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Characteristics of the Market for Project Finance

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ADVANCED TECHNOLOGY FOR LARGE STRUCTURAL SYSTEMS

Lehigh University

CHARACTERISTICS OF THE MARKET FOR PROJECT FINANCE

bу

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CHARACTERISTICS OF THE MARKET
FOR PROJECT FINANCE

by

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National Science Foundation Engineering Research Center Advanced Technology for Large Structural Systems

> Lehigh University November, 1988

ABSTRACT

The past decade has seen increased use of innovative techniques for financing large construction projects, internationally as well as in the United States. As a result of constraints on government spending and the rapid escalation of construction costs, particularly in capital-intensive industries such as utilities and natural resource development, both the public and private sectors have developed new and more efficient methods of financing projects that would otherwise be delayed or foregone.

One such method is referred to as project finance, a technique under which revenues from a project are the sole source of debt repayment and return on equity. Unlike traditional methods of construction financing, project finance lenders have limited recourse to the assets of the owner; if project revenues are insufficient to cover debt service, lenders have no claim against the owner beyond the assets of the project.

Use of project finance in the public sector represents a form of privatization, involving a public-private partnership for the provision of facilities or services typically considered to be the responsibility of government. Examples of privatization have included construction and/or operation of environmental and transportation systems, correctional and medical facilities, and public office buildings and housing.

A frequently used mechanism for funding infrastructure privatization with project finance is the "build, own, transfer" (BOT) model, in which a private consortium finances construction then transfers ownership to the public sector in return for a claim on future revenues generated by the project. EuroTunnel, crossing the English Channel, is an example of a BOT project.

Project finance in the private sector provides a means for firms to keep debt off their balance sheets, allowing them to reflect favorable financial leverage and maintain desirable credit ratings. Corporations with less than a majority ownership position in a limited partnership need not include partnership debt on their balance sheets. Use of project finance allows partnerships to fund construction projects without reflecting project debt on the books of the corporate partners.

The supply of projects seeking finance includes both public and private sector construction. The demand for project finance opportunities involves asset-seeking institutional and corporate investors, as well as financial intermediaries seeking feegenerating business. This paper discusses the supply of and demand for project finance, and the role of financial intermediaries in arranging capital and allocating risk.

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INTRODUCTION

The past decade has seen increased use of innovative techniques for financing large construction projects, internationally as well as in the United States. As a result of constraints on government spending and the rapid escalation of construction costs, both the public and private sectors have developed new and more efficient methods of financing projects that would otherwise be delayed or foregone.

Declines in oil and commodity prices have resulted in reduced funds resource construction spending in available for countries. Resource-poor developing countries have faced tighter international credit markets, as debt levels increased and the availability of resource revenues for recycling, in the form of Governments in developed commercial bank lending, declined. countries, including the U.S. with its large deficits, have faced pressures for slower budget growth. Internationally, the volume and value of new contracts awarded fell between 1981 and 1986 by 60 and 33 percent, respectively.

Technological advances in many capital-intensive industries, including mining, petrochemicals, and utilities, have accelerated capital replacement costs faster than the rate of inflation. Innovative financing techniques have become increasingly important in the feasibility of projects such as development of natural resources and construction of industrial and power plants.

One such technique is referred to as project finance, a method under which revenues from a project are the sole source of debt repayment and return on the equity component of the financial package. Unlike traditional methods of construction financing, project finance lenders typically have limited recourse to the assets of the project owner; "pure" project finance provides no recourse. If project revenues are insufficient to cover debt service, lenders have no claim against the owner beyond the assets of the project. The project is, in effect, self-liquidating in terms of financing.

Project finance generally involves a consortium of sponsors which, depending on the nature of the project, may include the owner of the resource being developed, users or customers of the resource (offtakers), engineering and construction (E&C) contractors, equipment vendors, and operations and maintenance (O&M) contractors. Sponsors provide equity and work with financial intermediaries to arrange placement of debt and, if needed, additional equity.

