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NUMBER 7

PROJECT FINANCE IN DEVELOPING COUNTRIES

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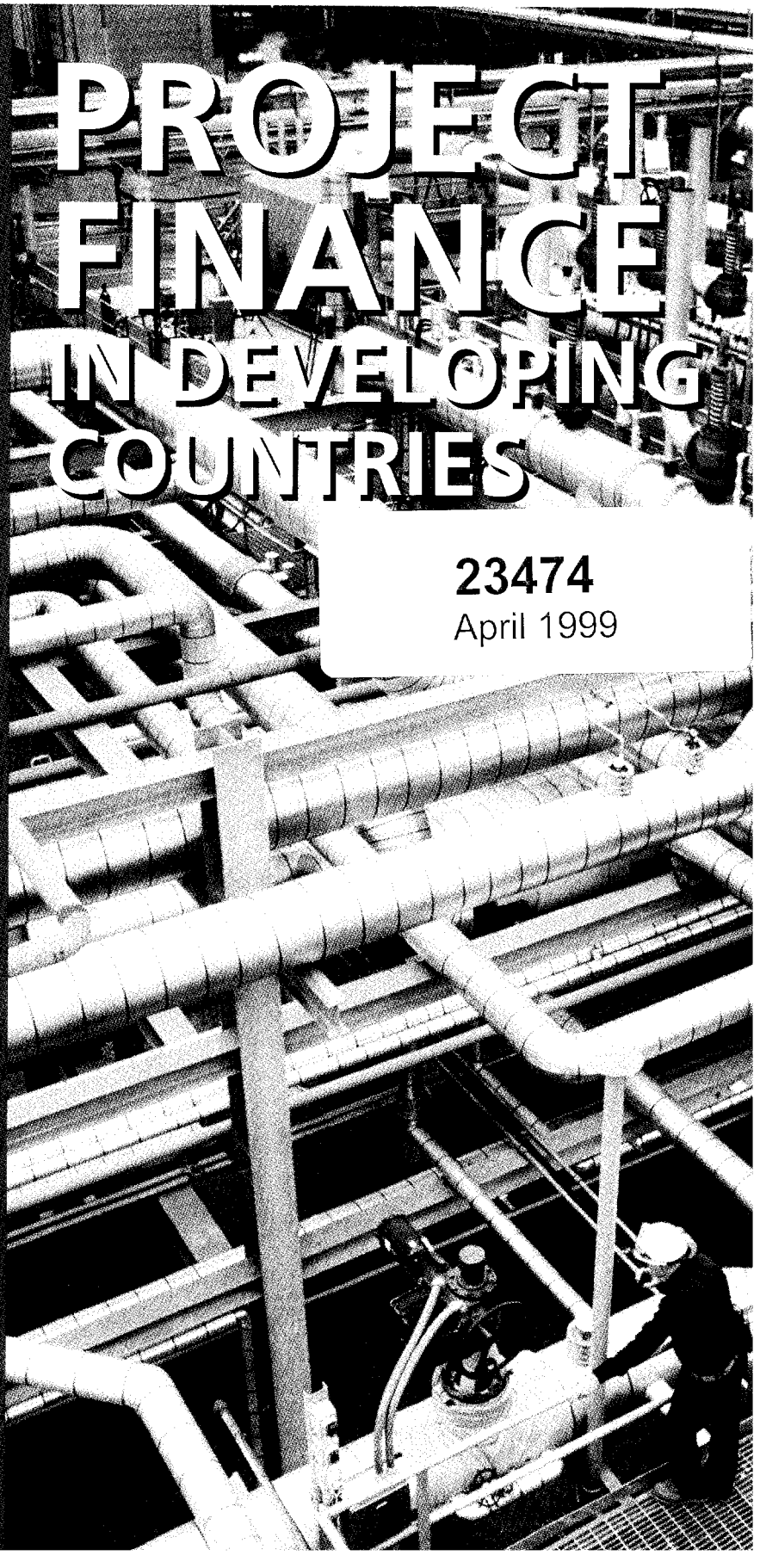

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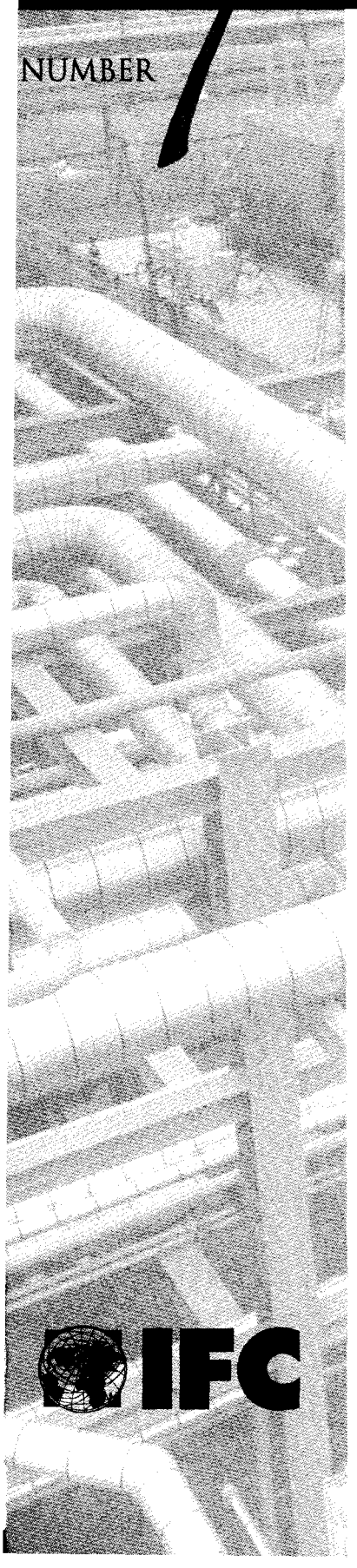
NUMBER 1



PROJECT FINANCE IN DEVELOPING COUNTRIES

International Finance Corporation
Washington, D.C.
1999

The International Finance Corporation (IFC), an affiliate of the World Bank, promotes the economic development of its member countries through investment in the private sector. It is the world's largest multilateral organization providing financial assistance directly in the form of loans and equity to private enterprises in developing countries.

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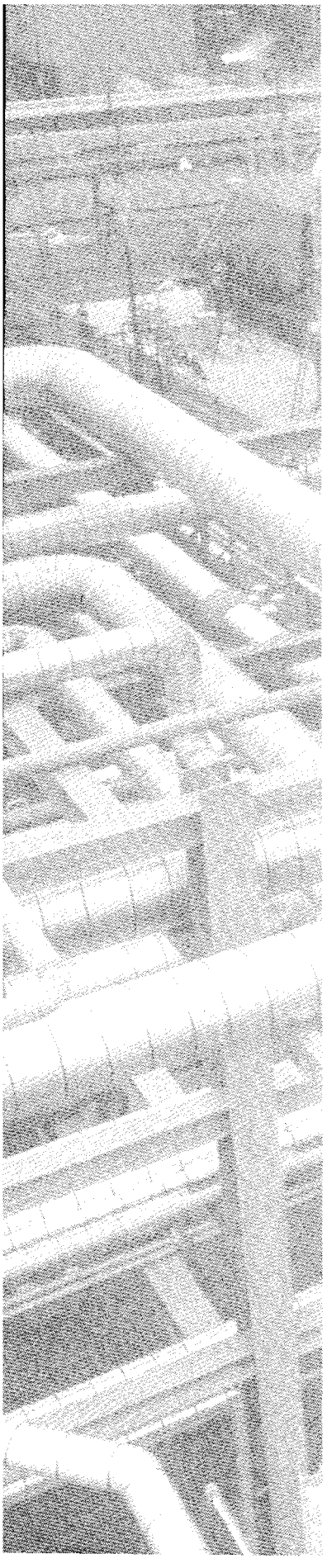

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PREFACE

Project finance to developing countries surged in the decade before the Asian crisis—supported by a growing reliance on market economics in many countries during this period, as well as the increasing integration of global financial markets. Project finance structuring techniques were used to attract international financing for many large-scale projects, helping to meet investment needs in infrastructure and other sectors. The financial crisis that began in East Asia in mid-1997, however, has brought a dramatic slowdown in this trend. The crisis has created stresses and strains for many projects, raising concerns about the viability of some and highlighting the importance of careful structuring and risk mitigation.

IFC's mission is to contribute to the World Bank Group's overall purpose of reducing poverty and improving living standards by playing a leading role in the development of a sustainable private sector. As part of this mission, IFC was one of the early pioneers of project finance in developing countries 40 years ago, and project finance remains an important core of IFC's activities today. In just the past decade IFC, which has a committed portfolio exceeding $11 billion in loan and equity investments in more than 1,100 companies, has supported over 230 greenfield projects in 69 developing countries with limited-recourse project finance.

Three important principles guide IFC's work: the business principle, the catalytic principle, and the principle of special contribution. Following the business principle, IFC focuses on promoting competitive and dynamic private enterprises by taking a partnership role and by accepting the same market risk as project sponsors. The catalytic principle focuses on the demonstration effect of individual transactions, a key to extending the Corporation's real development role. The special contribution principle directs IFC to complement the market and hence focus on projects and places where it can add special value. IFC's involvement with project finance shows how these principles interact to help bring projects to completion. IFC and other development agencies can play a significant role in support of project finance in countries that have a fundamentally sound framework

but where access to financial markets is limited. Project finance structuring can be particularly important to help mitigate risk and restore confidence in difficult circumstances.

This volume describes IFC's greenfield project finance activities over the past decade, initially against the background of rapid growth in capital flows and project finance activities in developing markets and then in light of their subsequent recent slowdown. It describes the essentials and some of the complexities of project structuring, for the benefit of a wider audience, to help explain the importance of "getting it right." Although it is still too early to tell the final outcome for most projects affected by the crisis, this analysis highlights those features of structuring which in IFC's experience contribute to more durable projects over the long term. A primary message is the importance of clearly identifying and addressing project risks up-front and the potential costs of complacency in dealing with critical issues such as foreign exchange or market demand risks. In addition to strong fundamentals, projects that are conservatively structured in financial terms and that carry strong sponsor support in terms of technical and management strength and financial commitment are those projects most likely to be successful.

Although the report focuses on transactions, underlying the discussion is the importance of good policies. Particularly important is the need for governments to provide a supportive legal and regulatory framework. Project finance, which is essentially contract-based financing, can be successful in the long term only against a background of solid rules, regulations, and policies. If, for example, judicial processes are not seen as fair or transparent, sponsors and investors will be wary of investing even under the most carefully crafted contractual structure. In a supportive environment, however, project finance structuring can offer a relatively transparent and efficient means for countries seeking to increase the level of private participation in economic activity and investment. Another important policy message running through this discussion, and reinforced by the lessons of the financial crisis that began in 1997 in developing countries, is the priority governments need to give to strengthening local financial markets. Many of the project difficulties suffered in the wake of the financial crisis would perhaps have been more manageable if a greater share of project financing had been sourced locally. Local markets need to be able to provide long-term debt and equity financing on a reasonably competitive basis, so that projects without a natural foreign exchange risk hedge do not need to resort heavily to foreign currency financing and can therefore reduce potentially significant foreign exchange risk.

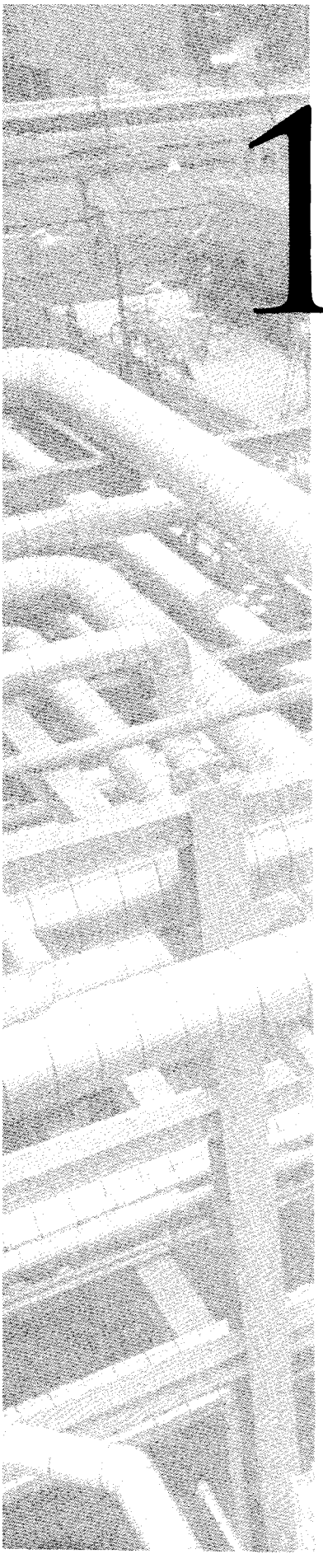
Project Finance in Developing Countries was written by a team from IFC's Corporate Planning and Financial Policy Department, led by Anita Ahmed with Xinghai Fang and Tracy Rahn, under the overall direction of Dileep Wagle and Nissim Ezekiel. Valuable support was also provided by Maybelle Pacis and Donna Raimondi. This book, like others in the Lessons of Experience series, has drawn upon a full range of operational experience with project finance transactions from across the Corporation. It has also benefited from comments and contributions of staff from the World Bank. Data used in the report reflect IFC's operational position through June 30, 1998.

Peter L. Woicke
Executive Vice President
International Finance Corporation

ABBREVIATIONS

AIU	American International Underwriters
BIS	Bank for International Settlements
BOO	build-own-operate
BOT	build-operate-transfer
CAMENA	Central Asia/Middle East/North Africa
CITI	Citicorp International Trade Indemnity
Coface	Compagnie Française d'Assurance pour le Commerce Extérieur
CUP	Cooperative Underwriting Program
D/E	debt/equity
EAP	environmental action plan
EBRD	European Bank for Reconstruction and Development
ECA	Export Credit Agency
ECGD	Export Credits Guarantee Department
EIA	environmental impact assessment
EID/MITI	Export-Import Insurance Department/Ministry of International Trade and Industry (Japan)
FDI	foreign direct investment
GDP	gross domestic product
IBRD	International Bank for Reconstruction and Development
IDB	Inter-American Development Bank
IDFC	Infrastructure Development Finance Company
IFC	International Finance Corporation
IMF	International Monetary Fund
IPP	independent power project
kwh	kilowatt-hour
LAC	Latin America/Caribbean
L/C	letter of credit
Libor	London interbank offer rate
MDB	multilateral development bank
MIGA	Multilateral Investment Guarantee Agency
NGOs	nongovernmental organizations
OECD	Organisation for Economic Co-operation and Development
OPIC	Overseas Private Investment Corporation
PFA	project funds agreement
PFC	project financial completion
PPA	power purchase agreement
PURPA	Public Utility Regulatory Policy Act
QIB	qualified institutional buyer
SEC	Securities and Exchange Commission (U.S.)

Note: All dollars are U.S. dollars unless otherwise indicated.



1 THE IMPORTANCE OF PROJECT FINANCE

In the past twenty years there has been a new wave of global interest in project finance as a tool for economic investment. Project finance helps finance new investment by structuring the financing around the project's own operating cash flow and assets, without additional sponsor guarantees. Thus the technique is able to alleviate investment risk and raise finance at a relatively low cost, to the benefit of sponsor and investor alike. Though project finance has been in use for hundreds of years, primarily in mining and natural resource projects, its other possible applications—especially for financing large greenfield projects (new projects without any prior track record or operating history)—have only recently received serious attention. This is particularly so in developing markets, but here its application is also broadening, as illustrated by the following examples of IFC-supported projects:

- In Argentina, in 1993, project finance structuring helped raise $329 million to finance investment in the rehabilitation and expansion of Buenos Aires' water and sewerage services based on a new 30-year concession awarded to Aguas Argentinas.[1] The investment, financed with IFC support, has helped improve water quality and service to a city of more than 6 million people. At that time, private sector participation in a water concession in a developing country was an untested idea, and there was virtually no precedent for a private company, operating in such an environment, raising substantial resources in international capital markets.

- In Hungary, in 1994, project finance structuring helped finance a 15-year concession to develop, install, and operate a

nationwide digital cellular network. The $185 million joint venture project was an important part of the government's privatization and liberalization program. Because of difficulty attracting commercial financing at that time, the project relied heavily on $109 million in debt and equity financing from IFC and the U.S. Overseas Private Investment Corporation (OPIC).

- In China, in 1997, Plantation Timber Products (Hubei) Ltd. launched a $57 million greenfield project to install modern medium-density fiberboard plants in interior China, using timber plantations developed over the past decade, to support China's fast-growing construction industry. As part of the limited-recourse financing for the project, IFC helped arrange $26 million in syndicated loans, at a time when foreign commercial banks remained cautious about project financing in China's interior provinces.

- In Mozambique, in 1998, project finance structuring helped establish a $1.3 billion greenfield aluminum smelter. MOZAL, the largest private sector project in the country to date, is expected to generate significant benefits in employment, export earnings, and infrastructure development. IFC fostered the project by serving as legal coordinator and preparing an independent, detailed analysis of economic results and environmental and developmental impacts. IFC also supported the project with $120 million in senior and subordinated loans for its own account.

The change in attitude toward project finance can be attributed to a number of factors, a prime one being that most countries today rely on market mechanisms to guide their economic activity and on the private sector to supply investment. Greater focus on the private sector has necessitated major regulatory reforms, which in turn have created new markets in areas previously the preserve of government activity. In one illustration, for example, provided by John D. Finnerty in *Project Financing: Asset-Based Financial Engineering*, when the United States passed the Public Utility Regulatory Policy Act (PURPA) in 1978 and established a private market for electric power, it provided a strong model for the growth of project financing in many other industrial countries.[2] Similarly, recent large-scale privatizations in developing countries aimed at strengthening economic growth and stimulating private sector investment have given further impetus to project finance structuring. Governments have also been willing to provide incentives to encourage private investors into new sectors. The surge in project finance was particularly strong in 1996 and 1997, stimulated by large flows of international capital. In 1997 the number of project finance deals worldwide (greenfield and expansion projects) exceeded 600, many of them in developing countries, and their value topped $236 billion (table 1.1), although this dropped back to about $111 billion in 1998.

Table 1.1. Project Finance Transactions by Region, 1997–98

Region	Number of projects		Amount (millions of U.S. dollars)	
	1997	1998	1997	1998
Europe	207	104	81,703	26,173
Asia	191	63	58,405	27,477
Latin America	105	49	41,610	33,554
North America	75	33	28,400	15,033
Middle East and North Africa	35	14	22,876	7,169
Sub-Saharan Africa	11	8	3,429	2,114
Total	624	271	236,423	111,520
Share of developing countries	380	140	123,169	60,069

Source: Capital DATA *ProjectFinanceWare*. Signed transactions. Although the scope of transactions included as project finance is broader than that used in this report, these data provide a good overview of market trends and developments.

Some market observers are questioning the prudence of this expanded use of project finance, especially in the wake of the East Asia financial crisis that began in mid-1997 and the dramatic deterioration that ensued in a number of the major developing markets. In short order, many large projects undertaken in the previous few years were no longer economically or financially feasible. Contractual arrangements proved to be shaky—in some cases, unenforceable—and many projects, with hindsight, had failed adequately to address potential risks (including foreign exchange risks). Private lenders and investors were much less willing to support projects facing a deteriorating policy or market environment than public sector promoters would have been. In a few countries these problems were exacerbated by public criticism of government support given to projects, and by allegations of corruption in the awarding of initial contracts.

In IFC's experience, however, project finance remains a valuable tool. Although many projects are under serious strain in the aftermath of the East Asia crisis, project finance offers a means for investors, creditors, and other unrelated parties to come together to share the costs, risks, and benefits of new investment in an economically efficient and fair manner. As the emphasis on corporate governance increases, the contractually based approach of project finance can also help ensure greater transparency.

Despite the financial crisis that began in mid-1997, the investment needs in many developing markets remain enormous. Meeting these needs is essential to development, not only in the more traditional sectors such as energy but also in nontraditional areas such as school and hospital construction. For most countries, this will mean a continuing reliance on private sector expertise and finance to meet demand. Once growth and investment resume, project finance techniques are likely to be an even more important means of sharing risks and of helping these projects get off the ground—particularly in some markets and sectors that may be considered more risky for some time to come. As the experience of the crisis has demonstrated, individual projects are not a substitute for economy-wide regulatory reform designed to improve competitiveness and efficiency, or for the development of local financial markets in support of local investment. But in the appropriate framework, project finance can provide a strong and transparent structure for projects, and through careful attention to potential risks it can help increase new investment and improve economic growth.

BASICS OF PROJECT FINANCING

As already noted, project finance is tailored to meet the needs of a specific project. Repayment of the financing relies on the cash flow and the assets of the project itself. The risks (and returns) are borne not by the sponsor alone but by different types of investors (equity holders, debt providers, quasi-equity investors). Because risks are shared, one criterion of a project's suitability for financing is whether it is able to stand alone as a distinct legal and economic entity. Project assets, project-related contracts, and project cash flows need to be separated from those of the sponsor. There are two basic types of project finance: nonrecourse project finance and limited-recourse project finance.

Nonrecourse project finance is an arrangement under which investors and creditors financing the project do not have any direct recourse to the sponsors, as might traditionally be expected (for example, through loan guarantees). Although creditors' security will include the assets being financed, lenders rely on the operating cash flow generated from those assets for repayment. Before it can attract financing, then, the project must be carefully structured and provide comfort to its financiers that it is economically, technically, and environmentally feasible, and that it is capable of servicing debt and generating financial returns commensurate with its risk profile.

Limited-recourse project finance permits creditors and investors some recourse to the sponsors. This frequently takes the form of a precompletion guarantee during a project's construction period, or other assurances of some form of support for the project. Creditors and investors, however, still look to the success of the project as their primary

source of repayment. In most developing market projects and in other projects with significant construction risk, project finance is generally of the limited-recourse type.

Difference from corporate lending. Traditional finance is corporate finance, where the primary source of repayment for investors and creditors is the sponsoring company, backed by its entire balance sheet, not the project alone. Although creditors will usually still seek to assure themselves of the economic viability of the project being financed, so that it is not a drain on the corporate sponsor's existing pool of assets, an important influence on their credit decision is the overall strength of the sponsor's balance sheet as well as business reputation. Depending on this strength, creditors will still retain a significant level of comfort in being repaid even if the individual project fails. In corporate finance, if a project fails, its lenders do not necessarily suffer, as long as the company owning the project remains financially viable. In project finance, if the project fails, investors and creditors can expect significant losses.

Project finance benefits primarily sectors or industries in which projects can be structured as a separate entity, apart from their sponsors. A case in point would be a standalone production plant, which can be assessed in accounting and financial terms separately from the sponsor's other activities. Generally, such projects tend to be relatively large, because of the time and other transaction costs involved in structuring, and to include considerable capital equipment that needs long-term financing. In the financial sector, by contrast, the large volume of finance that flows directly to developing countries' financial institutions has continued to be of the corporate lending kind.

Traditionally, in developing countries at least, project finance techniques have shown up mainly in the mining and oil and gas sectors. Projects there depend on large-scale foreign currency financing and are particularly suited to project finance because their output has a global market and is priced in hard currency. Since market risk greatly affects the potential outcome of most projects, project finance tends to be more applicable in industries where the revenue streams can be defined and fairly easily secured. In recent years, private sector infrastructure projects under long-term government concession agreements with power purchase agreements (PPAs) that assure a purchaser of the project's output have also been able to attract major project finance flows. Regulatory reform and a growing body of project finance experience continue to expand the situations in which project finance structuring makes sense, for example, for merchant power plants that have no PPA but sell into a national power grid at prevailing market prices.

In IFC's experience, project finance is applicable over a fairly broad range of nonfinancial sectors, including manufacturing and service projects such as privately

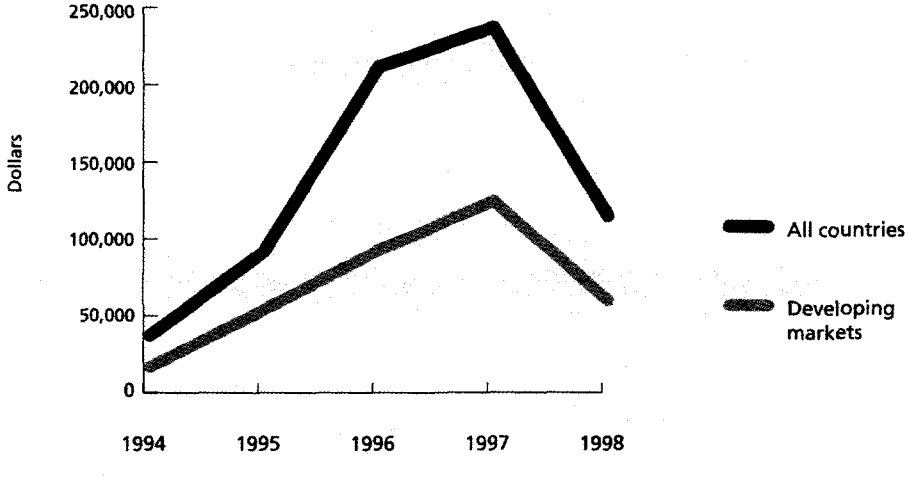
financed hospitals (wherever projects can stand on their own and where the risks can be clearly identified up front). Although the risk-sharing attributes of a project finance arrangement make it particularly suitable for large projects requiring hundreds of millions of dollars in financing, IFC's experience—including textile, shrimp farming, and hotel projects—also shows that the approach can be employed successfully in smaller projects in a variety of industries. Indeed, that experience suggests project finance could help attract private funding to a wider range of activities in many developing markets.

BRINGING PRIVATE FLOWS TO DEVELOPING MARKETS

Most project finance deals of the past two decades have been concluded in industrial countries, but the technique has also played a significant role in some developing markets. In 1997 and 1998 combined flows of this kind to developing country projects totaled about $183 billion, or slightly more than half the total project finance flows recorded worldwide (figure 1.1).

For developing markets, project finance holds out the hope that a well-structured, economically viable project will attract long-term financing even if the project dwarfs its sponsors' own resources or entails risks they are unable to bear alone. With such a mechanism for sharing the costs, risks, and rewards of a project among a number of unrelated parties, a privatization or infrastructure improvement program will have a greater chance of raising the volume of funds it requires.

Figure 1.1. Volume of Project Finance Transactions, 1994–98
(millions of U.S. dollars)



Source: Capital DATA *ProjectFinanceWare.*

As a result, it is now standard practice for large and complex projects in the major developing markets to employ project finance techniques. The total volume of project finance transactions concluded in 1996 and 1997 before the financial crisis (an estimated 954 projects costing $215 billion) would have been hard to imagine a decade ago. The number of active participants in these markets also increased as many international institutions (investment banks, commercial banks, institutional investors, and others) moved quickly to build up their project finance expertise.

The financial and economic crisis that began in mid-1997 in East Asia, the site of much recent growth, and spread to other countries since then has dramatically slowed market evolution. The estimated number of projects in developing markets fell in 1998 to 140 for an amount of $60 billion. The financial capacity and willingness of many banks in these countries and of other potential investors to support large projects have also been eroded. As a result, sponsors in crisis countries, both private and public, have canceled or deferred numerous major projects. The ones still under implementation, particularly those financed during the past few years, have come under increased stress in the face of reduced market demand for their output or related sponsor problems.

