ROLE OF CAPITAL MARKETS IN GLOBAL INFRASTRUCTURE FINANCE

by

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Abstract

The purpose of this thesis is to examine the role that the capital markets can play in financing infrastructure in the developing economies. On the demand side for capital, governments in the developing world are unable to provide all the funds necessary to expand their infrastructure and sustain their economic growth. Other sources of traditional project funding fall also short of the capital required to support infrastructure development. On the supply side of capital, the size of long-term funds under professional management has been steadily growing. The drop in the US interest rates coupled with the desire for global diversification has increased the demand for alternative quality, high-yield fixed income securities.

The thesis starts with a brief introduction to project finance as a technique to deliver infrastructure facilities in the developing countries, and then goes on to discuss the various risks that investors face when buying project debt in cross-border transactions and the hedging strategies most commonly used to deal with this kind of risks. The main regulatory and market developments that led to the opening of the international capital markets to infrastructure debt financing are then presented and a detailed description of the risk profile of the project bond market participants is made. Finally, two of the most promising capital markets based project financing models are examined and the general guidelines in drafting a project debt agreement are discussed.

Financing infrastructure projects in the capital markets has a variety of advantages over commercial lending. Longer maturities, weaker covenants, fixed interest rates, access to a deeper and more diverse source of capital and in certain cases finer margins are the most important ones. Governments in the developing countries are increasingly recognizing the tremendous potential of capital markets financing and start to adopt policies aimed to create liquid domestic bond markets. But certain issues remain to be solved in order to take advantage of the full potential that capital markets can offer. The ability to pull together project lenders with different risk characteristics is probably the most important one.

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Vion Stefanakis

Cambridge, MA

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Chapter 1

Project Finance and the Demand for Infrastructure in the Developing Countries

Three types of financing instruments are generally used to finance infrastructure projects: a) equity capital, which comes in the form either of shares issued by the entity carrying out the project or of reinvested profits, b) debt capital which may take the form of loans provided by commercial and development banks or of bonds sold in the capital markets, and c) subordinated debt[1] which is unsecured debt, senior to equity capital but junior to senior debt. Infrastructure finance transactions are highly leveraged. As a general rule, only 25% of a project's funding comes in the form of equity or quasi-equity finance. The rest is secured debt.

Generally speaking, there are two principal ways in which debt capital can be raised by a commercial entity in order to develop an infrastructure project: a) through traditional corporate financing structures under which the lenders look to the cash flows and assets of the entity as a whole for the servicing of the interest and the repayment of the principal, b) through project financing arrangements where the lenders look to the forecasted cash flows of the project for debt repayment and to the assets of the project as collateral to the loan. In corporate finance schemes, where the lending institutions have full recourse to the assets of the company, the decision to lend or not to a project is based on the creditworthiness of the sponsoring entity as measured for example from the company' s past economic performance and the viability of its expansion plans. In project finance transactions where the creditors have no or limited recourse to the project sponsors, it is the financial viability of the project that drives the lending decision.

It seems awkward, at least in the beginning, why private lenders would prefer limited recourse to full recourse transactions. As we will see later on, the risk exposure of the lenders can subsequently be shifted through risk spreading mechanisms to the host government, the sponsors and any other interested third party. But those mechanisms although necessary are not sufficient for the successful development of infrastructure projects on a limited recourse basis. Deals with

[1] also known as quasi-equity or mezzanine finance

poor revenue projections cannot qualify for project finance even if the different parties devise risk allocation arrangements that enable them to decrease their risks and therefore increase their returns. Limited recourse financing is a financing technique appropriate only for projects that make sense from an economic point of view. A strong demand for the services and products of a project and consequently, the potential of earning lucrative returns, is at the end of the day the sole reason why private developers and lenders are willing to enter into a non-recourse transaction. Finally, before moving on, it is worth mentioning that the concept of project finance is not new. It was used in the nineteenth century to fund landmark construction projects such as the Suez Canal and the British railroads. In the 1930s project finance schemes were used to develop the Texas oil fields and more recently to exploit the North Sea oil reserves.

1.1 Objectives of the main players in traditional limited recourse arrangements[2]

According to Vinter "*part of the challenge of any project financing is trying to reconcile the different objectives of the various interested parties in such a way that each party, although possibly compromising its ideal position, nevertheless generally stands to gain if the project is completed*"[3]. It is therefore extremely important to understand the objectives of the different participants in a project finance transaction because it is these individuals goals that will set the agenda of the project documentation negotiations.

1.1.1 Host government

In general the role of the government is to protect and promote the public interest. In the case of infrastructure development the primary concern of any public policy is to provide better service to more people at a reasonable cost. More specifically, host governments will have at least some of the following objectives when considering the involvement of the private sector in infrastructure projects:

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[2] Based on:

Graham D. Vinter, Project Finance: A Legal Guide, Sweet & Maxwell, London 1995, pp. 1-5

[3] Graham D. Vinter, Project Finance: A Legal Guide, Sweet & Maxwell, London 1995, page 1

- *to reduce or even eliminate, whenever possible, the need to use the government's own funds or borrowings.* The fiscal constraints of highly indebted countries coupled with their colossal infrastructure needs have led to an increasing realization that the resources of the official sector that can be devoted to the development are simply too small and that the development of a modern and efficient national infrastructure network could not be carried out without the contribution of private capital, domestic and foreign.
- *to have adequate safeguards and assurances that the project will be completed within budget and on time and that it will operate properly and in the public interest.* Projects sponsored by private entities, and especially foreign ones, can sparkle hot political debates in countries where the government has played a traditional role in infrastructure development and where the public mistrusts the motives of the "profit oriented" private investors. Although it is generally accepted that the private sector is performing better in terms of construction costs and times and operation and maintenance services, in certain cases there have been allegations that these cost savings were not passed on to the end users. This is for example the case of the Dabhol project in India where the state government of Maharashtra criticized the power plant under construction for being too large and its electricity too expensive[4] or the case of the $1 billion Bangkok Expressway where the toll rates demanded by the foreign developers were deemed to be unacceptable by the Thai government[5].
- *to bring the project back into public ownership once the private sector has received an acceptable return on its investment.* Contractually-based relationships such as BOT and BLT concessions, involve relatively low political costs and require limited development of new or limited adjustment of existing institutional and regulatory structures. This is actually the main reason why an increasing number of developing countries, with a long tradition in centrally-planned economies, is using such contractual arrangements, instead of privatization, to develop initial experience with private provision of infrastructure services.
- *to be able to regain control of the project itself or to offer the ownership of the project to another private sector entity in the case where the original sector participants fail to provide the mutually agreed upon level of service or run into financial difficulties.*

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[4] Infrastructure Finance, August/September 1995, page 30

[5] Infrastructure Finance, August/September 1995, page 32

- *to transfer risk from the public sector to the private sector.* More and more government-owned enterprises are considering using project financing as a way of shedding financing and construction risks on smaller projects and operating risk as well on larger projects. But there are some limitations to risk transferability. Governments should retain those risks which are outside the control of the private sector, or to put it in more general terms, those risks that are less expensively borne by the government than by the private investors. On the other hand though, governments should make sure that the guarantees they provide will not reduce the incentives for the private sector to offer high quality services.

1.1.2 Private developers

The main objectives of the private entities promoting infrastructure projects on a limited recourse basis are the following:

- *to gain a satisfactory return on their investment.* Private sponsors provide the equity of the special purpose vehicle that carries out the project and they extract profits, at least in the traditional project finance structures, by way of dividends. But that is not the only way private enterprises can benefit from the promotion of a project. The sponsoring team usually includes contractors, equipment manufacturers and specialized operators who extract profits not only by investing in the project company but also by selling their products and services to it.
- *to share the risks in carrying out the project.* The risks involved in infrastructure investment, from the pre-development phase to the operation stage, are so great that simply cannot be assumed solely by the private sector or at least handled by it in a cost-effective way.
- *to carry out the project "off balance sheet".* Off balance sheet means that the debt portion of the financing, which on average accounts for 75 per cent of the total capital need, is not shown in the appropriate financial statement accounts of the private developer. According to the project finance schemes, the banks are providing debt capital not to the sponsor but to the project company, in which the sponsor has an equity interest and therefore any borrowings for the project are shown only in the consolidated accounts of the project company. This is extremely important for the sponsoring firms which can under such arrangements maintain a

satisfactory gear ratio and by doing so, are able to raise funds on the capital markets in favorable terms for their other business lines.

- *to retain control of the project for as long as possible in times of hardship*. The private sponsors would like, in order to protect their investment, to make sure in the project documentation that the host government and the lenders do not take control of the project at too early a stage.

1.1.3 Commercial lenders

The relatively risk-averse attitude of the banks towards project finance transactions is determined by the following three factors: a) banks typically fund the greatest part of a project's costs, b) they do not share any upside potential since they are entitled only to the repayment of their loans plus any accrued interest, c) they have limits on their overall risk exposure set by the world's banking regulation authorities. It is within that context that commercial banks seek

- *to assume only well-defined measurable risks*
- *to have control over key project decisions*
- *to take control of the project as soon as possible in times of hardship.* In the event of default or near default, the banks are extremely concerned about any statutory restrictions on the transferability of such rights as the right to own the project and its assets, the right to operate the project and the right to receive the revenues of the project.
- *to make profits by lending at attractive spreads and for attractive arrangement fees.*

1.2 Potential conflicts of interest

From the above description of the objectives of each interested party, it is clear that there may arise extensive conflicts of interest in any project finance arrangement. A critical one for the expansion of the infrastructure in the developing countries, where political and regulatory uncertainties come into play, is the need of the host government to finance any project off-balance sheet on the one hand, and the bankability of the project on the other hand. In certain cases governments want to minimize their participation in a project by transferring to the other parties as many risks as possible. One assurance that governments are particularly eager to shed off is the

convertibility guarantee, that is the assurance that there will be enough foreign exchange reserves to repay the foreign currency part of the project loan at any given time in the future. By giving the convertibility guarantee, the government is creating an obligation against its future foreign exchange reserves-the same obligation it would be committed to if it undertook the project directly and probably at a higher cost. If we take into account the whole range of assurances provided by host government, there would appear, at least at first glance, that there is no significant gain and therefore no pressing incentive for the government to aggressively seek private involvement in the infrastructure services sector. On the other hand it is obvious that private lenders have little control over currency convertibility limitations and thus they would rarely commit their funds to a project the revenues of which were nor easily or promptly convertible into the currency of the loan. This is a critical friction point between governments and potential creditors and an issue that should be resolved with good faith at the table of negotiations. Another much more basic conflict of interest refers to the case where the private investors seek to maximize their return on equity and the host government wants to minimize the cost of the services offered by the private enterprises. This is especially true in the power sector where the real cost of a project may be a large part of the local consumers' basic cost of living. It is important to mention here that the outcome of the risk allocation process is determined by the relative bargaining power of all the participants which ultimately depends on the demand for infrastructure capital and the availability of such capital. Currently the competition between borrowers is greater than that between capital providers (although the competition among the suppliers of infrastructure capital has intensified lately) which actually forces the developing countries to become increasingly receptive to private investors' concerns.
The last part of this introductory chapter reviews the pressing need for infrastructure in the developing world, while chapter three talks extensively about the new sources of private capital available to borrowers in the developing countries.

1.3 Demand for infrastructure

This section focuses on the demand for infrastructure in the developing world. It provides a) data regarding the participation of the private sector in the development of infrastructure in the

developing countries and b) estimates of the capital needed to meet the infrastructure needs of these countries.

The infrastructure approvals of the International Finance Corporation (IFC) provide a good indication of the involvement of private entities in the provision of infrastructure services in the developing world. The IFC which was established in 1956 to help strengthen the private sector in the developing countries, is one of the five organizations that collectively comprise the World Bank Group. In addition to its traditional role of providing debt and equity financing to private infrastructure projects(in the form of long-term loans, subordinated loans, direct equity investments, preferred stock and income notes), it also advises governments on the restructuring of their infrastructure utilities. The following table shows the number of infrastructure projects (new projects and privatization of existing facilities) approved by IFC as of the fiscal year 1995, their respective value and the Corporation's participation.

Table 1.1 - IFC infrastructure approvals - FY 1966-1995

Fiscal Year	*No. of Projects*	*Project Value ($ millions)*	*IFC gross ($ millions)*	*IFC net ($ millions)*
1966-87	7	517	81	78
1988	2	409	56	56
1989	6	704	149	109
1990	4	1,279	179	129
1991	6	1,103	206	153
1992	9	1,397	356	108
1993	17	3,838	804	396
1994	33	5,594	1,192	616
1995	28	8,025	1,692	698
Total	*112*	*22,866*	*4,715*	*2,343*

Note: IFC net is what IFC has provided in loan and equity for its own account. IFC gross is the sum of the IFC net and syndicated loans under IFC's B loan umbrella.
Sources: Financing Private Infrastructure Projects, Discussion Paper 23, IFC; Infrastructure Finance, October/November 1995, page 24

The above table illustrates the momentum of the private sector participation in the provision of infrastructure services in the developing countries. Another valuable source of information for the private infrastructure activity worldwide is the Private Infrastructure Project Database[6] which is under development at the World Bank. This database provides a comprehensive survey of private projects in the gas, power, telecommunications, transportation, water and waste sectors from 1984 and onwards. As of the end of 1994, it has covered 558 projects (privatization and new investment). New investment refers to BOT (Build-Operate-Transfer), BOOT (Build-Own-Operate-Transfer), BLT (Build-Lease-Transfer), ROT (Rehabilitate-Operate-Transfer), LRO (Lease- Rehabilitate-Operate) and other similar arrangements while privatization includes sales of assets to private investors, operation and maintenance contracts, management contracts and operating licenses. The average project according to the database was valued at about $0.5 billion, with some two-thirds of all projects valued at less than that. The total value of privatizations was about $200 billion and that of new investment over $100 billion. This implies that the annual investment activity of one type or another was approximately $30 billion per year for the last decade. Given the current trend for greater private participation in infrastructure, it could be safe to assume that private activity would at least be maintained at this level in the coming decade. The Private Infrastructure Project Database is actually tracking 788 potential projects comprising 168 privatizations worth some $70 billion and 620 new investments that could cost up to $340 billion. If we assume that the average project size will remain the same, then a $30 billion per year private infrastructure market implies 60 new deals per year.

Table 1.2 provides information on limited recourse infrastructure projects and privatization projects which were completed or are under active study in the developing countries. If we take a first look at the numbers of this table, it becomes apparent that much of the private infrastructure activity that will take place next decade, will be concentrated in East Asia and the Pacific Rim. Three countries in this region are the clear front-runners: the Philippines with 33 new private

[6] The database uses the following sources: Public Works Financing, Project Finance International, Euromoney, Privatization 1994, Middle East Economic Digest, World Highways, Infrastructure Finance, Project & Trade Finance, International Financing Review, Project Finance in Latin America, Pipe Line Industry, Le gaz naturel dans le monde, Pipeline & Gas Journal, Private Power Quarterly, Power in Asia, World Telecommunications Development Report, Telecom Markets, Telecoms Reports International, Eastern European & Soviet Telecom Report.