The concept of project finance is not new. It was used in the 19th century to fund construction of such projects as the Suez Canal and British railroads. More recently, project finance was used to develop North Sea oil fields.

In the U.S., project finance was used by wildcatters in the 1930's

to develop Texas oil fields, with oil in the ground used as security for loans to be repaid by development of the field. Typically, however, private sector construction projects have been financed with corporate funds and public works have been funded by Federal grants or tax-exempt bond issues.

The supply of public and private sector construction projects seeking finance and the demand for assets by investors such as banks, pension funds, and insurance companies provide the major elements of a market for project finance. Following sections discuss market supply and demand, and describe the role of financial intermediaries in arranging capital and allocating risk through the project finance process.

THE SUPPLY OF PROJECTS SEEKING FINANCE

While approximately \$250 billion in construction contracts were awarded for major projects in the U.S. in 1987, many potential public and private projects are deferred or delayed each year because of funding constraints. Use of project finance provides a means of increasing the availability of construction funds, particularly for firms or governmental bodies whose access to traditional sources of capital is constrained.

PUBLIC SECTOR PROJECTS

Population growth, cutbacks in government spending, and a continually deteriorating infrastructure have generated a supply

of projects that are socially beneficial but lack funding. In the U.S., the availability of Federal grants for public works projects has been constrained by budget deficits, while the ability of state and municipal governments to finance construction through bond issues has been affected by changes in tax laws and limits on debt capacity imposed by law, political considerations, or capital markets.

Provisions of the Tax Reform Act (TRA) of 1986, including broadened application of the alternative minimum tax, reduced the attractiveness of municipal bonds to some investors and stimulated consideration of alternatives for financing public sector projects. However, the demand for municipal bonds has remained strong. Limitations on the preferential tax treatment of bonds for non-public purposes, i.e., "private activity bonds" for industrial development, airports, ports, and environmental facilities, have resulted in the use of project finance for infrastructure improvements aimed at stimulating economic development, including construction of transportation and environmental systems.

Advantages of using project finance to fund infrastructure improvements can extend beyond the ability to reduce governments' capital requirements; improvements in efficiency may also be attainable through reduced involvement of political considerations and less stringent legal and regulatory requirements for private sector construction projects.

Use of project finance in the public sector represents a form of privatization. Privatization involves a public-private partnership for the provision of facilities or services typically considered to be the responsibility of government. Governments at all levels have recognized advantages in privatization, and the inventory of successful projects is extensive. Examples of privatization have included construction and/or operation of environmental and transportation systems, correctional and medical facilities, and public office buildings and housing.

BOT Projects

infrastructure funding mechanism for frequently useđ privatization with project finance is the "build, own, transfer" (BOT) model, in which a private consortium finances construction then transfers ownership to the public sector in return for a claim on future revenues generated by the project. EuroTunnel, crossing the English Channel, is an example of a BOT project. A consortium of private lenders and investors has financed construction with four billion pounds sterling of debt and one billion pounds of equity, without the financial backing of the governments of France or the United Kingdom. Revenues will be provided through fees paid The operating concession for the by railroads using the tunnel. sponsoring consortium runs for 55 years, with debt repayment in 18 years.

Transportation Projects

Tunnels and bridges have also been constructed in Hong Kong and London using the BOT method of project finance, and are under consideration in Canada and Turkey. Tolls, leases, or operating concessions provide the source of revenues for future payments to lenders and investors. In the Canadian example, selection of a developer for a bridge to Prince Edward Island will be based on the minimum subsidy required to build and operate the eight milelong structure. In the U.S., project finance is planned for private toll roads in Colorado and Virginia, and is being considered for bridge rehabilitation projects.

Environmental Projects

Environmental projects have been among the most common public sector applications of project finance in the U.S., partly due to the relative certainty of future revenues. In addition, while sewage, water, and hazardous waste treatment are mandated by Federal law, programs to fund construction of costly treatment facilities have been the targets of recent and proposed cutbacks, forcing many municipalities to consider privatization or other innovative financing techniques.