With the prospects for economic growth slowing worldwide, sponsors in other countries and regions are also structuring projects more conservatively. It is not yet clear how prolonged these difficulties will be. When the growth of new productive investment picks up again, however, project financing is likely to increase, particularly in countries where perceptions of risk remain high and investors could be expected to turn to structuring techniques to help alleviate these risks.

ADVANTAGES OF PROJECT FINANCE

In the appropriate circumstances, project finance has two important advantages over traditional corporate finance: it can (1) increase the availability of finance; and (2) reduce the overall risk for major project participants, bringing it down to an acceptable level.

For a sponsor, a compelling reason to consider using project finance is that the risks of the new project will remain separate from its existing business. Then if the project, large or small, were to fail, this would not jeopardize the financial integrity of the corporate sponsor's core businesses. Proper structuring will also protect the sponsor's capital base and debt capacity and usually allow the new project to be financed without requiring as much sponsor equity as in traditional corporate finance. Thus the technique enables a sponsor to increase leverage and expand its overall business.[3]

By allocating the risks and the financing needs of the project among a group of interested parties or sponsors, project finance makes it possible to undertake projects that

would be too large or would pose too great a risk for one party on its own. This was the case in 1995 when IFC helped structure financing for a $1.4 billion power project in the Philippines during a time of considerable economic uncertainty there. Sharing the risks among many investors was an important factor in getting the project launched.

To raise adequate funding, project sponsors must settle on a financial package that both meets the needs of the project—in the context of its particular risks and the available security at various phases of development—and is attractive to potential creditors and investors. By tapping various sources (for example, equity investors, banks, and the capital markets), each of which demands a different risk/return profile for its investments, a large project can raise these funds at a relatively low cost. Also working to its advantage is the globalization of financial markets, which has helped create a broader spectrum of financial instruments and new classes of investors. By contrast, project sponsors traditionally would have relied on their own resources for equity and on commercial banks for debt financing. Particularly significant is the increasing importance of private equity investors, who tend to take a long-term view of their investments. These investors are often willing to take more risk (for example, by extending subordinated debt) in anticipation of higher returns (through equity or income sharing) than lenders. A project that can be structured to attract these investors—to supplement or even to substitute for bank lending—may be able to raise longer-term finance more easily. Further details on the main financial instruments and sources of financing for project finance appear in box 1.1.

NO FREE LUNCH

For all its advantages, project finance cannot be said to offer a "free lunch." On the contrary, it has rigorous requirements. To attract such finance, a project needs to be carefully structured to ensure that all the parties' obligations are negotiated and are contractually binding. Financial and legal advisers and other experts may have to spend considerable time and effort on this structuring and on a detailed appraisal of the project. These steps will add to the cost of setting up the project and may delay its implementation. Moreover, the sharing of risks and benefits brings unrelated parties into a close and long relationship. A sponsor must consider the implications of its actions on the other parties associated with the project (and must treat them fairly) if the relationship is to remain harmonious over the long term.

Since project finance structuring hinges on the strength of the project itself, the technical, financial, environmental, and economic viability of the project is a paramount concern. Anything that could weaken the project is also likely to weaken the financial returns of investors and creditors. Therefore an essential step of the procedure is to identify and analyze the project's risks, then to allocate and mitigate them. Potential risks are many and varied. Some may relate to a specific subsector, others to the country and policy environment, and still others to more general factors. As the crisis that began in mid-

Box 1.1. Project Financing Instruments, Sources, and Risk-Return Profiles

Commercial Loans. Funds lent primarily by commercial banks and other financial institutions, generally securitized by the project's underlying assets. Lenders seek: (1) projected cash flows that can finance debt repayment with a safety margin; (2) enough of an equity stake from sponsors to demonstrate commitment; (3) limited recourse to sponsors in the event of specified problems, such as cost overruns; and (4) covenants to ensure approved usage of funds and management of the projects.

Equity. Long-term capital provided in exchange for shares, representing part ownership of the company or project. Provided primarily by sponsors and minority investors. Equity holders receive dividends and capital gains (or losses), which are based on net earnings. Equity holders take risks (dividends are not paid if the company makes losses), but in return share in profits.

Subordinated Loans. Loans financed with repayment priority over equity capital but not over commercial bank loans or other senior debt in the event of default or bankruptcy. Usually provided by sponsors. Subordinated debt contains a schedule for payment of interest and principal but may also allow participation in the upside potential similar to equity.

Supplier Credit. Long-term loans provided by project equipment suppliers to cover purchase of their equipment by the project company. Particularly important in projects with significant capital equipment.

Bonds. Long-term debt securities generally purchased by institutional investors through public markets, although the private placement of bonds is becoming more common. Institutional investors are usually risk-averse, preferring projects with an independent credit rating. Purchasers require a high level of confidence in the project (for example, strong sponsors, contractual arrangements, and country environment); this is still a relatively new market in developing countries.

Internally Generated Cash. Funds available to a company from cash flow from operations (that is, profit after tax plus noncash charges minus noncash receipts) that are retained and available for reinvestment in a project. In a financial plan, reinvested profits are treated as equity, although they will be generated only if operations are successful.

Export Credit Agency (ECA) Facility. Loan, guarantee, or insurance facility provided by an ECA. Traditionally, ECAs asked host governments to counterguarantee some project risks, such as expropriation. In the past five years, however, many have begun to provide project debt on a limited-recourse basis.

Multilateral or Bilateral Agency Credit Facility. Loan, guarantee, or insurance (political or commercial) facility provided through a multilateral development bank (MDB) or bilateral agency. Tenor usually long term. Loans may include a syndicated loan facility from other institutions, paralleling the MDB's own direct lending.

1997 has demonstrated, currency mismatches and government-related risks can have devastating consequences if overlooked. Though it may be costly and time-consuming, detailed risk appraisal is absolutely necessary to assure other parties, including passive lenders and investors, that the project makes sound economic and commercial sense. Similarly, lenders and investors must be kept abreast of the project's operational performance as it progresses.

The largest share of project finance normally consists of debt, which is usually provided by creditors with no direct control over managing the project. They try to protect their investment through collateral and contracts, broadly known as a security package, to help ensure that their loans will be repaid. The quality of the security package is closely linked to the effectiveness of the project's risk mitigation. Because project financing relies on the project's cash flows and the contractual arrangements that support and ensure those flows, it is essential to identify the security available in a project and to structure the security package to alleviate the risks perceived by participants (see box 1.2). Some projects may need additional support—in the form of sponsor assurances or government guarantees—to bring credit risk to a level that can attract private financing.

The overall financial costs of a project finance transaction may not be as high as under corporate finance if the project is carefully structured, if it identifies and mitigates each risk to the extent possible, and if it sources financing appropriately from different cate-

Box 1.2. A Typical Security Package

The security package will include all the contracts and documentation provided by various parties involved in the project to assure lenders that their funds will be used to support the project in the way intended. The package also provides that if things go wrong, lenders will still have some likelihood of being repaid.

A typical security package will include a mortgage on available land and fixed assets; sponsor commitments of project support, including a share retention agreement and a project funds agreement; assignment of major project agreements, including construction and supply contracts and offtake agreements; financial covenants ensuring prudent and professional project management; and assignment of insurance proceeds in the event of project calamity. The quality of the package is particularly important to passive investors, since they normally provide the bulk of the financing, yet have no say in the operations of a project and therefore do not want to bear significant operating risks. The strength of the package, as judged by the type and quality of security available, governs the creditworthiness of the project, effectively increasing the share of project costs that can be funded through borrowings. Significant additional expense may accrue in identifying and providing the security arrangements, which will also require detailed legal documentation to ensure their effectiveness.

gories of investor. The senior debt component may be more expensive, however, because debt repayment relies on the cash flow of the project rather than on the strength of the sponsors' entire balance sheet. The project sponsors will need to carefully weigh the advantages of raising large-scale financing against the relative financial and administrative costs (both up-front and ongoing) of different sources of finance.

IFC'S PERSPECTIVE

This report explores the changing face of project finance in developing markets.[4] IFC and, more recently, other multilateral, bilateral, and export credit institutions have played a strong supportive role in bringing project finance to its current volumes. This role was highlighted in 1998, when these institutions sustained flows of an estimated $25 billion at a time when there was an abrupt decline in some types of private flows. IFC, in particular, was a pioneer of project finance in developing countries and has a unique depth of experience in this field, which spans more than 40 years in the practical implementation of some 2,000 projects, many of them on a limited-recourse basis.[5] Particularly in today's marketplace, IFC's ability to mobilize finance (both loan and equity for its own account and syndicated loans under its B-loan program), the strength of its project appraisal capabilities, and its experience in structuring complex transactions in difficult environments have been reassuring to other participants and important to the successful financing of many projects. The report draws on IFC's experience in more than 230 greenfield projects costing upward of $30 billion that relied on project finance on a limited-recourse basis (appendix A). It opens with a brief description of the major international trends in project finance over the past two decades and then turns to the essential ingredients of successful project financing.

In view of IFC's considerable experience and the attention now being given to project financing, especially among developing market participants themselves, the time seems ripe to let others benefit from that experience. The discussion in the pages that follow should be of particular interest to private sector commercial banks and investment banks in developing markets that are giving thought to financing projects, private sector corporations considering a new project in a developing country, other financial institutions, and governments in developing markets seeking a better understanding of how project finance can help promote new investment.

Notes

1. Note that for some projects the date may differ from the project's fiscal year commitment date, because of the time lag between project preparation and commitment date of financing.
2. John D. Finnerty, *Project Financing: Asset-Based Financial Engineering* (New York: John Wiley and Sons Inc., 1996).

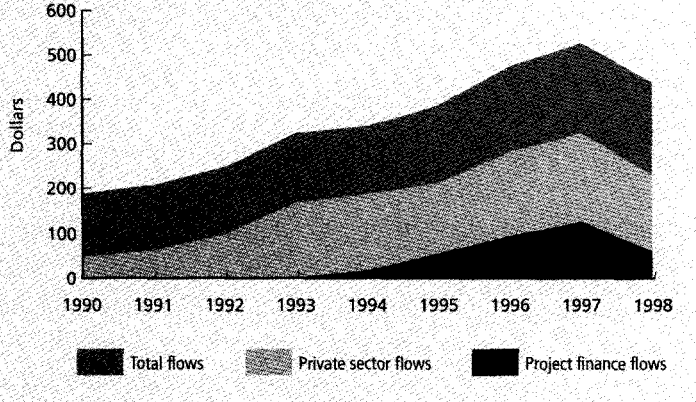
3. In some cases, project finance structured with minority participation may also confer tax or financial disclosure benefits on the sponsor.
4. The report concentrates on project finance for private sector projects. Although some national and local governments seek to attract private financing to public sector projects through project finance structuring, and the techniques are similar, the project is under the explicit or implicit umbrella of government support.
5. Since its founding in 1956, IFC has committed more than $23.9 billion of its own funds and has arranged $17 billion in syndications and underwriting for 2,067 companies in 134 developing countries. IFC's total committed portfolio outstanding at June 30, 1998, was $11.4 billion and included financing to 1,138 companies in 111 countries.

2 GLOBALIZATION AND THE RAPID GROWTH OF PROJECT FINANCE

As the financial literature describes in detail, globalization has brought a rapid increase in international capital flows, a wider range of financial products, and a new and diverse group of financiers and investors.[1] Between 1990 and 1997 long-term flows to private sector borrowers in developing countries rose from about $44 billion to $322 billion (figure 2.1). Although capital flows slowed dramatically from mid-1997 following the financial and economic crisis in East Asia and elsewhere, globalization is expected to continue to spur financial integration as economic growth picks up again.

Globalization has greatly benefited project finance, just as it has benefited foreign direct investment and portfolio flows. At the same time, project finance has itself helped strengthen the

Figure 2.1. Long-Term Private Sector and Project Finance Flows to Developing Countries, 1990–98
(billions of U.S. dollars)



Note: Debt on a gross basis; equity on a net basis. Project finance flows data available only from 1994.
Source: World Bank, *Global Development Finance*, 1999, Capital DATA *ProjectFinanceWare*.

effects of globalization. The liberalization of financial markets, combined with advances in information technology, has given rise to new financial instruments, most notably a broader spectrum of debt and equity products and a wider range of risk management techniques. Project finance, which relies heavily on the mitigation of project risks, has been able to build on these financial products, making project financing possible even in the face of commercial, interest rate, foreign exchange, and commodity risks. Until the 1997 crisis, this mutually reinforcing relationship was fostering a rapid growth in project finance, in industrial countries, and also in developing markets, although the availability of new techniques in the developing markets remained much more limited.

As noted in chapter 1, project finance flows to emerging markets reached an estimated $123 billion in 1997 before the financial crisis, representing more than a 25-fold increase over the previous decade. The growth in the number of transactions—many involving larger and larger projects—was also impressive, rising from less than 50 in 1994 to more than 400 in 1996 and 380 in 1997, before declining significantly in 1998.

Project finance also supported economic growth as many developing countries strengthened their macroeconomic management and liberalized their economic structures; this led to increased investment and a strong demand for financing, which was reinforced by the transfer of project finance techniques to those countries and sectors having the appropriate regulatory and business framework. The willingness of governments to create the regulatory framework to attract private investment (and in some cases to provide additional support) also created many new opportunities in developing markets, particularly in areas that were previously the preserve of state enterprise. As a result, public-private partnerships have been a fertile area for project financing. The increasing acceptance of international accounting standards and the resulting improvement in corporate accountability and transparency have also improved the business and regulatory framework in many countries, thereby facilitating contract-bound transactions. This last point is important for project finance, which usually brings together a number of unrelated parties to complete a project. Project finance relies on a system that can ensure that agreed obligations and responsibilities between its different parties will be met.

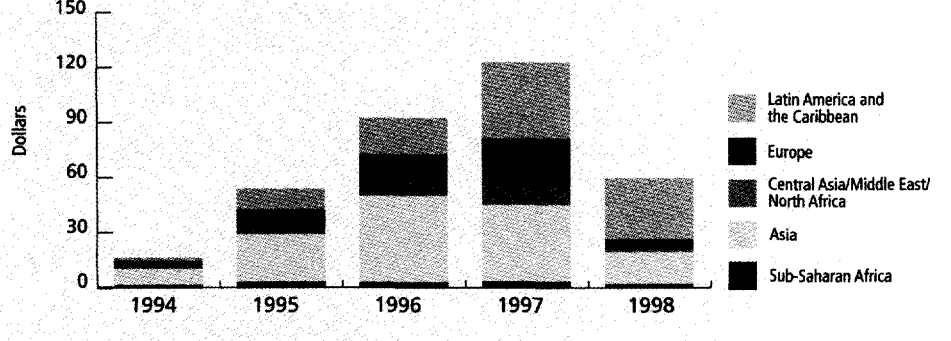
MILESTONES IN PROJECT FINANCING

Project finance has not flowed to all countries and all geographic regions, just as all regions have not benefited equally from the dramatic increase in private capital flows.The growth and spread of the project finance market can be seen in some of the major policy changes and innovative projects structured over the past two decades (box 2.1). For the most part, project finance to developing countries has increased wherever sponsors have found not only a relatively stable macroeconomic environment but also the following favorable con-

ditions: regulatory reforms opening markets to competition and private investment; liberalized foreign investment regulations; privatization programs that have increased investment opportunities; liberalized financial markets promoting the deepening and broadening of local markets; wider use of risk management and other financial products; improved legal frameworks (particularly for contract enforcement); and improved accounting standards, which have increased corporate accountability and transparency.

Through 1997 the lion's share of project finance volumes went to Asia, although its relative share declined in 1997 and more significantly in 1998 (figure 2.2). Between 1994 and 1998 developing markets in Asia received 41 percent of the estimated flows to developing countries, followed by Latin America and the Caribbean with a share of 31 percent. Asia's dominance until the latter part of 1997, and Latin America's since then (with about 56 percent of flows in 1998), was due to high levels of domestic investment and growth, macroeconomic stability (which increased the ability to attract long-term financing essential to project finance), and a regulatory framework relatively supportive of contract-based finance. Countries in other regions, however, can and do attract large flows. The ability to sustain future growth in project finance flows to individual developing countries will depend on continued improvements in the framework supporting these flows. The sectoral distribution of project finance transactions in developing markets over the same period is illustrated in figure 2.3. The importance of infrastructure is clear, with 51 percent of flows over the period 1994–98, including an increased share of 58 percent in 1998.

Figure 2.2. Project Finance Transactions in Developing Markets, 1994–98
(billions of U.S. dollars)



Source: Capital DATA *ProjectFinanceWare.*

Box 2.1. Milestones in Project Financing

1970s	1980s	1990-93	1994-95
Foundations for project financing laid in the power sector. Previously confined mainly to natural resource sector.	Continued regulatory reform in industrialized countries. Macroeconomic policy changes and regulatory reforms also paved the way for project financing in developing markets.	Expansion of sectoral coverage. Access to capital markets and securitization.	Expansion of regional coverage. Securitization of project equity; investment grade issues.

North America, Western Europe, Japan

U.K.: British Petroleum raised $945m from a syndicate of 66 banks to develop its Forties field in the North Sea (1972).
U.S.: Public Utility Regulatory Policy Act, requiring local utilities to buy the output of qualified independent power producers under long-term contract at the utility's marginal cost of generating electricity. PURPA thus provided the foundation on which non-recourse lending could take place in the power industry (1978).

U.S.: AT&T, which for much of its history had functioned as a legally sanctioned, government-regulated monopoly, was formally required to divest itself of its Bell operating companies, which provided the bulk of telecommunications in the U.S. Thus the competitive framework for a major expansion in telecommunications services was established (1984).

U.S.: COSO Geo Thermal Project, $560 million. First project financing arranged in the quasi-public Rule 144A securities market. First project-related financing to achieve investment-grade status.
U.K.: Private Finance Initiative. Launch of program of public partnership with private industry, to bring private investors into financing a wide range of traditionally government activities (including schools, hospitals, prisons), thus opening new areas to project finance.

U.S.: Indiantown Cogeneration Project, $505 million; publicly registered capital markets project financing. First to receive investment-grade rating during construction period.
U.S.: Global Power and Pipelines, capitalized at $165 million, established as a listed company by Enron to pool its developing markets infrastructure projects, selling 50 percent of equity to private investors.
Japan. Electric Power Utility Law amended to allow creation of independent power producers.

Developing Markets

Turkey. First Build-Operate-Transfer (BOT) law to attract private finance for public infrastructure projects. This allowed a developer to build and operate a project long enough to cover construction costs and turn a profit, before turning it over to the state (1987). Subsequent rulings by Turkey's highest administrative court on the applicability of international arbitration have, however, complicated the framework, delaying a number of projects.

Philippines. First country in Asia to enact a special law for BOT scheme for infrastructure project implementation and funding, which authorized the financing, constructing, and maintenance of infrastructure projects by the private sector.
Philippines. Subic Bay Power, $105 million. First private placement by a foreign project in the U.S. under Securities Rule 144A.
Regional. Scudder Latin American Trust for Independent Power, to make long-term investments, generally equity-type securities, in private power projects in the region; initial closing in June 1993 raised $75 million from three investors, including IFC.
Colombia. Mamonal Power, $70 million. First independent power project in Latin America on a limited-recourse basis, with no government or sponsor guarantees. Overseas Private Investment Corporation political risk insurance. Project required a new regulatory, legal, and securities framework.
Mexico. Grupo Serficor/Public Financial Management structured the first ever collateralized loan obligation program for Mexico.
Mexico. Toluca Toll Rd, $200 million. First financing of a toll road in international markets. IFC provided a $13.8 million loan.

Côte d'Ivoire. Ciprel, $70m. First IPP in Africa. IFC provided a $14m loan for its own account and invested $1m in equity.
Malaysia. YTL Power Generation, $570 million equivalent local currency bond offering. Largest debt financing in Malaysian history. Landmark in development of Asia's local bond markets.
Poland. Electrowina Turon. First BOT power-generation plant in Poland.
Oman. Al Manah Power Station , $155 million. First BOT in the Gulf. The IFC invested $14 million for its own account, $4 million equity, and a further $57 million in B-loans.
Colombia. Centragas, $172 million. First investment-grade project finance issue from a developing market. Eurobond/ Rule 144A issue.

1996	1997	1998
Larger exposures, longer tenors, less government, MDB and ECA involvement. Greater capital markets access.	Continuing growth in regional coverage, and improved financing terms through mid-year. Foreign currency crisis beginning mid-1997 overtook many projects.	Continued innovation in selected areas, but dramatic slowdown in financial flows to developing markets affected project finance access. Fewer new projects; many cancellations and debt restructuring. Selected projects continued to be financed, many with strong MDB, ECA, or government support. Greater emphasis also on local currency funding.

North America, Western Europe, Japan

	U.K.: AES Barry, U.K.'s first merchant power plant financing to close; 230 MW gas-fired power plant. **U.K.:** Sutton Bridge. Gas-fired power plant project marked a key development as the first Eurobond with a Rule 144A placement, which was London-listed and on which investors bore construction risk. First investment-grade rating for a plant with some merchant power risk.	**U.S.:** Project Funding Corp. First collateralized bond obligation backed by project- finance loans. A pooling of about $600 million of Credit Suisse First Boston's project finance loans. Includes about 40 $ loans, mostly secured on U.S. power projects. **OECD:** Project Finance Modifications: Consensus Rules covering project- finance activities for ECAs introduced for 3-year trial period; permits tenors up to 14 years (average life 7.25 years); expected to expand the participation of ECAs in project finance.

Developing Markets

China. Tangshan Sithe Coal Fired Plant, $128 million. First limited-recourse project in China without the participation of ECA/ MDB institutions, or sponsors/sovereign support but credit enhancement by PICC, China's largest state-owned insurance co. **Thailand.** Rayong Refinery, $1.5 billion. Largest nonrecourse deal in Asia. **Qatar.** Ras Laffan liquified natural gas project. Set a record for size of bond (originally planned to raise $40m but increased to $1.2 billion on strong demand) and length of tenor. **Peru.** Aguatyia Integrated Energy, $257 million. First long-term limited-recourse financing in the region for merchant power plant. 30-year financing from banks and institutional investors with MDB support.	**China.** Anhui Hefei 2 x 350 MW $430 million. First power project in China for which domestic banks provided long-term limited-recourse debt ($190 million equivalent) alongside ECAs and international banks. **China.** Laibin B 2 x 350 MW power project $616 million. First BOT project financing in China (Coface participation, $300 million); totally financed internationally. **Morocco.** Jorf Lasfar Power, $1.3 billion. Country's first privately financed power project. North Africa's biggest IPP and limited-recourse financing to date. **Saudi Arabia.** Yanpet, $2.3 billion. Largest financing for a petrochemicals project in the world. Largest financing for a nonsovereign entity in the Middle East. **Chile.** Los Pelambros Mines, $950 million. Longest syndicated uncovered bank loan for a Chilean project, 12 years. **Panama.** Northern Corridor and Madden toll roads. First capital market construction financing for a road project in the region since Mexican peso crisis of 1994. Contains construction risk and no government guarantees of traffic flow. First project finance transaction in Central America. $200 million project including $131 million 15-year Rule 144A bond issue, at 425 basis points above 10-year U.S. Treasury securities. **Venezuela.** Petrozuata $1 billion. Largest project financing in the region. Largest developing countries investment grade project bond offering from a below-investment-grade country. Longest tenor project bond worldwide, 25 years.	**China.** Shandong Zhonghua Power; 3,000 MW plant; $2.2 billion project includes $822 million equivalent local debt and $312 million ECA-backed tranche providing political and commercial risk coverage. **Côte d'Ivoire.** Azito Power 288 MW power plant. First IDA partial risk loan guarantee issued for a private sector project helped raise $30 million commercial bank financing. IFC-supported project with $30 million for own account and an additional $30 million B-loan from commercial banks. **India.** *Infrastructure Development Finance* Co. (IDFC). IFC helped create this innovative nonbank financial institution supporting project financing through takeout financing guarantees–standby facilities to lengthen loan maturities and help create a secondary market for project loans. **Brazil.** Usina Hidrelectrica Guilman-Amorim; first Brazilian power plant financed on a project finance basis by the private sector. On *July 29, 1998*, entered commercial operation. IFC is investing $121 million in the project, including a B-loan of $91 million. **Mexico.** Merida III, the first IPP in Mexico, lead sponsored by AES Corporation. Financing of $173 million led by Jexim ($69 million) and IFC (up to $104 million, including $74 million B-loans). Merida III will sell electricity to the state-owned electric utility (CFE) under 25-year PPA. CFE will make most payments under the PPA in U.S.$. Mexico's Electricity Commission announced plans to open bidding on a further 10 new projects.

Source: Various issues of IFR Publishing, *Project Finance International*, and Euromoney Publications PLC *Project Finance*.

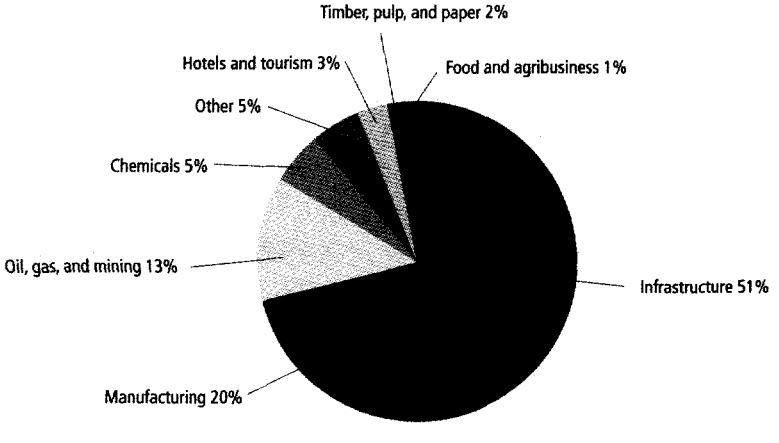
The growth in project finance and in total capital flows to developing markets was particularly strong in the period from mid-1995 until the last few months of 1997 (after the onset of the Asia crisis), and was accompanied by improved terms for borrowers. The spreads for private sector borrowers and projects in developing markets declined dramatically (figure 2.4); at the same time, available maturities lengthened. There was a sharp increase in the demand for bonds issued by private corporations, while a few bonds were issued for limited-recourse projects. Loan pricing also became more flexible, frequently including grid pricing, or multiple interest rate settings, depending on risk changes, as defined by certain events over the life of the loan. Typical events for projects might include project completion, a change in sovereign or company rating, leverage and other financial ratios, ownership, and debt amount outstanding.[2]

The tighter spreads and longer maturities seemed tied both to general market liquidity (noted by many who thought that the pricing of some transactions was becoming excessively aggressive) and to improved perceptions of country risk. The success of economic reform programs dramatically altered the external perceptions of many countries, particularly in Latin America; for example, Uruguay, Panama, and El Salvador joined Chile and Colombia in 1997 in obtaining an investment-grade rating.[3] In some cases, corporations themselves obtained a higher rating than did their country.

