Australia & New Zealand	4.30	4.17	6.06	3.81	10.73
Middle East	6.25	8.28	2.75	6.50	18.56
Africa	1.56	2.97	1.54	2.72	2.69
Eastern Europe	4.59	1.06	1.32	1.90	4.96
Total	110.90	108.48	62.18	69.56	116.44

Source: Esty & Sesia Jr., 2005

TABLE III
PROJECT FINANCE BY SECTOR (US \$ BILLIONS)

Sector	2000	2001	2002	2003	2004
Power	44.59	47.26	20.20	24.07	35.26
Telecom	34.70	23.96	7.29	4.99	7.34
Infrastructure	13.36	11.28	14.20	15.18	23.51
Oil & Gas	9.27	8.83	6.44	9.03	22.52
Petrochemicals	3.34	3.90	5.71	5.88	8.80
Leisure & Property	1.64	6.53	4.76	4.44	7.00
Industrial	3.36	3.65	0.82	3.18	5.23
Mining	0.63	2.32	1.00	1.11	3.57
Others	0.00	0.76	1.75	1.69	3.21
Total	110.90	108.48	62.18	69.56	116.44

Source: Esty & Sesia Jr., 2005

TABLE IV
 MAJOR PPP PROJECTS IN INDIA

Sl. No.	Project Name	State Name	Sector	PPP Type	Contract Authority	Project Cost (Rs. Crore)
1	Modernization of Delhi International Airport	Delhi	Airports	LDOT	Airports Authority of India (AAI)	8,600
2	Hazira LNG Terminal	Gujarat	Ports	BOOT	Gujarat Maritime Board (GMB)	3,710
3	Kochi Metro Rail Project	Kerala	Urban Development	BOT – Annuity	Kerala Industrial Infrastructure Development Corporation	3,048
4	Vizhinjam Port International	Kerala	Ports	BOOT	Directorate of Ports, Government of Kerala	5,480
5	Development of an all-weather multipurpose port at Rewas	Maharashtra	Ports	BOOST	Maharashtra Maritime Board (MMB)	4,300
6	Modernization of Mumbai International Airport	Maharashtra	Airports	LDOT	Airports Authority of India	5,800
7	Mumbai Trans Harbour Link	Maharashtra	Roads	BOT-Toll	Maharashtra State Road Development Corporation Ltd (MSRDC)	4,000
8	Rewas Greenfield Port	Maharashtra	Ports	BOT-Toll	Maharashtra Maritime Board (MMB)	3,000
9	Teesta - VI power plant	Sikkim	Energy	BOOT	Sikkim Power Development Corporation	3,000
10	Teesta -III hydro power project	Sikkim	Energy		Sikkim Power Development Corporation	5,900

Source: Ministry of Finance, Government of India

TABLE V
 STATE-WISE DESCRIPTION OF PROJECT FINANCING IN INDIA¹

State	Total Number of Projects	Based on 100 crore	Between 100 to 250 crore	Between 251 to 500 crore	More than 500 crore	Value of contacts
Andhra Pradesh	63	1062.93	1554.27	3188.53	33473.7	39279.43
Bihar	2	4	0	418.04	0	422.04
Chandigarh	1	15	0	0	0	15
Chhattisgarh	4	70	304	464	0	838
Delhi	9	95	0	408.2	10374	10877.2
Goa	2	30	220	0	0	250
Gujarat	27	130.06	277.22	3360.9	14943.71	18711.89
Haryana	2	0	0	756	0	756
Jharkhand	6	131	550	0	0	681
Karnataka	95	980.39	1692.55	12203.31	24615.6	39491.85
Kerala	11	114	112	615.5	11131	11972.5
Madhya Pradesh	37	1027.32	1117.28	2694.95	2949	7788.55
Maharashtra	28	118.5	745.5	1099.84	32061.95	34025.79
Orissa	16	235.1	0	500	6888.34	7623.44
Puducherry	2	0	0	419	1867	2286
Punjab	19	537.26	434.72	572	0	1543.98
Rajasthan	49	523.92	783.79	833	3112.7	5253.41
Sikkim	24	175.59	558	2669	13708	17110.59
Tamil Nadu	30	143.31	555.6	6412.87	5340	12451.78
Uttar Pradesh	5	0	0	1458.57	649.21	2107.78
West Bengal	5	0	200	1214.4	641	2055.4
Inter-State	13	160.45	195	2294.67	5984	8634.12
Total	450	5638.83	9299.93	41582.78	167739.21	224175.8

Source: Ministry of Finance, Government of India

TABLE VI
 SECTOR-WISE DESCRIPTION OF PROJECT FINANCING IN INDIA²

Sector-Wise	Total Number of Projects	Based on 100 crore	Between 100 to 250 crore	Between 251 to 500 crore	More than 500 crore	Value of contacts
Airports	5	0	0	303	18808	19111
Education	1	93.32	0	0	0	93.32
Energy	24	175.59	558	2669	13708	17110.59
Ports	43	96	970	2440	62992.95	66498.95
Railways	4	0	102.22	905	594.34	1601.56
Roads	271	3162.5	5526.49	32861.87	60453.92	102004.7
Tourism	29	742.56	674.52	0	1050	2467.08
Urban Develop.	73	1283.86	1468.7	2403.91	10132	15288.47
Total	450	5638.83	9299.93	41582.78	167739.21	224175.8

Source: Ministry of Finance, Government of India

¹ Data pertains to PPP Projects

² Data pertains to PPP Projects

**TABLE VII
 DOMESTIC PLAYERS IN PPP PROJECTS**

Foreign Investor Versus Sector	No. of Projects	Investment	% of total project cost
Ports	9	416.5	24
Roads	9	256.22	15
Airports	4	1053.13	61
Total	22	1725.85	100

Source: Ministry of Finance, Government of India

**TABLE VIII
 FOREIGN VERSUS DOMESTIC INVESTMENT IN PPP PROJECTS IN INDIA**

Investor Type	Total Investment	% of total number of projects	% of total project cost
Foreign Investor	1725.85	7%	1%
Indian Private Investor	134145.57	93%	99%
Total	135871.42	100%	100%

Source: Ministry of Finance, Government of India

**TABLE IX
 SECTOR-WISE FOREIGN INVESTORS PARTICIPATION IN PPP PROJECTS**

Domestic players	Investment by private player (Rupees in crore)	Number of projects
Major domestic players		
Larsen & Toubro Transportation Infrastructure Ltd.	3497.95	10
GMR Infrastructure Ltd.	1287.98	6
IVRCL Infrastructure & Projects Ltd.	936.6	4
Small domestic players		
DS Constructions	319.42	4
Sadbhav Engineering Limited	2085.68	11
MSK Projects (India) Limited	238.84	15
Total	8366.47	50

Source: Ministry of Finance, Government of India