Energy Projects

Energy projects, including cogeneration, biomass, and waste-toenergy plants, have also been developed using project finance. Like environmental projects, the relative certainty of future revenues from many energy projects makes them attractive public sector candidates for project finance. Project-financed power plants have been developed throughout the U.S., as well as in Turkey, Northern Ireland, Indonesia, and Pakistan. In 1987, approximately \$3.5 billion in energy projects were project-financed.

PRIVATE SECTOR PROJECTS

The private sector origins of modern project finance lie in development of natural resources, including oil fields and mineral deposits. Due to the large capital requirements and associated risks, oil and mining companies have sought a means of financing exploration and development that would manage risk and avoid credit degradation resulting from a large increase in corporate debt.

Project finance provides a means for firms to keep debt off their balance sheets, allowing them to reflect favorable financial leverage and maintain desirable credit ratings. Corporations with less than a majority ownership position in a limited partnership need not include debt of the partnership on their balance sheets. Use of project finance allows partnerships to fund construction projects without reflecting project debt on the books of the corporate partners.

Off balance sheet-financing remains a principal advantage of using project finance to fund private sector construction projects. This

could change, however, as the Financial Accounting Standards Board (FASB) is considering requiring partial consolidation, meaning that limited partners would have to include on their corporate balance sheets the percentage of partnership debt equal to their ownership position.

Natural Resource Projects

Natural resource development has continued to be a primary source of supply of private sector projects, particularly internationally, where ability to generate hard currency revenues is a key consideration in assessing suitability for project finance. Recent examples of the use of project finance to develop natural resources have included geothermal fields in California, the Red Dog zinclead-silver mine in Alaska, the Hibernia oil field off Canada's east coast, and coal mines in Australia, Venezuela, and Pakistan.

Hotels and Industrial Facilities

Hotels have also been a source of supply of private sector projects for project finance, partly, as with natural resource development, due to ability to generate hard currency revenues. Several hotels in New York City and one in Mexico City were project-financed. Industrial plants that have been developed using project finance include an automobile manufacturing facility in Illinois for a joint venture of Chrysler and Mitsubishi; a manufacturing facility for Pitman-Moore; and a gypsum production plant in Rhode Island.

THE DEMAND FOR PROJECTS SEEKING FINANCE

Demand for project finance opportunities has arisen as a result of investors' desire for assets and efforts by financial intermediaries to develop fee-generating business. Project finance compares favorably, in terms of satisfying investors' goals, with other opportunities available to large investors. According to persons familiar with project finance in the U.S., it is currently a buyers' market, with "too much money chasing too few projects".

INSTITUTIONAL INVESTORS

Recent increases in the funds held by such institutional investors as pension funds and insurance companies, shown in Table 1, have created a demand for large, long-term investments with stable returns. These investors are typically looking for assets with fixed rates of return and terms of up to 20 years, in order to match the cash flow characteristics of their liabilities. Pension funds may also view public sector project finance opportunities as a means of community reinvestment.

Since project finance is generally used for major projects, often costing several hundred million dollars, institutional investors can acquire a sizable asset with a single transaction. With all-in returns of up to 25 or 30 percent, project finance represents an attractive investment opportunity for institutions that might be barred by regulations from holding other high yield assets.