CAPITAL MARKETS FINANCING

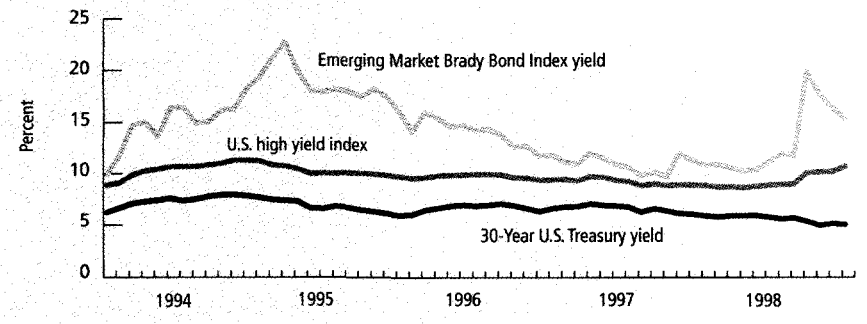
The rapid growth of the international securities markets in recent years, as reflected in the increased volume of finance and sophistication of their instruments, was linked to

Figure 2.3. Project Finance Transactions in Developing Countries by Sector, 1994–98



Source: Capital DATA *ProjectFinanceWare.*

Figure 2.4. Developing Market Bond Yields versus 30-Year Treasury Yields, 1994–98



Note: Monthly data, in percentage points.
Source: Bank for International Settlements, *International Banking and Financial Market Developments*, November 1998.

this overall improvement and had a significant impact on financing opportunities for borrowers in developing markets.

Public financial markets. Traditionally, developing countries' corporate equity and debt were placed directly with investors and creditors through private placements or syndications. Today, the capital markets play an important role in financing the private sector, as shown earlier in table 2.1. This has enabled many corporate borrowers to gain access to large-scale financing.

For the most part, this access has not yet extended to limited-recourse projects in developing countries, which continue to rely on commercial loan syndications, although there have been some important exceptions, including AES China Generating's 1994 $150 million equity offering for new power projects in China and its 1996 $180 million public bond offering. Only a few IFC-supported projects in some half-dozen countries (notably Argentina, Brazil, Mexico, and India) have gained access to the international bond and equity markets. Almost all of these projects are in countries with an investment-grade credit rating, and their sponsors have been able to shift from commercial bank, development agency or export credit agency financing to securities markets transactions to take advantage of both longer-term maturities and more flexible financing requirements.

The main advantages of bond financing over bank loans are that they can reach a wider group of investors and therefore usually achieve a lower interest cost margin and longer maturity. Documentation also usually requires fewer covenants, so there is less

Table 2.1. Net Long-Term Bond and Portfolio Equity Flows to Developing Markets, 1990–98
(billions of U.S. dollars)

	1990	1995	1996	1997	1998
Total net private flows	43.09	201.5	275.9	298.9	227.1
Bonds	1.2	26.6	53.5	42.6	30.2
Portfolio equity	3.7	36.1	49.2	30.2	14.1

Source: World Bank, *Global Development Finance 1999.*

negotiation with lenders and a faster conclusion. Securities laws, however, generally require a high level of public disclosure of all the material contracts relating to a project, together with the details of its financial activities. That may be problematic if information on materials is of a confidential nature. In addition, considerable legal, accounting, and auditing expense may be incurred in gathering the required financial information, which may offset the lower interest costs. Another drawback is that the traditional bond structure does not provide the same degree of flexibility, monitoring, or control of a creditor's interests in the project as does bank financing. Bonds are usually held as bearer instruments (with no central register of names of holders), so the sponsors may find it difficult to adjust covenants or financial terms if the project's needs change.

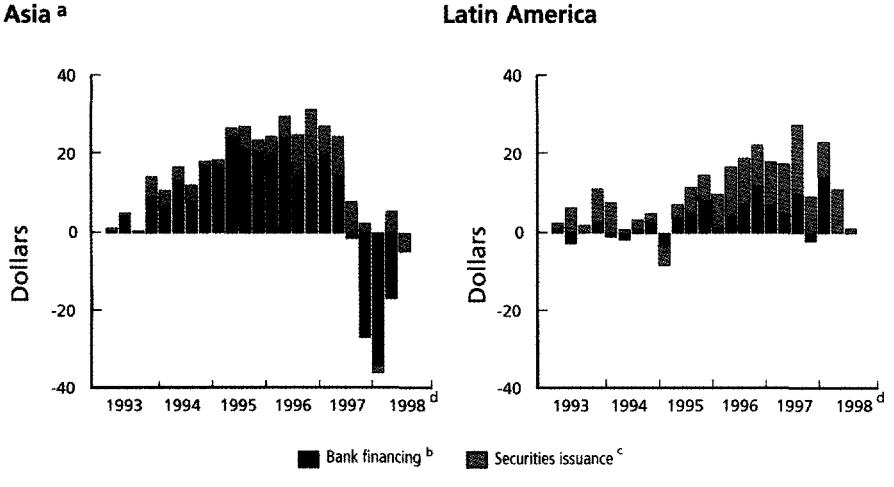
Of more concern for many potential borrowers is the volatility of the public securities market. The availability of senior loans is generally not as market-sensitive as bonds, as has been confirmed by the difficulties since the Asia crisis erupted. A number of projects that before the crisis had hoped to tap the public bond markets have now reverted to loan syndications or private placements, even though these markets have also contracted significantly. Figure 2.5 illustrates the decline in bond and short-term note issues since the last quarter of 1997.

Over the longer term, however, project-related bond issues are expected to gain and sustain greater accessibility to public markets. To illustrate, it is estimated[4] that global bond issuance for project financing rose 23 percent in 1998 to $9.9 billion, even while bank lending declined 16 percent. Investors are becoming more familiar with the structured aspects of project debt because of the success of other structured debt programs (for example, mortgage-backed securities). Project bonds are also becoming more attractive to longer-term fixed-income investors because they are backed by long-term identifiable cash flows. The expanding use of development agencies through Export

Credit Agency (ECA) guarantees and insurance as well as their private sector equivalents will help reduce perceptions of risk and enhance credit ratings. One illustration of this was the increase in project ratings assigned by the major rating agencies in 1996 and 1997 before the Asia crisis (for example, Standard and Poor's rated $5.5 billion in 1996 and over $10 billion in 1997), although most greenfield projects remained below investment grade. Box 2.2 illustrates one expansion project that obtained an investment-grade rating with the help of IFC financing.

Private placement market. Although most projects in developing markets will continue to have limited access to the public listed markets for securities, a significant liberalization of U.S. securities regulations in 1991 opened new opportunities for limited-recourse financing through private placements. Previously, some non-U.S. companies avoided the U.S. capital markets because of a concern that the registration requirements of the U.S.

Figure 2.5. International Bond and Note Issuance by Developing Market Borrowers, 1993–98
(billions of U.S. dollars)



a. Excluding Hong Kong, Japan, and Singapore.
b. Exchange rate adjusted in BIS reporting banks' claims vis-à-vis Asian and Latin American countries.
c. Net issues of international money market instruments, bonds, and notes.
d. Data on bank borrowing not yet available for the third quarter of 1998.
Source: Bank for International Settlements (BIS), *International Banking and Financial Market Developments*, November 1998.

securities laws (including U.S. generally accepted accounting principles) could apply to offerings and resales of securities. Since 1991, however, a non-U.S. issuer may make an international capital markets offering that is similar to a public offering without having to register and without presenting U.S.-reconciled financial statements. These issues, called Rule 144A/Regulation S issues, may not be made to the general public but may be made to an unlimited number of qualified institutional buyers (QIBs) in the United States and to an unlimited number of investors outside the United States. Because there are more than 4,000 QIBs (mostly investment advisers, pension fund managers, insurance companies, and banks), the market is quite broad. As with publicly issued bonds, bonds offered under Rule 144A generally contain fewer financial covenants than either commercial bank loans or development agency and ECA financing agreements. Of the more than $110 billion raised in the private placement market in 1996, about 80 percent came under Rule 144A. Private placement financing costs are usually slightly higher than those for public securities but still allow developers of international projects to tap into a deep and liquid market at relatively low cost.

Equity funds. Funds, also known as collective investment vehicles, are financial structures for pooling and managing the money of multiple investors. They offer investors a mechanism with which to buy securities they could not otherwise hold because of trans-

Box 2.2. Transportadora de Gas del Norte S.A., Argentina: Lower-Cost, Longer-Term Financing from the Capital Markets

In 1996, an Argentine company (Transportadora de Gas del Norte S.A., or "TGN") in the business of natural gas transmission and distribution wanted to upgrade and expand its facilities. IFC advised the company to make use of the U.S. institutional investor market by means of a "single asset securitization," whereby an IFC loan to TGN would be sold to a U.S.-domiciled trust, which in turn would issue trust certificates backed by the IFC loan. To access the institutional investor market in the U.S. most efficiently, an investment-grade rating of the trust certificates from one or two leading international rating agencies was needed. IFC helped TGN secure a rating of BBB- from Standard & Poor's and a BBB from Duff & Phelps. These ratings were higher than Argentina's sovereign rating of BB at the time.

The trust certificates had a maturity of 12 years and a fixed coupon of 9.45 percent. U.S. insurance companies showed a strong interest in the trust certificates, with the originally planned $175 million issue being oversubscribed and increased to $215 million. The market conditions then prevailing indicated that if the same amount of money was raised through an IFC-syndicated bank loan (IFC's B-loan program), the interest rate on such a loan would have been on the order of 100 basis points higher and the maximum term attainable would have been less than 12 years. Thus, accessing the U.S. institutional market resulted in cheaper financing and a longer tenor than would otherwise have been possible.

action costs, legal restrictions, or lack of expertise. They also help investors diversify assets, achieve better liquidity, and obtain the benefits of professional management and research. Domestic companies benefit from funds because they provide greater access to equity capital. Since 1984, when IFC helped structure one of the first country funds (for Korea), the volume of equity funds invested in developing markets has grown well beyond $100 billion. Most equity funds are country portfolio funds that invest in the listed securities of local companies, but a growing category are private equity funds geared to investing in large projects, including greenfield and unlisted securities. IFC helped promote one of the first such funds, the Scudder Latin American Trust for Independent Power, which was established in 1993 to make long-term investments, generally equity-type securities, in private power projects in Latin America and the Caribbean.

Looking forward. With the onset of the East Asia crisis in mid-1997, financial markets changed drastically. Project finance, having its biggest market in Asia, was particularly hard hit. Many borrowers and projects in the region saw interest rate spreads jump, as did less creditworthy borrowers outside. Liquidity in the bond markets, which are traditionally more volatile, declined dramatically; in many countries access disappeared altogether. Activity in the lending markets also declined, exacerbated by the pullback of Japanese financial institutions (major players in the area) for domestic reasons. In the wake of these changes, the volume of new market transactions fell from monthly averages of $18 billion in January–October 1997 to $12 billion in November and December.[5] Concern over the impact of the currency crisis on longer-term economic growth prospects in Asia and elsewhere has also slowed activity considerably. As a result, many projects have been canceled or are on hold pending stabilization of economic and financial markets. Of the projects going ahead, some that had not reached financial closure before the crisis are having to resort to more conservative financing packages (at a higher cost; see table 2.2), or must seek other means to help mitigate the perceived increase in risks.

How soon East Asia and other developing markets affected by the crisis will be able to recover is as yet unclear. Forecasts for the longer term are generally optimistic: institutions specializing in project finance expect pre-1997 trends in this area to resume once economic growth returns to the major developing markets. Much will depend, however, on a return of a willingness of banks in Japan, Korea, and Taiwan, major suppliers of capital before the crisis, to resume lending activities. In the interim, projects will continue to be sponsored, particularly in the more creditworthy countries, but structuring will be much more conservative, and sponsors are likely to rely more frequently on support from official agencies to complete their financing packages. These trends are discussed next.

Table 2.2. Confidence Indicators in Selected Asian Countries, Early 1998

Country	Crisis	Tenor [a]	Political risk cover	Interest rate spread (%)
Indonesia	Pre	15	No	~1.30
Indonesia	Post	10	Yes	n.a.
Thailand	Pre	16	No	>1.00
Thailand	Post	10	Yes	n.a.
Philippines	Pre	10	Yes	1.375
Philippines	Post	7	Yes	>2.50
China	Pre	12	Yes	>1.50
China	Post	12	Yes	>2.00
India	Pre	8-1/2	No	2.00-2.50
India	Post	10-12	Yes	1.00 [b]

n.a. Not available.
a. Maximum tenor on an uncovered basis.
b. With full insurance cover.
Source: IFR Publishing, *Project Finance International, Asia Pacific Review*, March 1998.

Notes

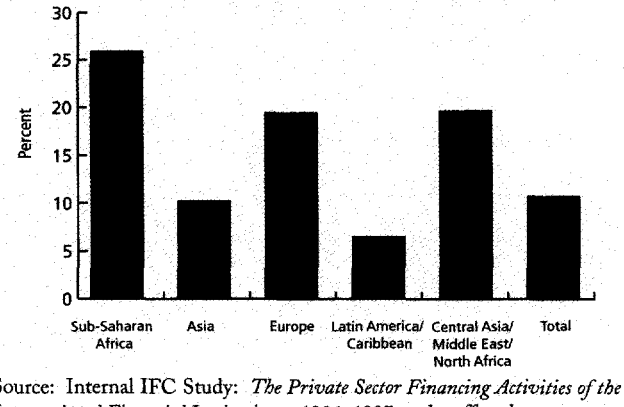
1. See, for example, World Bank, *Global Development Finance 1998*, March 1998, and *Private Capital Flows to Developing Countries: The Road to Financial Integration, 1998.*
2. Adjustable features help lenders lengthen loan maturities, as they can adjust pricing for changes in the future credit standing of the borrower.
3. As of October 1, 1998, more than 50 developing countries had sovereign credit ratings (compared with just 18 in 1994); of these, 22 were considered investment grade, as rated by Moody's Investors Service.
4. IFR Publishing, *Project Finance International*, February 1999.
5. World Bank, *Global Economic Prospects and the Developing Countries*, January 1998.

3

IFC'S ROLE IN PROJECT FINANCE

The rapid growth in project finance to developing countries over the past decade was facilitated in part by direct support (in the form of finance, guarantees, or insurance) from multilateral institutions like IFC, from export credit agencies, and from other official institutions. During the period 1994–97, a major share of all project finance transactions involved at least one official agency. Many projects also received support in the form of political assurances, implicit or explicit, from host governments that indirectly facilitated their financing. The share of official support varied depending on the sector and country of the project (figure 3.1 and table 3.1), and during the 1996–97 heyday of capital flows, the need for official support seemed to diminish in a number of countries. Since the mid-1997 crisis, its role has again increased significantly as private investors have become more cautious, and it is expected to remain essential to the financing of many projects until full confidence is restored.

Figure 3.1. Finance from Development Finance Institutions and ECAs as a Percentage of International Flows to the Private Sector, 1994–98



Source: Internal IFC Study: *The Private Sector Financing Activities of the International Financial Institutions: 1991-1997,* and staff updates.

Table 3.1. Involvement of Development Finance Institutions and ECAs in Developing Countries' Project Finance, 1994–97
(percent)

	Country risk grade			
Sector	**80-60**	**60-40**	**40-20**	**20-0**
Water and sewerage	0	29	89	100
Road and rail	11	11	78	0
Agriculture	0	0	60	100
Oil and gas/upstream	0	25	40	60
Mining	0	26	30	71
Property	0	3	56	50
Power	22	27	51	38
Oil and gas/downstream	6	22	35	20
Telecommunications	0	21	29	25
Manufacturing	6	10	17	29
Transport/shipping	0	0	30	21

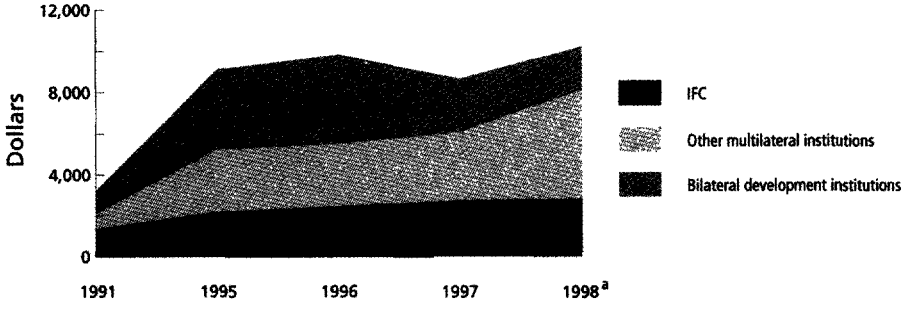
Note: Percentage of transactions in which a multilateral or bilateral agency or an export credit agency participated. Country risk ratings are *Institutional Investor* ratings.
Source: Oliver Wyman and Company, based on Capital DATA *ProjectFinanceWare*.

MULTILATERAL, BILATERAL, AND REGIONAL DEVELOPMENT AGENCIES

In response to the growing belief that private enterprise can be an engine for growth, many development agencies have switched the focus of their financial support from government to private sector transactions and programs. Their willingness to invest in high-risk countries and sectors has helped spread the growth of project financing. In particular, their ability to extend long-term financing and to directly guarantee or insure against certain project risks has enabled some large and complex projects to proceed, especially those involving public-private partnerships. When development agencies participate in the financing package, even without explicit guarantees, the project often has a higher profile, which helps protect it against certain political risks.

IFC is the largest multilateral source of loan and equity financing for private sector projects in the developing world; it is also a leading agency supporting project finance for the private sector. Its experience spans more than 40 years and reaches into 134 countries. As of June 30, 1998, IFC's total financing portfolio covered 1,138 companies in 111 countries. Over the past five years, other development agencies—including the European Bank for Reconstruction and Development, the Inter-American Development Bank (IDB), the Asian Development Bank, and the African Development Bank—have all increased their lending to the private sector (figure 3.2). In 1998, their total finance to the private sector

Figure 3.2 Commitments of Development Agencies for Private Sector Financing in Developing Countries, 1991–98
(millions of U.S. dollars)



a. Estimate.
Source: Internal IFC Study: *The Private Sector Financing Activities of International Financial Institutions: 1991-1997,* and staff updates.

is estimated at $10.2 billion, of which IFC represents about $2.8 billion. Although figures for their project finance activities are not available, they are estimated to represent at least 25 percent of these agencies' total private sector lending. The syndicated loan programs (known as B-loans) offered by some MDBs are also an important means of mobilizing finance. Total B-loan syndications in 1997 were about $4 billion. IFC has by far the largest B-loan program (box 3.1): it completed $2.4 billion in syndications during fiscal 1998 and $9.8 billion between fiscal 1995 and 1998.

IFC'S ROLE IN PROJECT FINANCE IN DEVELOPING MARKETS

Project finance has been part of the central core of IFC's activities since it began operations in 1956, and IFC remains the leading multilateral institution supporting private sector project finance.[1] IFC supports project finance in three principal ways:

- *By sharing the risks of projects with private investors.* IFC equity and long-term debt financing alongside that of other partners can help projects go forward. This is particularly important in countries having weak local financial markets or having difficulty attracting foreign investment.

- *By helping reduce project risk through appraisal and structuring skills.* IFC's emphasis on careful appraisal and its broad experience in difficult environments can help sponsors structure a financially, technically, and environmentally sound project. The agency's knowledge and understanding of different business environments may also facilitate the actual investment process by helping to secure administrative or regulatory approvals.

Box 3.1. IFC's Syndicated Loan Program

The syndication of participations in IFC loans has been the cornerstone of IFC's mobilization efforts. Under this structure, known as the B-loan program, IFC is the sole lender of record to the project, acting on behalf of both itself and participating banks. Participants share fully in the commercial credit risks of IFC projects, but also enjoy the advantages that IFC derives from its status as a multilateral development bank, including:

- **Likely access to foreign exchange:** IFC does not have guaranteed access to foreign exchange for debt service, but to date it has received priority access in countries experiencing foreign exchange shortages. No IFC loan, including the portion funded by participants, has been included in the general rescheduling of a borrowing country's foreign debt. Also, IFC has never been requested to participate in new money loans to debt-rescheduling countries based on its existing exposure.

- **A strong historical performance record:** Despite investing in some very difficult country environments, IFC's projects have demonstrated a strong repayment record, with few loan write-offs. When projects do experience difficulties, IFC works with the sponsors and other lenders to help develop suitable restructuring plans.

- **Regulatory benefits:** Bank regulators in most OECD countries exempt B-loan participations from their normal country risk provisioning requirements.

IFC is always a substantial lender for its own account when it syndicates a loan, sharing the risks alongside the participants. As lender of record, IFC normally administers the B-loan, with responsibility for payment arrangements. Participants currently include some 280 commercial banks and other financial institutions. Export credit agencies and domestic lenders are not included in the B-loan program but finance on a parallel basis with IFC.

- *By helping reduce perceived risk through its presence in a project.* Because IFC is an international organization owned by its member countries, its participation in a project provides some comfort in the face of political risk. This gives it a strong catalytic role in many projects, especially in mobilizing loans from other financial institutions through syndications (B-loans). IFC, the lender of record, extends the advantages it derives as a multilateral institution to other participants in the syndicated loan, which may enable IFC's clients to obtain financing on better terms and allows financial institutions to finance at lower perceived risk.

Table 3.2. IFC Project Finance for Greenfield Projects, 1989–98
(millions of U.S. dollars)

Instrument	Maximum amount[a]	Average amount[a]
Senior loan	100	16
Syndicated loan	350	35
Quasi-equity	65	7
Equity	20	3

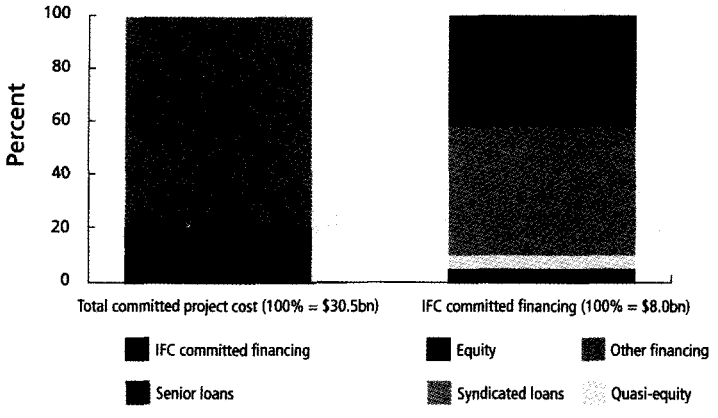
a. Maximum amount and average amount committed to an individual project.
Source: IFC.

To illustrate IFC's role, this chapter examines its greenfield project financing over the past decade. The discussion also provides a useful backdrop to chapters 4 and 5, which describe the central features of successful project structuring.

IFC's greenfield project financing. The projects reviewed for this report constitute the greenfield projects for which IFC has committed project financing on a limited-recourse basis during the past 10 years (fiscal 1989-98).[2] The sample consists of 291 project finance transactions (including additional investments and risk management facilities) for 233 greenfield projects approved and committed by IFC. The total cost of these projects was $30.5 billion, and IFC's total committed financing about $8 billion including B-loans. These projects represent only part of IFC's total limited-recourse financing during the period, which also included more than 400 expansion or other financings arranged for existing companies or projects. Although project finance is frequently used to support the expansion of an existing project, this review focuses on greenfield projects because these endeavors, with their new plant construction and new operations, pose the greatest challenge to structuring and risk sharing.

IFC's investment. IFC invests in projects through a mixture of debt, equity, and quasi-equity. In almost all (95 percent) of the greenfield projects reviewed, IFC agreed to provide long-term loans, and in half of the projects it also helped raise additional debt financing through its syndications (B-loans) to commercial banks and other financial institutions. Unlike many other development agencies, IFC has also traditionally been a major provider of equity funding to the private sector in developing markets; in more than half (54 percent) of the greenfield projects, it invested equity, and in more than a

Figure 3.3. IFC's Financing of Greenfield Projects, 1989–98
(percent)



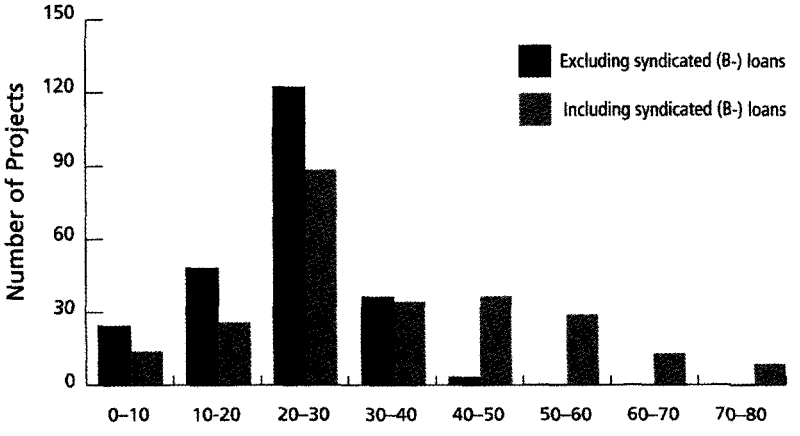
Source: IFC.

quarter (27 percent), it also provided quasi-equity in the form of subordinated debt or convertible loans. Table 3.2 indicates the maximum and average amount of IFC's support through different financial instruments in these projects.

IFC and IFC-arranged financing usually covers a significant share of total project cost, although the agency itself is never the major investor and does not take an active role in project management. The relative importance of IFC's overall financing to greenfield projects and of its different instruments is shown in figure 3.3. On average, IFC's own lending represented 11 percent of total project costs, while B-loans represented 13 percent, although they averaged 21 percent of the financing in projects where they were used. IFC's equity represented 2 percent of the total cost of the projects in which IFC made equity investments, and accounted for 7 percent of the equity in those projects. Quasi-equity averaged 1 percent of total project cost and 5 percent of the cost in projects with quasi-equity.

IFC support for individual greenfield projects has varied, as illustrated in figure 3.4, depending on the type of project and alternative financing available. Overall, it has averaged 27 percent of project cost, and in 52 percent of the projects it ranged between 20 percent and 30 percent. In 17 percent of the projects, IFC's support represented 30 percent or more of project cost. When syndicated loans arranged by IFC are included, the picture is rather different. For 36 percent of the projects, IFC support (including B-loans) was 20 percent to 30 percent of project cost, but it reached 40 percent or more of total project cost in 35 percent of the projects.

Figure 3.4. IFC Share of Total Project Costs for Greenfield Projects, 1989-98



Note: Share of IFC support in total project cost (percent).
Source: IFC.

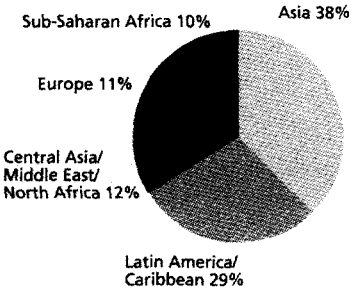
IFC's long-term financing is considerably longer than that usually offered in private markets. About 81 percent of IFC's greenfield loans have a tenor of 8 years or more, but a few have stretched even to 20 years. Syndicated B-loans generally cover slightly shorter periods. Projects are usually provided grace periods of 2 to 3 years before principal repayments start. Interest rates are determined according to prevailing market rates, depending on the country, project risk, and tenor of the loan. Interest margins on the B-loans of the projects reviewed range from 0.5 to 4.0 percent above Libor, mostly at variable rates. Interest margins on IFC's own loans are slightly higher, reflecting their longer tenor. About 25 percent of IFC's loans were provided at fixed rates of interest.

Country distribution. IFC has financed greenfield projects in 69 countries (of which 18 are in Sub-Saharan Africa) over the past decade and in a wide range of sectors. Of the 233 projects, 67 are in Asia, 61 are in Latin America and the Caribbean, and the remainder are spread among Europe (43), Sub-Saharan Africa (26), and Central Asia, the Middle East, and North Africa (36) (see figure 3.5).