Table 1.2 - Actual and potential projects by country and sector (1984-1994) (continued)

	Gas		Power		Telecom		Transport		Waste		Water	
	Actual	Potential	Actual	Potential	Actual	Potential	Actual	Potential	Actual	Potential	Actual	Potential
Eastern Europe & Former Soviet Union	**4**	**4**	**6**	**13**	**28**	**14**	**5**	**30**	**4**	**1**	**4**	**1**
Albania	-	-	-	-	-	-	-	1	-	-	-	-
Azerbaijan	-	1	-	-	-	-	-	-	-	-	-	-
Belarus	-	-	-	-	1	-	-	-	-	-	-	-
Bulgaria	-	-	-	-	1	-	-	3	-	-	-	-
Czech Republic	1	-	-	2	1	1	1	3	2	-	2	-
Estonia	-	-	-	-	2	-	1	-	-	-	-	-
Hungary	-	1	-	1	4	2	2	6	-	1	-	-
Kazakhstan	-	-	-	-	-	-	1	-	-	-	-	-
Latvia	-	-	-	-	2	-	-	-	-	-	-	-
Lithuania	-	-	-	-	1	-	-	-	1	-	1	-
Poland	1	-	1	1	2	1	-	2	1	-	1	-
Romania	-	-	-	-	1	-	-	2	-	-	-	-
Russia	-	1	2	2	7	9	-	6	-	-	-	-
Slovak Republic	-	-	1	-	1	-	-	-	-	-	-	-
Turkey	1	1	2	7	3	1	-	3	-	-	-	1
Turkmenistan	-	-	-	-	-	-	-	2	-	-	-	-
Ukraine	-	-	-	-	1	-	-	1	-	-	-	-
Uzbekistan	-	-	-	-	1	-	-	-	-	-	-	-
Yugoslav Republic	1	-	-	-	-	-	-	1	-	-	-	-
Sub-Saharan Africa	**0**	**1**	**5**	**4**	**2**	**0**	**2**	**0**	**0**	**0**	**4**	**0**
Cote d' Ivoire	-	1	1	1	-	-	-	-	-	-	1	-
Gabon	-	-	1	-	-	-	1	-	-	-	1	-
Guinea	-	-	1	-	-	-	-	-	-	-	1	-
Guinea-Bissau	-	-	1	-	-	-	-	-	-	-	-	-
Mali	-	-	1	1	-	-	-	-	-	-	1	-
Mauritania	-	-	-	1	-	-	-	-	-	-	-	-
Mauritius	-	-	-	-	1	-	-	-	-	-	-	-
Senegal	-	-	-	1	-	-	-	-	-	-	-	-
South Africa	-	-	-	-	1	-	1	-	-	-	-	-

Table 1.2 - Actual and potential projects by country and sector (1984-1994) (continued)

	Gas		Power		Telecom		Transport		Waste		Water	
	Actual	Potential	Actual	Potential	Actual	Potential	Actual	Potential	Actual	Potential	Actual	Potential
Middle East & North Africa	**5**	**3**	**0**	**4**	**1**	**3**	**0**	**2**	**0**	**0**	**0**	**1**
Algeria	2	1	-	-	-	-	-	-	-	-	-	-
Bahrain	-	-	-	1	-	-	-	-	-	-	-	1
Iran	-	1	-	-	-	-	-	-	-	-	-	-
Gaza Strip/West Bank	-	-	-	-	-	1	-	-	-	-	-	-
Lebanon	-	-	-	-	-	1	-	-	-	-	-	-
Morocco	1	-	-	2	1	1	-	-	-	-	-	-
Oman	-	-	-	1	-	-	-	-	-	-	-	-
Qatar	-	1	-	-	-	-	-	1	-	-	-	-
Tunisia	1	-	-	-	-	-	-	-	-	-	-	-
United Arab Emirates	1	-	-	-	-	-	-	-	-	-	-	-
Yemen	-	-	-	-	-	-	-	1	-	-	-	-
East Asia & Pacific	**1**	**2**	**47**	**98**	**14**	**13**	**28**	**55**	**5**	**6**	**10**	**11**
China	-	-	9	48	4	3	7	27	-	-	2	3
Hong Kong	-	-	-	-	-	-	5	2	3	-	-	-
Indonesia	1	1	-	11	1	2	1	-	-	1	-	-
Laos	-	-	2	4	-	-	-	-	-	-	-	-
Macao	-	-	-	-	-	-	2	-	1	-	1	-
Malaysia	-	-	5	2	3	2	8	9	1	-	7	2
Philippines	-	1	29	25	2	2	2	4	-	2	-	3
Singapore	-	-	-	-	1	1	-	1	-	-	-	-
South Korea	-	-	1	-	1	1	-	-	-	-	-	-
Taiwan	-	-	-	-	-	-	-	2	-	-	-	-
Thailand	-	-	-	4	1	2	2	2	-	3	-	2
Vietnam	-	-	1	4	1	-	1	8	-	-	-	1
South Asia	**0**	**4**	**4**	**28**	**0**	**7**	**0**	**22**	**0**	**1**	**0**	**0**
India	-	2	2	13	-	6	-	14	-	-	-	-
Nepal	-	-	-	2	-	-	-	-	-	-	-	-
Pakistan	-	2	2	12	-	1	-	8	-	1	-	-
Sri Lanka	-	-	-	1	-	-	-	-	-	-	-	-

Table 1.2 - Actual and potential projects by country and sector (1984-1994)

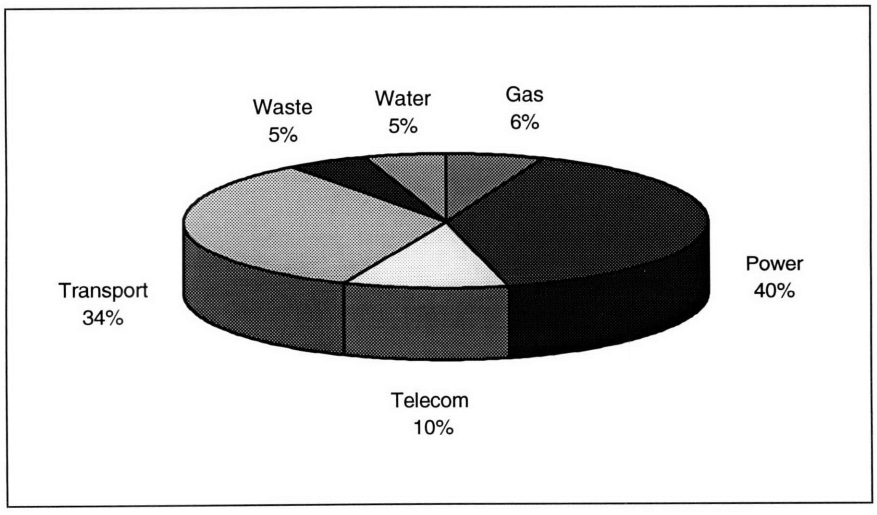
	Gas		Power		Telecom		Transport		Waste		Water	
	Actual	Potential	Actual	Potential	Actual	Potential	Actual	Potential	Actual	Potential	Actual	Potential
Latin America & Caribbean	**11**	**18**	**32**	**59**	**17**	**16**	**33**	**64**	**7**	**17**	**5**	**13**
Argentina	11	3	18	19	4	-	9	10	1	4	1	2
Bahamas	-	-	-	-	-	-	1	-	-	1	-	-
Barbados	-	-	-	-	2	-	-	-	-	-	-	-
Belize	-	-	1	1	1	-	-	-	-	-	-	-
Bolivia	-	3	-	1	-	1	-	-	-	-	-	-
Brazil	-	1	-	5	-	-	-	18	-	1	-	-
Chile	-	2	2	8	2	1	1	3	-	-	-	1
Colombia	-	6	2	7	1	2	1	5	-	1	-	-
Costa Rica	-	-	-	1	-	-	-	2	-	-	-	-
Dominican Republic	-	-	1	-	-	-	1	-	-	-	-	-
Ecuador	-	-	-	1	-	-	-	2	-	-	-	-
Grenada	-	-	1	-	-	-	-	-	-	-	-	-
Guatemala	-	-	1	-	-	-	-	1	-	-	-	-
Honduras	-	-	-	1	-	-	-	-	-	-	-	-
Jamaica	-	-	1	2	1	-	-	1	-	-	-	1
Mexico	-	2	2	4	1	8	18	8	6	8	4	6
Nicaragua	-	-	-	-	-	1	-	-	-	-	-	-
Panama	-	-	-	-	-	2	-	4	-	-	-	-
Paraguay	-	-	-	1	-	-	-	-	-	-	-	-
Peru	-	1	2	1	1	-	-	2	-	1	-	2
Puerto Rico	-	-	-	1	1	-	1	2	-	-	-	-
Trinidad&Tobago	-	-	1	-	-	-	-	1	-	-	-	-
Uruguay	-	-	-	-	-	-	-	2	-	-	-	-
Venezuela	-	-	-	6	3	1	1	3	-	1	-	1

Note: Actual includes new investment projects under construction, completed or operational and privatization projects which have finished bidding or negotiation or begun operation. Potential includes all projects under active study or at some stage of bidding or renegotiation

Source: The Emerging Infrastructure Industry: A 30 Billion Dollar Market, Private Participation in Infrastructure Group, Finance and Private Sector Development Vice Presidency, World Bank, January 1995, pp.8,9

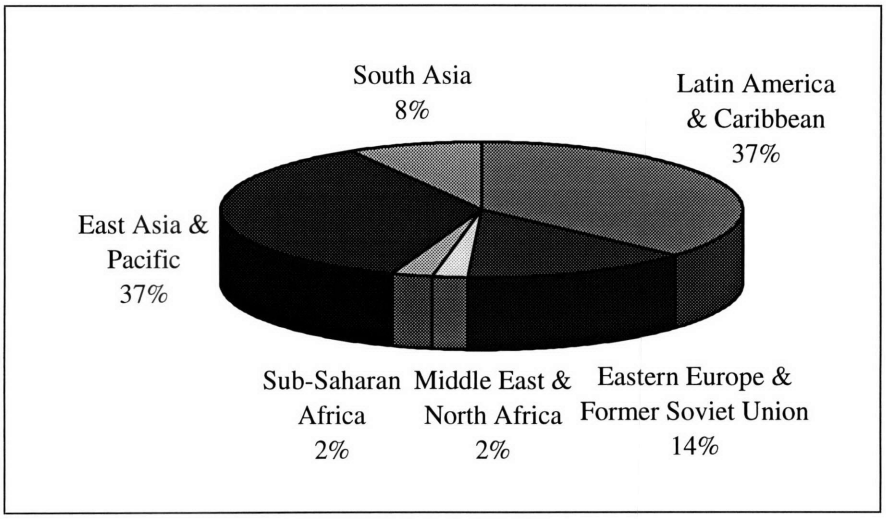
projects, mostly in power, Malaysia with 24 new projects mostly in transport and water treatment, and China with 48 projects in power and 27 projects in transport. In South Asia, where there is an urgent need for new roads and electrical power, India and Pakistan will dominate infrastructure investment. In Eastern Europe and the former Soviet Union there is a growing demand for transportation-related projects and improved telecommunication services. Russia and Hungary, accounting for almost 40% of the private infrastructure activity in the region, will be the pole of interest in the years to come in that region. In Latin America, where privatization activity competes with new investment (in contrast with Southeast Asia where new investment accounts for over 80% of the private sector capital flowing in infrastructure), the following countries seem to have the most potential: Argentina, Mexico, Brazil, Chile and Colombia. The favorite sectors for private participation in Latin America, as well as in the rest of the world, are the power generation and the transportation sectors. The following graphs show the distribution of the potential private infrastructure projects in the developing world by sector and region.

Figure 1.1 - Potential private infrastructure projects by sector



Source: Calculated from Table 1.2

Figure 1.2 - Potential private infrastructure projects by region



Source: Calculated from Table 1.2

The last table of this chapter is also the most important one. It quantifies the demand for infrastructure in East Asia for the next ten years and provides an estimate of the investment requirements in infrastructure in this region as a percentage of the GDP of the countries of the region.

Table 1.3 - Indicative investment requirements in infrastructure in East Asia, 1995-2004

	Power		Telecom		Transport		Water/ Sanitation		Total	
	$ billion	%GDP	$ billion	%GDP	$ billion	%GDP	$ billion	%GDP	$ billion	%GDP
China	200	2.0	141	1.4	302	3.0	101	1.0	744	7.4
Indonesia	54	2.7	25	1.3	62	3.1	20	1.0	161	8.1
South Korea	101	2.1	32	0.7	132	2.7	4	0.1	269	5.6
Malaysia	17	1.7	6	0.6	22	2.1	4	0.4	50	4.8
Philippines	19	2.7	7	1.0	18	2.5	4	0.4	48	6.8
Thailand	49	2.4	29	1.4	57	2.8	10	0.5	145	7.2
Other	25	3.1	18	2.2	14	1.7	4	0.5	61	7.5
East Asia	465	2.2	258	1.2	607	2.8	145	0.7	1,476	6.8

Source: Far Eastern Economic Review, April 6 1995, page 42

In the 1980's, even as the region's GDP soared on average by 7.8% per year, most countries invested only about 4% of their GDP in infrastructure, resulting in a shortfall of investment of as

much as 2-3% of GDP. It is the lion's share of that difference that domestic and foreign private investors are called upon to cover and it is the purpose of this thesis to show how the capital markets can step in, share the burdens of infrastructure development and contribute to the economic prosperity of the developing world.

Chapter 2

Management of Risk in International Project Finance Transactions

By their nature infrastructure projects carry a high level of risk. They involve long-lived assets with little value in alternative use, they demand their most important financial commitments to be made during the construction phase where a lot of uncertainties have not yet been resolved and since the greatest part of these commitments is in the form of debt capital their financing costs constitute a very high proportion of their available cashflow. This is why this kind of projects require a rigorous, structured and disciplined risk analysis. There are in general three stages to analyzing and managing risk: the identification of risk, the assessment of the severity of risk and the allocation of risk between the participating parties. The most critical phase in limited recourse arrangements is the last one. An efficient risk allocation process assigns each risk to the party that is best-equipped to handle that risk. A party well-equipped to handle a risk is a party that has the power to control or hedge the risk, the incentive to control the risk and the financial position to assume the risk. It is according to these guidelines that the project documentation should be drafted. The objective is to create a contractual framework that will reduce the overall riskiness of the project by enabling each participating party to achieve its preferred risk-reward profile. This chapter analyzes the main risk components of a project finance transaction and presents the spreading techniques most commonly used to distribute those components among all interested parties.

The risks in an infrastructure project can be classified by their nature as well as their timing in the project cycle. Three stages, with different risk characteristics and financing requirements, are typical: a) the development phase which is the riskiest one and therefore only equity capital from the sponsoring parties can be used, b) the construction and startup phase which is of high risk and requires large volumes of finance. Most of this finance is in the form of senior debt provided by a syndicate of commercial banks while the remaining portion takes the form of equity and subordinated debt contributions from the project promoters. c) the operational phase which is of

low risk and where construction debt can be expected to be refinanced by debt raised in the capital markets.

2.1 Development phase

During the development stage the prospective developers assess the project's scope, conduct technical and environmental studies and prepare preliminary cost estimates. The main risk at this stage is in having a project proposal rejected by a government agency (bid risk). This risk is assumed entirely by the project sponsors. Commercial banks are generally reluctant to provide seed money in the development phase because of the many uncertainties that the project is facing. It is worth mentioning here that an unsuccessful bid can be proved to be very expensive in terms of wasted evaluation and proposal efforts. In the case of certain large infrastructure projects in the developing countries, promoters can spend millions of dollars (in travel expenses, legal and other advisory fees) preparing a bid package which sometimes may take them more than three years to put together. Another development risk is that of a sponsor who is awarded a concession but is not able to mobilize finance. This is especially true for developers with a poor infrastructure track record or a limited financial base. In the latter case, credit can be enhanced through letters of credit issued on behalf of the developer by a merchant bank. Moreover some financial advisors are willing to provide their services on a success fee basis, thus sharing some of the development costs with the sponsors. Finally a project may delay getting off the ground because the host government is blocking the approval of certain important permits. In general, lenders will never commit non-recourse money to a project before all necessary consents are obtained. On the other hand, from the government's point of view, such bureaucratic and opaque approval procedures translate into extended development periods and excessive risk premiums built in the cost estimates of the sponsors bidding for the project. The general trend though is that, as developing countries acquire more and more implementation experience, the development time and the financing charges of their infrastructure projects will be diminishing.

2.2 Construction phase

The main risks during the construction of a project are the following:

a. Completion risk. This is the risk that the project will not be completed on time or at all. Delays in construction can significantly erode project returns. For example a 12 month delay on a $1 million project expected to yield a 15% rate of return over 10 years can lower that rate by a fifth assuming that the project has no salvage value. In general, lenders will not assume completion risk, so the burden is put on the project company. Typically, sponsors provide completion guaranties to protect the creditors. They undertake to complete the project within a certain period of time and to extend financial resources to cover all cost overruns due to schedule delays. Project sponsors negotiate then a similar contract with liquidated damages and bonuses provisions built into it, with the contractor.

b. Cost overrun risk. This is the risk that the project will not be completed within budget. Cost overruns are in most cases borne by the sponsors and contractors through fixed-price turnkey contracts. Sometimes though, lenders may be willing to provide additional funds especially if cost overruns can be covered by price escalation clauses built into the offtake contracts. Finally a third line of defense may be employed, via a standby credit facility.

c. Performance risk. This is the risk that the project will not be constructed according to the predetermined quality standards. Performance risk is assumed by contractors and equipment suppliers who guaranty a rate of minimum operating efficiency. In the case of a power plant for example, contractors and suppliers provide a heat rate (efficiency) guarantee, an environmental emission guarantee, a net output guarantee and a reliability guarantee of availability. Usually this kind of guarantees do not expire when construction is completed, but rather terminate after a period sufficient to ensure that the project will perform to specification (usually one year). Once these warranties lapse, the performance risk is transferred to the project operator and is mitigated through the operations and maintenance agreement.

2.3 Operation phase

Although many uncertainties have been resolved up to this point, there remains a number of risks to be addressed, the most important of which are the following:

a. Cost overrun risk. This is the risk that during the operation of the completed facility input parameters such as labor and raw materials will turn out to be more expensive than anticipated.