Table 1
ASSETS OF FINANCIAL INSTITUTIONS

Assets in \$ billions

	 -	-	
Type of Institution	<u> 1978</u>	<u> 1986</u>	<pre>% change</pre>
Savings institutions	\$1,400.4	\$2,961.1	111
Commercial banks	1,220.9	2,580.6	111
Insurance companies	512.2	1,251.5	144
Pension funds	424.9	1,104.5	160
Mutual funds	56.8	705.6	1,142
Finance companies	159.7	412.1	158
Credit unions	58.4	166.1	. 184
Brokerages	27.9	77.9	179
Real estate investment trusts	3.5	8.5	143
			,
TOTAL	\$3,864.7	\$9267.9	139

Source: Flow of Funds Accounts, Federal Reserve Bank

CORPORATIONS

Capital funds of large corporations also actively seek project finance opportunities in order to acquire high yield assets, involving debt as well as equity positions. In addition to relatively high yields, corporations with large appetites for tax shelters can benefit from the tax advantages of project finance, although these may diminish as the TRA of 1986 is fully implemented. Currently, tax benefits resulting from depreciation, investment tax credits, and interest payments of unincorporated partnership arrangements can be passed to corporate partners. In addition, alternative energy projects enjoy special tax advantages under regulations established in response to the oil crises of the 1970's.

COMMERCIAL BANKS

Commercial banks, while prohibited from taking equity positions, can act as project finance lenders in order to acquire assets for their own portfolios. Through the use of warrants or conversion features attached to debt, banks can sometimes obtain "equity-like" positions which yield higher returns than straight debt. Commercial banks also act as intermediaries in project finance, in order to generate fees by providing financial advisory services or underwriting debt issues.

INVESTMENT BANKS

Investment banks frequently seek project finance opportunities in

order to generate fees from underwriting debt and equity and from acting as financial advisors to the consortium that is sponsoring a project. A financial advisor might also participate in project finance as an investor, but the potential exists for conflicts of interest. As project financial advisor, the intermediary is responsible for protecting the interests of the sponsoring consortium; the interests of investors may not coincide with those of project sponsors.

NICHE BANKS AND DEVELOPERS

Developers and "niche" banks that specialize in privatization and project finance have emerged in recent years as the use of these financing techniques has increased. They serve as financial advisors to a sponsoring consortium in order to generate fees and may, in some cases, provide equity investment. Developers and niche banks often maintain ongoing relationships with institutional and corporate investors, arranging capital for a series of project finance deals.

UTILITY SUBSIDIARIES

Recently, unregulated subsidiaries of utilities have become increasingly important sources of demand for project finance opportunities, particularly in energy projects. Utilities are typically generators of stable cash flows, with recently diminished capital requirements other than those necessary, and approved, to meet demand. In addition, utilities generally have good access to

capital markets and seek assets with yields higher than those attainable on investments that are permitted by regulators.

VENDORS AND CONTRACTORS

Vendors and contractors participate in project finance as a means of selling goods and services. Investment by a vendor or contractor may be limited to goods or services provided to a project, or a more extensive investment position may be taken. Lack of a secondary market for project finance instruments, however, limits investors' liquidity and the ability of vendors and contractors to participate in project finance. Often, vendors and contractors may invest in a project through provision of goods or services with the intent of unwinding the position in post-completion financial restructuring.

ALLOCATING RISK AND ARRANGING CAPITAL

Effective management of risk is the essence of project finance. With limited recourse beyond the assets of the project, there is no participant with traditional owners' responsibilities in terms of residual risk assumption and guarantee of debt repayment.

Financial intermediaries play a crucial role in project finance, allocating risk and arranging capital to match the supply of investment opportunities seeking finance with demands by investors for such opportunities. Banks and developers are typical intermediaries in project finance, serving as advisor to a

sponsoring consortium. Some firms frequently involved in project finance, including large E&C contractors, equipment suppliers, and corporate investors, maintain in-house financial advisory capabilities or an ongoing relationship with a financial intermediary.

ALLOCATING RISK

While little can be done to alter the underlying risk profile of a project, the project finance process can be used to improve risk management. Involvement of offtakers, vendors, and contractors in a sponsoring consortium allows allocation of risk to those parties best able to manage it. For example, take-or-pay contracts for the offtake can be used to transfer risk due to changes in market conditions from the project to customers; lump sum, turnkey construction contracts can be used to transfer completion risk to E&C contractors; and performance guarantees and incentives in purchase agreements and O&M contracts can be used to transfer operating risk to equipment suppliers and operators. Involvement of government can be used to manage political risk.