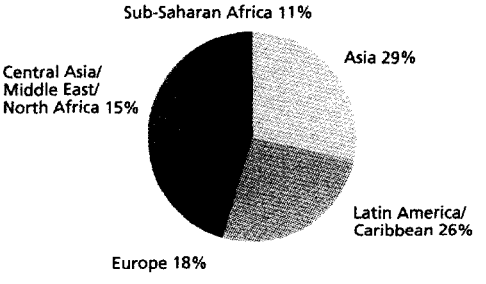
IFC has relied on project finance techniques for a large number of projects in difficult country environments. Of the 233 greenfield projects, 77 percent were in countries with an *Institutional Investor* rating of less than 45 at the time the project was approved, and 27 percent were in high-risk countries with a rating of less than 25.[3] By comparison, only about 10 percent of the total international project financing in developing markets over the period 1994–98 was in countries with a risk rating of less than 25.[4]

Figure 3.5. IFC Project Finance for Greenfield Projects, Regional Distribution by Volume and Number, 1989–98

100% = 233 projects

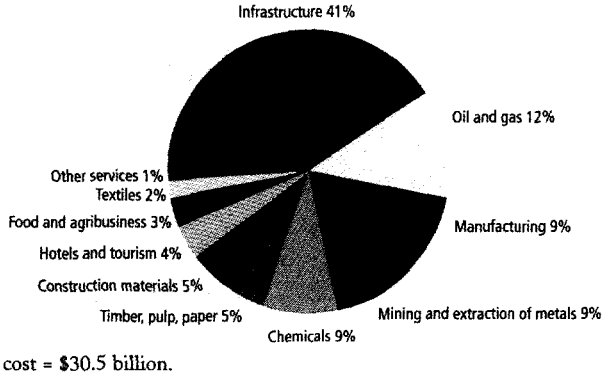


100% = $30.5 billion



Source: IFC.

Figure 3.6. Sectoral Distribution of IFC-Supported Greenfield Projects, 1989–98

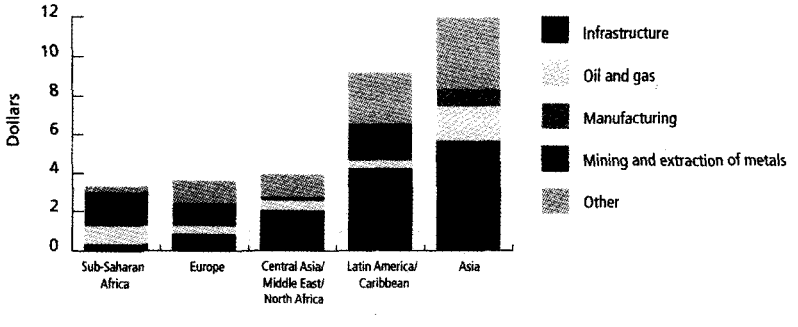


Note: Total project cost = $30.5 billion.

Source: IFC.

Figure 3.7. IFC-Supported Greenfield Projects, Share of Major Sectors by Region, 1989–98

(billions of U.S. dollars)



Source: IFC.

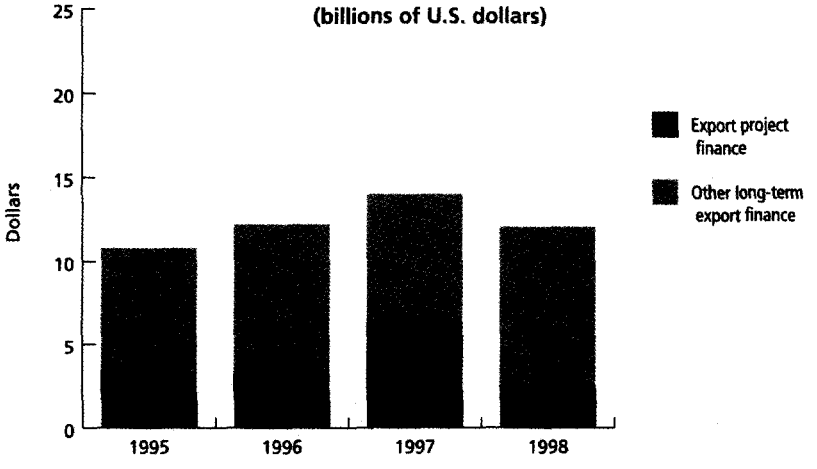
Sector distribution. Over the period 1989–98, infrastructure accounted for the largest share of IFC greenfield finance (27 percent of the projects, or 41 percent in terms of project cost)(figure 3.6). Project finance techniques have enabled investment in this sector to undergo rapid growth during the past five years. IFC's support for infrastructure projects is particularly important in Latin America and Asia, where it accounts for nearly half of all IFC's greenfield project finance activity (figure 3.7).[5] Other sectors receiving substantial support have been oil and gas, manufacturing, mining, and chemicals. In general, the pattern of IFC's participation in individual sectors in each region reflects both the investment activity in that sector, influenced by the pace of regulatory reform, and the ability of the sector and the country to attract international capital flows without MDB or ECA support.

Project size. IFC's greenfield experience demonstrates that relatively small projects can be financed successfully using project finance techniques. Over the past decade IFC has helped finance projects ranging in size from $5 million (the cutoff for the sample) for an agribusiness project in Europe to $1.7 billion for an oil refining and petrochemicals project in Asia. Five projects (2 percent of the total) had an initial cost of more than $1 billion; three were in Asia, one in Latin America and the Caribbean, and one in Sub-Saharan Africa. However, 46 percent of IFC-supported greenfield projects cost less than $50 million (20 percent less than $20 million), and 67 percent less than $100 million. Overall, IFC's greenfield project finance activity reflects its mandate to finance projects that do not have easy access to international markets.

EXPORT CREDIT AGENCIES

Export credit agencies are more recent participants in the project finance market, but their volume of financing has quickly become very significant. The willingness of many ECAs to support complex private sector projects has greatly boosted the growth of project financing in developing countries (table 3.3). The primary objective of most ECAs, which are usually government agencies, is to promote their home-country exports. Traditionally, this has been done through credit insurance and loan guarantee facilities that protect exporters against the commercial and political risks of exporting, as well as through direct medium- and long-term loans to foreign buyers. In the past five years a number of ECAs (notably in Japan, France, Germany, the United Kingdom, and the United States) have extended their support to limited-recourse projects in developing markets. The driving force behind this move has been the more aggressive promotion of exports by many countries and, perhaps more important, the changing nature of international finance going to developing economies, which has created new demands for ECA-type support. A significant share of new ECA commitments in recent years has flowed to project financing, although this share declined in 1998 as a number of large projects were delayed or canceled (figure 3.8).

Figure 3.8. ECA's Project Finance and Other Long-Term Export Financing, 1995–98



Source: Internal IFC Study: *The Private Sector Financing Activities of International Financial Institutions: 1991-1997*, and staff updates.

In a typical project finance transaction, an ECA provides political risk coverage during the project construction period, and a takeout comprehensive guarantee for commercial bank lending (or occasionally a direct loan) after the construction is complete. ECA loans are normally tied to contracts with companies in the home country, but this is not always the case, as, for example, the Untied Overseas Loan Program offered by Japan's Ministry of International Trade and Industry (MITI). Large projects, using equipment from several countries, frequently include financing from several ECAs. For example, the Nahuelsat satellite project in Argentina used guarantees from the ECAs of France and Germany to gain access to commercial bank loans, as well as IFC support, to get the project off the ground.

For project sponsors, a major advantage of ECAs is their financial capacity. All have the net worth (or political backing) to support large transactions, and several (including JapanExim and USExim) have no financial limit for individual transactions. As reported in *Infrastructure Finance* (February 1997), Guandong Zhuhai Power Project (China) received JapanExim finance amounting to about $600 million without a government or sponsor guarantee, the first time an ECA had financed projects in China on a limited-recourse basis.

Table 3.3. Commitments of ECAs and Development Agencies Financing the Private Sector in Developing Countries, 1991–98
(millions of U.S. dollars)

Institution	1991	1995	1996	1997	1998[a]
Export credit agencies	5,519	14,116	15,439	20,280	14,458
Estimated project financing	595	3,385	3,287	6,340	2,540
Development finance institutions [b]	3,19	9,085	9,800	8,650	10,242
Total (rounded)	8,715	23,201	25,239	28,930	24,700

a. Estimates.
b. Multilateral and bilateral development agancies.
Source: Internal IFC Study: *The Private Sector Financing Activities of International Financial Institutions: 1991-1997,* and staff updates.

POLITICAL RISK INSURANCE AND GUARANTEES

MDBs and ECAs have also been major innovators in other types of insurance and guarantee activities and thereby have encouraged many investors to enter developing markets in recent years. This protection normally pertains to political and other noncommercial risks. Although risk insurance and guarantees are available in private markets, the government backing of multilateral and bilateral agencies enables them to absorb risk not acceptable to private insurers or guarantors. By way of example, guarantee programs offered by the World Bank Group—the International Bank for Reconstruction and Development (IBRD), IFC, and Multilateral Investment Guarantee Agency (MIGA)—help stimulate private sector activities in developing countries by mitigating noncommercial risks facing investors and lenders. Each member of the group offers different kinds of guarantees, and the IBRD requires a sovereign counterguarantee, while MIGA and IFC do not. A number of other multilateral organizations have also created risk-transfer mechanisms of various kinds. One such program, at the Inter-American Development Bank, is similar in design to that of the IBRD, while others, such as that of the Inter-Arab Investment Guarantee Agency, are also available for selected projects.

By far the largest of the multilateral agency programs is offered by MIGA. Established in 1988 with capital of $1 billion, MIGA's role is to fill the gaps in political risk coverage for foreign investment in developing markets. MIGA's advantage in the

marketplace stems from its ownership structure (as of the end of fiscal 1998, MIGA had 138 member countries), and its ability to provide coverage to investors from all its member countries. MIGA's political risk guarantees cover primarily equity and related debt investments, including shareholder loans and loan guarantees, as well as technical assistance and management contracts. MIGA can generally insure investments either in new projects or in the expansion, modernization, privatization, or financial restructuring of existing ones. The risks covered are expropriation, war and civil disturbance, currency transfer, and breach of contract, provided the claimant is denied appropriate judicial or arbitration relief. MIGA also has developed a Cooperative Underwriting Program (CUP), under which it issues a contract for the entire amount of insurance requested by an investor but retains only a portion of the exposure for its own account, with the remainder underwritten by private insurers.

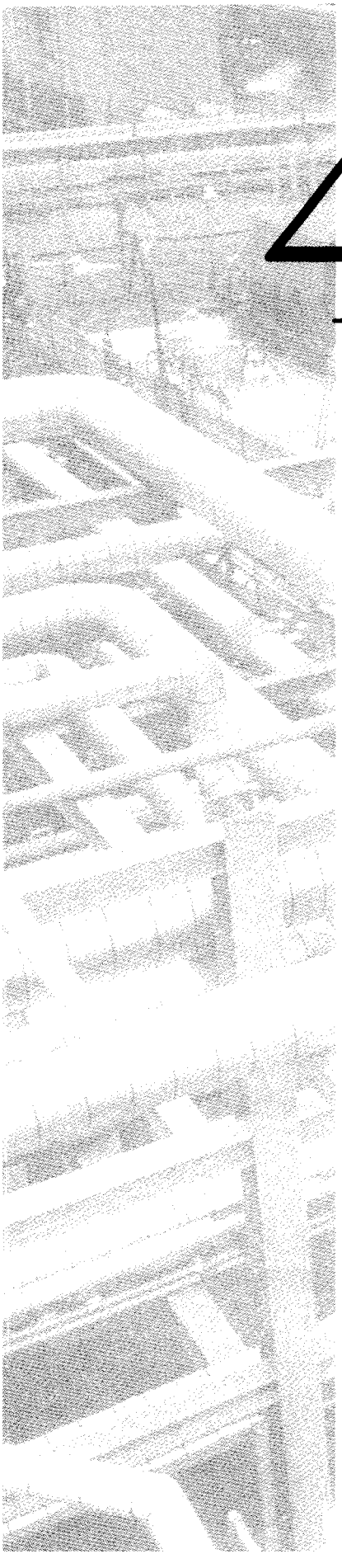
The IBRD offers partial credit and partial risk guarantees designed to help open new areas to project financing and other forms of funding by private capital. The partial credit guarantee covers all occurrences of nonpayment for a designated part of a financing (usually the later maturities) and is typically used for public projects involving sovereign borrowing. Partial risk guarantees cover specified sovereign risks arising from the nonperformance of sovereign contractual obligations or certain political force majeure events. Such obligations might include maintaining the agreed regulatory framework, including tariff formulas; delivering inputs, such as fuel supplied to a private power company; compensating for project delays or interruptions caused by government actions or political events; or covering currency transfer risks related to the nonavailability of foreign exchange.

Two other groups of insurers are active in the political risk market: ECA and other national agencies and private sector underwriters. More than 20 countries, most of them members of the Organisation for Economic Co-operation and Development (OECD), have established agencies or programs of political insurance to promote international investment by their own nationals. By far the largest insurance programs are those established by Export-Import Insurance Department and MITI (EID/MITI) in Japan, OPIC in the United States, and TREUARBEIT in Germany. The programs of the Export Credits Guarantee Department (ECGD) in the United Kingdom and Compagnie Française d'Assurance pour le Commerce Extérieur (Coface) in France are also significant. These programs offer long-term coverage at reasonable premiums, although many have somewhat narrow and changeable eligibility criteria. A small group of private insurers have also developed political risk coverage. The major firms include Lloyd's of London, American International Underwriters (AIU), Citicorp International Trade Indemnity (CITI), and Unistat Assurance. Private insurers usually offer coverage up to a maximum of 7 years, compared with 15 or 20 years for national schemes, and

they impose higher premiums; at the same time, most offer greater flexibility in structuring coverage, although currency transfer and political violence are not covered in many developing countries. The actual volume of political risk insurance is difficult to determine because of the secrecy surrounding its use. Most insurance companies do not publish the amount of risk they have underwritten, nor do the insured parties or governments (against whose potential actions insurance is sought) like to publicize its existence. Informal estimates, however, suggest that as much as $10 billion to $15 billion could have been issued in 1997.[6]

Notes

1. Other IFC core activities include financial sector loans and institution-building projects, corporate financing, and advisory and technical assistance services.
2. Expansion projects are excluded from the review; projects with an initial project cost of less than $5 million are also excluded. The commitment stage is the point at which IFC (and other creditors and investors) formally and legally commit to financing the project. In the final stage, the project is complete or materially complete; for some projects close to completion, this figure has been estimated.
3. Institutional Investor rating of country risk: 0-25, high risk; 26-45, medium risk; 45+, low risk. Twice a year Institutional Investor polls 75 to 100 international banks to grade countries from 0 (the highest chance of a sovereign default) to 100 (the least chance).
4. Based on information in Capital DATA *ProjectFinanceWare*; although the information included in this database is not strictly comparable to IFC's greenfield projects reviewed here, it provides a broad overview of market transactions.
5. In terms of project numbers the most important sectors are infrastructure (27 percent), hotels and tourism (12 percent), petrochemicals (11 percent), food and agribusiness (11 percent), and manufacturing (8 percent).
6. See World Bank, *Financial Flows and the Developing Countries 1998*.



4 MITIGATING MAJOR PROJECT RISKS

IFC's experience in financing more than 230 greenfield projects over the past 10 years demonstrates above all the importance of identifying risks at the outset of each project. Indeed, it is essential to assess risk in all aspects of the project. Of particular concern are the experience, commitment, and role of the sponsor in that sector or type of project and the anticipated market demand for the project's output. Although projects run into difficulty for many reasons, the most frequent ones in IFC's experience are weaknesses in the sponsor's overall management of the project and its construction, and lower than projected demand for the project's output by the time it becomes operational.

IDENTIFYING PROJECT RISKS

Successful project finance structuring rests on the strength of the project itself. Identifying the project's risks and then analyzing, allocating, and mitigating them are the essentials of project financing.

Appraising the project. A project is appraised to identify its risks and to assess its technical and environmental feasibility (that is, whether it will function as expected), along with its financial and economic viability (that is, whether it will generate sufficient cash flows to repay debts and produce a satisfactory rate of equity return). This is a critical initial step. The scope of a typical project appraisal is illustrated in appendix B, which sets out the criteria followed in a standard IFC appraisal of a manufacturing project. Because each project is based in its own environment and hence is unique, the relative emphasis placed on each aspect of the appraisal will depend on the individual project. The various risks identified will also affect the financing structure appropriate for the project.

Every project faces many and varied risks, some specific to its subsector and others to its country and policy environment. Still others are of a more general nature. A typical project faces both commercial and policy risks.

Commercial risks consist of (a) project-specific risks connected with developing and constructing the project, operating and maintaining the assets, and finding a market for the output; and (b) broader economic environment risks related to interest rate changes, inflation, currency risk, international price movements of raw materials, and energy inputs, all of which have a direct impact on the project but are beyond the control of the project sponsors.

Noncommercial or policy risks are (a) project-specific policy risks arising from expropriation, changes in the regulatory regime, and the failure of the government or its public enterprises to meet contractual obligations; and (b) political risks resulting from events such as war or civil disturbance.

Just how essential it is to identify and mitigate risks at the outset—rather than wait for a negative event to happen and then rely on the goodwill of the parties to resolve it—is dramatically illustrated by the sharp devaluation of the Thai baht in 1997. Within a period of only three weeks, the baht slipped by more than 20 percent against the U.S. dollar, then dropped even further. Because of Thailand's previously strong economic position, however, power purchase agreements of international power projects in Thailand typically did not factor exchange rates into the calculation of purchase price. A number of power project sponsors subsequently sought to renegotiate their PPAs with the state electricity distribution company.

The severity of each risk also needs to be assessed. For example, sponsors and creditors may need to assess the government's macroeconomic record, while creditors would need to evaluate the technical and managerial competence of the sponsor. The risks for long-term lenders are different from those for equity investors, which are different again from those faced by contractors or suppliers. In addition, risk has a subjective quality. What represents an unacceptable risk to one investor may be routine or manageable for another, depending on their prior experience and knowledge. A first step in effectively mitigating each risk is to identify the party that is in the best position to manage that risk, or whose actions have a bearing on its outcome. For example, the project sponsor is the one best able to manage commercial risk. If the project will be subject to significant government regulation (as in a telecommunications project), assurances will be sought from the government. The next step is to allocate, price, or mitigate each risk between the parties via contractual agreements. In a successful financing, the risks do not disappear but are borne by the parties best able to manage them. Risks that cannot be

Box 4.1. A Lender's Approach to Managing a Project's Major Risks

Risk to lender	Risk mitigation arrangements
Project Construction—Completion Risk	
Delays	Turnkey contract; construction/equipment supply contracts. Specify performance obligations with penalty clauses. Project agreement to oversee construction on behalf of lenders and minority investors. Obtain early regulatory environmental approvals.
Cost Overruns	Include contingency and escalation amounts in original cost estimates. Sponsor support until physical and financial completion certified (project funds agreement).
Site Availability	Land use agreement.
Project Performance	
Sponsor Commitment	Strong, experienced sponsors with significant equity stake; share retention agreement to tie sponsors to the project.
Technology Assurance	Prefer tried and tested technologies; new technology can be used in project financing, provided the obligation to repay debt is supported by a guarantee of technological performance from the participant that owns or licenses the technology.
Equipment Performance	Performance bond/guarantee from equipment suppliers on quantity and quality. Operation agreement linking operating performance to compensation. Maintenance agreement.
Input Availability	Supply contracts specifying quantity, quality, and pricing. Match term of supply contract to term of offtake commitment.
Management Performance	Experienced management team. Performance incentives and penalties.
Skilled Labor/ Operator Performance	Training provided by equipment suppliers and technical advisers.

Market Risk	
Demand Potential	Undertake independent market assessment. Offtake contract specifying minimum quantities and prices (take or pay arrangements). Conservative financing structure. Support low-cost producers.
Payment Risk	Sell output where possible to creditworthy buyers. If buyer not creditworthy, consider credit enhancements such as (1) government guarantees of contractual performance (if buyer is state-owned); (2) direct assignment of part of the buyer's revenue stream; (3) escrow account covering several months' debt service.
Economic Risk	
Funds Availability	Limit share of short-term financing to project; long-term finance to match project tenor; stand-by facility.
Interest Rates	Fixed-rate financing; interest rate swaps.
Exchange Rates	Match currency of project loans to project revenues, swaps, and guarantees.
Inflation	Long-term supply contracts for energy and other important inputs; output prices indexed to local inflation.
Political Risk	
	Include strong local sponsor in project shareholding. Political risk insurance. Involve multilateral development bank or other official agency in financing.
Force Majeure	
	Insurance policies and force majeure provisions.
Overall Risk Support	
Debt Service Coverage	Analysis based on pessimistic assumptions to set up-front debt/equity (D/E) ratio. Financial support until D/E ratio is reduced to safe level. Escrow accounts with debt service reserve.
Security	Mortgage and negative pledge on project assets. Assignment of concession agreement and other relevant agreements. Share pledge.
Ongoing Compliance	Staged disbursements. Disbursement conditions and loan covenants.

allocated can still be ameliorated through the selection of proper credit enhancement and monitoring methods. Box 4.1 looks at some typical project-specific commercial risks from a lender's viewpoint.

CONSTRUCTION RISK

In assessing risk, it is also often helpful to look at the various stages of the project separately, since each may have a different risk profile and financing requirements. Most projects consist of three main phases: development, construction and start-up, and operation.

In the development phase, risk is usually very high, and only equity capital from the main sponsors is generally used. During construction and start-up, risk is high and large volumes of finance are required, typically in a mixture of equity, senior debt, subordinated debt, and guarantees. In the operational phase, risk is generally lower (because the outlook is less uncertain), and it may be possible to refinance senior bank debt in the capital markets with cheaper, less restrictive bonds.

In the development phase, the prospective sponsor assesses the project's scope, seeks any necessary regulatory and concession approvals from the government or municipal authorities, and attempts to attract financing. Risks sometimes arise because of unclear and arbitrary government processes, which cause long delays and may even lead sponsors to abandon an otherwise sound project.

In the construction phase, the major risk is that construction will not be completed on time or will not meet the specifications set for the project. An incomplete project is unlikely to be able to generate cash flows to support the repayment of obligations to investors and creditors. Long delays in construction may raise the costs of a project significantly and erode its financial viability. A project may fail to reach completion for any of a number of reasons, ranging from technical design flaws to difficulties with sponsor management, financial problems, or changes in government regulation.

Project companies hedge construction risk primarily by using fixed-price, certain-date construction contracts (including turnkey contracts), with built-in provisions for liquidated damages if the contractor fails to perform, and bonuses for better than expected performance. The project company will probably also take out business start-up and other kinds of standard insurance, include a construction contingency in the total cost of the project, and build in some excess capacity to allow for technical failures that may prevent the project from reaching the required capacity. Because lenders cannot control the construction process, they seldom assume completion risk, which is usually the responsibility of the project company, its sponsors, contractors, equipment suppliers, and insurers. Typically, creditors and investors are interested in both the physical and financial aspects of project completion.

Physical completion is defined as the project's ability to sustain production at a certain capacity for a specified period of time, such as one month or one quarter of the operating year. Before this, the project would also be certified as technically complete, that is, as meeting all technical design specifications.

Financial completion is defined as the project's ability to produce below a certain unit cost for a specified period of time, such as six months; to have a minimum level of working capital and achieve a certain current ratio; and to achieve a minimum debt-service coverage ratio or debt-to-equity ratio for a certain period, such as one year.

Cost overruns. The most common threat to physical completion is cost overruns. If costs significantly exceed the initial financing plan, they will affect the project's financial rate of return and, if they cannot be financed, may even lead those involved to abandon the project. In 45 percent of the IFC-supported greenfield projects reviewed for this vol-

Box 4.2. Indelpro S.A. de C.V., Mexico: Foreign Exchange Rate Changes Increase Project Costs

Indelpro was a greenfield plant established to produce polypropylene resins for the local Mexican market. The original estimated cost of the project was $110 million. IFC helped provide senior and subordinated loans totaling $30 million. The sponsors (a local Mexican industrial group and a U.S. chemical company) contributed $42 million in equity and also agreed, through a project funds agreement, to provide additional equity funds, as needed to physically complete the project.

The project was originally expected to be commissioned by the end of 1990, but by 1991 construction was still incomplete, primarily because of delays in incorporating the latest technology developments into the basic project design. Total project cost had reached $140 million, partly owing to an increase in project scope and changes to the design, but also because of currency fluctuations. Progressive revaluations of the Mexican peso against the U.S. dollar since the project cost was originally estimated had increased the dollar-equivalent value of local costs by approximately $6 million. The total financing gap was $30 million. However, the financial prospects of the project remained sound even at this higher cost. The sponsors were willing to add more equity, but also requested additional financing from the project lenders. After reviewing the project, IFC agreed to provide $4 million, half as a senior loan and half as a subordinated loan. The sponsors provided $25 million, comprising $13 million equity and $12 million in subordinated debt. The remaining $1 million was contributed by another lender as senior debt. Although the deficiency funds contributed were different from those stipulated in the original project funds agreement, that agreement served its purpose as a standby funding agreement that provided the project's original lenders enough comfort initially to proceed. The project was successfully completed in 1992 and has performed well since then.

ume, project costs exceeded initial estimates and committed financing. To ensure that unexpected costs do not jeopardize the project's physical completion, most creditors and minority investors insist on a commitment for standby financing as part of the initial financial package. This is usually provided by the sponsor through contractual agreements, which IFC calls a project funds agreement (a form of standby facility). Standby facilities are usually provided as subordinated loans or equity, with the sponsors providing the bulk of the facility, although this burden may be shared (box 4.2).

Financial completion. A new project may reach physical completion but not become financially healthy or self-sustaining for any number of reasons, such as supply problems or weak market demand. If financial completion is not achieved, profitability will suffer, and the project is likely to encounter debt-service difficulties. Project documentation will normally include a financial completion agreement, which specifies, in contract form, the initial financial expectations of the project against which creditors and investors are willing to invest funds. Under a financial completion agreement, the signatories (almost always the main sponsors) typically provide subordinated loans or additional equity to the project until the agreed financial performance is achieved. By requiring sponsors to meet project financial completion, lenders greatly reduce the default risk of a project. In several IFC projects with such a requirement, financial completion was not achieved until several years after physical completion, during which time the sponsor was called upon to provide additional financial resources to the project (box 4.3).

Box 4.3. The Value of a Financial Completion Requirement

IFC supported one $60 million project with subordinated loans to extend cellular telephone service to a major economic region. The project was 50 percent owned by a local industrial group, 40 percent by an international technical partner, and 10 percent by IFC.

Project documentation included a financial completion agreement, in which the two major sponsors agreed to provide company funds as needed to meet debt service until the project achieved financial completion. To achieve financial completion, the project was required to meet the following targets for four consecutive calendar quarters (at least two of which were to be after the project's physical completion date): (1) a current ratio of at least 1.1, (2) a long-term debt-to-equity ratio of no more than 1.5; and (3) a long-term debt-service coverage ratio of at least 1.1.

The project achieved physical completion by December 1994. With a local currency devaluation the following year and a subsequent downturn in the local economy, however, the company's business grew sluggish that year and into 1996. Subsequently, the company struggled to maintain market share against aggressive competition and was not able to meet the conditions set for financial completion. The project loans were protected by sponsor obligations under the completion agreement, however, and were serviced regularly until their repayment in 1998.