These risks are constantly monitored by cover ratios and are usually met by pass-throughs of the extra costs to the purchaser of the project's product or service.

b. Technology/ Performance risk. Technology risk is the risk of latent defects in a project that involves sophisticated unproved technology. Performance risk is the risk that operations and maintenance contractors will not meet certain quality standards. These risks are typically hedged via performance guarantees from supplier companies and bonuses and penalty payment provisions built into the O&M agreement. In both cases project sponsors should make sure that they feel comfortable with the credit risk of the equipment suppliers and project operators.

c. Fuel availability risk. This is the risk that over the life of the project there will be shortages in the supply of certain raw materials critical to the operation of the project or that the quality of the raw material supplied will fall short of the specified quality standards. This type of risk is encountered mainly in the development of power plants. In many developing countries, where the government controls the fuel supply through regulation or state-owned enterprises or in the case where such enterprises do not themselves have a creditworthiness commensurate with the obligations they are undertaking, sponsors and lenders seek a fuel availability guarantee from the host government. Such arrangements were put forward for example in the Hub power plant in Pakistan where the government assumed a substantial fuel supply risk through a performance guarantee provide by the Pakistan State Oil company and the Shajiao C project in China where the provincial utility was responsible for providing the thermal plant with the necessary quantities of coal throughout the life of the concession .

d. Equity resale risk. This is the risk that private investors will not be able to sell their shares in the project company upon the completion of the project because the secondary market for equity positions will be very limited. This kind of risk is of great importance in the current trend of financing infrastructure projects in the international capital markets. Equity investors are more and more looking for attractive capital gains rather than comfortable income streams. They want to turn around their capital as fast as possible and reinvest it in other high risk, high return projects. Liquid secondary markets enable investors to set the stage for successful exit strategies by allowing them to gradually sell off their ownership stake in a project. At this point of time though, where active markets in infrastructure shares have not yet been developed, certain project sponsors prefer to contribute capital in the form of subordinated loans and preserve the upside

potential of an equity position through stock warrants or stock conversion rights written into the credit agreement[1] .

e. Refinancing risk. In those cases where the construction financing is provided by one group of lenders and the long-term financing by another set of lenders, the construction creditors face the risk of not being taken out by the long-term creditors. Construction lenders can protect themselves by providing incentives to the project sponsors to arrange the long-term financing at the time of the construction loan, through escalating interest rates, additional sponsor guarantees and take-out requirements by the sponsors.

f. Market risk. There are two components in market risk. Price risk is the risk that the project may not meet revenue projections because of a decline in the market price of the project's output. Offtake risk is the risk that the demand for the services or the product of the project will fall short of the anticipated expectations. Market risks are difficult to mitigate in those cases where consumers can choose alternative services. Occasionally host governments absorb some of the market risk, either explicitly or by default. For example, in the case of toll roads, governments have shared traffic risk with project developers by guarantying a minimum level of traffic or by allowing an increase in the concession period if the traffic fell below an agreed upon level. If there is only one buyer of the project's output, as with many projects in the power and pipeline sectors, it is much simpler to hedge commercial risk. The market risk is passed on to the customer or purchaser who rely on the sale of the project's product through indirect guarantees such as take-or-pay contracts, take-and-pay contracts, through-put arrangements and hell-or-high-water agreements. Under a take-or-pay contract, the user of the project output agrees to buy a given part or all of the output regardless of whether the product or service is actually delivered. Through-put agreements are similar to take-or-pay contracts and are widely used in pipeline projects. They stipulate that pipeline users put a minimum amount of product through the pipeline and pay for the use of the pipeline irrespective of whether the stipulated amount of product is achieved. Hell-or-high-water agreements are the same as take-or-pay contracts but refer to leases. Under this arrangement the lessee guarantees to pay a rental fee for the facilities owned by the project company, come "hell-or-high-water". Finally under a take-and-pay contract, the customer

[1] Project sponsors have also another incentive to provide subordinated debt capital. Unlike dividends, the interest paid on the subordinated debt is deductible for income tax purposes.

agrees to purchase the output of the project but the obligation he has to make payments is conditional upon the delivery of the output. Notice here that with a single purchaser, market risk becomes payment risk. That is especially true in most developing countries, where that single purchaser is usually a public sector company which may not have the financial strength to meet liquidated damages for nonperformance. If that is the case private investors should ask the host government to guarantee the contractual obligations of the state-owned enterprises.

2.4 Ongoing risks

The ongoing risks can be classified in financial exposure risks, force majeure risks and business environment risks. The most important financing risk in any project finance transaction is probably the interest rate risk. Changes in interest rates can happen throughout the life of a project and can seriously affect the market values of borrowers and lenders. Coupon swaps are a convenient way to deal with interest rate risk. They allow financial institutions and corporations to better manage their assets and liabilities by enabling them to swap their interest payments into the coupon configuration of their choice. Coupon swaps are perhaps the most widely used long term interest rate hedging strategy (maturities range from 1 year to over 15 years). For shorter maturities Treasury bill and Treasury note futures contracts are used although by rolling over such contracts, it is possible to lengthen the time period over which interest rate risk can be hedged. Force majeure risks are risks that are beyond the control of the parties involved in the development of an infrastructure project. They include various kinds of casualty losses from events such as earthquakes, fires and floods and can be mitigated through a combination of insurance and contingency funds. Finally, the most significant business environment risks developers and lenders face in cross-border project finance transactions are the currency-related and country-specific risks. Since these types of risk determine more or less the financial closure of private infrastructure projects in the developing countries, it is worth examining in detail their sources and the mitigation strategies available to deal with them.

2.4.1 Currency-related risks

When we refer to currency-related risks we refer to one or all of the following risks:

a. *Devaluation risk.* Devaluation risk for a project generating earnings mainly in local currency is the risk that the local currency will devaluate relatively to the currencies in which the obligations of the project company are in and therefore the local currency earnings when converted into foreign exchange will be insufficient to service foreign debt and equity. Notice here that the devaluation risk refers to the net earnings of the project, not just its revenue. Adverse fluctuations in currency exchange rates over the life of the project, can dramatically affect not only the foreign exchange equivalent value of the project's outcome but also the cost of building and operating the project especially in cases where the foreign content of the turnkey contract and the cost of foreign spare parts during operation are very high. Another thing to remember is that, in general, currency depreciations lead to inflation and therefore increased revenues for the borrowing entity. This may temporarily alleviate the concerns of the project sponsors and creditors who nonetheless should never forget that inflated prices on basic commodities like electricity and drinking water can raise hot political debates in the host country and threaten the economic viability of the project.

b. *Inconvertibility risk.* This is the risk that the project entity will be unable to use its local currency revenues to buy the foreign exchange required to repay its debt and distribute dividends due to foreign exchange shortages. There are two ways in which host governments can block conversion. Either passively by allowing the central bank to accept such applications even if reality the bank is unable to effect the remittance or actively through the imposition of exchange controls or the declaration of a moratorium.

c. *Transfer/ Repatriation risk.* This is the risk that investors and lenders will not be allowed to repatriate their proceeds from the project although the central bank of the host country will notionally convert the project company's local currency into foreign exchange on its books acknowledging in a way its obligations to the foreign investors.

2.4.2 Political risk

a. *Expropriation risk.* This is the risk that the host country government will nationalize the assets or equity of the project company in an arbitrary or discriminatory manner or without the payment

of "just compensation", where the term just refers to a compensation that is "prompt, adequate and effective". Another kind of expropriation is the so called creeping expropriation where the host authorities are taking control over the project not by a single government act (outright nationalization) but by utilizing a series of hostile measures. It is worth mentioning here that when a government expropriates a project, it will sometimes continue to make timely interest payments to the project's creditors in order to maintain access to external financing.

b. *Political Violence/Force Majeure Risk.* This is the risk that due to political violence in the host country (war, revolution, insurrection, civil strife, terrorism, sabotage etc.) the project will be unable for a short time period (and in some cases for ever) to generate the cash flow needed to repay the debtholders and to make dividend distributions to the participating sponsors.

2.4.3 Regulatory risk

This is the risk that the host country government will take lawful actions such as the refusal of import licenses for foreign equipment, export restrictions, price controls and excessive taxation, that could render the project unprofitable. This is especially true for developing countries with centralized economies where the reliance on government-owned suppliers and purchasers heightens the risk of government interference detrimental to the project. The regulatory risks are considered to be greater than the risk of expropriation in a limbered recourse transaction because they involve government actions that in general do not consist violation of any international law. Therefore in the absence of an agreement between the project developers and the host country authorities which explicitly binds the government not to take certain regulatory actions against the project, the political insurers who provide expropriation coverage are not willing to insure risks related to changes in the regulatory regime of the host country. A good illustration of such a risk with a potentially significant adverse impact on the operating costs of a project, is the enactment of new, stricter environmental laws over the course of the concession. This is something private sponsors should always bear in mind when investing in developing countries with primitive environmental regulations where it is highly probable that more sophisticated environmental laws will be developed during the life of the project.

2.4.4 Legal system risk

This risk is of primary importance in the successful promotion of private projects in the developing world. In project finance, the contract is the king. Each limited recourse transaction need to be structured around a web of contracts and agreements which clearly define the rights and responsibilities of each party. Most developing countries have legal systems that are far less developed than those in the industrialized countries. Commercial laws governing contractual relationships under these systems tend to be less protective of private investor rights. For example in the case of the laws governing debtor-creditor relations, the civil law countries do not provide for security over inventory, receivables and other moveable assets as opposed to the common law countries where fixed and floating charges are available. Also many countries require the mortgages to be registered in local currency and which means that the value of the lender's collateral can be significantly eroded by depreciations. Finally certain countries place severe restrictions on the foreign ownership of a project, which make it impossible for the lenders to sell the project to a foreign entity or to designate a foreign operator for the project upon foreclosure. Yet in other cases foreclosure is not even a practical option. In India for example foreclosure may take ten years or longer of court proceedings. In Argentina on the other hand, where court proceedings are handled much more expeditiously, the costs related to such proceedings are so high that often render foreclosure an impractical remedy.
Another legal system related risk lenders and developers face in cross-border project finance transactions is the "enforceability" of the existing or newly enacted local laws. In many countries, the legal infrastructure is changing very rapidly in response to the initiation of privatization programs and the opening of the domestic markets to foreign investors. And because these developments are still in their infantry stages the domestic courts have not yet been able to build a comprehensive track record of enforcement of investor rights. This of course is a source of great uncertainty as to the legal environment the equity investors must operate in and the commercial lenders will encounter if they are ever compelled to enforce their rights.

2.4.5 Methods to deal with currency-related risks

It should be noted that although exposure to foreign currency is a major issue in any international transaction, it is particularly acute in project finance because of the lengthy time horizons and the maze of contractual agreements involved. That is why sponsors and lenders are constantly seeking

new and better strategies to mitigate the effects of currency fluctuations. Of course there is no single answer to this problem. The choice depends on the project, the country, the financial structure and the risk appetite of the developers and the lenders. The following are some of the most commonly used methods to overcome foreign exchange risks in international project finance arrangements:

a. Inconvertibility, Transfer Risk

- *Establishment of offshore escrow accounts.* When a project company is generating foreign exchange, offshore accounts can be created. Foreign exchange earnings of the project are deposited into these accounts and debt service payments to the creditors are made from the proceeds. In the Philippines for example where power purchase agreements have been partially denominated in US dollars, the state utility has in certain cases agreed to pay fees directly into an offshore dollar account[2] .
- *Foreign exchange risk insurance.* Certain multilateral organizations and national insurance and export credit agencies offer inconvertibility and transfer risk coverage plans. Some of the most well known institutions providing such programs are the Multilateral Investment Guarantee Agency (MIGA), the Overseas Private Investment Corporation or OPIC, the US Export-Import bank, the Ministry of International Trade and Industry (MITI) of Japan and the Export Credit Guarantee Department (ECGD) of the UK. The details of the pertinent plans of MIGA and OPIC are discussed at the end of the chapter. It must be noticed that the above insurers often cooperate in providing co-insurance or reinsurance for large projects (for example OPIC, MITI and ECGD co-insured lenders to a large fertilizer project in Bangladesh). Finally there is a small number of private insurers such as Lloyds, the American International Group and Citicorp who are willing to offer some protection against inconvertibility and transfer risk but their coverage is deemed to be too expensive and too short-term to be effective and therefore it is scarcely used.
- *Government support.* In those cases where a project is significant to the development plans of the host country, the host government may provide the project with preferential access to

[2] Baughman David, Buresch Matthew, Mobilizing Private Capital for the Power Sector: Experience in Asia and Latin America, Joint World Bank-USAID Discussion Paper, November 1994, page 27

foreign exchange reserves or at minimum agree not to discriminate against the project in providing foreign exchange to the project. For example in the landmark Hub power plant in Pakistan the private investors obtained foreign exchange insurance through a scheme offered by the State Bank of Pakistan, which is the country's central bank[3] . It is worth reminding here, that in this kind of arrangements investors should always assess the host country's foreign exchange reserve position in order to be able to judge the pragmatic value of the government's commitments and its ability to honor such commitments.

b. Devaluation Risk

The following are some of the most widely used strategies employed to address devaluation risks:

- *Payment in hard currency.* This is the best way to eliminate depreciation risk from the investors' and lenders' point of view. In certain developing countries where the sole purchaser of a project's output is usually a state-owned entity, the host government may guarantee that all or at least a substantial portion of its obligations to the project will be made in hard currency. Such guarantees effectively eliminate the exchange risk to the foreign investors, although there is still a possibility that hard currency will not be available in sufficient amounts. Examples of arrangements for payment in hard currency in the power sector are the coal-fired Pagbilao thermal plant in the Philippines, the 1,980 MW Shajiao C power plant in China and the gas-fired Mamonal power plant in Colombia[4].
- *Indexed local currency payments.* In those cases where the payment is made in local currency, investors can negotiate with the host government adjustment provisions in the concession agreement which link the project's tariff to a hard currency. If the local currency is devalued during the life of the project the project tariff is increased to compensate the developers and the lenders for the depreciation that occurred. Such arrangements were adopted in the Hub project in Pakistan, in the Rockfort plant in Jamaica and in the Puerto Quetzal thermal power plant in Guatemala[5]. A similar approach relies on the purchasing power parity to offset inflation differentials among countries. In these cases the payments made to the project in the local currency increase in accordance with the inflation index of the country in which the

[3,4,5] Baughman David, Buresch Matthew, Mobilizing Private Capital for the Power Sector: Experience in Asia and Latin America, Joint World Bank-USAID Discussion Paper, November 1994, page 27

project is located. Rising inflation could eventually lead to a weaker currency but the project would receive more local currency because of the indexing. And it is true that more often than not, host governments prefer indexing arrangements to arrangements that require payments in hard currency, because through such schemes they can compensate the project for depreciation without actually be obliged to draw on their scarce and hence valuable foreign exchange reserves.

- *Derivative instruments*. Derivative products offer a pretty flexible way to hedge currency fluctuations. For short term transactions investors can hedge their exposure by buying or selling forward, futures or options contracts. Options contracts are especially useful during a project's bidding stage when the developer to whom the concession will be awarded is not yet known. Unsuccessful bidders can let their options expire on the award date without having the obligation to purchase or sell the foreign currency in question. For recurring transactions, such as collecting revenues from an operating project, which expose currency for much longer periods, investors can enter either into long-date forward currency contracts or into currency swaps contracts in order to eliminate their foreign exchange risk. Finally investors can hedge their exposure by going directly in the appropriate currency derivatives markets or they can ask a bank to prepare customized hedges for them (e.g. second generation forward contracts such as the participating forward and the range forward contracts).

2.4.6 Methods to deal with political risk

a. Expropriation risk

Private investors adopt most of the time the following hedging techniques in their effort to overcome nationalization risk:

- *Political risk insurance*. Most of the multilateral organizations (such as MIGA) and bilateral institutions (such as OPIC, MITI etc.) that insure inconvertibility/ transfer risk, provide also coverage against unlawful governmental actions designed to compel project sponsors to abandon the project.
- *"Internationalization" of the expropriation risk.* That can be achieved by co-financing the project with multilateral or bilateral agencies or with a syndicate of prominent banks from a variety of capital-exporting countries. In these cases host governments will be reluctant to

take control over the project in an arbitrary manner because they would face the risk of loosing some of their most valuable sources of infrastructure capital.

b. Political violence risk

This kind of political risk is also covered from multilateral institutions and a number of OECD national investment insurers and credit export agencies. Project lenders in particular, should in addition to political insurance consider utilizing, an offshore collateral account with an appropriate debt service reserve to serve as a cushion against temporary disruptions in the repayment of the loans made to the project.

2.4.7 Methods to deal with regulatory risk

It is very difficult for foreign investors to hedge their exposure to changes in the regulatory regime of the country hosting the project. That is why they should identify the changes that could have the greatest impact on the economics of the project (such as tax increases and export restrictions), assess thoroughly the possibility that such changes would actually occur and try to obtain some kind of agreement with the host government to protect themselves against governmental actions that would seriously impede the project's profitable operation. For example changes to environmental or tax laws may be mitigated by providing that the project is to comply with the laws in existence at the time of the contract, or the costs associated with changes in law may be passed through in the underlying project contract. If foreign investors enter into such contractual relations with the host authorities, then the political risk insurers may be willing to agree that breaches of such agreements constitute expropriatory action from the part of the government and therefore insure developers and lenders against the regulatory risk. Another, more indirect way to mitigate or even prevent adverse regulatory changes, is for the project sponsors and lending institutions to co-venture with eminent host country partners and involve influential local financial institutions in their limited recourse transactions. Networking is extremely important, especially in developing nations where formal institutional structures do not exist. By developing personal alliances across all the levels of the administration and by maintaining friendly relations with key political actors foreign institutional and commercial investors can protect themselves against or at least timely react at adverse changes in the business environment.

2.4.8 Methods to deal with legal system risk

There is not a fully satisfactory way to mitigate the risk of doing business in nations where local legal principles are incompatible with principles that are viewed as commercially reasonable by investors and lenders. Foreign participants in project finance transactions usually prefer to have the laws of the US or the UK govern the project contracts because these laws are generally recognized as being the most protective of investors' and creditors' rights. On the other hand host nations often require that their laws govern all of their contractual relationships, despite any concerns that foreign investors may have about local law. What actually happens is that local courts and arbitrators, in many cases, do not recognize the choice of law provided in the project agreement as valid and apply the laws of the host country even if the participating parties have chosen a different governing law.

Another important issue, besides the choice of law, that foreign investors should also address is the provision of dispute resolution procedures in the project contracts. Such procedures are used to settle contractual disputes and must be in line with the rules of one of the established international arbitration bodies (e.g. the ICC, the UNCITRAL, the ICSID, the AAA etc.). Again, the ultimate enforceability of an arbitration judgment may pretty much depend on the participation or not of the host nation in a treaty that address the enforceability of arbitration awards. One of the most well known treaties coping with such issues is the 1958 United Nations Convention on the Recognition and Enforcement of Foreign Arbitral Awards (New York Convention). Seventy-three countries have signed this convention including China and the former Soviet Union. However, many Central, Latin and South American and Caribbean nations are not party to the New York Convention but are signatories to the InterAmerican Convention on International Commercial Arbitration.