Several types of risk associated with the developmental, construction, and operating phases of a project are discussed below:

Technology risk - the possibility that a new technology will prove uneconomic or infeasible, or that regulatory changes will affect use of a technology; this risk is typically associated with

energy or other technology-intensive projects;

Credit risk - the possibility that the credit worthiness of the project as a whole or of an individual sponsor will not be satisfactory to investors; if the credit worthiness of a project or sponsor is not satisfactory to potential lenders, credit may be enhanced by obtaining letters of credit from banks, so that lenders need not rely solely on the credit worthiness of the project or individual sponsor;

Bid risk - the possibility that the project will not be undertaken, i.e, will not reach the construction stage; this risk is assumed by the sponsoring consortia as well as the financial advisor, if advisory services are provided on a "success fee basis", meaning that fees are paid only if the project is undertaken;

Completion risk - the possibility that the project will not reach the operating stage, i.e., construction will not be completed within the projected schedule; typically, some form of completion guarantee is provided to investors by the sponoring consortium with a specified completion date and minimum rate of operating efficiency; this risk can be allocated to E&C contractors through the use of turnkey contracts and performance incentives; E&C contractors can then manage some of their risk through contractual arrangements with equipment and material suppliers; use and occupancy insurance may be obtained to provide for the contingency that completion is delayed;

Cost overrun risk - the possibility that construction or

operating costs will exceed projections; this risk can be allocated to E&C contractors and equipment vendors through the use of fixed price, lumpsum contracts;

Liability risk - the possibility of death or injury on the operating facility; insurance can be obtained to manage this risk or, in the case of public sector projects such as transportation system development, this risk may be allocated to the Federal, state or municipal government;

Off-take risk - the possibility that project operations will not generate projected revenues because of changes in market prices or demand for the product; take-or-pay contracts can be used to transfer this risk from the project to customers;

Sponsor's performance risk - the possibility that a sponsor, including E&C and O&M contractors, will not perform according to quality standards or schedule; involvement of reputable firms in the sponsoring consortia can help to minimize this risk; development of continuing, strategic alliances among members of sponsoring consortia also helps to manage this risk;

Equity resale risk - the possibility that contractors and other sponsors may not be able to liquidate their equity positions upon successful completion of their participation in a project; because of the limited secondary market for sponsor equity positions, sponsors may manage this risk by using subordinated loans, rather than equity investments, to provide capital to a project, with subordination of the loans limited to specific senior third party project lenders; as debt, the loans will eventually be

repaid, and the advantages and upside potential of an equity position can be preserved through the use of warrants or conversion rights included in the subordinated loan agreement;

Interest rate risk - the possibility that interest rates will increase, forcing the project to bear additional financing costs; coupon swaps, which involve the exchange of a coupon of one configuration (i.e., fixed or floating interest rates) for a coupon stream with a different configuration but essentially the same principal amount, can be used to manage this risk; investors and borrowers in project finance have access to a variety of fixed and floating rate debt markets, and can use coupon swaps to arrange debt service income and cost in the desired configuration;

currency risk - the possibility that changes in foreign exchange rates will alter the home currency value of cash flows from the project; exposure to currency risk can be hedged in the short-term through transactions in currency forward and futures markets; in the long-term or for recurring cash flows, such as collection of revenues from an operating project, hedging with either a long-date forward currency contract or a series or strip of short-date forward currency contracts is more appropriate; currency swaps, involving exchange of currencies at an agreed upon rate, can also be used to manage currency risk;

Political risk - the possibility that legislation or regulations affecting a project will change; internationally, political risk includes the possibility that host governments will expropriate project assets without adequate compensation or will

not allow repatriation of funds; strong commitment to a project from local and national governments, or governmental involvement in a sponsoring consortium, can help to manage political risk; the Overseas Private Investment Corporation (OPIC) provides insurance to U.S. companies against the risk of expropriation of foreign assets; and

Uncontrollable circumstances or force majeure risk - the possibility that events beyond the ability of project sponsors to foresee or control will affect construction or operation; this risk is typically assumed by project sponsors and equity investors, although there is growing pressure, with some success, for lenders to assume a portion of the risk.