Although requiring sponsors to ensure the project's financial completion certainly protects lenders' interests, it may place a heavy and possibly long-term burden on the sponsors. The perceived project risks and the relative bargaining positions of lenders and sponsors may determine how stringent the financial completion requirements will be in the project loan documentation. In IFC's projects, financial completion requirements were used more frequently in the early 1990s than in the mid-1990s, perhaps because of greater competition and a growing familiarity and degree of comfort with the nature of these risks, but they have become more common again since the East Asian crisis that began in mid-1997.

ONGOING PROJECT PERFORMANCE

Most projects funded under a project finance structure are long-term enterprises, usually lasting 10 years or more. During this time, significant changes that undermine the project's viability may take place, such as in the availability and cost of project inputs, the technical performance and management of the project, and the market demand for the project's output. In the case of large projects, sponsors will attempt to prearrange long-term purchase contracts for important inputs (for example, raw materials or energy supplies) to limit the impact of price volatility, particularly in the case of primary commodities. The project company will also ask its suppliers for performance guarantees on technical components and may subcontract the project's operation and maintenance to a specialist company, with penalty payments if performance is not up to standard.

MARKET RISK

Changes in the demand for project output have been the leading cause of revenue and profitability problems in IFC-supported greenfield projects. The quality of the market analysis, and of accompanying revenue and margin forecasts, greatly affects future profitability. Often the appraisal of market demand is overoptimistic, perhaps because the strength of new trends is not fully appreciated, and the project never achieves the sales and revenue volumes projected. A 1992 appraisal for an IFC-supported project to manufacture concrete piping brings the point home: the project company failed to gain a single large order for its product, because demand proved much more sensitive than expected in a subsequent economic downturn and prospective purchasers (mainly state-owned companies) were sensitive only to the price, not the quality, of the product. In sum, the appraisal completely misread the market.

Market risk is difficult to hedge against specifically, unless there is a single buyer or small group of buyers for the output. Signing a purchase or sales agreement with the price and quantity clearly specified with a seller or buyer who has a good credit standing is an excellent way of hedging product price risk to ensure the project will generate rev-

enues. Projects having a single product whose price may vary widely, as is the case in the mining sector, are particularly vulnerable to changes in demand and need to hedge against product price risk. Equally important, in projects whose success or failure rests on the price of one raw material input, there is a need to hedge the price of that material. Sponsors of IFC projects have used several mechanisms to mitigate market risk, notably power purchase agreements, other offtake agreements, call and put options, and forward contracts.

An *offtake agreement* obliges the offtaker (often a sponsor) to purchase all or part of the project's output (for an example, see box 4.4). An offtake agreement with a reputable foreign sponsor has the added benefit of making foreign exchange available to the company. A few examples of its many forms are agreements to buy up to a certain amount per year at the prevailing market price; buy enough to ensure debt payment; or buy enough to provide foreign exchange for debt service or to reduce foreign exchange risk (if foreign exchange is available in the domestic market).

A *power purchase agreement* is a form of offtake agreement commonly used in power projects in emerging markets. The purchasing entity is frequently a government agency. A PPA specifies the power purchasing price or the method of arriving at it. Although the price may not be fixed explicitly in the agreement, as long as the variables determining the price are clearly spelled out, the sales agreement mitigates one important project risk.

Box 4.4. Star Petroleum, Thailand: A Take-or-Pay Offtake Agreement

This project established a new oil refinery to meet rapidly expanding local demand for unleaded gasoline and other refined petroleum products. The foreign sponsor, which owns 64 percent, is a U.S.-based petroleum company. The local sponsor, owning 36 percent, is a company owned by the Thai government that produces and distributes petroleum products. The total project cost was about $1.7 billion, of which IFC helped provide $450 million in direct and syndicated loans.

Project documentation includes a long-term take-or-pay agreement with the local sponsor and with a subsidiary of the foreign sponsor, which is a distributor of petroleum products in Thailand. This offtake agreement covers 70 percent of the project's output. These two parties together had 47 percent of the Thai petroleum products market at the time the offtake agreement was signed.

The project was constructed within budget and largely on schedule. It began production in July 1997. The subsequent East Asian financial crisis and the worldwide tightening of refining margins have had an adverse effect on the project, but the sponsors have honored the offtake agreement.

Call and put options are also useful hedges. A put option gives a project company the option to sell its output at a fixed price at some point in the future. This arrangement protects the cash flow of the project during the time covered by the put. Similarly, a call option would allow the project company to buy its input at a fixed price in the future. One limitation of option agreements, however, is that new project companies may have to reach a stable level of output before they are able to enter into them. Sponsors may have to use other means to support the project's cash flows in such cases. In addition, product options in the market usually do not go beyond two years in maturity. Therefore options may not be feasible for longer-term hedging in many projects.

Forward sales or purchase contracts provide another means of hedging product price risk (box 4.5). A project may wish to enter into a forward purchase contract to stabilize the price of a key raw material, such as cotton, a critical input of some textile projects. Some IFC projects have used this method. At times, however, it can have a negative impact, as one IFC-supported textile project discovered in 1993 when the project company entered into a forward cotton-buying contract. As it turned out, world cotton prices peaked that year, with the result that the project company was obliged to purchase cotton at a price that exceeded the subsequent market price, much to the detriment of its competitive position. By 1996, it was in default of its loan.

MANAGEMENT RISK

It is not uncommon for a new operation, perhaps in an emerging market environment unfamiliar to the project sponsors, to run into managerial or technical difficulties.

Technical or managerial difficulties. If a project is in a sector that is completely new to the country, there may be no qualified technical and managerial personnel to run it. In

Box 4.5. New Gold Mine: Hedging Output Price

Recognizing that international gold prices can fluctuate widely, IFC and other lenders asked this new gold mine, expected to produce about 110,000 ounces of gold annually, to hedge the price of its gold production.

The project company entered into a purchase agreement with a Swiss bank for its entire output. The purchase agreement provided for the forward sale of output, partly at the spot price and partly at a pre-agreed hedge price as negotiated for each six-month period. Spot gold was to be sold at the prevailing spot price on delivery and hedged gold at the pre-agreed price. The Swiss bank also pledged to give the company a minimum of 30,000 ounces of hedge credit line during a year; that is to say, the company could hedge at least 30,000 ounces of gold every year, which was sufficient to service the project's loans at around the gold price then prevailing.

such cases, it may be necessary to obtain sustained technical assistance from, and a management agreement with, a foreign technical partner. Sponsors may also issue a letter of comfort to assure creditors that the project company will be run in a sound business manner. In one IFC-supported consumer electronics assembly project, technological change expected to span five years actually took place in one year, with significant adverse effects on the project: the sponsors lacked the technical or financial resources to restore the project's competitiveness, and the project failed. In contrast, in an auto manufacturing project in Europe, strong technical and financial support from the sponsor enabled the project company to reorient itself when its market changed dramatically, and thereby to regain its profitability.

Maintenance expenditures may account for a significant share of operating cost, particularly for projects using high-technology equipment. Project profitability may be undermined if the equipment fails to meet initial technical specifications and performance or frequently breaks down. Technological performance is normally guaranteed by the provider of the technology or equipment, but the expense of routine maintenance has traditionally been borne by the project company. An important part of the appraisal is to estimate the cost of maintenance over the life of a project. Maintenance risk can then be mitigated through a long-term service agreement with the manufacturer of the equipment, who is in the best position to understand the technology and associated cost risks. Such an agreement not only reduces the uncertainty surrounding future maintenance costs but also provides incentives to improve the efficiency and reliability of the equipment, which in turn can improve profitability.

ECONOMIC RISK

A project's financial sustainability through all phases of its life can also be affected by broader risks arising from the economic and policy environment, particularly interest rate and foreign exchange risk.

Currency risks. Currency risks arise whenever foreign exchange funds, in the form of equity or debt, are used to finance the project. Such risks are associated in part with foreign exchange convertibility and the foreign exchange rate. Macroeconomic stability, the balance of payments situation, and the foreign exchange rate policy in the project country are important factors to consider in assessing currency risks. Foreign exchange risk can be a major concern, particularly if the project generates revenues only in local currency. A shortage of local long-term funds caused by weak local financial markets often leaves projects in developing countries with a large amount of foreign currency funding. In IFC's limited-recourse greenfield projects, foreign currency financing covered 77 percent of total project costs. Such levels expose a project to foreign exchange and interest rate risks. For this reason, most large project finance transactions are restricted to

schemes that can generate revenues largely in hard currency, are linked to a hard currency, or are taking place in countries where private investors and creditors are confident that convertibility will be maintained. The painful lessons of the East Asia crisis are expected to lead to even greater emphasis on risk mitigation in this area in the future. Currency risk can be mitigated in a number of ways:

- *Mix local currency and foreign currency loans.* All projects involve some local costs. Overall currency risk can be reduced by covering these costs with local funding to the extent possible, mixing local and foreign funds so that the project does not rely excessively on foreign funds. For example, a major new transport project in Asia requiring nearly $1 billion in financing obtained half the funding in local currency, thereby significantly reducing the project's currency risk.

- *Index output prices to the exchange rate.* Indexing has been frequently used to shield a project from exchange rate risk. Although currency conversion still poses a risk, being able to link project charges to the exchange rate can help limit project currency risks. Indexing is often used in infrastructure projects, where revenues are mostly in local currency and the project cycle is especially long. This arrangement is vulnerable to dramatic changes in the exchange rate, however, as demonstrated by the East Asian crisis. Many projects found the government or other contracting parties unwilling to honor indexing if it would mean passing significant local price increases on to customers.

- *Swap currency.* When a local currency swap market exists, local currency can readily be swapped with a major foreign currency to remove a project's currency risks. But many developing countries have no such market. In such cases, it may be helpful to create a swap between the foreign currency risk the project is trying to avoid and another foreign currency that the project can obtain at a more stable exchange rate. In one of the developing-country power projects for which IFC helped arrange B-loans, it also extended a $3 million risk management facility to manage interest rate and Japanese yen currency risk on yen payments to the construction contractor.

- *Obtain contingency sponsor support.* In some countries, foreign exchange may be available at project start-up but may not be guaranteed in the future. Foreign sponsors can pledge contingency foreign currency support in various ways. In one cement project in Asia, the foreign sponsor has committed itself to the purchase, in U.S. dollars, of enough cement to provide the local project company with sufficient dollars to service IFC's dollar-denominated loan if the project company is unable to purchase enough convertible hard currency in the local market.

- *Establish an escrow account.* When a project earns convertible hard currency, its foreign earnings can be deposited in a special escrow account. Usually for IFC-supported projects, the deposit required at any given time is the minimum amount needed for debt service over the next six-month period. Among IFC's projects, tourism and mining projects have used such accounts most often. Such an arrangement would enable a hotel, say, to bill clients in hard currency and remit the funds to an account offshore. In projects with foreign currency revenues, an escrow account can also help the borrower avoid potential repatriation difficulties. In 1992, in one hotel project in Africa, IFC and the sponsor successfully negotiated with the government to maintain an offshore escrow account. This proved prudent, as became clear in 1994 when the government attempted to impose foreign exchange restrictions that threatened to severely hamper the company's operations; these were lifted when the government was reminded of the earlier agreement.

- *Obtain government guarantee of foreign exchange availability.* Guarantees of convertibility are not routinely available for projects in developing countries but may be obtained in certain situations (box 4.6).

Interest rate risk. Long-term loans at floating (variable) interest rates are the norm for project debt in international project financing. The average maturity of IFC's own loans to greenfield projects is 10 years; a majority of these (75 percent) are floating rate loans. The international interest rate environment can change dramatically during this maturity period. If interest rate risk is not properly hedged, financial projections based on initial rate assumptions can be significantly affected negatively. Project sponsors can use a variety of measures to mitigate against interest rate risk:

Box 4.6. Government Guarantee of Foreign Exchange Availability

Foreign exchange availability is a risk that most international project financiers face. Foreign exchange may be needed to import production materials, repay project debt, or repatriate the profits and dividends of foreign shareholders. A government guarantee is one way for a project company to help ensure that foreign exchange remains available.

In a dairy products project supported by IFC, foreign exchange was needed to import packing materials and dried milk, important ingredients needed to ensure that output was of a high quality. But because all the dairy items produced were to be sold domestically, the project was unable to generate foreign currency. The government at that time had central control over the allocation of foreign exchange, and there was no foreign exchange market. As a result, IFC waited until the project company could secure a foreign exchange availability guarantee from the government before it committed itself to lending to the company. Among other things, this guarantee allowed the company to purchase the foreign exchange required to import key ingredients for the company's production.

- *Negotiate a fixed interest rate.* Fixed rate debt removes one source of risk from a project. Although commercial banks relying on short-term funding sources are reluctant to lend at fixed interest rates for a long period, they may be able to arrange a mix of floating and fixed-rate funding, which would reduce a project's interest rate risk. Some fixed-rate financing is also available from multilateral and bilateral lenders. For example, IFC provided a fixed rate loan of $40 million for a power project costing about $350 million. The sponsor requested this arrangement because ECA financing, the principal source of support, was at floating interest rates. In a few cases, a lender may actually prefer to lend at fixed rates. In another power project, the IFC B-loan included a fixed interest rate portion that came from an institutional investor whose liabilities were also fixed.

- *Convert the interest rate.* Project sponsors may prefer to borrow at a floating interest rate to take advantage of a later expected fall in interest rates. IFC, as a matter of policy, allows borrowers to effectively convert their IFC loans from floating to fixed interest rates by entering into interest rate swaps with borrowers. A borrower's new fixed rate is equal to the market's swap rate (that is, the fixed-rate equivalent of Libor), plus the borrower's spread over Libor plus a small conversion fee. This conversion feature has proved useful for a number of project sponsors.

- *Swap interest rates.* Interest rate swaps are becoming a more and more popular hedge for projects. Although such swaps are readily available in the international risk management market, most developing market projects do not have the necessary credit standing to be accepted as a counterparty in the market, at least at project start-up. IFC is frequently able to bridge a project company and the international market as noted above in the case of floating-to-fixed rate conversions of IFC loans. In addition, IFC may be able to provide swaps for the clients' non-IFC loans and to obtain longer-term interest rate swaps (up to 15 years) than a project company is likely to get from the international market directly. In one wastewater treatment project in Latin America, for example, IFC provided a long-term option for the company to change from floating rate to fixed rate at the ongoing swap rate, exercisable one time, as long as no default occurred.

Financial risks. Proper sequencing of loan repayments can reduce the bunching of loan service, thus relieving the project of undue pressure on cash flows. In one IFC-backed mining project with existing IFC and other senior loans, the agency provided a new senior loan with a grace period of four years, rather than the usual two years, to permit project expansion. Repayment of the new loan began only after the previous senior loans had been fully repaid. Matching loan repayment schedules to take advantage of large cyclical cash flows is another way of securing loan repayment (box 4.7).

Box 4.7. Mining Project: Capturing Excess Cash Flow to Reduce Repayment Risk

Loan repayments are normally scheduled in equal installments over a defined number of years. In some projects, depending on expected project cash flows, a more flexible schedule may be appropriate.

In one project to develop a new mine, at a total cost of nearly $70 million, IFC helped provide senior loans totaling $38 million. The loan repayment schedule provided for ten equal semiannual principal repayments. However, the loan agreement also allowed the senior lenders to elect to receive prepayment of their senior loans if the project generated excess cash flows. Excess cash flow was defined as a certain level of net profit (after loan repayments) during any financial year, minus required capital expenditures. If excess cash flow exceeded $2 million, 50 percent of the excess could be directed toward prepaying the outstanding senior loans. Because the price of the project's mining output was highly cyclical, when the project's cash flow was strong (because of a higher mineral price), the lenders sought faster repayment of their loans, to protect against a possible fall in the mineral price, and in cash flows, in the future.

ENVIRONMENTAL RISKS

The drivers for environmental due diligence. The inclusion of environmental risk factors into the project appraisal process is not a new discipline. Aware of the devalued collateral of contaminated land and possible lender liability for cleanup, most large commercial banks factor basic environmental issues (legal compliance, contamination, outstanding compensation claims) into their due-diligence process when lending to industries. In the case of project finance, diminishing value of collateral is not the primary driver for undertaking environmental due diligence. As the introductory chapter to this publication emphasizes, well-structured project finance identifies and addresses all the factors that may weaken financial returns. While rarely "deal killers" in their own right, environmental, health and safety, and social issues can have a negative impact on operating cash flow, divert management attention from other priorities, or generate adversarial relationships with employees, regulatory agencies, or the local community. In this sense, environmental due diligence for project finance is very much centered on seeking assurance that day-to-day operations will run smoothly during project design, construction, and operation. In turn, the project's bottom line will not be negatively affected by environmental risks.

Depending on the country in which it is located, the same project with the same environmental issues may be subject to different regulatory standards. The degree of compliance monitoring and enforcement of regulatory standards may also vary widely from

country to country. Sound project finance needs to be based on understanding the context in which the project must operate and ensuring that the right mechanisms are incorporated into the loan documentation in order that applicable environmental standards of performance are met. Without such mechanisms, attempts to verify smooth day-to-day operations may prove problematic.

While these drivers also motivate IFC, there is a different dimension to IFC's approach to environmental due diligence in project finance. As an international organization whose mission is to promote sustainable private sector development, IFC must examine whether each project is faithful to its mission. The scope of IFC's due diligence will include issues such as consultation with affected parties, development and implementation of resettlement action plans, and efforts to avoid degradation of natural habitats. These issues may well go beyond the legal requirements of the project country, or the traditional project boundary ending at the property line of a project. IFC will have failed in its goal of sustainable development if it does not address impacts to people and the environment, whether inside or outside the traditional project boundaries. Upfront consideration of these issues could add value to the project's long-term viability by reducing the risk that the project will get overtaken by changing political or regulatory agendas in the host country.

These factors reinforce each other in the need to conduct thorough environmental and social due diligence. The goal of this process is to find a management strategy that will not reject all projects with any environmental and social risks, at the one extreme, or ignore these impacts altogether, at the other. Project finance, in which seemingly high-risk issues are effectively managed and mitigated, often provides the strongest development impact role and profitability. Project developers and their financiers therefore have clear incentives to assess potential environmental and social risks to find ways to minimize their exposure and improve the long-term viability of the project.

The process of environmental due diligence. Project developers and financiers are now broadly familiar with the practice of assessing environmental impacts and contingent liabilities. Most such assessments focus on the potential impacts of project construction and operation against standards provided by applicable local law. Where regulatory standards are either nonexistent or uncertain, well-accepted international standards may be substituted. The World Bank environmental guidelines (now titled the *Pollution Prevention and Abatement Handbook*) are often used as the benchmark to measure environmental performance, as they represent widely accepted international standards. IFC, for example, appraises each project to ascertain whether it could meet the applicable World Bank environmental guidelines. Furthermore, IFC gives consideration to whether the project could be implemented in accordance with its own environmental

Box 4.8. IFC's Environmental and Social Policies

Policy	Description
Environmental Assessment	All IFC projects are assessed to ensure they are environmentally and socially sound and sustainable. This may include environmental impact assessment; environmental audit, hazard, or risk assessment; and an environmental action plan (EAP) or a social report such as a Resettlement Plan. Public consultation and disclosure may be required.
Natural Habitats	Primary purpose is to promote and support natural habitat conservation and improved land use, as well as the protection, maintenance, and rehabilitation of natural habitats and their functions. Views of affected stakeholders must be considered in project design and implementation. IFC does not support projects that involve significant conversion or degradation of natural habitats.
Pest Management	Supports the use of biological or environmental control methods rather than pesticides for pest management. The policy sets out criteria for safe pesticide use, where required.
Indigenous Peoples[a]	Current policy seeks to avoid, minimize, or mitigate adverse effects, to ensure projects benefit indigenous groups, and to provide informed participation of indigenous groups in the project process. Mandates informed participation of affected peoples and preparation of an Indigenous Peoples Action Plan.
Harmful Child Labor and Forced Labor	Aims to avoid the employment of children that is economically exploitative, or is likely to be hazardous to, or interfere with the child's education, or to be harmful to the child's health, or physical, mental, spiritual, moral, or social development. Aims to avoid all work or service, not voluntarily performed, which is exacted from an individual under threat of force or penalty.
Involuntary Resettlement[a]	Aims to avoid or minimize economic and physical displacement, to provide displaced people with the means to improve, or at least restore, their former living standards, earning capacity and production levels, to compensate at full market value for land and other assets affected by the project, and to involve both resettlees and hosts in resettlement activities.
Safeguarding Cultural Property[a]	IFC does not normally finance projects that will significantly damage non-replicable and cultural property, including sites of unique natural value. Policy defines how to proceed if an issue develops or cultural properties are discovered in the course of project development.
Forestry	Aims to reduce deforestation, enhance environmental contribution of forested areas, promote afforestation, reduce poverty, and encourage sustainable economic development. Manage all forests in a sustainable fashion, and ensure benefits flow to local people. IFC does not finance commercial logging or equipment for use in primary tropical forests.
Safety of Dams	Sets out requirements for safety of dams, which must be designed by competent and experienced professionals. For certain categories of dams, reviews by a panel of independent experts, detailed plans, and periodic safety inspections are required.
International Waterways	Applies to projects on bodies of water or their tributaries that form a boundary between two states. Sets out agreements and notifications required by IFC and its sponsors.

Note: The text of the policies is available through IFC's World Wide Web site at: http//www.ifc.org/enviro.

a. Currently under review for enhancement. Pending enhancement, the current corresponding World Bank versions may be used.

and social policies. During 1998, IFC adopted its own environmental and social policies (see box 4.8), with the aim of providing clearer guidance to its clients and its staff. While they are in harmony with those of the World Bank, IFC's policies are more closely aligned to the private sector. The World Bank environmental guidelines and IFC environmental and social policies provide a framework for addressing broad, cross-sectoral development issues. Public sector institutions as well as private sector entities refer to them in their projects.

IFC seeks to introduce environmental due diligence as early as possible into the project finance process, as it brings the biggest "value added" to financiers, project developers, and other stakeholders if environmental issues are addressed at the design stage.

Box 4.9. Pakistan: Engro Paktank at Port Qasim

Engro Paktank Terminal is a dedicated chemical handling and tank farm facility established by Engro Chemical Pakistan, a major Pakistani fertilizer producer, and Royal Pakhoed, N.V., of the Netherlands, one of the world's leading providers of logistical services to the chemical industry. The facility—consisting of a jetty, pipelines, and chemical storage tanks for the handling of paraxylene, acetic acid, and other chemicals—is located in the Port Qasim industrial zone east of Karachi, Pakistan.

A critical consideration in the design and implementation of the project was to minimize the risk of possible contamination to the surrounding river delta, including mangrove forests on nearby river banks, which are critical to the area's ecology. The project implemented a comprehensive range of mitigation measures to achieve this aim. These included controls on piling and dredging operations during construction; use of spillage control devices to prevent disconnection if product is still present in the marine loading arms; installation of permanent inspection systems on the jetty platform and loading areas, together with automatic and manually operated emergency shutdown valves, and specific safety measures and procedures for jetty pipeline operations. All storage tanks are equipped with automatic shutoffs and warning systems to prevent overfilling, as well as lined secondary containment to capture any spilled product. The facility also treats domestic wastewater and stormwater before discharging. In addition the company completed a comprehensive risk assessment analyzing potential shipping and operating accidents. This study indicated that even a worst-condition spill would not be likely to result in irreversible impacts on mangrove areas. Spill control and countermeasures under the Port Qasim Authority emergency plan provide additional protective measures. Furthermore, to ensure that the environmental assessment took into account the views of local villagers, the project sponsors requested assistance from several nongovernmental organizations, including the Worldwide Fund for Nature and the International Union for the Conservation of Nature. These organizations maintained contact with local villages and conveyed their comments on the environmental assessment to the project sponsors.

With this approach, capital costs associated with environmental upgrades can be factored into the financial appraisal for the project, and the risks of expensive "retrofits" disrupting cash flow later in the project's life are minimized. "Ecoefficient" equipment and processes also often have lower overall operating costs due to less product or raw material losses (reducing pollution to air, water, or soil). An illustration of this concept in practice is given in box 4.9.

Early efforts to establish and promote a transparent relationship and meaningful dialogue with affected people and communities frequently bring benefits of good community relationship and operations without disruptions. To this end, IFC requires disclosure of key project information, including environmental assessment reports and social reports, such as resettlement action plans, at the World Bank's InfoShop. Disclosure of information to local stakeholders and public consultation enhances the project's ability to coexist with the surrounding community and to contribute to its social development (box 4.10).

Box 4.10. Toward a Strengthened Partnership...Public Consultation and Disclosure in the Private Sector: A Good Practice Manual

Good environmental and social business practices are simply good business. This is a central theme of the Good Practice Manual recently published by IFC. The manual shows that through adequate public consultation and disclosure of a project's potential environmental and social impacts, companies can:

- reduce financial risk and direct costs caused by delays
- improve project design and minimize adverse impacts by collaborating with people knowledgeable about the geographic area
- raise brand awareness and, ultimately, market share
- earn a good public reputation that can lead to winning future government contracts and other business
- provide enhanced social benefits to local communities.

Disclosure can foster greater trust between communities and their new commercial neighbors. The manual provides much-needed guidance to project sponsors by establishing benchmarks for "good practice" in this area.

The *Good Practice Manual* describes how to tailor consultation to a private sector context, incorporate and manage local communities' expectations, and carry out delicate resettlement consultations successfully. Geared toward IFC project sponsors, the manual is based on an independent review of IFC's experience with public consultation and disclosure. Potential IFC clients and other interested parties can obtain copies by contacting IFC's Environment Division by fax at (202) 974-4348.

Once the environmental and social risks associated with a project are identified, the risks must be allocated to the parties best suited to bear them. In the world of complex projects, with complex environmental and social impacts spilling over the traditional project boundary and into a wider area of influence, risk allocation becomes a difficult task; sometimes the parties capable of addressing such risks, such as the host government, remain outside the traditional contractual relationships between the financier and the sponsor of the project. In these cases, IFC attempts to draw parties outside the project boundary to a multiparty discussion in an attempt to broker mitigation and management measures that are acceptable to all parties concerned. With its relationship with the host government and close ties to the World Bank, IFC often delivers unique solutions to complex environmental and social problems.

Looking into the future. In the future, even more emphasis will be placed on monitoring and managing the environmental and social impacts of project operation, in response to raising national standards and increasing attention to portfolio management among both MDBs and ECAs. The environmental and social assessment provides a snapshot of what impacts may occur. As governments, MDBs, and ECAs have discovered, developers and operators must be prepared for a long-term management effort if they hope to mitigate project impacts. The capacity of the developer to provide such long-term management of environmental risks is as important as the completion of the initial environmental and social assessment. In other words, the developer's staff must be trained and experienced in managing environmental issues, and a sound management system must be in place. IFC is therefore increasingly involved in capacity building of sponsoring companies. IFC's training programs are the cornerstone of success to enhanced environmental management by IFC's financial intermediary partners (see box 4.11). Certification to formal environmental management systems, such as international standard ISO 14001, can also provide additional assurance that environmental risks—and the financial risks that may be associated with them—will be effectively managed over the life of the project.

POLITICAL RISKS

One of the challenges posed by a prospective limited-recourse project in emerging markets lies in assessing and managing political risks over the long life that most projects have. Political risk arises from the fact that some unforeseen political event may change the project's prospects for profitability. This might be an act of government (for example, a change in a law, regulation, or administrative decision), or general instability in the political or social system as a result of war, strife, or frequent changes in government.