Apart from the choice of law and arbitration forum, foreign sponsors and lenders should in all cases retain an expert local counsel who will guide them through the laws and the peculiarities of the host country's legal system. They should more specifically ask her to provide an assessment of the requirements or restrictions that may exist on foreign entities doing business in the host country, as well as an estimate of the taxes, duties and other charges that will be imposed to the project. Moreover she should be able of preparing a list of all the necessary permits, approvals and authorizations necessary for the construction and operation of the project and willing to assist

the lenders in determining what security the local law provides for, how the security is enforced (e.g. how foreclosure works and how insolvency operate under local law) and what are the costs of enforcement.

2.5 MIGA and OPIC investment insurance programs[6]

MIGA and OPIC offer the most comprehensive political risk insurance programs to private parties interested in investing in the developing world. Although MIGA is a multilateral organization and OPIC a bilateral agency promoting the American business interests overseas, the two insurers provide almost identical types and terms of risk coverage. Actually their insurance plans can be used, for the most part, as a representative guide of the services provided by the other major bilateral and multilateral insurers.

Multilateral Investment Guarantee Agency (MIGA)

MIGA was established on April 12, 1988 as the newest member of the World Bank Group. Pursuant to the convention establishing MIGA, the agency's mandate is to "encourage the flow of investments for productive purposes among member countries, and in particular in developing member countries, thus supplementing the activities of the International Bank for Reconstruction and Development (IBRD), the International Development Association (IDA), the International Finance Corporation (IFC) and other international development finance institutions"[7] . To this end, MIGA is empowered by its convention to "issue guarantees, including coinsurance and reinsurance, against non-commercial risks"[8]. Pursuant to this power, MIGA has established a political risk guarantee program which is designed to encourage foreign investment in the infrastructure of the developing world. MIGA's authorized capital is $1,082,000,000 and its membership currently includes 97 signatories. Since its establishment, MIGA has insured 11 private infrastructure projects valued at over $3.5 billion in countries such as Argentina, Chile, Jamaica, Honduras, Pakistan and Indonesia.

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[6] This section is based on information presented and material distributed by officials of MIGA and OPIC at the Forbes Magazine's Worldwide Infrastructure Partnership Conference held in New York in January of 1995.

[7,8] Article 2 of the MIGA Convention

Overseas Private Investment Corporation (OPIC)

OPIC began operation in 1971 and since then has been the key US government agency encouraging American private business investment in the developing countries and the newly emerging democracies. OPIC supports projects "that have a positive effect on the US employment, are financially sound and promise significant benefits to the social and economic development of the host country". It can assist US investors mainly through the provision of loans and loan guarantees and by insuring investments against a broad range of political risks. All of the Corporation's guaranty and insurance obligations are backed by the full faith and credit of the United States of America although OPIC itself has over time accumulated reserves of more that $2 billion.

2.5.1 Types of coverage

a. *Currency inconvertibility/ transfer.* This coverage protects against both the investor's inability to convert local currency (profits, principal and interest payments, returns of capital and other remittances such as royalties and technical assistance fees) into foreign exchange and the investor's inability to export foreign exchange from the host country. The coverage insures also against excessive delays in acquiring foreign exchange caused by host government action or inaction and by adverse changes in exchange control laws or regulations. Currency devaluation is not covered.

b. *Expropriation.* MIGA and OPIC insure investors against the risk that they will be deprived of their ownership of, their control over or their financial interests and rights to a project as a result of host government action directed at the them (outright nationalization, confiscation), or as a result of a series of such actions producing a similar cumulative effect (creeping expropriation). The coverage excludes losses due to lawful non-discriminatory regulatory actions taken by the host government and actions provoked or instigated by the foreign investors. For equity investments, compensation is based on the net book value of the insured investment as of the date of expropriation. For loans and loans guarantees, payment is based on the outstanding principal and any accrued and unpaid interest. In order to receive compensation, investors must assign all rights, titles and interest in the expropriated investment (e.g. equity shares or loan agreement) to the political risk insurer.

c. *Political Violence*. Political violence coverage protects investors against property and income losses from damage to or the destruction of tangible assets caused by politically motivated acts of war or civil disturbance in the host country, including revolution, insurrection, sabotage and terrorism. It is important to emphasize here that the acts of violence causing these losses must have been undertaken with the primary intent of achieving a political objective. Actions undertaken primarily to achieve labor or student objectives are not covered. To illustrate the difference between political and non-political goals, consider a strike against a plant called with the objective of obtaining higher wages. If the strike turns violent the investors are not entitled to any compensation because the act of violence did not serve any genuine political purpose. On the other hand, a protest against a dictatorial government led by students and labor activists which turns violent can lead to a compensable claim.

Political risk insurers usually provide two types of political violence coverage: assets coverage and business income coverage. Assets coverage compensates investors for loss or damage to their tangible property caused by political violence. Under this program, the compensation to which equity investors are entitled is based on the investor's share of the adjusted cost of the property damaged or its replacement cost, whichever is less. The adjusted cost is defined as the least of the book value of the asset, its fair market value at the time of the loss or the cost to repair it. For loans and loan guarantees insurers providing asset coverage will pay the insured portion of the principal and interest payments in default. The business income coverage compensates investors for income losses caused by political violence. Compensation under this program is based on what the project would have realized in net income but for the damage, plus the project's continuing, normal operating expenses that must be paid while the damage is being repaired. Certain insurers may also compensate for income losses resulting not only from damages to the project itself but also from damages to specific sites outside the insured facility that are deemed to be critical for the profitable operation of the project.

d. *Breach of contract*. This type of coverage protects equity against losses arising from the host government's breach or repudiation of a contract with the investor. This guarantee becomes effective only if the investor is denied access to an appropriate forum to adjudicate its claim regarding the breach within a reasonable time period or if he is otherwise denied the right to enforce a favorable judgment or award regarding the breach.

2.5.2 Eligible investments

MIGA and OPIC insure investments in new ventures or investment contributions associated with the expansion, modernization or financial restructuring of existing projects. Forms of foreign investment that can be covered include equity, shareholder loans and loan guarantees issued by equity holders. In the case of loans to unrelated borrowers, MIGA will insure project lenders only if the project sponsors are also insuring their equity investment. OPIC has a less restrictive policy on this issue. Project lenders can be insured even if the equity in the project is not being insured concurrently. Both organizations cover also other forms of investment, such as technical assistance, management contracts and franchising and licensing agreements. The maximum amount of coverage MIGA will issue for a single project is currently $50 million. For a specific country the aggregate coverage limit is set at $175 million. Of course these limits can be exceeded through insurance techniques, such as reinsurance, or through the operation of the MIGA Sponsorship Trust Fund under which one or more member countries finance the underwriting of MIGA's insurance policy for a specific project. In the case of OPIC, although there is no more a formal cap on coverage limits, the Corporation in general will not provide coverage in excess of $200 million.

2.5.3 Duration of guarantee

The maximum term of coverage that MIGA and OPIC are willing to accept is 20 years. For investments other than equity, the coverage term is generally set to be equal to the duration of the underlying insured contract (e.g. the duration of a guarantee for a 10-year loan agreement will be 10 years).

2.5.4 Extent of coverage

For each risk category, MIGA and OPIC can insure equity investments for up to 90 percent of the original investment contribution and can issue insurance commitments for an additional 180 percent to cover future earnings attributable to the investment. For loans and loan guaranties, MIGA will insure up to 90 percent of the principal and interest that will accrue over the term of the loan, while OPIC will, in the case of loans and leases from financial institutions to unrelated third parties, provide coverage for up to 100 percent of the principal and interest. The above

amounts constitute the maximum insurance (maximum amount of guarantee according to MIGA's terminology or the coverage ceiling or maximum insured amount depending on the type of investment covered under OPIC's terminology) available for the insured investment and future earnings under an insurance contract. There are other two related concepts that are of special interest for the determination of the premium base rates. The current amount of guarantee (or active amount or current insured amount) is defined as the amount of insurance actually in force during any one contract year. The standby amount of guarantee represents the reserve of insurance coverage that the investor may put into effect at each annual election of coverage to take into account changes in the value or amount of the investment that is at risk. The standby amount is derived by subtracting the current amount of guarantee from the maximum amount of guarantee.

2.5.6 Premium rates

Premium rates vary across different industries and types of coverage. The following table outline the premium structure of MIGA and OPIC as of January 1995.

Table 2 - Premium structure of MIGA and OPIC

Annual Base Rates per $1000 of Coverage (US dollars)

	MIGA		OPIC	
I. Manufacturing/ Services				
Type of Coverage	*Current*	*Standby*	*Current*	*Standby*
a. Currency Inconvertibility/ Transfer	5	2.5	3	2.5
b. Expropriation	6	3	6	2.5
c. Political Violence				
- Business Income	n/a	n/a	4.5	2.5
- Assets	5.5	2.5	6	2.5
d. Breach of Contract	8	4	n/a	n/a

II. Natural Resources				
Type of Coverage				
a. Currency Inconvertibility/ Transfer	5	2.5	3	2.5
b. Expropriation	9	4.5	9	2.5
c. Political Violence				
- Business Income	n/a	n/a	4.5	2.5
- Assets	5.5	2.5	6	2.5
d. Breach of Contract	10	5	n/a	n/a
III. Oil and Gas				
Type of Coverage				
a. Currency Inconvertibility/ Transfer	5		3	2.5
b. Expropriation	12.5	5	exploration-4 production-15	2.5
c. Political Violence				
- Business Income	n/a	n/a	4	2.5
- Assets	7	3	7.5	2.5
d. Breach of Contract	12.5	5	n/a	n/a

Source: MIGA-Investment Guarantee Guide; OPIC-FactsLine Document 7010

For loans to foreign private sector enterprises and for cross-border leases to private entities with an average life of three years or more, OPIC charges the following base rates per $1000 of coverage purchased across all sectors:

Institutional Loans and Leases

Type of Coverage	**Covered Amount**	**Undisbursed Principal**
a. Currency Inconvertibility/ Transfer	4.5	2
b. Expropriation	4-9	2
c. Political Violence	4-7	2

Note: Covered amount is the amount of disbursed principal plus accrued principal, less principal repaid today
Source: OPIC-FactsLine Document 7010

The base rates may be adjusted up or down depending on the risk profile of the project and the general economic and political conditions prevailing in the host country. They are paid annually in advance and generally are fixed for the life of the contract.

2.6 Conclusions

Project finance transactions are by their nature complex and risky. A number of creative techniques have been devised to manage the risks inherent in limited recourse arrangements. Although these hedging strategies have served their purpose well in domestic transactions, they are of limited value in international ones. The current state of the legal and business infrastructure in most developing countries and the need to manage assets and liabilities in different currencies add significantly to the complexity of cross-border limited recourse schemes. Again, a range of risk sharing mechanisms can be employed to overcome such difficulties. Purchase of insurance coverage from multilateral and bilateral agencies is a common way to address expropriation, political violence, inconvertibility and transfer risk. But not all kinds of risk can be mitigated through contractual based arrangements. Trust and mutual understanding between foreign investors and the host government is of paramount importance in any cross-border transaction. In the end, the most effective hedging technique is to develop a structure that allows each party to feel comfortable with the level of risk it is called upon to assume. A project from which every

participant has more to gain than to loose is the best way to maintain private investors interest in the project and to ensure government support.

Chapter 3

Capital Markets Based Infrastructure Finance

Project finance has gained new momentum with the participation of the international capital markets in the development of infrastructure facilities worldwide. According to Mr. Jacob Worenklein, head of global project finance at Lehman Brothers, the opening of the financial markets to project risk is one of the most important developments in the financing of infrastructure projects since World War II[1] . This chapter examines the reasons behind the involvement of the capital markets in limited recourse financing schemes, presents the risk characteristics of the new institutional investors and analyzes the most commonly used capital markets based financing models. It also discusses the need to develop the capital markets of the developing countries and presents the new project finance-tailored guarantee programs of the multilateral development banks.

3.1 Factors supporting the participation of the capital markets in project finance transactions

The opening of the capital markets to international credits stems from several fundamental forces relating to the availability of public debt and equity for project financing and the need for such capital.

i. Buy (supply) side[2]

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[1] Worenklein Jacob, Financing Major Projects through the International Capital Markets, Forbes Conference: Worldwide Infrastructure Partnerships, New York, January 1995, page 1

[2] In every capital market transaction there is always a buy and a sell side. In the context of project finance, the seller of project debt is the party in need of capital. He issues debt in the bond markets and uses the proceeds to finance the construction or operation of a project. On the other end of the transaction, the buyer is effectively supplying capital to the project by purchasing and holding the securities offered by the seller. The buyers of project debt, as discussed later on, are large institutional investors with long-term investment horizons while the sellers of such paper are companies set up with the sole purpose of carrying out an infrastructure project.

a. The search for higher yield coupled with the decline of interest rates in the US and other developed markets has increased institutional investors' demand for alternative classes of debt. Many high-yield investors have concluded that the securities of critical infrastructure facilities in certain developing countries offer a better risk-reward tradeoff that the one inherent to the securities of the typical high-yield issuers in the highly competitive markets of the industrial countries.

b. The pool of capital under professional management in 1992 has grown to a total of $14 trillion in just five countries (the US, the UK, Canada, Germany and France)[3] . In the US only the pension funds had investment assets of $4.5 trillion as of year-end 1993 while the assets of the mutual funds amounted to $1.4 trillion[4] . Most mutual funds, pension funds and life insurance companies have liabilities with long durations, and are willing to buy long-term fixed income securities such as project debt to hedge off their interest rate exposure.

c. Studies showing the counter-cyclical nature of international markets as compared with the US markets has led professional money managers to internationalize their portfolios in stock and bond funds[5]. By one estimate, almost two-thirds of the new money pouring into Latin America since 1993 have come from mutual funds while commercial banks have accounted for only 14 per cent of new foreign investment in the region during the same period[6].

d. The internationalization of portfolio holdings resulted in turn in a growing comfort of professional managers with international investing. Generally speaking the success stories which investors had internationally during the last several years has increased the availability of capital for international infrastructure projects (although there were also temporary setbacks in the flow of foreign capital to the developing world during the last two years).

ii. Sell (demand) side

a. The urgent need of the rapidly growing developing countries to sustain and promote economic development has increased the emphasis given to infrastructure investment.

[3,5] Worenklein Jacob, Financing Major Projects through the International Capital Markets, Forbes Conference: Worldwide Infrastructure Partnerships, New York, January 1995, page 3

[4,6] Infrastructure Finance, April/May 1995, page 17

b. The growing reluctance of the governments in these countries to increase the level of public debt has placed a great part of the infrastructure financing burden on the shoulders of the private sector and the multilateral aid agencies.

c. The poor lending experiences of the 1980's have limited the appetite of commercial lending institutions for project funding while stricter risk management regulations and growing funding demands have brought banks close or beyond their exposure limits for international project lending.

d. Insufficiently developed domestic private sector in most developing countries and primitive domestic capital markets which cannot not channel private savings to infrastructure investment in a few others, have contributed to a greater need for external financing.

The following two sections examine the major regulatory and market developments which enabled private sponsors in the developing countries (the demand side) to tap the international capital markets and especially the US institutional market which is the deepest investment market in the world (the supply side).

3.2 Rule 144A[7]

Rule 144A, promulgated by the US Securities and Exchange Commission (SEC) in April 1990, established a new quasi-public market for stocks and bonds in the US. It enables domestic and foreign companies to privately place debt and equity securities in the US with qualified institutional investors under reduced disclosure requirements. The intention of the legislators in adopting Rule 144A was a) to increase the liquidity of privately placed securities since till then the restrictions applicable upon the resale of such securities made the traditional private placement market very illiquid and resulted in high illiquidity premiums[8] and b) to increase the access of

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[7] Based on:

Roger Feldman, "Use of Rule 144A in Global Project Financing", Forbes Conference: Worldwide Infrastructure Partnerships, New York, January 1995

Peter Darrow, Nicole Bergman Fong, Paul Forrester, "Financing Infrastructure Projects in the International Capital Markets: The Tribasa Toll Road Trust", The Financier: ACMT, Vol. 1, No. 3, August 1994, pp. 9-11

Mark Kantor, "Asian Project Finance: Capital Market Offerings under Rule 144A", East Asian Executive Reports, Vol. 16, No. 9, September 15, 1994

[8] The increased liquidity of market 144A was one of the main reasons mutual funds started to buy project paper. Mutual funds are more yield-hungry than other buyers of project debt such as pension funds and insurance companies. They are more interested in the high yield aspect of infrastructure bonds than in the long maturities. If the market starts going down, fund

foreign issuers to the US capital markets. Since 1990 the size of the 144A market has grown exponentially and today is considered to be a major source of long-term capital[9] (144A bond issues typically have longer maturities than Eurobond issues). In the area of international project finance, Rule 144A allows foreign project entities to issue debt directly in the US institutional market. In December of 1993, the Subic Power Corporation, a subsidiary of Enron, was able to sell under Rule 144A $105 million of senior secured notes in the US bond markets to finance a 113.4-megawatt diesel-fired power plant in Philippines. This offering marked the first capital markets-based limited recourse financing of a private power project in any developing country and established Rule 144A offerings as an integral component of the financing plan of any infrastructure project in the developing world.

3.2.1 Mechanics of Rule 144A offerings

In a Rule 144A placement, an issuer will sell in a traditional private placement (in reliance upon Section 4(2) of the Securities Act or Regulation D adopted pursuant to the Securities Act), its securities to one or more investment banks/ underwriters which will then resell, in reliance upon Rule 144A, the securities to a larger number of "Qualified Institutional Buyers" (QIBs). A sale in compliance with Rule 144A must meet the following four basic criteria:

a. The securities must be offered and sold only to QIBs. A QIB generally is defined as an institution, acting for its own account or for the account of other QIBs, that in the aggregate owns and invests on a discretionary basis at least $100 million ($10 million in the case of US registered broker-dealers) in securities of unaffiliated companies, including securities issued or guaranteed by the US government. QIBs also include banks and other thrift institutions which have an audited net worth of at least $25 million. It is estimated that currently there are more that 3,000 QIBs in the US.

b. Securities offered under Rule 144A must not, when issued, be of the same class as securities listed on a US securities exchange or quoted in a US automated interdealer quotation system.