In order to manage these various types of risk, the project financial advisor develops a matrix of project participants and risk components associated with the project. The body of the matrix identifies risk allocations. Cells in the matrix reflect the various contractual agreements that allocate risk. Figure 1 presents an example of a typical risk allocation matrix.

Based on agreement among project participants on allocation of risk, the financial advisor develops a term sheet. The term sheet defines the rights and obligations of borrowers and describes default conditions and remedies. The term sheet serves as the basis for preparation of contracts and other legal documents, as well as for accessing capital markets.

	1								X	
3rd Party Investors	5							X		
3rd Party Investo							X	•	·	·
Insurance	1								×	
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FINANCIAL ARRANGEMENTS

Project financial advisors arrange capital in a variety of ways. In the traditional approach, a lead bank is designated to arrange placement of debt through other banks. The response of capital markets to the financing offer goes through the bank to the owner. In contrast, project finance often utilizes a "club loan" approach, in which the financial advisor works with a "club" of lenders that bid on financing the project, leading to increased competition and efficiency. Sponsors interface closely with capital markets through the financial advisor and, therefore, have a first hand view of funding alternatives.

Companies that are involved in project finance on a recurring basis often maintain an ongoing relationship with a cadre of lenders. Working relationships between financial intermediaries and corporate clients and investors facilitate private placement of debt and equity.

FINANCIAL ENGINEERING

Project finance advisors often perform a form of "financial engineering" in order to enhance a project's attractiveness to potential investors. Financial engineering may involve altering the size, timing, quality, direction, or currency of cash flows to meet investors' needs. Mechanisms typically used in financial engineering include swaps, options, caps and floors, leases,

limited partnerships and joint ventures, warrants, and conversions, as well as debt and equity. Financial intermediaries may also package several project finance deals in order to enhance the credit of weaker projects and provide an investment sizable enough to be of interest to large investors.

CONCLUSIONS

The project finance market involves a supply of public and private sector projects seeking finance and a demand for such projects by investors, lenders, and financial intermediaries. On the supply side of the market, project finance provides a means of funding the construction of projects that might otherwise be delayed or foregone; on the demand side, project finance provides investment opportunities that meet the needs of a wide range of institutional and corporate investors and lenders, and provides a source of fees for financial intermediaries. Project finance benefits contractors and vendors by providing opportunities to sell goods and services for project engineering, construction, operation, and maintenance.

While involvement in private sector project finance is generally within the traditional role of banks and other financial intermediaries in their dealings with corporate clients, their role in financing privatization projects has been constrained somewhat by the separation in many financial institutions of municipal finance groups from groups responsible for real estate and commercial investment. As a result, municipal finance groups may

lack experience with innovative financing techniques more commonly used in the private sector. The emergence of niche banks and developers that specialize in privatization and project finance is evidence that conditions exist for enhanced project finance market operations.

Lack of an effective secondary market for project finance instruments has hindered their use. While institutional and corporate investors seek project finance opportunities in order to acquire assets, contractors and vendors participate in project finance as a means of selling goods and services, and may not want to hold equity or debt to term. Enhanced operation of a project finance market would facilitate the ability of contractors and vendors to unwind their positions, increasing their willingness to participate in project finance.

Domestic and international markets for project finance are growing and appear likely to continue to do so, as investors seek large, high yield assets with relatively long terms, and governments and corporations find their abilities to finance increasingly expensive construction projects through traditional methods constrained. Effective management of risk represents an additional advantage of project finance that is likely to encourage its continued use.

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