Political risk insurance, the main way of directly protecting against potential political risks, is discussed in chapter 3.[1] Another important way for a foreign sponsor to miti-

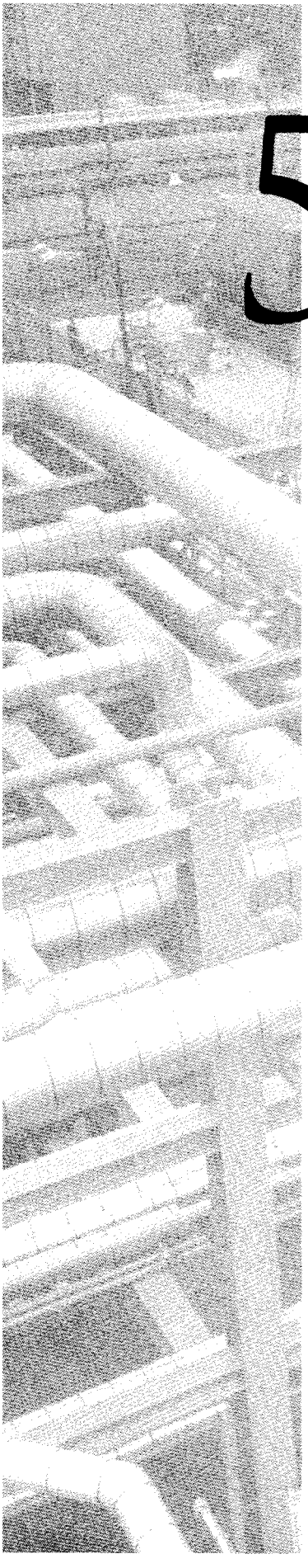
Box 4.11. Environmental Training for Financial Institutions

Managing investment-related environmental issues is a growing challenge for financial institutions in developing countries. To protect their investors, financial institutions must manage environmental risks associated with potential investments. In addition, they can increase returns to their investors by identifying new investment opportunities in environmental projects. Committed to helping financial intermediaries meet high standards for environmental management, IFC provides two related environmental management seminars for the staff of financial institutions. Since 1993, senior officers from nearly 300 financial institutions have participated in the seminar "Introduction to Environmental Management," which is designed to raise awareness of the financial implications of environmental issues. In 1997 IFC introduced a week-long workshop for environmental coordinators of financial institutions, which is now offered on a regular basis as a follow-up to the introductory seminar. It is designed to develop an in-depth understanding of the financial implication of environmental risks and opportunities, and to help participants, with senior management support, develop methods for protecting their institutions from risks and improving project quality.

gate local political risk is to attract local participants into the project. The sponsor could offer to share equity with local investors, borrow from local lenders, or enter into a local purchasing agreement for raw material supplies. Under such arrangements, the local participants are likely to become stakeholders in the success of the project. Their interest in the project will provide important protection against arbitrary national or local government decisions.

Note

1. For further discussion, see Gerald T. West, "Managing Political Risk: The Role of Investment Insurance," *Journal of Project Finance* (Winter 1996). Mr. West is senior adviser, MIGA.



5 STRENGTHENING PROJECT SECURITY

A project's structure and security package can help mitigate risk. Because project financing relies on the project's cash flows, the contractual arrangements that support those flows are an essential part of the security available in a project. The security package therefore will include all the contracts and assurances provided by various parties involved in the project to mitigate risk. The quality of the security package is particularly important to passive investors, who normally provide much of the financing but do not have the capacity to bear significant operating risks. Once their money is disbursed, they usually have little control over a project. If the type and quality of security available are strong, the project becomes more creditworthy, and a greater share of project costs can be funded through borrowings. Table 5.1 illustrates the types of security that can be derived from various elements of a project.

SECURING PROJECT ASSETS

Project debt is normally secured by a first mortgage lien on project assets, as well as the direct assignment to lenders of the project's right to receive payments under various contracts, such as a purchase and sale contract or a financial support agreement. Security will also include covenants restricting the project company's scope of activity to protect creditors' interests (for example, by limiting their ability to pay dividends to equity investors, or their ability to expand the project without permission, as well as ongoing financial covenants).

Whenever it is possible and meaningful, an IFC loan is secured by a mortgage on the project assets. The value of a mortgage depends, however, on the nature of the project and the project's financing structure. If the project is in manufacturing, the value of

Table 5.1. Typical Elements of a Security Package

Project assets and cash flows	Sponsors	Other sources
Mortgage on project assets	Precompletion guarantee	Entitlement payments related to government concessions (e.g., assignment of compensation due if concessions terminated early)
Offtake agreements to ensure output demand (quantity and price)	Project funds agreement; other financial support: subordinated loans in case of shortfall of project cash flows	Letter of credit
Supply agreements	Construction and operation supports: arrange turnkey construction contract, supply key managers, arrange management contract	Political risk insurance
Assignment of receivables	Pledge of shares	
Escrow accounts to receive project revenues: onshore and offshore, local and foreign currency		
Financial covenants		
Assignment of casualty insurance payments		

the mortgaged land, plant, and equipment can usually secure a substantial amount of the project loan. If it is a highway project, however, the underlying assets may have no significant realizable value in relation to the project's debt. In general, creditors will try to assure themselves that the expected realizable value of the assets secured by a mortgage will comfortably exceed their loans. In practice, IFC frequently requires that the value of the mortgaged assets equal 150 percent of the loan's principal value. If a mortgage on project assets has limited practical value until the project is complete, creditors will normally also insist on some form of precompletion guarantee.

Note, too, that certain project structures preclude a traditional mortgage, in which case creditors will seek other security measures. If the project has a government concession, for example, the underlying project assets belong to the government and therefore cannot be mortgaged, but they may be leased from it, as is the case in some infrastructure projects. Under such an arrangement, the project company agrees to improve and operate the assets and then to return them to the government at the end of the concession. A combination of sponsor guarantee and concession assignment may be used as alternative loan collateral; boxes 5.1 and 5.2 illustrate ways of doing this.

WEAK MORTGAGE FRAMEWORK

Some countries, perhaps for historical reasons, prevent project lenders from creating adequate mortgages for their loans. Under Indonesian law, for instance, agricultural land

Box 5.1. A Toll Highway Project in Latin America: Securing Project Debt under a Concession Agreement

In one toll highway project, the project company received a 20-year concession from the government to upgrade and maintain a major highway. The government retained the title to the project's principal assets (land, toll booths, and the like), which is a common arrangement in highway projects. Hence lenders were not able to create a meaningful mortgage over assets. IFC made a $10 million loan to the project and also provided a small equity investment. The IFC loan security consists of the following elements: (1) assignment of all toll revenues to the lenders (IFC included); (2) assignments of termination compensation (IFC will share with other lenders all the compensation paid to the company by the government if the concession agreement is terminated by the government prematurely); (3) termination compensation deficiency guarantee (in the event that the company chooses to, or agrees with the government to, terminate the concession prematurely, the project sponsors will be required to pay the difference between any termination compensation and the amounts outstanding to IFC); (4) assignment of compensation from the construction contractor (in case of construction contractor noncompliance, compensation is assigned to the lenders); (5) pledge of sponsors' shares in the company to IFC and other lenders; and (6) project funds and shares retention agreement (sponsors will provide funds to complete the project and maintain their respective shareholding until project completion, and they will retain 51 percent of the company's shares until the IFC loan is fully repaid).

Box 5.2. Ferroexpreso Pampeano S.A.C., Argentina: More Ways to Secure Debt under a Government Concession Agreement

In the first of a series of rail privatizations conducted by the Argentine government, Ferroexpreso Pampeano S.A.C. undertook a major rehabilitation and modernization of a network of rail tracks totaling about 5,000 kilometers under a 30-year government concession agreement. As part of the agreement, the company agreed to repair the track, overhaul the rolling stock, and introduce efficient operating systems, according to a preset schedule. Because the title to the rail assets continues to belong to the government, the assets could not be mortgaged by the project company to secure borrowings. IFC helped the company obtain loans totaling $33 million, supported by the following security: the three main sponsors agreed to severally guarantee IFC's loans, except in the case of expropriation, nationalization, or termination of the concession agreement by the government for reasons other than a breach of the agreement's terms by the company; the company and the sponsors agreed to assign to IFC their rights to compensation payable by the government in the event of termination of the company's concession agreement. Thus the IFC loans are protected against commercial and concession risks. The major risks that IFC faces are political risks related to nationalization and expropriation.

cannot be mortgaged to foreigners. In some cases, a country may just be establishing an effective mortgage law when a project is already underway. In others, pieces of the mortgage law regarding certain types of assets may be missing altogether, as in countries where land belongs to the state and no private land ownership is allowed (box 5.3). Project sponsors can then only lease land user rights for a specific period of time. A mortgage on the land user rights may also not be legal. Several IFC projects have obtained an interim sponsor guarantee as loan security. Once land user rights become mortgagable and the mortgage on it is effected, the sponsor guarantee expires.

Box 5.3. A Call Option on Sponsor Shares When a Mortgage Cannot Be Established

IFC recently helped arrange about $40 million in direct and syndicated loans for a greenfield project in a country that had previously attracted little foreign investment. At the time the loan agreement was signed, the country did not have mortgage laws, so a mortgage could not be registered to secure the IFC loans. As alternative security, IFC obtained a call option for the foreign sponsor's entire shares in the project company at a nominal price of $1. The option is exercisable if a default occurs before a mortgage can be established. In the loan agreement, IFC required the company to establish the mortgage as soon as feasible, but before this is done, the call option helps protect IFC's loans. It is equivalent to assigning to IFC the foreign partner's interest in the joint venture. Because the foreign partner is the majority shareholder of the project, by owning the foreign partner's shares, IFC could take control of the company in the event of a default. It could then restructure the company or dispose of its assets in a way that protected the interests of the lenders. The call option agreement also gives the foreign sponsor the first right to purchase IFC shares at a price equal to the outstanding IFC loan principal and interest, if IFC decides to sell its shares.

In other countries, restrictions may exist that may affect the structuring of project security. In Sri Lanka, for example, the law stipulates that once a lender takes a company's fixed assets as security, it will only have recourse against such assets. The lender with security on the fixed assets will have no recourse against any of the company's other assets, even if the value of secured fixed assets is not sufficient to repay the secured debt; in addition, security on such other assets is not enforceable. In 1996, IFC helped finance one of the country's first independent power projects, a new $63 million project to build, own, and operate a medium-size diesel power plant. The plant utilizes residual fuel oil, a by-product generated by the state-owned petroleum corporation, and considered the least-cost option for increasing local generating capacity. Since the company's fixed or immovable assets such as land and plant were not adequate to provide loan security for all lenders and since the most important assets of the company were in fact the arrange-

ments with the government and the power purchaser, the senior lenders, including IFC, took the following loan security:

- first mortgage over the movable assets of the company
- first assignment of all insurance policies
- first pledge of sponsors' and other key shareholders' shares in the company
- first assignment by way of security of all government approvals and agreements, including the PPA, the implementation agreement, the fuel supply agreement, and the government undertaking
- first assignment by way of security of the company's rights under project agreements such as project funds agreement, retention account agreement, and shareholder agreement
- first charge on the company's bank accounts, including offshore accounts.

To ensure that the company will not create security on its fixed assets in favor of third parties, the lenders required that the company's articles of incorporation be amended to require the prior approval of a qualified majority of shareholders for the company to be able to create security on its fixed assets. This will allow the senior lenders, in their capacity as shareholders, to ensure that if they enforce the security, the fixed assets of the company remain available.

ASSIGNING PROJECT RECEIVABLES AND PROJECT AGREEMENTS

Another common way to achieve loan security is to obtain an assignment of project receivables (see box 5.4). This enables creditors to determine how project funds will be used if the project runs into difficulty. Assignments could include receivables due under offtake agreements. A project usually has many other kinds of agreements covering such matters as government concession, management, and supply. Premature termination of any of these agreements could adversely affect the project. As a common business practice, the party terminating an agreement prematurely has to pay for the damages caused to the other parties. In view of the harm to the project, lenders will make sure that they are assigned the damage payments.

ESCROW ACCOUNTS

Escrow accounts can be used not only to mitigate foreign currency risks (see chapter 4) but also to ensure that contract obligations can be met. In particular, they can help control project expenditures. Although a project may generate sufficient cash flows to repay its debt, sponsors could divert these flows to serve other purposes within or outside the project. To make sure that the project's free cash flows are used first of all for debt service or other pre-agreed expenses, lenders often require that an escrow account be established with a reputable bank. An escrow account collects all or part of the project cash

Box 5.4. Nahuelsat S.A., Argentina: Assignment of Project Agreements Can Play a Significant Role in Loan Security

Through competitive bidding, Nahuelsat won a license to launch and operate an Argentine-based communications satellite to help meet the growing demand for communication services. Since the satellite represented about 80 percent of the company's assets, a mortgage on the project's assets on the ground (such as the ground control station) would not have provided much protection to project loans. Moreover, it was difficult to assess how one would exercise security on a satellite in orbit or determine the value of such an asset in event of default. Therefore, in designing the loan security package, IFC focused on the long-term contracts for leasing capacity on the satellite, where most of the project value lies.

IFC made a $30 million loan and a $5 million equity investment in the company in support of the approximately $250 million project. IFC used a combination of sponsor precompletion support guarantee, assignment of project agreements, mortgages, and insurance to secure its loan.

Because launch failure is a critical technical risk in a satellite project, the IFC loan was guaranteed by the sponsors (who were also the main suppliers of the satellite system) until such time as the satellite was successfully launched and in orbit.

The assignments of project agreements consisted of an assignment of satellite-in-orbit delivery contract; assignment of the company's sales (lease) contracts; and assignment of government license, to the extent permitted under the law. The mortgages comprised a first-ranking mortgage on the land and buildings where the ground-control facilities are located; a first-ranking mortgage on all movable tangible assets; and a first-ranking pledge on the satellite. Assignment of in-orbit failure insurance was secured to protect against the risk of partial or full operational failure.

The satellite was successfully launched in January 1997 and became fully operational in March 1997.

flows to be used for expenditures as agreed. If the escrow account is also pledged to lenders, it has the added advantage of improving the project's overall security package.

THE SPONSOR'S ROLE

A project's best support usually comes from its sponsors, namely, the parties who have developed and designed the project and who will be the primary beneficiaries of its success. Sponsors play a central role even in nonrecourse and limited-recourse financing, where they may cover only a relatively small portion of a project's overall cost and may rely on other creditors and investors to finance the project. Their experience, commitment, and energy will still be crucial to the success of the project in all its dimensions and through all its stages.

Strong sponsors typically provide a sound equity base at the outset of the project, additional funding or other support as needed during the construction period, and ongoing technical and managerial support during project operations. Even more important, sponsors must be able to provide effective support whenever it is needed. In one IFC-supported hotel project in Europe, the local sponsors' assets, which were primarily in real estate, were illiquid. Each time the hotel needed funding, the local sponsors had to resort to short-term borrowing, eventually weakening significantly the position of their other businesses. Frequently, sponsor support extends beyond direct financial assistance to supplying inputs or purchasing project outputs to help ensure operational and financial viability. As this chapter illustrates, recourse to the main sponsors is frequently the preferred means of mitigating risk.

SPONSOR EQUITY COMMITMENT

Every project needs a strong equity base. The largest equity share, typically held by the major sponsor, is frequently a majority share. In 64 percent of IFC's greenfield projects, the sponsor held 51 percent or more of the equity. For all the projects, sponsor equity represented 26 percent of total project cost at the time of commitment. A substantial financial commitment by the main sponsor also helps ensure project success by (a) making it expensive for the sponsors to abandon the project, thus encouraging them to take a strong and lasting interest in the project and to seek to remedy difficulties that will arise; (b) expediting decision making, particularly where the sponsor holds a majority share; and (c) increasing the confidence of other parties in the project. As a project lender, IFC almost without exception requires that sponsors maintain a certain level of project ownership. This requirement typically lasts for the entire period of the loan agreement. The specific level and duration of share ownership are usually specified in a share retention agreement between major creditors and investors and the main sponsors.

SECURITY FROM SPONSORS

Lenders frequently require sponsors to pledge their shares in the project company as part of the loan security package. This is particularly important if lenders feel that the value of the mortgaged assets is insufficient or that there is uncertainty about the enforceability of the mortgage. Effecting a pledge of shares is usually a relatively simple procedure and, once obtained, can be a useful negotiating tool for lenders. When sponsors pledge their shares to lenders, lenders may take control of the company in the event of default and may also take whatever steps necessary to protect their investments. A pledge of sponsor shares to improve security is used in about half of IFC's projects (see box 5.5 for one example).

DEFERRING PAYMENTS TO SPONSORS

It is not uncommon for a sponsor to enter into supplier relations with a project. For example, the sponsor may purchase part of the project's output or supply raw materials or services (such as a distribution network). In one project designed to increase hydro-

Box 5.5. European Textile Project: Pledge of Sponsor Shares to Strengthen Loan Security

In a European woolen textile privatization project, a foreign textile company invested equity and owned 66 percent of the shares. Local employees, domestic and foreign investment funds, another bilateral development agency, and IFC owned the balance. The two development agencies are the main senior lenders to the project. The IFC loan is secured by an offshore escrow account for loan service, a first-ranking mortgage on the company's assets, and a pledge of shares to IFC by the foreign sponsor.

The main reason that IFC asked the sponsor to pledge its shares was that mortgage law was not well established in the country, and there had not yet been a case in which a mortgage was successfully enforced to protect lenders. By obtaining a share pledge, IFC could take control of the project if things went wrong, whether the mortgage could be successfully enforced or not.

carbon production for existing oil and gas wells, the local sponsor guaranteed to provide a certain number of oil wells for the company to operate on. Deferring raw material payments or service fees to the sponsor in the case of project cash flow shortages can also help strengthen the project's financial robustness.

Reducing repayment risk. In one example, IFC supported a $330 million project to produce methanol for export, an important element in the government's program to reduce dependency on crude oil exports. The project's raw material, natural gas, is supplied by the local sponsors, while export sales are handled by the foreign sponsors. IFC helped provide loans and equity funds of about $130 million. Loan security was in the form of a mortgage, insurance, and sponsor support for project completion. In addition, IFC required that two other conditions be met from the time of the project's physical completion until the IFC senior loan was fully repaid. First, the local sponsors would, if needed, defer a portion of the payment due to it for gas supplied to the project. Any such deferral would be structured as subordinated debt to the project company so that the project company could first use cash flows to service its senior debt. Second, the foreign sponsors, if needed, would defer a portion of sales commissions, also in the form of subordinated debt to the project company, so that the project company could first service its senior debt. The project has been performing well since it began production. The IFC loan is current and is not expected to face repayment difficulties.

SPONSOR GUARANTEES

Although project finance is normally structured without direct recourse or guarantees from the sponsor, they may be necessary on occasion, especially when some aspect of the project risk cannot be mitigated or is considered beyond the creditors' ability to absorb. The most common form of this arrangement is a precompletion guarantee (box 5.6).

Box 5.6. Mactan Shangri-La Hotel and Resort Inc., Philippines: A Precompletion Guarantee Followed by an Extended PFA

A precompletion guarantee is often used in IFC projects. But some projects may need additional support, as in the case of Mactan, a first-class hotel built in Cebu province in 1991 to attract visitors to an area of rapid growth and significant tourism potential. Because of perceived country risk at that time, commercial banks were reluctant to extend long-term support to a greenfield project, and IFC was asked to provide direct and syndicated loans of $24 million to help cover the $48 million that the project was expected to cost.

As in many other IFC projects, the sponsor (a hotel operator with a strong reputation in the Asian market) provided a precompletion guarantee for the IFC loans. In addition, at IFC's request, the sponsor agreed that, in the event of project cost overruns or financing shortfalls, it would provide subordinated debt or fresh equity funds needed to finance such gaps until project financial completion (PFC). Among other conditions, nine installments of the principal must be repaid to achieve PFC. The total loan principal covered by this extended project funds agreement (PFA) was equivalent to nearly half of the entire loan. In effect, the sponsor gave IFC financial support covering half of the IFC loan principal.

IFC had requested such support in part because of the political uncertainty in the Philippines at the time of the negotiations and the fact that the market for luxury tourist hotels was still untested there. Furthermore, IFC's experience in the hotel sector indicated it would take three to four years of operation before the revenues of the new hotel would stabilize. All these factors created significant risks for a senior lender.

As it turned out, the political situation in the Philippines stabilized after 1991 and the tourist and business traveler markets boomed. The hotel has performed exceptionally well since it began to operate in October 1993. The IFC loans were serviced regularly until they were prepaid in full in July 1996. Neither the precompletion guarantee nor the PFA was invoked.

Because project risk is usually very high before project completion and difficult to assess or control in certain respects, sponsor guarantees may be extended to creditors before the physical or financial completion of the project, as discussed earlier. In some projects, they take the form of a partial loan guarantee, which guarantees only a portion of the loan principal and interest payment. This reduces the lenders' exposure somewhat but still leaves them with a share of the risks. The main purpose of a partial loan guarantee is to give lenders an additional inducement to finance a project. Partial guarantees vary greatly in form and can be adapted to suit many situations. In a European manufacturing project supported by IFC, its loan of $13 million is guaranteed by the main foreign sponsor for an amount up to $5 million. Occasionally, a full guarantee may be needed before financing can be attracted (box 5.7).

Box 5.7. Oleoducto de Colombia S.A.: A Full Sponsor Guarantee: When Project Risk Was Too High

A pipeline project planned in 1992 to enable Colombia to expand its crude oil exports illustrates that standard loan security arrangements may not always provide sufficient protection for lenders. A state-owned oil company held 49 percent of the project and a group of major international oil companies 51 percent. IFC was the main project lender. The economics of the project seemed sound at the time of loan negotiation, but the project was exposed to the risk of guerrilla attacks.

Although the Colombian army had agreed to provide protection, attacks occurred even during the loan negotiation. IFC was prepared to accept any political risks except guerrilla attacks. During loan negotiation, IFC and the sponsors could not come to an agreement on how to separate this risk from general political risks. Because the sponsors wanted to move forward with the project and because other sources of reasonably priced long-term debt were not available at that time, a full sponsor loan guarantee was given to IFC.

Despite the guerrilla problems, the project has performed well financially. IFC's loans have been serviced by the company without any problems. Consequently, the guarantee has never been invoked.

Box 5.8. Indo-Jordan Chemicals Co. Ltd.: Letter of Credit Backing Sponsor's Project Funds Agreement Obligations

Indo-Jordan Chemicals is a joint venture between a Jordanian phosphate rock producer and one of India's main fertilizer producers to produce phosphoric acid, an intermediate product used in the manufacture of fertilizers. Approved in 1994, the projected cost was $169 million. IFC, the main lender, provided a $30 million loan.

Under the project funds agreement, the sponsors pledged to provide up to $21 million of additional funds in equity or subordinated debt to complete the project and support cash flow once operations began. To provide assurance that it could meet its obligations, one of the sponsors was asked to provide a standby letter of credit (L/C) from a bank covering the amount that could be called under the project funds agreement. IFC would invoke the L/C only in the event of default by the sponsor.

The project was completed in June 1997 within budget. The sponsors' support commitment, backed by the L/C, has not had to be called upon.

ENSURING THAT OBLIGATIONS ARE MET

A sponsor's obligations under a project funds agreement, or any other project agreement, may be backed up by a letter of credit, bond, or guarantee from a credible third party. Usually this third party is a financial institution (box 5.8). In one IFC-supported power

Box 5.9. Manufacturing Project in Fiji: Project Insurance Plays a Timely Role

In 1993 a new manufacturing facility was established in Fiji, helping expand export earnings and employment in a small island economy with limited opportunities. IFC supported the $7 million project with direct and syndicated loans of about $4 million. As customarily required in IFC projects, the company purchased project asset insurance and business interruption insurance, in accordance with the loan agreements signed with IFC.

On March 8, 1997, a powerful cyclone hit Fiji, causing severe damage to the company's factory. The sponsors took quick action to process insurance claims and restore operations. During the next two months, the company leased machines from another company to avoid interrupting operations until it could purchase new machines. As a result, the company met all of its export orders on schedule despite the terrible cyclone.

It would have been difficult for the company to borrow from local banks to restore production quickly in the aftermath of such a natural calamity, since banks themselves might face liquidity shortages under these circumstances.

project, however, a standby letter of credit was arranged by the sponsors to support their commitment to restore production in the event of a force majeure event.

PROJECT INSURANCE

Of the numerous risks that projects are likely to face, many can be allocated to parties willing to accept them via contracts, as shown in the foregoing examples. But some risks in project finance—commonly referred to as force majeure risks—cannot be contractually allocated. These risks are associated with fire and natural disasters, and they have to be dealt with by the purchase of insurance. IFC requires that all its projects have adequate insurance to cover such risks.

Broadly, there are two types of force majeure risks. One affects the project directly, as in the case of an earthquake or fire; the other indirectly, as in the case of a natural calamity that prevents a supplier from fulfilling its commitments to the project. Market insurance can usually be purchased to mitigate against these risks. The insurance proceeds are used to restore production or repay loans (box 5.9). Political risk insurance is discussed in chapter 3.

GOVERNMENT GUARANTEES

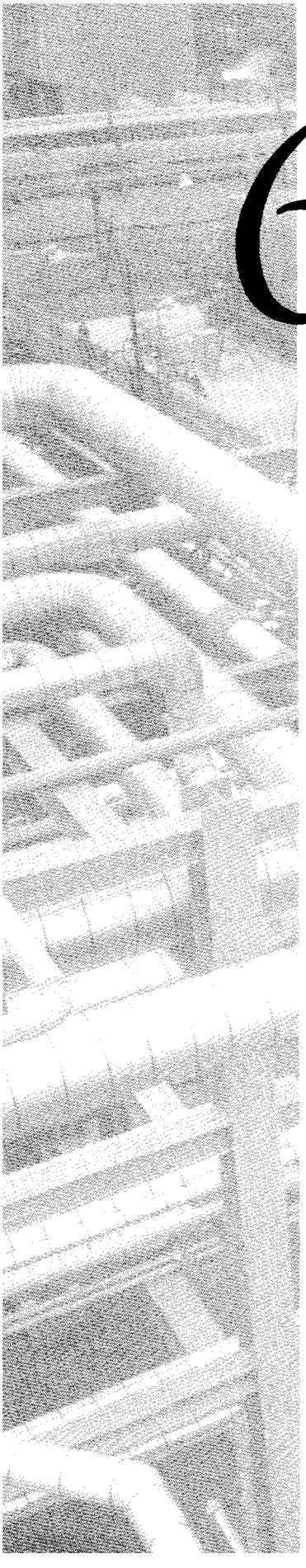
Governments may directly guarantee the default risk of a state entity that is party to a project. This form of guarantee is most often seen in infrastructure projects. When an independent power producer sells power to a state-owned power distributor through a

PPA, for example, it is crucial that the distributor be able to pay for the power. Since in some countries electricity prices have been politically set below market rates, IPP project lenders will hesitate to provide loans without a government guarantee for the default risk of the distributor. As part of an IFC-supported power project approved in 1994, for example, the government of India guarantees the payment obligations of the state electricity board, which purchases power from the company under a long-term PPA.

SECURING EQUITY INVESTMENTS

The principal objective of project security is to protect project debts, because debt generally constitutes the largest share of the financing package from passive investors and bears a fixed return, with no potential for higher returns if the project is very successful. But minority investors with equity or quasi-equity investments in the project will also seek some form of exit. For projects that are not publicly listed on any exchange, this frequently includes a put option for their shares.