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managers want to make sure that they can exit the market by selling off their debtholdings. Rule 144A provided to the traditional private placement market the liquidity needed to set successful exit strategies and therefore significantly enhanced the attractiveness of project finance securities to institutional investors.

[9] According to Project Finance and Guarantees, a World Bank newsletter, over one-third of the total US borrowing is made in the 144A market.

c. The seller must take reasonable steps to keep purchaser aware that the seller may rely on Rule 144A for sale.

d. If the issuer is neither subject to the reporting requirements of Securities Exchange Act of 1933 nor exempt from reporting pursuant to Rule 12g3-2(b)[10] under the Exchange Act, he must make available, upon request to the holders of any privately-placed securities and any prospective purchasers the following reasonably current information: a) a very brief statement of the nature of his business and the products and services he offers and b) his most recent balance sheet and income statement, and similar financial statements for such part of the last two years he has been in operation (the financial statements should be audited to the extent reasonably available).

3.2.2 Remarks

a. A QIB that purchases project debt securities pursuant to Rule 144A can generally resell such securities only a) to another QIB pursuant to Rule 144A, b) in an "offshore transaction" pursuant to Regulation S or c) at the end of three years from the date of issuance of the securities, without restriction in the US over-the-counter market. Securities offered in compliance with Rule 144A cannot be sold to the general public in the US and cannot be listed on a securities exchange such as the New York Stock Exchange (NYSE) or quoted on a trading system such as the National Association of Securities Dealers' Automated Quotation System (NASDAQ). Such securities though can be traded on the Private Offerings, Resales and Trading through Automated Linkages system (PORTAL).

b. The registration procedure for Rule 144A offerings is much simpler than the clearance process applied to the SEC-register public market offerings. While the underwriting and deposit agreements are similar to those required in a SEC offering, the issuer in a Rule 144A offering is not asked to file a registration statement. Instead, he has to put together an offering circular which however does not need to be prepared in accordance with the US generally accepted accounting principles (GAAP) (although for marketing purposes the underwriters of the offering may need to

[10] Rule 12g3-2 provides an exemption from the periodic reporting requirements under the Exchange Act of 1933 for companies that furnish to the SEC information which is distributed to their security holders, or is publicly disclosed or filed with any local stock exchange in the issuer's home country.

have a US GAAP reconciliation), signed by the members of the board of directors of the issuer and filed with or reviewed by the SEC.

c. Simpler registration procedures lead to quicker execution. The elimination of extensive financial disclosure requirements in a Rule 144A offering results in substantial time savings as well as increased flexibility in the timing of the marketing of the offering (which in practical terms means that the issuer may be able to lock in a lower interest rate). However, if someone compares the time needed to properly structure a project finance arrangement with the time saved in a Rule 144A offering, it turns out that rapid execution is not after all so important. The great advantage of an issuance in compliance with Rule 144A over a SEC-registered public offering is low filing fees and less onerous ongoing reporting and accounting requirements associated with the offering.

d. Regulation S. A Rule 144A offerings within the US is often undertaken in conjunction with a similar offering in capital markets outside the US. Regulation S allows a company issuing project debt to reach institutional investors outside the US at the same time it sells its securities to QIBs within the US. According to the provisions of Regulation S initial sales and reofferings of securities occurring outside the US are not subject to the registration requirements of the 1933 Exchange Act provided that the offer or sale is executed offshore (in, on, or through the physical trading floor of an established securities exchange located outside of the US) and there are no "directed selling efforts" in the US.

3.3 Credit ratings for project finance[11]

The development of a moderately liquid secondary market for project debt among the QIBs has created the need of establishing project rating criteria that would communicate complex information on project credit risk to potential investors (bear in mind here, that certain institutional investors such as pension funds are allowed to invest only in investment grade securities). In response to this need, the Standard & Poor Ratings Group (S&P) developed in the

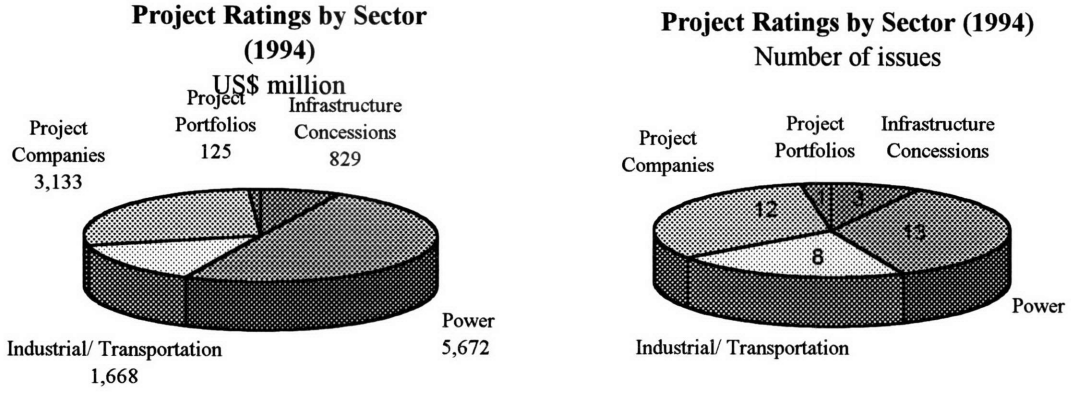
[11] Based on:

Thomas Connell, "Credit Ratings for Project Finance", Project Finance in Europe, Edited by Haydn Shaughnessy, 1995

Andrew Brooks, Curtis Moulton, William Chew, "Independent Power Project Finance Rating Criteria", Standard & Poor's CreditReview, March 1995, pp.35-43

early 1990s a set of consistent criteria for evaluating the credit quality of infrastructure projects. The establishment of widely accepted rating standards was one of the most critical step in cultivating a sustainable market for project finance debt since such criteria provided independent benchmarks against which projects could be assessed and project paper could be priced and traded. By the end of 1994, S&P has rated in excess of $11 billion in project finance-related debt issues, including registered issues, private placements and several Rule 144A transactions[12] . As the following graphs show, the majority of this debt has financed stand-alone independent power projects or has been raised as balance sheet debt by a number of companies engaged in the development and operation of such projects. Finally, although only a relatively small percent (33%) of the rated project debt involved projects located outside the US, this trend is expected to change in the future.

Figure 3.1 - Standard & Poor' s project credit ratings



Source: Standard & Poor's Creditreview, March 1995, page 16

3.3.1 Rating criteria overview

This section briefly outlines the analytical framework of the rating approach followed by S&P in assessing project credit risk. A credit rating from S&P is an opinion as to the likelihood that a borrower will fulfill its debt service requirements in a timely manner. Timeliness of debt service is of paramount importance in the case of projects seeking capital market funding. As we will

[12] Jeffrey Dunsavage and Matthew Korten, "Project Finance Trends in 1995: An Interview", Standard & Poor's CreditReview, March 1995, p.14

discuss in detail later on in this chapter, private bond investors have neither the willingness nor the ability to intervene in the management of a project that may run into operational difficulties. This implies that to draw on the capital markets, projects must function as passive investments. No active involvement on the part of the investor should be required after the project loan has been made. The limited ability of the institutional investors to become actively involved in project management is reflected in S&P's ratings which put more emphasis on the timeliness of debt service than on the ultimate recovery of the investment.

The criteria presented below refer to a generic project finance arrangement. Specific credit considerations will generally vary across the range of sectors to which project financing applies. Even within the same category such as power projects, the relative emphasis of different aspects of the criteria will be determined on a case-by-case basis. When assessing the credit quality of a project, S&P takes into account the following five fundamental factors: operating environment, project economics, contractual structure, technology risks, finances. The assessment of these factors involves the consideration of both objective evidence and informed judgment. The overall rating is based on the interrelationship of all factors.

a. Operating environment. The risks pertinent to a project's operating environment can be divided into two basic categories. The first one includes the broader risks of doing business in a particular country. The stability of the political regime, the strength of the local economy and the fiscal and monetary policies pursued by the host government can significantly affect infrastructure investment in the host country. The general economic and political risks of investing in a country are reflected in the country's own sovereign rating. The following table shows S&P's credit ratings for the long-term foreign currency obligations of certain developing countries that are of special interest in the area of capital markets infrastructure financing.

Table 3.1 - Standard & Poor's sovereign credit ratings[a]

Country	*Outstanding Rating*	*Outlook*
Argentina	BB-	Stable
Brazil	B	Positive

Chile	BBB+	Stable
Colombia	BBB-	Positive
Mexico	BB	Negative
Venezuela	B+	Negative
China	BBB	Positive
India	BB+	Stable
Indonesia	BBB-	Positive
Malaysia	A+	Stable
Pakistan	B+	Stable
Philippines	BBB	Positive
Taiwan	AA+	Stable
Thailand	A	Stable
Czech Republic	BBB+	Positive
Hungary	BB+	Negative
Turkey	B+	Stable

Source: Standard & Poor Ratings Group, CreditReview, March 1995

[a] Appendix A lists all the variables that S&P is considering when assigning sovereign ratings

When assigning ratings to infrastructure projects, S&P has adopted a "sovereign ceiling" policy. This policy simply recognizes the fact that the credit strength of any entity is circumscribed by that of the country's government and therefore does not allow ratings of project companies to be higher than the sovereign rating of the country hosting the project. Finally the second way the operating environment can affect the profitability of a project is through direct influence. The credit quality of a project can be significantly enhanced if the host government is supporting the project explicitly, by providing guarantees, or implicitly by adopting favorable policies towards the region where the project will be located or towards the industry to which the project is related.

b. Project economics. Project economics relate to the relative competitiveness of a project's cost structure and to other long-term cost and pricing considerations. The idea here is that the cost of

a project's output, which directly depends on its cost structure, is an essential factor in the buyer's, user's or even host government's commitment to the project and eventually to the ability of the project company to timely repay its debt. Of course, low costs for offtakers must be balanced by appropriate profitability for sellers. Competitively priced output does the purchaser little good if it is achieved only at the cost of driving the seller out of business. The use of a highly efficient technology, the acquisition of a site at a level below current replacement costs or contractual agreements providing protection against adverse market price movements of key input variables can all contribute to a more competitive cost structure. S&P is looking at the different cost components of a project as well as its overall cost structure in order to ascertain the exposure to market pressures that may occur in varying circumstances. More specifically, it tries to identify those market conditions under which the project output will no more be economical to the offtaker. If such market conditions prevail at some point in the future, then the offtaker will have a very strong incentive to minimize his payments to the project, no matter how strong his legal obligations may be. Finally, the last step in assessing the overall attractiveness of a project, is to compare its cost structure with that of other projects in the same sector or even in sectors providing competing services[13] .

c. Contractual structure. This concerns mainly the analysis of the project participants and the way contracts allocate risks among them. S&P is evaluating the financial strength and the track record of the different parties involved in a project in order to assess their ability to fulfill their contractual undertakings. Equity positions from various related parties show long-term commitment to a project and can significantly enhance its overall credit strength. In certain industries, such as the power production sector, where there are very few or even just one offtaker of the project output, the credit quality of a project is linked to the ability of the purchaser(s) to meet its(their) contractual obligations. The creditworthiness of a purchaser is reflected in its own credit rating. Typically, the project's debt is rated lower than the offtaker's debt because a project faces risks above and beyond the offtaker's credit risk (e.g. risks associated with technology, operation, very high debt leverage etc.). In certain exceptional cases though, a

[13] For example, in the case of a natural gas project, S&P will take into the competition from other gas suppliers, oil suppliers and hydroprojects before determining its credit attractiveness.

project's rating can be higher than the purchaser's bond rating. For example, a strategic and reliable project, with very low costs, in a market with high and rising costs could recover any revenue losses resulting from a contract default by the principal purchaser by selling its product to the wholesale markets. If the project on the other hand, depends not only on one purchaser but on a dispersed set of users, such as motorists crossing a bridge, or a community paying user fees for water services, S&P will evaluate the overall economic strength of the region when assigning project ratings. Finally, it should be mentioned that when analyzing the contractual framework of a project, S&P's emphasis is not on the contents of any particular contract taken into isolation, but on the ability of the project contracts taken together to preserve project operating margins across the spectrum of future contingencies.

d. Technology risk. Technology risk is assessed in terms of construction and operating risk. Construction risk is mainly the risk that the project will not be finished on schedule and within budget. When assessing construction risk, S&P's analysts look at the following three factors: the technical requirements and complexity of the design; the construction capability, experience and financial strength of the project contractors; the level of guarantees and sureties provided by the contractors or third parties and the capacity to perform on these obligations. Operating risk is the risk that the operating performance of the project will fall below the expectations assumed in the financial projections. Notice here, that even with sound project design and construction methods, operating and maintenance practices can significantly affect the performance levels of a project. Operating risk varies a lot depending on the type of technology used and the specific application in which this technology is employed. It also changes over time. While initial operation on most projects give a good indication of what the long-term operating performance is likely to be, some of the most important operating problems that projects encounter may occur only after accumulated years of operation. This is the reason why S&P, in evaluating the operating risk, does not take into account only the project's strategy for controlling and managing this risk but furthermore looks at the operating experience that projects of same technology had worldwide. Finally, the technology risk assessment process also includes an evaluation of the operator's experience and performance record in comparable facilities, an appraisal of the level and duration

of the guarantees provided by key equipment suppliers and an examination of the conditions of payment under these guarantees.

e. Finances. S&P's financing analysis looks first of all at the capital structure of the project company. Adequate capitalization is, in most cases, essential for a project to qualify for an investment-grade credit rating. The chief function of equity is to give owners incentives to stay in the project if problems should arise. The actual level of equity needed depends on the overall riskiness of the project. For example, highly capital-intensive projects that may involve a new, unproved technology are expected to be financed with a high layer of equity. Lenders in such cases will be reluctant to make any capital contributions to the project if a great equity cushion is not readily available and the project may never take off. Sometimes sponsors prefer to have their equity stake in a project in the form of subordinated debt. This kind of investment can be qualified as equity for S&P's purposes only if the subordinated bondholders relinquish all rights as to payment and ultimate recovery to the senior debtholders (e.g. there should not be any options features attached to the subordinated debt or the holders of such instruments should not be allowed to vote in the event of deferral of payment). Finally, another positive rating factor is the ability of the project sponsors to raise equity in order to fund any unexpected capital needs.
In addition to an evaluation of the capitalization of the project, S&P's analysts, when assessing credit quality, examine very carefully and the different provisions of the project's financial documents. The following are certain terms and factors that enhance project credit quality: withdrawal of any ownership equity should be conditional upon the maintenance of certain cashflow coverage ratios; the project structure should allow additional uses of funds only in a very limited and clearly defined number of cases; sales of assets or ownership interests should be precluded or be subject to lenders' approval; the level of liquidity provided in reserve accounts should be in line with the overall riskiness of the project and its capacity to adjust its revenues to cover anticipated costs. According to S&P's experience, project should maintain capital reserves equal to at least six months' debt service in order to receive investment-grade credit rating (reserves must be funded up front or at least within a fairly short time frame). Another key credit assessment factor is the availability and adequacy of the insurance coverage purchased. Asset coverage and business interruption insurance are considered to be a standard requirement

although the extent of the coverage depends on the perceived riskiness of the project. According to S&P's analysis, insurance will contribute to the credit strength of a project only when it is written by a carrier whose S&P claims-paying rating is at least investment grade and the carrier's claims payment process provides for timely coverage of cash shortfalls.

Finally, S&P's analysts evaluate the forecasted project cashflows with the key consideration being the level of certainty that revenue will be adequate to fund operations and maintenance expenses as well as total fixed obligations such as lease payments and interest on debt. S&P's cashflow coverage analysis concentrates not only on the coverage level indicated by the financial projections but also on the quality of coverage since high coverage levels from relatively uncertain revenue sources provide no greater basis for credit strength than lower levels of coverage from sources of lower relative risk. The analysis considers risks in each major revenue and expense account in key variations of base-case assumptions. Usually the sensitivity analysis focuses on such key variables as output and input prices, operating availability and output levels. In the case of projects financed with floating rate and foreign currency debt S&P considers also potential exposure to adverse interest rate and exchange rate movements.