In view of IFC's minority shareholder status in many projects, most of which are not listed on a stock exchange at the time of its investment, the agency needs to ensure an appropriate exit strategy from the investment. The purpose of IFC's investment in equity is primarily to ensure that the company has a solid start. In principle, IFC considers its developmental role fulfilled when a project reaches the stage of mature and profitable operation, at which point it will usually try to exit the project as soon as possible. With a put option, IFC can exit without difficulty and use its funds in other new projects. Indeed, at times a properly structured put option may be critical to limiting the downside risk of an equity investment. In other cases, IFC may seek a best-effort commitment from the main sponsor to list the project on the local exchange within a certain number of years. This form of commitment, while not having the same force as a legal agreement, helps further IFC's developmental objective by strengthening local capital markets.



6 SUMMARY AND CONCLUSIONS

Over the past decade, project finance has entered the mainstream of investments in developing markets. It has gained new impetus in the dynamic environment created by the increasing globalization and sophistication in financial markets, on the one hand, and by policy reforms (particularly privatization programs and major infrastructure schemes previously the domain of governments) that have stimulated private sector investment, on the other.

As a result, the volume of flows related to project finance expanded dramatically during the 1990s and formed a large part of the overall increase in flows to developing markets. This growth was matched by greater competition in financial markets, which reduced funding costs and lengthened the periods of support, while the gradual convergence of the debt markets for bonds, syndicated loans, and private placements enabled projects to gain access to finance through a broader spectrum of instruments. The growing use of securitization techniques also increased the liquidity and attractiveness of project debt to a wider range of investors in developed countries, and to a more limited extent in developing markets. A relatively long period of macroeconomic stability and policy reform in major developing markets increased investors' willingness to support more complex projects and a broader range of country and market-related risks. In more difficult sectors and countries, though, projects were often completed with the active support of official financing agencies, including MDBs and ECAs.

The crisis that began in East Asia in mid-1997 has brought about a significant pause in the project finance market. The crisis has dampened growth and investment opportunities in most countries, causing sponsors and governments to reassess the finan-

cial and economic viability of proposed projects, and investors to reevaluate the risks, particularly with regard to foreign exchange, market demand, and contract enforcement. Liquidity in the commercial bank and broader securities markets also contracted significantly, reducing access dramatically for most borrowers, including those seeking project finance. Many existing projects, especially those in the process of implementation, came under serious strain and had to be renegotiated or restructured to get back on track.

FUTURE OF PROJECT FINANCE IN DEVELOPING MARKETS

The problems created by the financial crisis teach a valuable lesson: greater care must be exercised in structuring projects and assessing their risks. Despite these problems, however, project finance is still a useful means for investors, creditors, and other unrelated parties to share the costs, risks, and benefits of new investment in an economically efficient, transparent, and fair manner. Once financial markets stabilize and growth and investment resume, project finance techniques are likely to regain in importance.

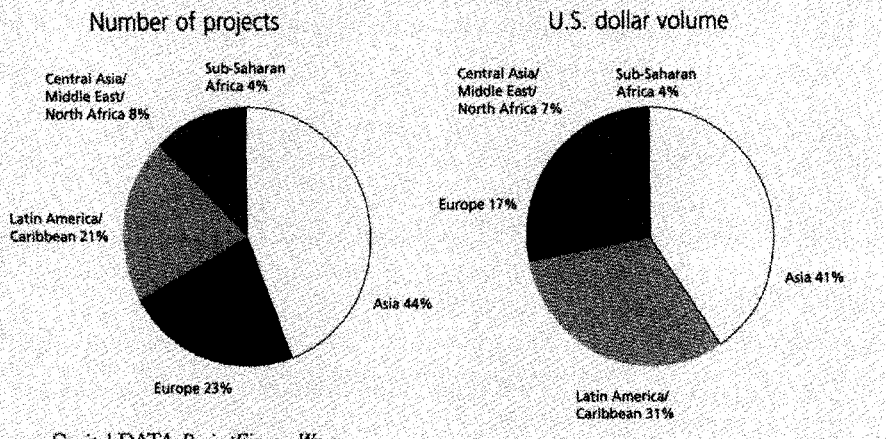
The investment needs in many developing markets remain enormous—World Bank estimates for new infrastructure investments alone over the next decade are in excess of $250 billion per year—and pursuing them is essential to development. Yet few companies in the private infrastructure market have sufficient financial resources or experience in developing markets to undertake major capital projects alone. Sharing the risks through project finance or other means will help get these projects off the ground.

BROADENING APPLICABILITY

Project finance techniques were earlier of interest mainly to mining and oil and gas projects aiming to attract foreign currency funding. Over the past decade, infrastructure projects, particularly in the telecommunications and electric utility sectors, have attracted major project finance flows. Large flows have gone to a number of countries, but they have been concentrated (figure 6.1), and many countries have not even begun to exploit the potential project finance techniques offer. In 1997, 65 percent of total gross flow commitments reportedly went to projects in just 10 countries, and they were even more concentrated in 1998.

In the future, infrastructure projects are likely to continue being in the lead in project finance in developing markets. Along with the strong need to rebuild existing infrastructure assets, there is an increasing tendency of governments to privatize existing assets and to seek private sector assistance in the construction of new assets. In regions that have seen considerable private sector involvement already, such as Latin America and the Caribbean, many governments are moving beyond the telecommunications and power sectors and introducing policy reform to improve service and efficiency in more

Figure 6.1. Regional Distribution of Project Finance Flows to Developing Markets, 1994–98



Source: Capital DATA *ProjectFinanceWare*.

complex sectors, such as water supply and wastewater treatment, and in a broad range of transport projects.

While heavy reliance on foreign funding will continue, because of the tremendous investment needs that could not otherwise be met, these projects are likely to be more conservatively structured in all respects in the wake of the financial crisis that began in mid-1997. Unlike the traditional natural resource projects, many recent projects were domestically focused and sought to mitigate the risk of foreign currency funding through PPAs and other offtake agreements under long-term government concessions. Some projects suffered badly as a result of the currency crisis that began in East Asia. This demonstrated again the danger of relying heavily on foreign currency funding when a project has no natural hedge against currency risk. It also showed that offtake agreements are not a substitute for a careful assessment of market and credit risk. Many contracts proved unenforceable in the face of catastrophic changes in the underlying assumptions—for example when pricing was linked to a foreign exchange rate—and governments were politically unable to revise tariffs as called for in the agreements.

IMPROVING POLICY ENVIRONMENTS

As the financial crisis that began in East Asia has shown, the extent to which project finance can be employed in individual countries depends on their overall economic and policy framework. The broader use of project finance techniques depends ultimately on a sound policy environment. Some developing countries have already undertaken significant reforms in the macroeconomic and policy framework, thereby laying the groundwork and improving the opportunities for project finance. Although IFC has used project finance in a

broad range of country environments (IFC's greenfield projects over the past decade were in 69 countries), individual projects cannot act as a catalyst for economic development and growth unless the overall framework is supportive.

Project finance techniques are most successful in an economic and country environment where business dealings are transparent, contracts are respected (particularly contracts between state and private sector entities), and a framework exists for resolving disputes fairly. In a project finance structure, most of the risk mitigation depends on the assurance of one party to another, provided through some form of contract. Although contract agreements for large projects often specify a foreign jurisdiction (such as New York or English law) or international arbitration for legal action in disputes, borrowers frequently need to sue in local courts to enforce their rights. This is particularly true if project security includes real estate. In many cases, local courts will apply local law, regardless of the contract terms. The financial crisis that began in mid-1997 has further reinforced the importance of addressing these structural issues. For one thing, capital is more likely to return—and in larger amounts—wherever the legal and judicial system has demonstrated it can provide a fair basis for resolving difficult situations. For another, a general policy framework that creates a sound, stable regulatory and macroeconomic environment is more likely to attract long-term project finance for investment. Equally important, market mechanisms are needed to create the right incentives, as is a transparent legal and tax framework. And state-owned companies, in economies where they have an important role, need to have the capacity to deliver.

Governments can also do a great deal to facilitate private financing for projects by providing a legal and judicial framework that is conducive to private contractual activity. Above all, the regulatory framework should be clear and consistent, and policy should aim to keep the macroeconomic environment stable. Instability can wreak serious havoc, as it did in Pakistan in 1998, when the government sought to cancel a number of independent power projects, alleging corruption, against a background of macroeconomic uncertainty that had eroded the financial ability of the public power utilities to fulfill their commitments. While there are a number of ways, as this report illustrates, to compensate for a weak domestic legal and regulatory environment, they will inevitably entail additional transaction and financing costs and still leave a project vulnerable to unexpected adverse developments.

INVESTOR APPETITE FOR DEVELOPING MARKET RISK

Globalization and the liberalization of financial markets during the 1990s encouraged many investors to enter developing markets. These forces also helped create the instruments to mitigate or control the risks inherent in projects, such as interest rate changes or price movements in products and currencies, although these hedging instruments have had limited availability to date in developing markets.

In IFC's experience, the success of project financing depends in large measure on good risk management. Though time-consuming and complex, this strategy offers enormous benefits. For projects in which the risks have been identified, clarified, and appropriately mitigated up front, private financiers are frequently willing to provide significant amounts of funding and will bear project-specific commercial risks. In more stable country environments, private financiers have also borne some nonspecific commercial risks, including inflation or currency risks. At times, however, such risks can have serious repercussions. The large local currency devaluations in Asia in 1997 and 1998 produced a significant financial weakening that may affect how lenders and investors behave in the future.

The major commercial risk underlying most projects is that of noncompletion. All financing packages should contain rigorous standards and obligations to ensure that the relevant parties will help bring the project to completion. After completion, market risk is the main concern of most projects. This is often difficult to assess accurately, yet critical to the outcome. Projects need to be able to withstand adverse developments such as new competitors or overall declines in demand if they are to be successful. The sponsor, including its expertise in the sector, plays a vital role in this regard. Sponsors will generally provide some form of support or guarantee to ensure project completion and will seek contractual marketing arrangements or other means by which to hedge market risk. Even in projects that have no financial recourse to the sponsor, strong, experienced, and committed technical and financial partners can be critical to a project's success, not only during the construction period but also during ongoing operations. In addition, conservative financial structuring can help a project withstand a wide variety of risks, both expected and unexpected.

Continued innovation in the packaging and diversification of project finance risk—for example, through securitization and the pooling of risks—will also help expand sponsor and investor awareness of, and interest in, project finance in developing markets. Because of the current risk-averse environment, a number of sponsors are combining several projects into one financing pool to help diversify risk.

TOWARD STRONGER LOCAL FINANCIAL MARKETS

The extent to which project finance can be used in individual countries also depends on the depth of local financial markets. In recent years project finance techniques have been used mainly to attract international financing to developing markets. With the growing popularity of project finance, these techniques have helped finance projects that have no obvious way to earn hard currency to repay foreign loans. Although instruments for hedging foreign currency are available in financial markets, they are difficult to obtain against long-term obligations or are often very expensive. That is why many projects

failed to have protection against the substantial depreciation in a number of local currencies in late 1997 and 1998.

Project finance techniques and structures can be equally appropriate for raising local financing for local projects. Local funding can help mitigate (or avoid altogether) the significant interest rate and foreign currency risks many projects face. The local market must have some depth, however, and lenders must be able to invest over the long term (as can pension funds and life insurance companies). Such conditions currently exist in only a few developing markets.[1] As noted in chapter 3, international sources financed 77 percent of the total costs of the IFC-supported projects reviewed for this volume. However, the average share of foreign financing in these projects declined as the risk ratings of the countries in which they were located improved, even though these countries generally had greater access to foreign finance.[2] Despite their access to international sources of funding, the projects found local financing an attractive option because of the relative maturity of the domestic financial markets.

Financial markets—both local bond and equity markets—need to be well developed, and reforms directed at creating a transparent and efficient local banking network must be in place before project finance can be widely used in individual markets to support new investment. Prior to the crisis, the international market for project bonds, particularly through private placements, had been developing rapidly. Although the bond markets have proved volatile to date, as project bonds become more established as an asset class, they offer the prospect of long-term finance (of twenty years or more) much more suited than commercial loans to the needs of large projects. Local bond markets could play an even more valuable role. Governments can help meet these prerequisites by encouraging the deepening and broadening of local financial markets. As local financial markets develop, project finance structuring can more appropriately be used for a broader range of sectors that have no ready access to foreign exchange, including manufacturing and service. Reforms in industrial countries, such as the Private Finance Initiative in the United Kingdom, have illustrated how projects like schools, hospitals, and prisons can be privately financed, given the appropriate domestic framework.

In conclusion, project finance can play an important role in an appropriate environment. It does not, however, offer a "free lunch," but demands a rigorous framework if it is to be successful. As markets develop, in terms of their financial regulatory and policy strength, project finance will be used with greater confidence and on a sustained basis in a much broader spectrum of countries, sectors and types of projects. The willingness of the multilateral financial institutions such as IFC and the major export credit agencies to support project finance transactions, particularly in higher-risk environments, will continue to help expand these horizons.

Notes

1. For discussion of IFC's activities in promoting local financial markets, see IFC Lessons of Experience 6, *Financial Institutions*, 1998.
2. Risk ratings as defined by *Institutional Investor.* For high-risk countries in IFC's sample (those rated less than 25), local financing represented 14 percent of total project cost; this increased to 20 percent for medium-risk countries and to 31 percent for low-risk countries (rated 45 or more).

APPENDIX A. GREENFIELD PROJECTS SUPPORTED BY IFC THROUGH LIMITED-RECOURSE PROJECT FINANCING, FISCAL 1989–98

(MILLIONS OF U.S. DOLLARS)

Fiscal year	Company	Country	Sector	Estimated project cost	Debt		
					IFC loan	IFC syndication	IFC equity
1989	Crown (China) Electronics Company Limited	China	Manufacturing	62.0	15.0		
1989	Dunastyr Polisztirolgyarto Rt.	Hungary	Chemicals	78.7	10.9	13.5	3.9
1989	Dusa Endustriyel Iplik Sanayi	Turkey	Chemicals	66.6	17.0	8.0	
1989	Eska Turizm ve Ticaret A.S.	Turkey	Hotels and tourism	16.3	7.2		
1989	Kewalram Philippines Incorporated (KPI)	Philippines	Textiles	11.0	3.0*		
1989	Kiris Otelcilik ve Turizm A.S.	Turkey	Hotels and tourism	34.3	8.6		
1989	Masstock Zambia Limited	Zambia	Food and agribusiness	39.5	6.5		
1989	Minera Escondida Limitada	Chile	Mining and extraction of metals	1,143.2	70.0		8.0
1989	Operaciones al Sur del Orinoco	Venezuela	Mining and extraction of metals	115.0	37.4	35.8	
1989	Peroxythai Limited	Thailand	Chemicals	43.1	10.7		
1989	Polimar S.A. de C.V.	Mexico	Chemicals	52.5	12.0		
1989	Polipropileno de Venezuela S.A.	Venezuela	Chemicals	165.3	40.0	7.0	
1989	Politeno Linear Industria e Comercio S.A.	Brazil	Chemicals	139.0	18.5		6.5
1989	Sariville Turistik Tesisler A.S.	Turkey	Hotels and tourism	20.1	2.9		1.7
1989	Shell Gabon S.A.	Gabon	Oil and gas	395.0	10.0	110.0	
1989	Shenzhen YK Solar Energy Company Limited (SSE)	China	Manufacturing	10.2	2.0		1.0
1990	Bahia Sul Celulose S.A.	Brazil	Timber, pulp, paper	897.0	40.0		15.0
1990	Indelpro S.A. de C.V.	Mexico	Chemicals	140.0	31.0		3.0
1990	Mersin Enternasyonal Otelcilik A.S.	Turkey	Hotels and tourism	25.0	8.5	4.0	
1990	Migranja S.A.	Uruguay	Food and agribusiness	19.4	2.4		2.0
1990	Petroken Petroquimica Ensenada S.A.	Argentina	Chemicals	135.1	15.0		
1990	Siam Asahi Technoglass Company Limited	Thailand	Manufacturing	334.5			8.4
1990	Spintex Holdings Swaziland Limited	Swaziland	Textiles	22.2			5.4
1990	Tetra Pak Hungary Limited	Hungary	Timber, pulp, paper	48.0	6.8		2.9
1990	Togotex International S.A.	Togo	Textiles	22.7			1.5
1990	Turism ve Yatirim A.S.	Turkey	Hotels and tourism	43.0	8.4		
1990	Twenty First Century Oleochemicals Sdn. Bhd.	Malaysia	Chemicals	20.0	4.5	3.4	0.8
1990	UCAL Fuel Systems Limited	India	Manufacturing	7.5			0.7
1990	Wahome Steel Limited	Ghana	Mining and extraction of metals	8.3	2.7		
1990	Yeditepe Beynelmilel Otelcilik Turizm ve Ticaret A.S.	Turkey	Hotels and tourism	93.0	18.0	24.0	4.0

1991	Al Bardi Paper Mill Company (S.A.E.)	Egypt	Timber, pulp, paper	27.5	6.2		
1991	Al Hikma Farmaceutica (Portugal) Limitada	Portugal	Chemicals	17.8	2.2		
1991	Automated Microelectronics Incorporated	Philippines	Food and agribusiness	47.0	9.0		2.6
1991	Avantex Mill Corporation	Philippines	Textiles	51.0	11.3		2.3
1991	Best Chemicals and Plastics Incorporated	Philippines	Chemicals	33.0	6.5		2.3
1991	Eka Chemicals de Venezuela C.A.	Venezuela	Chemicals	52.3	14.3	18.0	
1991	Engepol Engenharia de Polímeros	Brazil	Manufacturing	11.5	3.5		
1991	Herdilla Oxides and Electronics Limited	India	Chemicals	13.4			0.3
1991	Hopewell Energy (Philippines) Limited	Philippines	Infrastructure	40.0	10.0		1.1
1991	Hotel Investments (Ghana) Limited	Ghana	Hotels and tourism	17.0	4.2		
1991	Hotel Orbis Bristol Limited Liability Company	Poland	Hotels and tourism	36.2	11.5		
1991	Leptos Calypso Hotels Limited	Cyprus	Hotels and tourism	30.0	9.0		
1991	Magyar Suzuki Corporation	Hungary	Manufacturing	234.9	30.5		6.5
1991	Makati Shangri-La Hotel and Resort Incorporated	Philippines	Hotels and tourism	118.0	29.5	29.5	
1991	Mines d'Or d'Akjoujt S.A.	Mauritania	Mining and extraction of metals	17.5	3.0		0.7
1991	Oleoducto de Colombia S.A.	Colombia	Oil and gas	321.0	35.0	35.0	
1991	Productora de Alcoholes Hidratados C.A.	Venezuela	Chemicals	142.5	29.9	2.0	5.8
1991	Societe ENNASR de Peche	Morocco	Food and agribusiness	13.0	2.5		
1991	Victoria United Hotels Company (S.A.E.)	Egypt	Hotels and tourism	19.0	5.3		0.5
1992	Alcatel Network Systems Romania S.A.	Romania	Infrastructure	18.0	5.6		0.8
1992	Aquaculture de la Mahajamba (Aqualma)	Madagascar	Food and agribusiness	19.0	1.9		0.6
1992	Bosques y Maderas S.A. (BOMASA)	Chile	Timber, pulp, paper	30.2	5.5	6.0	2.0
1992	Celular de Telefonia S.A. de C.V.	Mexico	Infrastructure	68.5	2.5	25.0	1.0
1992	Chemagev Limited	Poland	Industrial and consumer services	14.9	3.0	7.6	1.1
1992	Desarrollos Turisticos del Caribe S.A.	Dominican Republic	Hotels and tourism	40.3	10.0		
1992	Dynamic Textile Industries Limited	Bangladesh	Textiles	11.5	2.5	2.0	
1992	Elbo Gaz Mamulleri ve Kontrol Cihaglari Sanayi ve Ticaret A.S.	Turkey	Manufacturing	77.6	19.3	5.9	
1992	Fibranova S.A.	Chile	Timber, pulp, paper	63.6	14.0		1.1
1992	Ghanian-Australian Goldfields Limited	Ghana	Mining and extraction of metals	55.4	8.4	18.5	2.2
1992	Hidroelectrica Aconcagua S.A.	Chile	Infrastructure	82.0	14.0	6.0	6.5
1992	The Mexico City Toluca Toll Road	Mexico	Infrastructure	312.7	13.8**		
1992	Misr Compressor Manufacturing Company (MCMC), S.A.E.	Egypt	Manufacturing	79.0	16.3		3.0
1992	Petrozim Line (Private) Limited	Zimbabwe	Infrastructure	66.7	16.7	16.0	
1992	P.T. Bakrie Kasei Corporation	Indonesia	Chemicals	335.1	30.0	95.0	9.6
1992	P.T. Rimba Partikel Indonesia	Indonesia	Timber, pulp, paper	40.4	9.5	10.0	0.6

Fiscal year	Company	Country	Sector	Estimated project cost	Debt		IFC equity
					IFC loan	IFC syndication	
1992	P.T. Swadharma Kerry Satya	Indonesia	Hotels and tourism	177.0	35.0	51.0	
1992	Serena Beach Hotel S.A.E.	Egypt	Hotels and tourism	23.5	6.0		1.1
1992	Shin Ho Paper (Thailand) Company Limited	Thailand	Timber, pulp, paper	108.0	22.0	34.0	6.0
1992	Societe Miniere de Bougrine (SMB)	Tunisia	Mining and extraction of metals	74.2	14.0		2.1
1992	Westel Radiotelefon KFT	Hungary	Infrastructure	82.0	15.0		
1993	Alexandria Carbon Black Company S.A.E.	Egypt	Oil and gas	40.0	7.0		1.5
1993	Bacnotan Cement Corporation	Philippines	Construction materials	101.0	18.0		5.3
1993	Belize Electric Company Limited	Belize	Infrastructure	59.4	10.0	11.0	
1993	C.S. Cabot Spol sr.o.	Czech Republic	Oil and gas	87.1	18.3		
1993	Cayeli Bakir Isletmeleri A.S.	Turkey	Mining and extraction of metals	144.5	30.0		45.0
1993	Central Sukhontha Company Limited	Thailand	Hotels and tourism	42.0	7.0		
1993	Companhia Central Brasileira de Acabamentos Texteis	Brazil	Textiles	27.0	6.0		4.0
1993	Compania Boliviana de Gas Natural Comprimido S.A.	Bolivia	Chemicals	8.5	1.7		
1993	Ferroexpreso Pampeano, S.A.C.	Argentina	Infrastructure	58.3	13.0	20.0	
1993	Ghim Li Fashion (Fiji) Limited	Fiji	Textiles	7.0	1.7	2.5	
1993	Helios S.P.A.	Algeria	Chemicals	96.2	10.0		
1993	Hopewell Power (Philippines) Corporation	Philippines	Infrastructure	888.0	60.0	11.0	10.0
1993	Hotel Camino Real S.A.	Costa Rica	Hotels and tourism	28.0	7.0		
1993	Hotels Polana Limitada	Mozambique	Hotels and tourism	16.5	3.5		
1993	Huta L.W. Sp. z.o.o.	Poland	Mining and extraction of metals	299.1	38.2		5.1
1993	Ideal Sanitaire	Tunisia	Construction materials	17.8	2.8		1.1
1993	Mactan Shangri-La Hotel and Resort Incorporated	Philippines	Hotels and tourism	48.0	12.0	12.0	
1993	Metanol de Oriente, Metor S.A.	Venezuela	Chemicals	340.0	34.0	100.0	6.8
1993	Northern Mindanao Power Corporation	Philippines	Infrastructure	103.0	10.0	10.0	4.5
1993	Nuevo Central Argentina S.A.	Argentina	Infrastructure	62.2	10.0	15.0	3.0
1993	Puerto Quetzal Power Corporation	Guatemala	Infrastructure	92.0	13.4	51.0	
1993	Rupafil Limited	Pakistan	Textiles	89.0	13.9		0.3
1993	The Samui Beach Company	Thailand	Hotels and tourism	27.3	8.0		
1993	Shenzhen Tai-Yang PCCP Company Limited	China	Construction materials	20.0	4.0		1.0
1993	Tripetrol Exploration and Production Company	Ecuador	Oil and gas	32.0	6.0		
1993	Yanacocha S.A.	Peru	Mining and extraction of metals	45.0	12.0	14.0	0.3
1993	Yantai Mitsubishi Cement Company Limited	China	Construction materials	122.7	28.7		2.0

1994	Albadomu Malatatermelo Es Kereskedelmi BT	Hungary	Food and agribusiness	19.9	4.8		1.9
1994	Autokola Nova Hut a.s.	Czech Republic	Manufacturing	63.0	13.0	21.0	
1994	Aytac Dis Ticaret Yatirim Sanayi A.S.	Turkey	Food and agribusiness	75.5	8.0	10.0	2.0
1994	Bacell Servicos e Industria Limitada	Brazil	Timber, pulp, paper	194.9	14.0	30.0	10.0
1994	Bona Sp. z.o.o.	Poland	Food and agribusiness	5.1	2.0		
1994	Bumrungrad Medical Center Company Limited	Thailand	Social services	111.0	25.0	35.0	1.1
1994	Club Ras Soma Hotel Company	Egypt	Hotels and tourism	30.1	5.2	4.0	2.4
1994	Crescent Greenwood Limited	Pakistan	Textiles	76.9	16.1	5.0	3.1
1994	DLF Cement Limited	India	Construction materials	130.4	11.0	17.0	
1994	Empresa Diatribuidora Norte Sociedad Anonima S.A.	Argentina	Infrastructure	402.4	30.0	128.0	
1994	Empresa Electrica Pangue S.A.	Chile	Infrastructure	465.0	55.0	50.0	4.7
1994	Fauji Cement Limited	Pakistan	Construction materials	162.8	24.0	10.0	5.0
1994	Hidroelectrica Aguas Zarcas S.A.	Costa Rica	Infrastructure	15.0	3.3	6.1	
1994	Papa Regional Telephone Company Rt.	Hungary	Infrastructure	14.4			0.6
1994	Peters Fleischindustrie Und Handel Aktiengesellschaft (Peters)	Poland	Food and agribusiness	18.0	4.5		1.0
1994	Regent Knitwear Limited	Pakistan	Textiles	28.8	14.4	4.8	2.3
1994	Star Petroleum Refining Company Limited	Thailand	Oil and gas	1,850.0	100.0	350.0	
1994	Telemovil El Salvador S.A.	El Salvador	Infrastructure	7.1	1.7	2.5	0.2
1994	Tourism Promotion Services (Tanzania) Limited	Tanzania	Hotels and tourism	32.5	8.0		1.1
1994	Tourist Company of Nigeria Limited	Nigeria	Hotels and tourism	68.5	11.0		2.5
1994	Tuntex Petrochemicals (Thailand) Public Company Limited	Thailand	Chemicals	355.0	20.0	137.5	
1994	Victoria Falls Safari Lodge Hotel (Private) Limited	Zimbabwe	Hotels and tourism	9.4	2.5		0.5
1994	Yacylec S.A.	Argentina	Infrastructure	135.0	15.0	45.0	
1995	AES Lalpir Limited	Pakistan	Infrastructure	343.7	40.0		9.5
1995	Aguas Argentinas	Argentina	Infrastructure	329.0	38.0	134.0	6.0
1995	Al Keena Hygienic Paper Mill Company Limited	Jordan	Timber, pulp, paper	29.7	8.0		
1995	Baria Fertilizer and Agricultural Forestry Products Import-Export Services Company	Vietnam	Infrastructure	10.0	3.0	2.0	
1995	Borcelik Celik Sanayii Ticaret A.S.	Turkey	Mining and extraction of metals	190.0	25.0		5.7
1995	Clovergem Celtel Limited	Uganda	Infrastructure	16.0	4.2		0.6
1995	Compagnie Ivoirienne de Production d'Electricite	Cote d'Ivoire	Infrastructure	70.0	17.4		0.7
1995	Compania Tratadora de Aguas Negros de Puerto Vallarta S.A.	Mexico	Infrastructure	33.2	5.0		
1995	Dalian Float Glass Company Limited	China	Manufacturing	134.0	30.5	30.5	2.4
1995	Electricidad de Cortes S.A. de R.L. De C.V.	Honduras	Infrastructure	70.3	10.5	35.3	2.0