3.4 Emerging financing models

Till 1990, when the Rule 144A was adopted, commercial banks were the only private organizations providing construction lending and longer-term financing. After the opening of the capital markets to project finance, a much deeper but fundamentally different class of investors was brought into play. There are two key differences between institutional investors, such as life-insurance companies and pension funds, and commercial lending institutions. First of all, institutional investors have much longer investment horizons than banks. Banks have short-term liabilities (such as deposits from individual investors) and therefore prefer to hold limited-maturity debt (e.g. less than 10 years) in order to hedge off their interest rate exposure. On the other hand institutional investors have longer-term liabilities and thus are willing to buy bonds with maturities extending to up to 25 years. Institutional investors are moreover passive investors. They are primarily looking for predictable streams of interest income and are not trained to make business decisions. On the other hand commercial banks are much more active investors. They have the technical capabilities of closely monitoring their investments and the willingness to intervene in the

management of a project in the case where the level of their interest income is being threatened. In the context of project finance, the differences in investment horizons and the ability to make business decisions between institutional investors and banks imply that banks should be the main debt providers during the relatively short construction period when there is a high likelihood that changes will need to be made, while institutional investors should assume the burden of financing during the much longer but less risky postcompletion phase. This financial structure, known as mini-perm financing, is actually the most commonly used for projects funded in the bond market. The accommodation of the risk considerations of all the parties involved in the transaction is the main reason behind the extensive use of this financing model. The refinancing relief provided by public debtholders increases the balance sheet flexibility and liquidity of banks and allows them to focus on other more lucrative project lending opportunities. Institutional lenders acquire a secure interest in a relative predictable, high-yield, long-term revenue stream and project sponsors have the chance to tap a broader, deeper and more diverse in terms of risk appetite pool of capital. Generally speaking there are two major advantages from the sponsors' point of view, in using the capital markets as a means of funding project. Project developers are able to secure longer-term financing at a fixed interest rate and can also negotiate covenants significantly less restrictive than the ones imposed in traditional bank lending. Looser covenants, that as we will discuss later on in detail reflect the greater difficulty in calling bondholders meetings and in amending project agreements, usually result in shorter time periods needed to draft bond documentation and lower costs.

The main drawback of the mini-perm financing model is the refinancing risk. If, shortly after construction is over, interest rates start to fall, banks may end up being the permanent project lenders since it would be extremely difficult to refinance the construction debt in the capital markets. The refinancing risk can be eliminated if institutional investors are brought into play during the construction phase. This basic idea as well as an effort to combine the interests and strengths of the public debtholders and commercial lenders, has led to the development of the so-called amortizing mini-perm (AMP) structure[14]. Under this structure, the bulk of the construction and permanent debt is provided by a group of institutional investors while the remainder is in the

[14] The discussion on the AMP structure is based on an article by Stuart Solsky in the Journal of Project Finance, Vol.1, No.1, Spring 1995 titled "Using US Rule 144A and Public Debt in Cofinancing International Project Finance Transactions".

form of commercial loans. Although the amortization schedule extends over a long-term period, the banks are paid out within the first few years of operation without a refinancing by receiving all the early amortization payments. In order to ensure that the interests of the two different types of creditors are in parallel, the following three levels of covenants are adopted in the AMP structure: a) commercial lender covenants are the tightest set of provisions and apply until the banks are paid off, b) public debt covenants are much weaker than commercial lender covenants and come into effect after the banks are paid off and c) fundamentals events of default provide consent rights for the institutional investors when the banks are still involved. It is worth mentioning though, that during the period that both classes of project debt are outstanding, although the institutional investors and the commercial banks are technically pari passu and will share liquidation proceeds on a pro rata basis, their respective rights are such that the institutional investors can be viewed as being quasi-subordinated to the commercial lenders.

The AMP structure has a number of advantages over a pure commercial bank or mini-perm financing, the most obvious ones being the elimination of the refinancing risk and the ability to attract quasi-public debt during the construction phase. Institutional investors get indirectly the benefits, but not the burden of the monitoring abilities and tighter covenants demanded by commercial lenders for the period this type of creditors are involved while the project promoters can agree on lower interest charges with their bankers due to the shorter maturity and lower average outstanding balance of the commercial loans. Moreover, since fewer commercial banks are needed to participate in the transaction during the construction period it will be easier to get amendments and waivers approved during that period. On the other hand the overall transaction costs may or may not be higher than those of a pure commercial financing structure depending on whether the costs of introducing a second group of creditors outweigh the savings from reducing the number of banks being involved.

The main drawback of the AMP structure is the negative carrying costs for the project sponsors. The project sponsors receive all the money from the bonds upfront, at financial closure, and although they invest what they do not need during the precompletion stage, the interest rate they can earn on the undisbursed proceeds is lower than that payable on the bonds. Notice here that this negative arbitrage can be quite significant (up to 500 basis points).Finally, another more general but equally important limitation on the use of the mini-perm and AMP financing models is

the potentially large number of bondholders participating in such structures and the resulting difficulty in pulling them together when changes in the original financing plans need to be made. But this is the subject of the following section.

3.5 The role of the corporate trustee in project finance transactions[15]

The corporate trustee is the party who represents and acts for the public debtholders. The trustee receives, according to the project financing documents, the benefit of the direct covenants made by the issuer of the bonds (the project company) and declares that he holds the benefit of these covenants on trust for the institutional investors. Therefore the contractual relationship in a capital markets project financing is between the issuer and the trustee and this effectively permits all the issues affecting the interests of the bondholders, previously handled with the investors directly, to be conducted with the trustee. The nature of the trustee's duties is clearly administrative. He is responsible for controlling the amount of debt outstanding, ensuring compliance with covenants, protecting the trust company and holding the collateral. The duties of the trustee are defined through a sizable body of statutory and common law. Generally speaking, the trustee must be fully familiar with the trust he administers, not delegate its functions unless explicitly permitted, avoid conflicts between its duties as trustee and any other interests and act in accordance with the interests of the bondholders as a general body. It must be noticed that the role of the trustee, as outlined above, is a passive one, or at least a passive one until it becomes necessary to enforce the security. Trustees are under no duty to advise investors of potential defaults. Their responsibility is rather limited to reporting defaults only when they actually occur.

The degree of autonomy and the extent of the trustee's decision-making power lie at the heart of the major limitation of the capital markets to finance infrastructure projects. Many practitioners in the project finance industry view the traditional corporate trustee functions as being incompatible with the functions required for administering project debt and propose a new model of trusteeship which will permit trustees to assume more authority and perform discretionary functions.

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[15] Based on:

Joiner Barbara, "Current Issues Affecting Project Finance Trustees", The Journal of Project Finance, Vol.1, No.2, Summer 1995, pp.26-32

Simpson Paul and Avery Nicholas, "The Role of the Capital Markets in Project Financing", The Journal of Project Finance, Vol1., No.1, Spring 1995, pp.45,47

According to this model, trustees in project finance transactions will be allowed to make informed decisions based on the advice of experienced independent financial advisors and engineering consultants the qualifications of whom would be fully disclosed in the debt security offering documents. The issue of the autonomy of the trustee is even more acute when capital markets finance the construction phase of a project (as in the AMP structure). Since it is almost impossible for the drafters of the financing documents to anticipate at financial closure all the changes that might occur over the construction period, restructurings of project debt are most likely to occur during that period. It is highly impractical though for a trustee to seek from the debtholders direction every time a change needs to be considered. Today especially, with the majority of debt issued in book-entry form through securities depositories, where the holders of the securities could be institutions holding them on behalf of other institutions, it is extremely difficult to even identify the bondholders, let aside to contact them. Moreover, even if canvassing the investors was facilitated by imposing some kind of requirement upon the investors to make themselves known to the trustee, it would be still impractical to do so in situations where time is of essence (e.g. in the event that the security taken in relation to a project needs to be enforced and action must be taken immediately).

However, not everyone agrees that expanding the trustee's authority in project finance is the right thing to do. Certain members of the credit rating community believe that the project developer, and not the trustee, should be the party to make all business decisions. This is why, they view an active trustee who can exercise discretion as a negative credit factor and prefer to see in the project structure instead of a dynamic trustee with broad responsibilities, a large equity cushion that will bind the interests of the project sponsors and lenders.

But even if the trustee is empowered to make decisions on behalf of the bondholders, it is not always necessary that all debtholders will equally benefit from such decisions. This is especially true in the case where the project debtholders do not share the same economic interests (for example in the event of default, some bondholders may want to continue lending to the project while others may prefer not to do so). Things get even more complicated in the case of projects with different tranches of debt. The credit agencies recognize the potential intercreditor issues that may arise in a project structure with many different classes of lenders and assign to such projects a lower rating than the one given to similar projects with a clearer lending base. The difficulty of

resolving such structural obstacles is actually one of the reasons why bond finance is most suitable for small infrastructure projects (projects with a debt component of $100 million to $300 million where only one or two other sources of funds need to be involved are considered to be ideal for the public debt market).

3.6 Infrastructure investment funds

Institutional investors do not contribute risk capital only in the form of debt. A growing number of infrastructure equity funds were established in the last three years with the purpose of attracting long-term investors who wanted to share in the unprecedented growth of the developing countries[16]. The following table provides summary information on the major equity funds investing in the infrastructure of the developing countries and emerging economies.

Table 3.2 - Infrastructure investment funds targeting developing countries and emerging economies (as of July 1994)

Fund (and manager)	*Core Industries*	*Investment Targets*
AIG Asian Infrastructure Fund (AIG Asian Infrastructure Management Company Ltd)	American International Group Government of Singapore Bechtel Enterprises	Region: Asia-Pacific (35-50% in China) Sectors: Power, telecommunications, and transport Size: US$1-1.2 billion
Alliance ScanEast Fund L.P. (ScanEast Managing Partner Ltd.)	Equitable Life Assurance Society of US American International Group International Finance Corporation European Bank for Reconstruction and Development	Region: Eastern Europe, Baltics, Commonwealth of Independent States Sectors: Primarily power and telecommunications Size: US$22 million
The Asian Infrastructure Fund	Peregrine Investment Holdings	Region: Asia (40% in China)

[16] Institutional investors can also invest directly in large foreign utilities. In the US this is done by buying American Depositary Receipts (ADRs) issued by foreign private utilities with a long and profitable operation record. The ADRs are certificates of deposit issued by a US Depository Bank that enable foreign companies to raise equity in the US market without complex settlement and transfer mechanisms. ADRs can be traded in the US on any recognized national stock exchange or placed privately under SEC Rule 144A.

(Asia Infrastructure Fund	Soros Fund Management	Sectors:	Power, telecommunications,
Management Company Limited)	Frank Russel Company		and transport
	International Finance Corporation	Size:	US$0.6-1 billion
	Asian Development Bank		
Central European Telec	Creditanstalt Bankverein	Region:	Central and Eastern Europe
Investments, L.P.	International Finance Corporation		(Poland and Hungary)
(Central European Telec		Sector:	Telecommunications
Investments Managers, Ltd.)		Size:	US$42 million
Global Power Investments	GE Capital Corporation	Region:	Global emerging markets
Company, L.P.	Soros Fund Management	Sector:	Power
(Global Power Investments	International Finance Corporation	Size:	US$0,6-2 billion
Company, LDC)			
Scudder Latin America Trust for	International Finance Corporation	Region:	Latin America and
Independent Power	NRG Energy, Inc.		Caribbean
(Scudder, Stevens & Clark, Inc.)	CMS Energy, Inc.	Sector:	Power
	Corporacion Andida de Fomento	Size:	US$100-600 million

Source: Andrea Anayiotos, Infrastructure Investment Funds, FPD Note Series No.18, The World Bank, 1994

Infrastructure equity funds allow investors to mitigate the risks and costs associated with making efficiently sized investments in individual projects by investing in a diversified portfolio of infrastructure companies and projects in different countries and at different stages of development. For example the management committee of the Asian Infrastructure Fund, a fund targeting investment opportunities in South and Southeast Asia which is representative of the other equity funds, has decided to invest no more than 25 percent of its total commitments in any one country (except for China where the limit is 40 percent) and no more than 50 percent of its total funds in any one infrastructure sector. The fund was also set up to invest in nonlisted equity and quasi-equity securities, such as convertible bonds or bonds with other equity options embedded in them, of new infrastructure companies through private placement as well as to expansions of existing facilities of established companies contemplating an initial public offering. Infrastructure funds are able to attract significant amounts of money, mainly because of their excellent political connections and their in depth knowledge of the countries in which their

targeted project companies are or are going to operate. The AIG Asian Infrastructure Fund for example, which is the largest and most active investment fund formed till now, has as its chairman of its investment committee Mr. Moeen Qureshi, former prime minister of Pakistan and former president of operations at the World Bank and as chairman of its advisory board Mr. Henri Kissinger the former US Secretary of State. Table 3.3 lists all the project to which the AIG Asian Infrastructure Fund has committed itself to make capital contributions.

Table 3.3 - AIG's infrastructure investments (as of May 1995)[a]

Project/ Project Sponsor	*Country*	*Sector*	*Project Cost ($ millions)*	*AIG's Commitment ($ millions)*
Chengdu-Mianyang Expressway	China	Transportation	$170	$26
Wai Kee Holdings	China	Transportation	$340	$75
Sithe Asia Holdings	China	Power	$1,350	$50
P.T. Bakrie Electronics Co.	Indonesia	Telecommunications	$300	$37.5
P.T. Serpong Elektrika	Indonesia	Power	$360	$14
Indovision Group	Indonesia	N/A	$227	N/A
Total Access Communication	Thailand	Telecommunications	$120	$28
Piltel	Philippines	Power	N/A	$7
Piltel II	Philippines	Power	N/A	N/A
Far Eastern Air Transportation	Taiwan	Transportation	N/A	N/A

Sources: Infrastructure Finance, August/ September 1995, page 59 and Far Eastern Economic Review, April 6, 1995, page 49

[a] Most funds are set up as limited partnerships or trust companies and public information concerning their operations is limited.

The rate of returns that infrastructure fund managers expect to realize from capital gains fall in the range of 20 to 25 percent (table 3.4), net, in dollars and after any exit strategy. The preferred exit route for most investment funds is an Initial Public Offering (IPO). There are different approaches in doing an IPO. In some cases a project may be large enough and structured in such a way that it is itself an attractive listing opportunity and in other cases it may be necessary to package several

investments together, put them in a holding company and then do an IPO. In either case, what the fund managers are trying to achieve by listing the shares of the project entities they invest in on a securities exchange[17] is to reduce their exposure to liquidity risk. The ability of fund managers to implement this exit strategy lies at the center of the developments taking place in the area of project finance nowadays. The success in taking any investment fund public through an IPO ultimately depends on the strength of the local capital markets to absorb the assets developed by the project promoters. It is partially in the context of this framework that the limited capabilities of the capital markets in the developing countries is said to set in a way the limits of using project finance as a mean to expand infrastructure in the developing world.

Table 3.4 - Estimated equity returns in the power sector

Project	*Country*	*Type*	*Debt Equity Ratio*	*Estimated Equity Return (% IRR)*
Shajiao C	China	BOT	38/62	>20
Pangue	Chile	BOO	60/40	19
Mamonal	Colombia	BLT	80/20	>20
Pagbilao	Philippines	BOT	75/25	24
Hub	Pakistan	BOO	80/20	18
Puerto Quetzal	Guatemala	BOT	77/23	20
Rockfort	Jamaica	BOO	70/30	25

Source: Baughman David, Buresch Matthew, Mobilizing Private Capital for the Power Sector: Experience in Asia and Latin America, Joint World Bank-USAID Discussion Paper, November 1994, pp.17,20

3.7 Development of local capital markets

The sound development of the domestic capital markets is a prerequisite to the promotion of private infrastructure services in the developing countries. First of all, from an economic point of view, it makes sense to finance a project in the currency the project revenues are in. By doing so, project sponsors and ultimately host governments will be able to develop assets at a lower cost. The savings will primarily come from the elimination of the expensive derivative instruments and

[17] Most project companies developing infrastructure projects on a limited recourse basis go to the market once they have established a successful operating track record, usually five to seven years after construction is over.

the insurance coverage needed to hedge off foreign exchange risk. Moreover the use of local capital will substantially reduce the foreign exchange obligations of the host governments. This is of great importance since the ability of a developing country to expand its infrastructure essentially depends on its ability to sustain sufficient foreign exchange reserves to convert local currency revenue streams to hard currency. Furthermore well-functioning, liquid local capital markets will boost institutional investors' participation in infrastructure investment and will attract an increasing number of developers willing to put more of their own capital at risk.

Unfortunately though, in most developing countries the capital markets are still in their infancy. The rights of the securityholders are poorly defined and the debt instruments available to investors are limited to relatively short-term, low-quality public paper. The lack especially of well-established, long-term, fixed-income securities markets has proved to be the major impediment in financing infrastructure projects locally. Much of the blame for this state of affairs lies with previous public policies allowing excessive government control over the domestic financial institutions and with the preeminent role public institutions have played in the infrastructure development process.

A wide array of measures can be taken to develop deep and liquid financial markets in the developing countries that will channel the savings of the domestic investors to infrastructure projects[18]. First of all, national governments should gradually stop relying on their central banks for their borrowing needs and start raising funds in the local capital markets through the issuance of long-term debt securities. Government bond issues will then provide a benchmark risk-free rate against which corporate and other issues can be priced. Moreover governments should ease the pressure put on publicly mandated provident funds to finance government consumption spending and low-yield investments, relax the restrictions placed on pension fund investment and in certain cases even actively encourage the management team of such funds to invest in project bonds. Furthermore for the bond market to grow, consistent and objective criteria for evaluating the credit quality of the debt instruments offered, need to be established. That will be the

[18] Infrastructure development in the emerging markets is primarily financed by the savings of the industrialized world. In certain cases such as in Central and Eastern Europe, foreign funding simply reflects the low saving rates of the countries in the region relatively to the scale of the required capital investment. In other developing regions of the world though, as for example in the case of Southeast Asia where saving rates are above 30%, foreign borrowing is perceived to be excess borrowing in the sense that it reflects more the primitive state of the domestic capital markets than the inability of the region to match current investment by current domestic savings. The immaturity of local securities markets in these cases is then just a manifestation of the preference that domestic savers have for liquid assets such as cash balances.

responsibility of local rating agencies which by conducting independent credit analysis will bring transparency to the market[19] .

Recognizing the benefits of mobilizing domestic funds to finance infrastructure development, developing countries have started to adopt policies that will expand the investor base willing to buy long-term, local currency, fixed-income debt. In Asia, Malaysia, Thailand, Indonesia and India have recently set up credit agencies authorized to rate project debt issues. The establishment of these rating agencies facilitated in turn the creation of the Asian Securitization and Infrastructure Assurance (ASIA). ASIA is a Singapore-based company set up with the sole purpose of providing credit enhancement services[20] . It provides debt guarantees for project refinancing only, at a spread which depends on the credit quality of the issuer, the debt instrument to be guaranteed and the currency used to service the debt. Such guarantees significantly increase the liquidity of the local bond markets as a growing number of institutional investors is willing to enter the market and hold project debt securities. Another solution to the liquidity problem would be to have an institution with a long investment horizon buy bonds with long maturities and then issue claims on the debt it holds, effectively selling or renting liquidity to interested third parties. This alternative is considered in the Philippines with the establishment of the Philippine Infrastructure Development Fund (PIDF). PIDF will be a long-term debt fund with World Bank and Philippine government guarantees, managed by international financial institutions and rated by foreign and local rating groups. It will buy debt securities issued by private entities developing infrastructure projects in the Philippines and its shares will be listed and freely traded in the local bourse. By adopting this scheme the government of Philippines will effectively replace a very illiquid security (long-term debt paper) with a much more marketable one (equity stake in a listed company). Finally in Latin America, the Chilean regulators have eased the maximum investment limits, by instrument and by issue, imposed on government-sponsored pension funds and allowed private

[19] Local credit rating agencies use rating criteria similar to the ones employed by their counterparts in the industrialized countries but assign an AAA sovereign rating to their home country. The establishment of domestic rating agencies offer a variety of advantages over credit assessments made by foreign rating groups, mainly familiarity with the local regulatory and business environments.

[20] ASIA's shareholders include CapMAC Holdings, the American International Assurance Company, the American International Group, the Asian Development Bank, the Employee Provident Fund of Malaysia, Apmac Investment (a unit of the Government of Singapore Investment Corporation), the Korea Long Term Credit Bank and the government-owned development banks of Germany (DEG) and Holland (The Netherlands Development Finance Corporation).

financial institutions to manage such funds. These reforms were so successful that other Latin America governments were persuaded to adopt similar policies.

Remarks

a. Different limited recourse project delivery approaches have different impacts on the development of a country's capital markets. BOT schemes, where ownership of the project is ultimately returned to the government, can limit the base of institutional investors willing to hold project debt since the prospects of the project being sold on the secondary market are limited. On the other hand, BOO arrangements and other more open-ended approaches are in general more conducive to a market offering and can thus attract the attention of a wider pool of investors. Needless to say that the greater the number of investors participating in the securities markets the more liquid the market becomes. The more liquid a market is the lower the transaction costs will be and the alternative of raising funds in the capital markets will then get even more attractive.

b. Financing private infrastructure in the capital markets can increase a country's broader funds mobilization capabilities. The positive effect that the participation of the private sector in infrastructure has on the development of a country's capital markets and its access to the international financial markets is well documented by the IFC. According to IFC's records, the total capitalization of the capital markets in the developing countries increased from $599 billion in December 1993 to $1,399 billion in December 1993, while during the same period the market share of infrastructure stocks rose from 3% to 22%[21]. Table 3.5 contains specific information regarding the development of the local capital markets of four developing countries which have all favored the involvement of the private sector in infrastructure.

Table 3.5 - Development of domestic capital markets: Argentina, Chile, Malaysia, Philippines

Argentina

Domestic Capital Market Indicators	*1989*	*1990*	*1991*	*1992*	*1993*
Stock market capitalization ($million)	4,225	3,268	18,509	18,633	43,967

[21] Bond Gary and Carter Laurence, Financing Private Infrastructure Projects: Emerging Trends from IFC 's Experience, International Finance Corporation Discussion Paper No.23, pp.30,31

Liquidity: turnover as % of capitalization	45%	26%	26%	84%	33%
Infrastructure stocks as % of total capitalization	0%	0%	24%	49%	51%

Chile

Domestic Capital Market Indicators	*1989*	*1990*	*1991*	*1992*	*1993*
Stock market capitalization ($million)	9,587	13,545	27,948	29,644	44,622
Liquidity: turnover as % of capitalization	9%	9%	6%	7%	7%
Infrastructure stocks as % of total capitalization	30%	35%	49%	51%	59%

Malaysia

Domestic Capital Market Indicators	*1989*	*1990*	*1991*	*1992*	*1993*
Stock market capitalization ($million)	39,842	48,611	58,627	94,004	220,328
Liquidity: turnover as % of capitalization	17%	22%	18%	23%	94%
Infrastructure stocks as % of total capitalization	11%	12%	26%	30%	31%

Philippines

Domestic Capital Market Indicators	*1989*	*1990*	*1991*	*1992*	*1993*
Stock market capitalization ($million)	11,965	5,927	10,917	13,794	40,327
Liquidity: turnover as % of capitalization	20%	21%	15%	23%	25%
Infrastructure stocks as % of total capitalization	21%	11%	21%	22%	38%

Source: Bond Gary and Carter Laurence, Financing Private Infrastructure Projects: Emerging Trends from IFC 's Experience, International Finance Corporation Discussion Paper No.23, pp.29,51

3.8 Multilateral agencies guarantees[22]

In recent years, the major multilateral aid organizations such as the World Bank, the Asian Development Bank and the Inter-American Development Bank have set up guarantee programs tailored to project finance transactions. The guarantees provided by these development

[22] Based on:

Philippe Benoit, Project Finance at the World Bank: An Overview of Policies and Instruments, World Bank Technical Paper No. 312, The World Bank, Washington DC 1996, pp. 88-93

The World Bank Guarantee: Catalyst for Private Capital Flows, Project Finance Group, Cofinancing and Financial Advisory Services Vice Presidency, The World Bank, Washington DC 1995, pp. 2-12

Project Finance and Guarantees, Project Finance Group, Cofinancing and Financial Advisory Services Vice Presidency, The World Bank, Washington DC, September 1995

institutions are intended to serve as a catalyst for private investment. Hence, only partial guarantees are offered. Multilateral organizations' guarantees are designed to cover the kind of risks that the market is not able to bear or properly evaluate. Because of their risk-sharing nature, such guarantees can significantly boost the confidence of institutional investors in a project finance transaction. By addressing the credit concerns of the private investors, multilateral agencies' guarantees can promote the role of the public debt markets in infrastructure finance. On the other hand, these newly-established guarantee programs enable developing country borrowers to acquire direct access to the international bond markets and to mobilize funds on terms and conditions significantly better than they could do on their own. Multilateral development banks' guarantees reduce financing costs, extend maturities and support the most appropriate financing structure for any given project by allowing debtors to borrow in the currency, instrument (bond or loan) and interest rate (fixed or floating) of their choice.

Generally speaking multilateral institutions provide two basic types of guarantees: a) partial risk guarantees covering specified risks arising from nonperformance of government contractual obligations (e.g. nondelivery of input, nonpayment of output purchased by government-controlled agencies, changes in the agreed upon regulatory framework) or from certain political force majeure events and b) partial credit guarantees designed to cover all events of nonpayment for a designated part of the financing (usually the late maturities).

3.8.1 Partial risk guarantee

Partial risk guarantees have the following structure:

- Private lenders (bondholders and/or commercial banks) provide funds and loans to the project company.
- The host government agrees to provide certain undertakings that will protect private lenders against various risks.
- The development bank issues to the private lenders a guarantee against the risks spelled out in their agreement with the host government. The guarantee is callable in the case the project company defaults on repayment of its debt as a result of the failure of the host government to comply with its contractual obligations.

- The host government provides a counter-guarantee to the Bank pursuant to which it agrees to reimburse the Bank for any payments the Bank will make to the private lenders. If the guarantee is called, the Bank effectively becomes through subrogation, a project creditor and enjoys the same rights against the project company as the other senior creditors do.

3.8.2 Partial credit guarantee

Partial credit guarantees have similar structure . In a partial credit guarantee,

- the private lenders provide funds and loans to the project company,
- the Bank issues in favor of the private lenders a guarantee covering a specified portion of the financing they provided,
- the Bank enters into an indemnity agreement with the host government, and
- in the case the guarantee is called, the Bank enjoys the same rights against the project company as the other senior creditors do.

An example of the benefits of the partial credit guarantees is the $1.8 billion Zhejiang power development project in China. The credit guarantee provided by the World Bank, permitted China to raise $150 million equivalent in loans from commercial banks on terms considerably better than those the Chinese government agencies could obtain in the market. The guarantee covered principal repayment for the last four years of the commercial debt (years 11 to 15) which is equivalent to a 43% coverage of the face value of the loan (20% in present value terms). This guarantee structure had the additional feature of giving to commercial lenders the option to cancel the guarantee issued to them by the Bank in exchange for a higher spread. The purpose of this arrangement was to release unnecessary guarantee exposure for China.

3.8.3 Partial credit guarantee through a put option

The partial credit guarantee through a put option is an alternative to the normal partial credit guarantee structure. Under this guarantee program, the holders of long-term project debt are offered the option to sell after a number of years their debt securities to the development bank providing the guarantee. This type of guarantee serves the same purpose as a "plain vanilla" partial credit guarantee: it effectively insulates private lenders against any credit risk they are exposed to during the late maturities of their debt holdings.

The following is a typical structure of a partial credit guarantee through a put option:

- The private lenders (bondholders and/or commercial banks) provide funds and loans to the entity carrying out the project;
- The Bank writes to the private lenders a put option. Under this option contract the private lenders have the right but not the obligation to sell at par their debt instruments to the Bank on the maturity date;
- If the private lenders choose to exercise their right to sell their outstanding debt, then the Bank effectively becomes a lender to the project (the Bank acquires direct rights to the cash flows generated by the project);
- The Bank enters into a counter-guarantee agreement with the host government pursuant to which the host country agrees to reimburse the Bank for any payments the Bank makes to the private lenders. This counter-guarantee usually takes the form of a counter-put option which gives the Bank the right to sell to the host government the debt instruments acquired from the private lenders.

The $1.3 billion Leyte-Luzon geothermal project in Philippines provides a good illustration of the risk-sharing nature of the option based partial credit guarantee and the catalytic role it can have in the promotion of the bond market financing of infrastructure projects in the developing countries. The project, sponsored by the Philippine's National Power Corporation (NPC), the Philippine National Oil Company (PNOC) and the Electricity Development Corporation, has two components: i) the expansion of the Leyte-Luzon geothermal fields and ii) the construction of converter stations and related transmission lines and equipment. The financing plan of the project is shown at the following table.

Table 3.6 - Financing plan of the Leyte-Luzon geothermal power project

Power Transmission Component	*US$ million*
World Bank Loans	240
Bonds with World Bank Put Option	100
Export-Import Bank of Japan	170
Agency for Technical and Economic Cooperation (Sweden) / Grant	39
Global Environment Fund / Grant	30

PNOC / NPC Equity	134
Power Generation Component	
BOT Contract	240
Total	**1,333**

Source: Project Finance and Guarantees, Cofinancing and Financial Advisory Services Vice Presidency, World Bank, September 1995

The financing closure was achieved in 1995 with the successful placement of US$100 million worth of bonds issued by the NPC in the Eurobond and US 144A markets. The bond issue was supported by a World Bank partial credit guarantee with a put option. The put option embedded in the guarantee structure gave bondholders the right to present their bonds to the World Bank at maturity for payment of the principal outstanding at that time. Table 3.7 presents the profile of the NPC issue.

Table 3.7 - NPC bond issue: Summary information

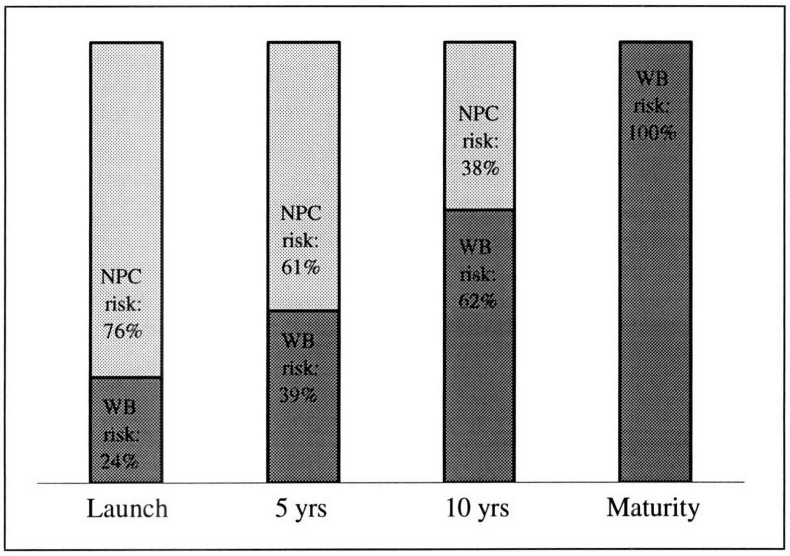
Issue Amount	US$100 million
Maturity	15 years (July 2009)
Amortization	Bullet
Coupon	9.75% fixed, semi-annual
Issue Price	99.4
Yield	US treasury + 250bp
Support Under World Bank Guarantee	Put option on principal at par at maturity
Sovereign Guarantee	Interest only
Lead Managers	Morgan Stanley; co-managed by Salomon Brothers International

Source: Project Finance and Guarantees, Cofinancing and Financial Advisory Services Vice Presidency, World Bank, September 1995

Because of the World Bank guarantee, NPC was able to obtain not only an extremely favorable pricing but also a maturity one-third greater than the longest maturity previously attained by an issue from a Philippine sovereign entity (10 years). This should come as no surprise, as the guarantee provided by the World Bank effectively insulated investors from the risk of not receiving the principal payment on their debt on the maturity date. The risk exposure of a

development bank under such arrangements is measured by the present value of the bond's cash flows that are guaranteed by the bank. In the case of the NPC issue, the present value of the World Bank's put option on principal was about 24% of the present value of the bond's total cash flows (interest and principal) which implies that the institutional investors were at risk only for the remaining 76% of the bond's cash flows. It is worth noting here, that as time passes the risk exposure of the bondholders is constantly decreasing. For the NPC issue this is shown in Figure 3.2.

Figure 3.2 - NPC Bond Issue: Risk Sharing



Source: Project Finance and Guarantees, Cofinancing and Financial Advisory Services Vice Presidency, World Bank, September 1995

As the bond reaches maturity, the weight of the discounted to the present principal amount covered by the bank guarantee, relatively to the present value of the bond's remaining interest payments steadily increases, which means that bondholders are assuming less and less risk over time. At maturity, investors face no risk at all as the only cash flow remaining is the Bank-guaranteed principal repayment. Another way to think of the changing over time extent of the Bank's risk sharing, is to notice that as time passes, the credit quality of the bond issue is appreciating from a blend of the credit rating of the Bank and that of the entity issuing the debt at launch, to the Bank's AAA rating at maturity.

Chapter 4

The Financial Agreement

The financial agreement is the basic legal document in a project finance transaction and forms the centerpiece around which an elaborate system of other arrangements to address risk is built. It regulates all aspects of the relationship between the entity carrying out the project (the borrower) and the institutions providing loans and debt capital to the project (commercial banks and bondholders)[1]. This chapter is not going to exhaustively list all terms and clauses encountered in a financial agreement. It will rather discuss typical structural elements embodied in the credit documentation that address the repayment concerns of the noteholders and illustrate the increased covenant flexibility of capital markets infrastructure financing compared to commercial financing. To better understand the general principals applied in drafting a debt agreement in a project finance transaction, someone must get into the shoes of the project investors. In the case of a default, noteholders have limited recourse to the assets of the sponsors and end up owing a very illiquid asset (the project itself or the rights to operate the project and collect revenues). Since it is very difficult to sell their holdings to the secondary market and because of their limited ability to become involved in the management of the project, project lenders want to make sure that enough funds will remain within the project company to meet its debt obligations in a timely manner and cover any short-term cashflow shortfalls. Remember here that institutional investors, such as pension funds, mutual funds and life insurance companies, are passive investors who buy project debt in the hope to get a predictable and steady interest income over the life of the project. It is according then to the risk characteristics of these investors that the debt agreement needs to be drafted.

4.1 Project accounts

[1] The discussion in this chapter refers to project finance transactions with only one class of lenders, notably institutional investors. The main difference between a capital market financing and a commercial lending is that in the former case investors provide all the funds upfront in a lump sum while in the latter one commercial lenders have much greater control over the flow of their funds. This is accomplished by establishing a disbursement account from which the borrower can draw funds as needed upon a series of specific conditions precedent.

The debt agreement specifies a number of accounts that the borrower must maintain with the trustee. The following control accounts will typically exist in a project debt agreement[2]:

- *a proceeds account* where all the revenues generated by the project will be deposited,
- *a maintenance retention account* to ensure that funds are always available to meet the scheduled maintenance expenditures of the project,
- *a debt service reserve account* to ensure that enough funds are available to pay debt service on the notes issued by the borrower on a timely basis. This account is essentially providing a cushion in those cases where, due to a force majeure event, the funds deposited in the proceeds account do not suffice to serve the interest payments due. In cross-border transactions, where part of the project debt is denominated in a foreign currency, the debt service reserve account can be structured as an offshore escrow account. Such an arrangement offers noteholders limited protection against devaluation risk. If the local currency depreciates, bondholders do not have to worry immediately about the ability of the borrower to repay his foreign debt. They can draw on their existing hard currency reserves maintained in the offshore debt service reserve account. The size of the funds as well as the frequency with which project proceeds will be converted in hard currency and set aside within the account will reflect the level of the currency risk exposure foreign institutional investors are willing to take in the transaction. The riskier the project is perceived to be, the more frequent currency conversions and the larger the size of the reserves will be.
- *a compensation account* to receive the proceeds of any physical damage insurance, of expropriation, of any restriction placed on licenses or rights and in the case of oil or gas development projects any cash payments from the redetermination of the boundaries of an oil or gas field which turned out to overlap with an adjacent license area.

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[2] Based on:

Philip R. Wood, Project Finance, Subordinated Debt and State Loans, Law and Practice of International Finance Series, Sweet & Maxwell, London 1995, pp. 203,204

Graham D. Vinter, Project Finance: A Legal Guide, Sweet & Maxwell, London 1995, pp. 65,66

The debt agreement contains elaborate provisions controlling the flow of funds into and out of the various project accounts. These provisions are designed to alleviate the repayment concerns of the bondholders. Generally speaking funds are withdrawn from the proceeds account for the following purposes[3]:

- to pay pending administrative and operating fees and expenses,
- then, in the case of cross-border transactions, to pay withholdings taxes to the local taxing authorities in respect to the payments made to the bonds the project company had issued,
- then to pay interest and principal due to bondholders,
- then to transfer funds to the debt service reserve account to bring its balance up to the required levels,
- then to set aside funds in order to pay the withholding taxes due on the payment of the noteholders scheduled to be made on the next payment date,
- then to transfer funds to the maintenance reserve account to bring its balance up to the specified levels,
- and finally to distribute dividends to the equity shareholders or to pay interest to shareholders who contributed capital in the form of subordinated debt. These funds are transferred to the project sponsors only if there exists no event of default or pending default and certain cover ratios are satisfied. Generally speaking the conditions under which excess cashflow will be distributed to the sponsors will vary from project to project. The general rule will be though that in capital market project finance transactions the restrictions placed on such distributions will be as tight as those encountered in commercial financing and will reflect the difficulty in pulling institutional investors together and amending project documents. It is worth mentioning here that provisions limiting the distributions made to project equity holders are very welcomed by the project debt rating agencies.

4.2 Debt service cover ratios

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[3] Based on:

Philip R. Wood, Project Finance, Subordinated Debt and State Loans, Law and Practice of International Finance Series, Sweet & Maxwell, London 1995, page 203

Peter Darrow, Nicole Bergman Fong, Paul Forrester, "Financing Infrastructure Projects in the International Capital Markets: The Tribasa Toll Road Trust", The Financier: ACMT, Vol. 1, No. 3, August 1994, page 16

Cover ratios measure the ability of a project to meet its debt service obligations by an agreed margin. Cover ratios are redetermined on a running basis in order to have updated information on the performance and financial viability of the project[4]. In project finance transactions, financial ratios typically have the following format: the numerator is the present value of the net project cashflows forecasted to occur during a specific time period in the future and the denominator the present value of the principal and interest payments that need to be made during that same period[5]. Backward financial ratios may also be included in the debt agreement to test the current performance of the project. These ratios, instead of looking forward at a project's projected revenues, they take into account the cashflows actually observed and measure the extent to which these cashflows have been sufficient to cover interest payments and other debt servicing costs in the past[6].

Cover ratios have two applications in a debt agreement. The inability of the project company to keep debt service ratios above certain specified levels may result in either an event of default or in a temporary suspension of distributions to project sponsors. Default will occur if a lower cover ratio is not met and suspension of distributions if a higher ratio is breached. The specific numbers that will trigger either event differ from project to project and will each time ultimately depend on the attitude of the specific private lenders toward project risk.

Another issue heavily negotiated in calculating cover ratios is which party should have control over the forecast assumptions used in the computer model to periodically update the net present value of the project's anticipated cashflows[7]. It is obvious that the use of financial ratios to monitor the ability of the project to cover financing costs can lead to misleading results if the numbers used in the computer program are based on unrealistic assumptions. There are several ways to deal with this problem. Usually what happens is that the institutional investors or their financial advisor provide the financial assumptions such as interest rates, discount rates, foreign exchange rates, inflation that they feel fall into their specific expertise while the project sponsors

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[4] Cover ratios are recalculated every time a debt service payment is made. Such payments are usually made every six months.

[5] The timeframe chosen can vary from the time remaining till the maturity of the bonds to the next repayment date.

[6] An integral part of Standard & Poor's credit evaluation process is the calculation of the total debt service coverage ratio. Appendix B shows the steps followed to calculate this ratio in the case of an independent power project.

[7] Discussion based on:

Graham D. Vinter, Project Finance: A Legal Guide, Sweet & Maxwell, London 1995, page 62

provide the more technical assumptions such as capital costs and operating expenses. Most of the times though, the private investors will demand the values assigned to the variants outside their control to be confirmed by an independent engineer or other technical consultant while project promoters will seek financial variants to be calculated on the basis of external official indices. Finally, the parties involved in the transaction can ask independent experts to provide them with information on other matters such as taxes, rates of production and level of natural reserves (in an oilfield or gasfield development project).

4.3 Events of default

Events of default, as well as credit covenants discussed in the next section, illustrate the fundamental structural differences between commercial and capital market infrastructure financing. In syndicated loan agreements, the events of default are designed to force the borrower to the negotiating table at an early stage. Banks view such events more as an opportunity to be heard in the management of the project if things start going wrong than a way to enforce their security rights and get their money back. Banks' events of default are thus monitoring devices used to provide early warning and workout possibilities. Their purpose is to protect the lenders through early stage intervention and renegotiation, not through enforcement. That implies that the credit agreement between the project company and the commercial lenders is drafted in such a way that even relatively minor adverse changes in the original project contracts result in default, effectively allowing the banks to step in and assume a more active role in the management of the project. Banks can assume such a role because they have the staff and expertise to monitor the performance of a project. But that is not the case with the much more passive and less technically sophisticated institutional investors. Moreover the difficulty of calling bondholders meetings, limit the number of such meetings to only those that are strictly necessary. This is the reason why events of default in capital markets financing cover more fundamental issues and tend to be less hair-trigger than the events of default encountered in a typical bank documentation.

In order to protect institutional investors against future cashflow shortfalls caused by an event which would, in a commercial lending context, trigger drastic remedial actions, blockage events are build into the credit agreement. Upon the occurrence and during the duration of any blockage event, distributions to the sponsors from the proceeds account are freezed, the incurrence of

subordinated indebtedness and the payment of any existing subordinated indebtedness are prohibited, and the frequency of certain deposits for the benefit of the bondholders is accelerated[8]. Finally, upon the occurrence of an event of default the principal and all accrued interest on the notes sold by the project company is immediately due and payable. The noteholders can also exercise their security rights and operate the project accounts to the exclusion of the borrower. The following is a list of the main events of default that one may find in a project debt agreement (the relaxations that apply to certain of these events are presented at the end of the chapter)[9]: failure of the borrower to make principal or interest payment on the debt securities on the due date (non-payment clause), failure of the borrower, a shareholder, a guarantor or a counterparty to a project contract (an "Obligor") to perform any of its contractual obligations (non-compliance clause), occurrence of a default under any of the borrower's other borrowing or financial obligations (cross-default clause), materially incorrect representation in any of the project documents (breach of warranty clause), the inability of any Obligor to pay its debts when they fall due (insolvency clause), nationalization of all or of a substantial part of the assets of the borrower or its share capital by the host government, non-availability of the required insurance coverage, abandonment of the project (actual or creeping), destruction of the project or of a material part of the project, breach of a lower cover ratio or failure to comply with a higher debt coverage ratio for a specified period.

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[8] To illustrate the usefulness of a blockage event in a debt agreement, consider the case of the failure of the project to meet a certain cover ratio. In the case of commercial financing, such failure would consist an event of default and the banks would be able to exercise all the drastic remedies (e.g. acceleration, foreclosure) available to them to protect their invested capital. Of course banks would rarely choose to do so unless they felt that their position was totally irredeemable. Nonetheless the fear of such remedies would force the project sponsors to sit in the negotiation table and listen to the concerns of the project creditors. On the other hand, the breach of the same cover ratio in a debt market financing would trigger a blockage event. Blockage events were devised to address the difficulty of pooling bondholders during times of stress on project cashflows. Upon the breach of the cover ratio, the limited remedies built into the credit agreement (such as the restrictions placed on the distributions made to the sponsors) will automatically come into effect. No further negotiations between sponsors and private lenders will be necessary in that case. The existence of blockage events is therefore an elegant way to protect the interests of the passive institutional investors in the project and to make up for the fewer events of default provided into the debt agreement.

[9] Based on:

Philip R. Wood, Project Finance, Subordinated Debt and State Loans, Law and Practice of International Finance Series, Sweet & Maxwell, London 1995, pp. 212-214

Graham D. Vinter, Project Finance: A Legal Guide, Sweet & Maxwell, London 1995, pp. 78,79

Milbank, Tweed, Hadley & McCloy, Seminar on International Project Finance, Milbank, Tweed, Hadley & McCloy, London 1992, Exhibit E, pp. 15-17

4.4 Covenants

A project debt agreement bristles with covenants. The purpose of these covenants is to protect the project lenders by regulating the behavior of the borrower. They basically refer to all the things the borrower must do (positive undertakings) and those he should not do (negative undertakings). In a typical project finance documentation the borrower will covenant that it will[10] : furnish annual audited financial statements prepared in accordance with the GAAP and quarterly unaudited statements certified by an appropriate corporate officer, promptly notify the trustee of any litigation and events of default or pending default, comply with the terms of the project documents, maintain the concession and other contracts in full force and effect, enforce its rights under the concession and the project contracts, comply with all governmental approvals, laws, rules and regulations applicable to the project, pay all its taxes and governmental levies when due, construct and operate the project diligently and efficiently and in accordance with the good industry practices, maintain physical loss, property damage, public liability, third party, business interruption, delayed opening and pollution insurance. The borrower will also covenant that it will not: abandon the project unless it becomes uneconomic, create or permit any security interests on any of its present or future assets except the security created by the security documents, undertake the sale or disposal of any of its assets other than in the ordinary course of business, make any capital expenditures other than those contemplated by the plans and specifications for the project, borrow any money except under the financial agreements and except for deeply subordinated debt provided by its shareholders, give any guarantees other than those contained in the project documents, make any investments other than those authorized, engage in any business unrelated to the ownership and operation of the project, pay any dividend or interest to its shareholders in respect to their equity contribution or subordinated loans except as permitted by the credit agreement, purchase, cancel or redeem any of its share capital, amend or modify the

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[10] Based on:

Philip R. Wood, Project Finance, Subordinated Debt and State Loans, Law and Practice of International Finance Series, Sweet & Maxwell, London 1995, pp. 205-211

Graham D. Vinter, Project Finance: A Legal Guide, Sweet & Maxwell, London 1995, pp. 76-78

Milbank, Tweed, Hadley & McCloy, Seminar on International Project Finance, Milbank, Tweed, Hadley & McCloy, London 1992, Exhibit E pp. 8-15

project documents if such amendment and modification will have a material adverse effect on the project.

The above list is not intended to be exhaustive. It just illustrates some of the covenants most commonly encountered in a debt agreement. A credit agreement in a traditional bank lending will include similar undertakings. Where capital markets project financing differs though from commercial project lending, is in the relaxations (grace periods, thresholds, materiality tests etc.) built into the covenant package. These relaxations are nothing more than a manifestation of the inability and unwillingness of institutional investors to intervene in the management of the project as well as of the difficulty of pulling such investors together when changes need to be made and rapid decisions to be taken. The following table, which is adopted by a presentation that Mr. Roger Feldman, head of the project finance group at McDermott, Will and Emery, gave at the Worldwide Infrastructure Partnerships Conference in New York in 1995, illustrates the increased covenant flexibility of capital markets infrastructure financing compared to commercial financing.

Table 4 - Comparison of typical bank and possible Rule 144A provisions

Typical Bank Provisions	**Possible Rule 144A Provisions**
No non-bank loans except deeply subordinated partner loans	*Incurring of additional debt (subordinated loans or/and senior debt) permissible as long as coverage ratios on a pro forma basis can be met after the additional debt has been incurred*
Limitations on partner distributions when coverage ratios not met	*Substantially same*
Treatment of material adverse change: broad coverage and exercise for any negative effect	*Treatment of material adverse change focused on occurrences that have actually had material adverse effect on obligations or lien priorities*
Limitations on amendments of any kind on key agreements and "material" amendments on other agreements	*Permissibility of amendments and replacements of underlying contracts where no adverse change and preservation of coverage ratios*
No grace period for principal defaults; short period for interest defaults	*Ten to fifteen day grace period for principal or interest defaults*
No grace period for negative covenants	*Thirty day grace period, extendable if additional time required*

Materially incorrect representation when made is automatically default	*Default only for those material misrepresentations which have had material adverse effect and continued for thirty days after discovery*
Cross default whenever holder of other indebtedness may accelerate	*Acceleration only if specified level of indebtedness exceeded*

Conclusion

The need to upgrade the existing and build new infrastructure facilities in the developing world is pressing. Governments in the developing countries, faced with severe budgetary constraints, are turning to the private sector in their effort to expand their infrastructure and sustain the frantic economic growth of the last decade. Limited recourse financing is a technique widely used to secure private sector participation in infrastructure development. Investing in the infrastructure of the developing countries involves additional sources of risk over and above the ones encountered in domestic transactions. A wide range of risk distribution mechanisms can be used to mitigate the risks associated with project finance arrangements in the emerging economies and allow private investors to achieve their preferred risk-reward profile in a project development deal.

The potential of project finance as a way to expand infrastructure in the developing world was significantly enhanced with the adoption of Rule 144A. Rule 144A enables project companies incorporated outside the US to privately place debt and equity securities in the US with qualified institutional investors under reduced disclosure requirements. With the creation of market 144A, project developers in the emerging economies acquired direct access to the US institutional market which is the deepest investment market in the world.

Financing infrastructure projects in the capital markets has a variety of advantages over commercial lending. Longer maturities, weaker covenants, fixed interest rates, access to a deeper and more diverse source of capital and in certain cases finer margins are the most important ones. Governments in the developing countries are increasingly recognizing the tremendous potential of capital markets financing and start to adopt policies aimed to create liquid domestic bond markets. The opening of the capital markets to infrastructure debt had a profound effect in the way project finance schemes are traditionally structured. Banks used to provide both construction and long-term financing. For projects seeking capital in the securities markets, the banks are still providing funds during the risky construction phase but the long-term financing comes in the form of project debt issued in the bond markets. In the future, bond markets may even finance part of the construction, given an appropriate margin, a strong and secure revenue stream and a balanced project structure.

Long-term funds, the main providers of project debt, are passive investors. They buy project debt because the term of such securities closely matches their long-dated liabilities and because of the high yield they offer. Fund managers are neither trained to make business decisions nor willing to intervene in project management. They rather look for a steady and comfortable income stream and are very much concerned with the timeliness of debt repayments. Infrastructure developers in the developing countries seeking to secure bond financing should acknowledge the risk characteristics of foreign and domestic institutional investors and structure their projects accordingly.

The extent though to which infrastructure projects in the developing economies will be financed in the bond market remains to be seen. A number of issues need to be resolved in a satisfactory way, mainly the negative arbitrage between the interest earned on the undisbursed bond proceeds and the interest paid to the bondholders and the difficulty of pulling together lenders (institutional investors, banks, export credit agencies) with different risk profiles.

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Appendix A

Variables that S&P is considering when assessing sovereign risk[a]

Economic Risk

a. Economic system and structure

- Market or nonmarket economy
- Resource endowments, degree of diversification
- Size, composition of savings and investment
- Rate, pattern of economic growth

b. Fiscal policy and public debt

- Currency composition, structure of public debt
- Public debt and interest burdens
- Contingent liabilities, including banks
- Debt service track record

c. Monetary policy and inflation

- Trends in price inflation
- Rates of money and credit growth
- Exchange rate policy
- Degree of central bank autonomy

d. Balance of payments flexibility

- Impact on external accounts of fiscal and monetary policies
- Structure, flexibility of the current account
- Adequacy, composition of capital flows

e. External financial position

- Size and currency composition of public and private external debt
- Maturity structure and debt service burden
- Level, composition of reserves and other assets

Political Risk

a. Political system

- Form of government and adaptability of institutions
- Degree of popular participation
- Orderliness of leadership succession
- Degree of consensus on economic policy objectives

b. Social environment

- Living standards, income and wealth distribution
- Labor market conditions
- Cultural, demographic characteristics

c. International relations

- Integration in global trade and financial system
- Security risks

[a] Adopted by Standard & Poor's Creditreview, March 1995, page 57

Appendix B

S&P's Debt Service Coverage Analysis of Independent Power Projects
Calculation of the Total Debt Service Coverage Ratio[a]

SOURCES OF FUNDS
Operating revenues
Electric sales
Steam sales
Total operating revenues

Other income
Interest on reserve fund
Total sources of funds = (total operating revenues) + (other income)

USES OF FUNDS
Operating expenses[b]
Fuel
Limestone
Ash disposal
Operation and maintenance (O&M)
Water treatment
Insurance and property taxes
Utilities
Lease payments
Consumables
Professional fees
LOC fees
Contingency
Subordinated O&M bonus
Subordinated general and administrative
Deposit to major maintenance fund
Deposit to O&M reserve fund
Total operating expenses

Net cash available = (total sources of funds) - (total operating expenses)

Debt service
Senior debt service
–Principal
–Interest

Subordinated debt service
–Principal
–Interest
Total debt service

Total debt service coverage ratio = (net cash available) / (total debt service)

[a] Adopted by Standard & Poor's Creditreview, March 1995, page 24
[b] In the case of international power projects, operating expenses should also include concession fees and withholding taxes to the host government (and generally any other cash outflow senior to debt service not shown in the operating expenses category).