Fiscal year	Company	Country	Sector	Estimated project cost	Debt		
					IFC loan	IFC syndication	IFC equity
1995	Grand Hotel de l'Independance	Guinea	Hotels and tourism	16.0	3.6		0.6
1995	Indo-Jordan Chemicals Company Limited	Jordan	Chemicals	169.0	30.0		
1995	Kohinoor Energy Limited	Pakistan	Infrastructure	138.6	25.0	36.6	6.3
1995	Manzanillo International Terminal Panama S.A.	Panama	Infrastructure	111.0	11.5	18.5	
1995	Nahuelsat S.A.	Argentina	Infrastructure	240.0	30.0		5.0
1995	Nantong Wanfu Special Aquatic Products Company Limited	China	Food and agribusiness	30.0	7.0	9.0	3.0
1995	Nesky Incorporated	Poland	Manufacturing	13.3			0.5
1995	P.T. Bakrie Kasei Pet	Indonesia	Chemicals	68.9	12.0		2.0
1995	Prism Cement Limited	India	Construction materials	183.0	15.0	15.0	5.0
1995	Smith/Enron Cogeneration Limited Partnership	Dominican Republic	Infrastructure	204.3	26.3		
1995	Societe d'Exploitation des Mines d'Or de Sadiola S.A.	Mali	Mining and extraction of metals	246.2	35.0	25.0	4.8
1995	Sprint R.P. Telekom Sp. z.o.o.	Poland	Infrastructure	165.0	25.0	45.0	7.0
1995	United Power Corporation	Oman	Infrastructure	235.7	15.0	57.0	4.0
1995	Westel 900 GSM Mobil Tavkuzlesi Rt.	Hungary	Infrastructure	185.0	35.0		4.0
1996	AES Pak Gen (Private) Company	Pakistan	Infrastructure	349.0	20.0	50.0	9.5
1996	Apache Qarun Corporation LDC	Egypt	Oil and gas	51.6	10.0	15.0	
1996	Consorcio Aeropuertos Internacionales S.A.	Uruguay	Infrastructure	31.0	4.0	10.0	
1996	Crescent Industrial Chemicals Limited	Pakistan	Textiles	106.4	15.0	21.0	5.0
1996	Depsona z.a.o.	Russia	Food and agribusiness	19.4	5.3	5.2	1.5
1996	Dupont Suzhou Polyester Company Limited	China	Textiles	124.4	24.9	52.0	4.1
1996	Energy Africa Haute Mer Limited	Congo	Oil and gas	99.8	10.0	25.0	2.9
1996	Gul Ahmed Energy Limited	Pakistan	Infrastructure	138.0	27.0	35.0	4.1
1996	GVK Industries Limited	India	Infrastructure	290.7	30.0	38.5	8.3
1996	Himal Power Limited	Nepal	Infrastructure	125.7	28.0		
1996	Jordan Mobile Telephone Services Company Limited	Jordan	Infrastructure	85.0	15.0	20.0	3.0
1996	Mercado Mayorista de Santiago S.A.	Chile	Food and agribusiness	30.0	8.0		
1996	Modern Aluminum Industries Company Limited	Jordan	Manufacturing	18.0	5.5		
1996	Morning Star Cement Limited	Vietnam	Construction materials	309.0	30.0	66.6	
1996	Nanjing Kumho Tire Company Limited	China	Manufacturing	119.2	16.0	45.5	3.8
1996	Pangasinan Electric Corporation	Philippines	Infrastructure	1,400.0	30.0	194.5	17.5
1996	Plantation Timber Products (Leshan) Limited	China	Timber, pulp, paper	50.0	14.2	20.0	1.0

1996	PT Hotel Santika Nusajaya	Indonesia	Hotels and tourism	40.0	9.0		
1996	Rain Calcining Limited	India	Oil and gas	94.2	18.3		5.2
1996	Reynolds Chile S.A.	Chile	Manufacturing	44.0	8.5		2.5
1996	Rupafab Limited	Pakistan	Textiles	38.4	11.0		1.2
1996	Savvinskaya-Seiyo Company	Russia	Services	30.3	5.6		
1996	Terminales Portuarias Argentinas S.A.	Argentina	Infrastructure	50.3	10.0		2.0
1996	Tourane Hotel Limited	Vietnam	Hotels and tourism	23.7	6.0	6.0	
1996	Uch Power Limited	Pakistan	Infrastructure	630.0	40.0	75.0	
1996	Vina Kyoei Steel Limited	Vietnam	Construction materials	70.8	15.0		
1996	Weihai Weidongri Comprehensive Foodstuff Company Limited	China	Food and agribusiness	20.0	5.5		
1997	Abuja International Diagnostic Center	Nigeria	Social services	10.0	1.8		0.8
1997	Agrocapital S.A.	Ecuador	Food and agribusiness	14.0	3.5		
1997	Asia Power (Private) Limited	Sri Lanka	Infrastructure	62.0	10.0	10.0	2.2
1997	Baltic Malt Sp. z.o.o.	Poland	Food and agribusiness	27.5	7.2		1.9
1997	Bangkok Mass Transit System Corporation Limited	Thailand	Infrastructure	1,648.0	50.0		20.0
1997	Beijing Hormel Foods Company Limited	China	Food and agribusiness	17.5	5.0	5.5	0.5
1997	Datel Tanzania Limited	Tanzania	Infrastructure	10.0	2.3		0.5
1997	Engro Paktank Terminal Limited	Pakistan	Chemicals	65.0	12.0	5.0	
1997	Fairyoung Ports Investments (Holdings) Limited	China	Infrastructure	77.0	14.0		
1997	Ferrocarril del Pacifico S.A.	Chile	Infrastructure	47.5	14.5	6.0	6.0
1997	Foremost Dairy Company Limited	Vietnam	Food and agribusiness	30.0	8.0	6.5	
1997	International House Property Limited	Tanzania	Industrial and consumer services	9.0	1.7		0.6
1997	Jamaica Energy Partners	Jamaica	Infrastructure	98.0	22.0	48.0	1.9
1997	Jingyang Cement Company Limited	China	Construction materials	265.0	40.0	100.0	
1997	Messer Gases Dikheila Company S.A.E.	Egypt	Chemicals	24.9	4.0		1.5
1997	Norgips Opole Sp. z.o.o.	Poland	Construction materials	52.0	13.0	24.5	
1997	Owens Corning (India) Limited	India	Manufacturing	102.2	25.0		
1997	P.T. Gleneagles Hospital Corporation	Indonesia	Social services	48.0	8.3	13.9	
1997	P.T. Pramindo Ikat Nusantara (Pramindo)	Indonesia	Infrastructure	624.2	25.0	300.0	7.4
1997	Proyectos de Infraestructura S.A.	Colombia	Infrastructure	100.0	10.0		5.0
1997	San Miguel Haiphong Glass Company	Vietnam	Manufacturing	32.0	10.0	4.5	
1997	Societe d'Economica Mixte Hotel Pointe des Blagueurs	Vietnam	Hotels and tourism	81.5	9.5	28.0	
1997	Sucorrico S.A.	Brazil	Food and agribusiness	44.0	15.0		
1997	Sucrerie de Bourbon-Tay Ninh Limited	Vietnam	Food and agribusiness	95.0	22.0	20.0	
1997	Suzhou Huasu Plastics Company Limited	China	Chemicals	64.7	22.0	22.2	2.5
1997	Terminal Maritima de Altamira S.A. de C.V.	Mexico	Infrastructure	20.4	3.0	10.4	

Fiscal year	Company	Country	Sector	Estimated project cost	Debt		
					IFC loan	IFC syndication	IFC equity
1997	Tianjin Kumho Tire Company Limited	China	Manufacturing	122.5	11.2	33.0	
1997	Toftan A.S.	Estonia	Timber, pulp, paper	12.0	2.0		
1997	Vika Wood Sawmill	Latvia	Timber, pulp, paper	19.0	2.0		
1997	Vimaflour Company Limited	Vietnam	Food and agribusiness	26.0	8.0		3.0
1998	AES Merida III de R.L. de C.V.	Mexico	Infrastructure	250.0	30.0	90.0	
1998	Agrisouth Chile S.A.	Chile	Food and agribusiness	57.1	10.0	5.0	
1998	Baku Coca-Cola Bottlers Limited	Azerbaijan Republic	Food and agribusiness	26.5	3.5		2.3
1998	Bhote Koshi Power Company Private Limited	Nepal	Infrastructure	98.2	21.0	36.0	3.0
1998	Bulk Services Corporation	Brazil	Infrastructure	55.9	14.0	7.5	
1998	Comercializadora La Junta S.A. de C.V.	Mexico	Infrastructure	24.0	3.5	7.5	
1998	Compagnie des Hotels de Luxe S.A.	Bulgaria	Hotels and tourism	46.7	10.8	9.5	
1998	Concessionares Da Rodovia Presidente Dutra S.A.	Brazil	Infrastructure	525.5	35.0	70.0	
1998	Core Pharmsanoat	Uzbekistan	Chemicals	12.2	3.4	3.4	0.5
1998	Duncan Gleneagles Hospitals Limited	India	Social services	29.3	7.0		1.0
1998	Engro Asahi Polymer and Chemicals (Private) Limited	Pakistan	Chemicals	83.0	14.3		
1998	Grain Bulk Handlers Limited	Kenya	Infrastructure	32.0	10.0		
1998	GTi Dakar LLC	Senegal	Infrastructure	62.0	14.0	11.5	1.6
1998	International Bottlers LLC	Russia	Food and agribusiness	242.1	35.0	10.0	
1998	International Communication Technologies (Bangladesh) Limited	Bangladesh	Infrastructure	85.8	15.0	10.0	
1998	Jomsom Mountain Resort (Private) Limited	Nepal	Hotels and tourism	8.0	4.0		
1998	JV "Uzcasemash" LLC	Uzbekistan	Food and agribusiness	28.4	6.8	4.0	2.6
1998	JV "Uzcaseservice" LLC	Uzbekistan	Industrial and consumer services	24.6	6.4	5.0	1.6
1998	Kasese Cobalt Company Limited	Uganda	Mining and extraction of metals	110.0	16.0		3.6
1998	Kazgermunai	Kazakstan	Oil and gas	266.9			0.1
1998	Minera Loma de Niquel, C.A.	Venezuela	Mining and extraction of metals	430.0	65.0	50.0	2.1
1998	Mobil Rom S.A.	Romania	Infrastructure	290.0	37.0	148.0	
1998	MOZAL S.A.R.L.	Mozambique	Manufacturing	1,365.0	120.0		
1998	Orzunil	Guatemala	Infrastructure	66.7	12.0	15.0	1.2
1998	Palestine Industrial Estates Development and Management Company	West Bank and Gaza	Industrial and consumer services	39.0	8.0	7.0	1.0

	Patagonia Mint S.A.	Argentina	Food and agribusiness	18.5	5.0	5.0	
**	Plantation Timber Products (Hubei) Limited	China	Timber, pulp, paper	57.0	12.6	25.0	
	PLM Beverage Can Manufacturing z.a.o.	Russia	Manufacturing	83.4	25.0	15.0	5.5
	Romanian Efes Brewery S.A.	Romania	Food and agribusiness	70.0	12.0	8.0	
	Terminal de Cruceros Punta Langosta, Cozumel S.A. de C.V.	Mexico	Infrastructure	19.6	4.0	7.0	1.0
	Unipak Nile Limited	Egypt	Timber, pulp, paper	17.9	5.0		
	Usina Hidrelectrica Guilman-Amorin	Brazil	Infrastructure	148.0	30.0	88.4	

million in equivalent guarantee.
nderwriting of 5% of international bond issue for the project.
Commitment August 1998.

APPENDIX B:
A SAMPLE IFC PROJECT APPRAISAL
(OF A TYPICAL MANUFACTURING PROJECT)

1. PROJECT DESCRIPTION

a. Proposed ownership structure and sponsor information
b. Legal status of project and status of government approvals (including government and/or local authorities' attitude toward project, exemptions/advantages to be enjoyed by project, licenses, permissions required, proposed measures/actions that could affect the project)
c. Major products to be produced (quantity and specifications, including chemical/physical properties when appropriate)
d. Project's comparative advantages
e. Project's anticipated economic contributions (e.g., in the generation of foreign exchange, employment, technology transfer)

2. CAPITAL INVESTMENT

a. Project site
    i. Size and location of project site (in relation to availability of raw materials, utilities, labor, and accessibility to its markets)
    ii. Current use and value of land for project site; estimated value in new use
    iii. Infrastructure requirements
    iv. Legal agreements for land use rights
    v. Existing pollution-related liabilities
b. Civil works and buildings
c. Major and auxiliary equipment
    i. Estimated requirements and costs (imported vs. local and duties)
    ii. Potential suppliers/contractors
d. Project management (plant construction and supervision services, including background and experience of supervisor
e. Preoperating requirements and costs
f. Contingencies (physical) and escalations (financial)
g. Initial working capital requirements
h. Contracting and purchasing procedures to be used

3. PROJECT SCHEDULES

a. Construction, startup, operations
b. Expenditures
c. Funding (including timing of funds needed during project implementation)
d. Regulatory compliance

4. PRODUCTION PROCESS

a. Production technology vs. state of the art
b. Scale and scope of production
   i. Rated capacity and comparison with optimal sizes
   ii. Expected operating efficiency
   iii. Frequency of shutdowns, changeovers
   iv. Previous experience with technology (including patents, licenses held)
c. Production process
   i. Plant layout and production flow diagram
   ii. Critical operations/bottlenecks
   iii. Options for future expansion or modification
d. Production requirements and costs (per unit)
   i. Raw materials (sources, quality, local vs. domestic, contractual arrangements)
   ii. Consumables
   iii. Utilities (sources, reliability)
   iv. Labor
   v. Maintenance
   vi. Fees and royalties
   vii. Expected changes in operating efficiency
e. Annual capital investment
f. Quality control
g. Technical assistance agreements
   i. Status of negotiations (proposed terms)
   ii. Patents and proprietary technology
   iii. Training and support for plant staff

5. ENVIRONMENTAL IMPACT

a. Description of environmental impact
b. Plans for treatment of emissions and disposal of effluents
c. Occupational health and safety issues
d. Local regulations (plans for compliance)

6. MARKETING AND SALES

a. Product definition
b. Competitive position of product/company
   i. Product advantages vs. competition (current and future—price, quality, etc.)
   ii. Target market(s) (including population and per capita GNP and their future growth)

c. Market structure
   i. Demand (volume and value of annual consumption of products to be made by project—last five years, future five years)
   ii. Supply (domestic vs. foreign—capacity, cost position, strategy)
   iii. Existing and projected tariff situation affecting products
   iv. Market trends in future (new products, potential competitors, etc.)
   v. Projected market share by segment
d. Marketing, distribution, and sales organizational arrangements and fees

7. MANAGEMENT AND PERSONNEL

a. Organization chart and manpower requirements
b. Key operational officers (including background and length of experience)
c. Technical staff and consultants (background and experience)
d. Management targets and incentives
e. Management agreement
f. Personnel practices

8. FINANCING

a. Total cost of project (including details on major items of fixed assets and working capital)
b. Background statement on all sponsors and participants, showing their financial or other interest in the project in construction, in operations, and in marketing
c. Capital structure (proposed amounts and sources)
   i. Proposed debt/equity structure
   ii. Equity
      (a) Shareholder structure
      (b) Long-term plans (stay private/go public)
      (c) Quasi-equity (subordinated debt, etc.)
   iii. Debt
      (a) Long-term debt/working capital
      (b) Domestic/foreign
      (c) Desired terms and conditions
      (d) Funding sources already identified (note any funding restricted in use)
   iv. Overrun/standby arrangements
d. Margin and break-even analysis
   i. Unit cost structure as percent of unit sales price
   ii. Cash and full-cost bases
   iii. Fixed and variable costs
e. Financial projections
   i. Projected financial statements (income statements, cash flows, balance sheets, sales revenues, production costs, depreciation, taxation, etc.)
   ii. Clear statement of all assumptions
   iii. Sensitivity analyses under different scenarios

9. COPIES OF LEGAL DOCUMENTS

a. Joint venture agreements
b. Articles of association
c. Government approval documents/business license
d. Land certificate/red line map
e. Mortgages, if any
f. Loan agreements
g. Major contracts including
    i. Offtake agreements
    ii. Supply agreements
    iii. Technical assistance agreement
    iv. Management agreement

GLOSSARY

Balance Sheet: An accounting statement that displays the assets, liabilities, and equity of a company as of a specified date. By definition, the value of assets on a balance sheet must equal the value of liabilities plus net worth (owners' equity).

B-Loan: Loan syndicated by multilateral lender, such as IFC, which acts as sole lender-of-record on behalf of the funding participant (commercial banks and other institutional investors).

Build-Own-Operate (BOO): Similar to build-own-(operate)-transfer, with the exception that the project company has a concession life as long as the expected economic life of the facility (typically 30-50 years).

Build-Own-(Operate)-Transfer (BOT, sometimes BOOT): A form of privatized project development in which a government grants a concession of defined and limited duration to private sector sponsors to build a project, hold an ownership position in it, arrange the balance of financing from third parties, and operate the project for the life of the concession. Usually, the concession life is significantly shorter than the facility's economic life (for a coal-fired power plant, typically 15-20 operating years for the concession vs. a plant life of 30-40 years.) Usually, the project ownership transfers to the government at no cost after the concession term.

Call Option: The right to buy an asset at a fixed price during a particular period of time (opposite of a put option).

Cash Flow Statement: An accounting statement that shows the pre- and after-tax cash flows generated by a project during its operating period. This statement is used in financial projections and investment decision analysis to determine a project's ability to pay debt service and service its equity capital.

Collateral: The physical and contractual assets pledged as security for amounts owed to a lender or lessor.

Completion Guarantee: Completion may refer either to the project's physical completion (that is, the period prior to reaching the deemed start of commercial operations), or to the project's financial completion (that is, when its operations reach an agreed level of financial sustainability).

The first refers to the undertakings which a turnkey contractor is expected or prepared or required to give to a project company to ensure physical completion of the project. Contractor completion guarantees typically cover price, schedule and facility performance. The contractor's performance guarantees are normally secured by performance bonds and penalties in the form of specified and capped liquidated damages.

The second broad category of completion guarantees includes contractual undertakings by the project shareholders to the project lenders (usually through the project company), to pay (or provide the cash to the project company for it to pay) the project's scheduled debt service as it falls due, in the event the project company does not pay the debt service as due, until the project reaches financial sustainability (that is, the level of financial performance agreed at the project outset).

Concession Agreement: Agreement, usually with a government authority, to operate the project or provide the specified services for a certain period of time.

Contingency Allowance (or Contingency): Term used to encompass both base cost/physical contingency and an escalation contingency.

A base cost contingency is a nonspecific provision for costs that are expected to be incurred, but that cannot be ascribed to specific cost categories (for example, land, boiler, turbine, owner's cost, working capital). A contingency provision is expected to be expended to complete the project, but it cannot be predicted which items will consume it. Normally estimated as a percentage of the aggregate of the specific cost items, it forms part of the base financing requirement of the project. Normally, a separate contingency provision, sometimes referred to as a "price contingency," is made for cost escalation expected to be incurred during the precompletion period.

Cost Overruns: Unplanned cost increases incurred by a project company during a project's precompletion period. While usually referred to as "construction overruns," the reference in the word *construction* is in fact to the period, and not necessarily to the actual cost of plant construction itself, even though the cost is normally a major component of the overrun (that is, it is possible to have a "construction overrun" even if the cost increase resulted entirely from higher than budgeted interest costs associated with a completion delay).

Covenant: An undertaking in a loan agreement by a borrower to perform certain acts (positive covenant), such as the timely provision of financial statements, or to refrain from certain acts (negative covenant), such as incurring further indebtedness beyond an agreed level, or paying dividends in excess of accumulated earnings. Most are transaction-specific. A breach of covenant is a default.

Credit Enhancement: Some extra security provided to lenders to encourage them to lend to a project. Credit enhancement is used as a means of reinforcing the credit strength of a project. Such credit enhancement can include other assets pledged as security for an obligation (extra collateral); guarantees from a project sponsor or host government; letters of credit payable to the project company as security for a project participant's contractual undertakings; a debt service reserve fund; and/or a contingent equity commitment.

Credit Rating: A rating assigned by an independent credit rating agency. An opinion of the future ability, legal obligation, and willingness of a bond issuer or other obligor to make full and timely payments on principal and interest due to investors. The opinion is based on a qualitative and quantitative analysis by the rating agency.

Creditworthy: A term used to describe a project, a sponsor or other participant, or the substance of a contractual undertaking from one of them, that is considered by prospective project lenders to be worthy of receiving credit (a loan), or is an acceptable form of security for receiving credit.

Debenture: A debt obligation bond secured by the general credit/balance sheet of the borrower rather than being backed by a specific lien on property; it is therefore not collateralized.

Debt Capacity: The total amount of debt a borrower can prudently support, given its earnings expectations (and their stability), its equity base, and the terms of the available debt (a borrower has more debt capacity if the available loan repayment terms are longer or the interest rate is lower, other things being equal).

Debt/Equity Ratio; Debt-to-Equity Ratio: The ratio of a firm's debt to its equity. Usually expressed as a relative proportion, as in 60/40 or 70/30. The higher this ratio, the greater the financial leverage and financial risk (that is, risk of illiquidity and insolvency) of the firm.

Debt Service: Payment of all monies owed by a borrower to a lender; includes fees, interest, and principal. Periodic debt service is the total payment of interest and princi-

pal due to the lender during a particular period, generally a quarter, semester (six months) or year. Total debt service is the total of payments of fees, interest, and principal due to be paid to the lender over the life of the loan.

Debt Service Coverage Ratio: A quantitative measure of a project's ability to support debt financing. A key measure used by lenders to determine whether a project's prospective net cash flow from operations can support (make timely service payments on) a given amount of debt at the indicated potentially available terms. The debt service coverage ratio is defined as:

$$\frac{\text{Cash Available for Debt Service}}{\text{Debt Service}}$$

for any given debt service period of project operations.

Economic Viability: A project is economically viable when, on an unleveraged basis, it proves to be a sound investment at international prices under a variety of plausibly adverse sensitivity scenarios, without taking into account how it is financed.

Equity: Net worth; assets minus liabilities. The stockholders' residual ownership position. Capital invested in a business venture without a contractual obligation from the business venture for repayment or servicing. In project financing, the cash or assets contributed by a sponsor.

Escrow Account: A deposit held in trust by a third party to be turned over to the grantee on specified conditions. In project finance, an escrow account is often used to channel funds needed to pay debt service.

Financial Structure: The contractually defined financing arrangements underlying a project. Descriptions of financial structure include type of funds (debt or equity), amounts invested or borrowed, tenor and interest rates on loans, and other typical financing terms found in loan/security agreements and equity subscription agreements.

Financial Viability: The ability of a project to provide acceptable returns to equity holders and to service its debt on time and in full, given the mix of debt and equity available to fund the project.

Force Majeure: A French term literally meaning "major force." Indicates a type of project risk which can significantly delay, significantly increase the cost of, or totally destroy a project, the occurrence of which risk is outside of the control of the project sponsors. Items often considered to be force majeure include war, pestilence, acts of God, natural

disasters, civil insurrection, strikes, and sabotage, but may extend to economic events. Contract performance is normally extended by the period of force majeure.

Generally Accepted Accounting Principles (GAAP): The set of standardized rules established for the reporting of a project or company's financial results for accounting purposes. These rules are established by independent accounting organizations in each country worldwide. While they follow broadly similar principles, the rules may vary considerably from country to country. Cross-border lenders will nevertheless insist that international GAAP be applied in formulating a borrower's accounts for financial reporting and covenant compliance purposes.

Greenfield: Refers to a project being conceived and executed where no project company organization, assets or operations currently exist. A greenfield site or project location is one where no infrastructure presently exists to support the project.

Income Statement: A report of a company's revenues, associated expenses, and resulting income for a period of time. The profit and loss statement.

Internal Rate of Return: A measure of an investment's financial performance over the entire holding period.

Investment Grade: Refers to the rating by an independent credit rating agency (for example, rated at least BBB by Standard & Poor's or Baa by Moody's). An investment grade rating indicates an opinion that the capacity to pay principal and interest owed is strong. The credit rating level above which institutional investors are authorized to invest.

Land Use Agreement: Agreement allowing the project company to use the project site for the time agreed.

Leverage: The use of debt to enable a project to be funded with less equity than would be required if the project was funded only with equity; also, the proportion of a project's financing that is funded by debt. *Also called gearing.*

Libor: The London Interbank Offered Rate of interest on Eurodollar deposits traded between banks. Libor is a commonly used pricing basis in commercial bank loans for project financings. For example, "interest is at six-month Libor plus one," refers to the Libor rate prevailing during a specified interest period (as defined in a loan agreement) plus one percentage point, which is in turn equal to 100 basis points, or hundredths of a percent.

Limited-Recourse Financing Structure: A form of project financing in which lenders look mainly to the cash flows of a project to repay debt service but where, under certain conditions (legal or financial), lenders may also have access to the sponsor(s)' credit or legal security for repayment.

Loan Amortization: The schedule for repayment of the principal of a loan. A loan amortization schedule specifies the amounts of principal to be repaid and the dates on which repayments are to be made.

Loan Disbursements; Loan Drawdowns: Advances of principal by the lender to the borrower. Such advances usually occur during the construction period to cover construction costs. In the case of working capital lines or other lines of credit, however, advances can occur throughout the project's operating period.

Loan Tenor: The total repayment period for the loan. Usually expressed as a number of months, quarters, or years.

Mitigate/Mitigation: To reduce the impact of; to lessen; to decrease. In regard to project financing, risk mitigation means reducing a sponsor's or investor's exposure to a particular risk.

Nonrecourse Financing: A form of project financing in which lenders look solely to the cash flows of a project to repay debt service. Nonrecourse structures are used only where the project is clearly capable of supporting debt, even under adverse scenarios.

Off Balance Sheet Financing: A form of financing that does not need to be reported as a debt obligation on a sponsor's balance sheet. Project financing and nonrecourse financing may be structured as off balance sheet financing.

Offtake or Output: The end-product of a plant's production process.

Pari Passu (Inter Se): Literally, "with equal treatment among themselves." A legal term that refers to financial instruments which rank equally in right of payment with each other and with other instruments of the same issuer. In project finance, typically encountered in the context of security given to different classes of lenders (for example, senior secured lenders, debenture holders), and generally featured as a boilerplate covenant requirement of a loan agreement. Applies to both the right to be paid from available operating cash flow and to rights in the event of liquidation of the borrowing firm.

Performance Guarantees: A specific form of credit enhancement, typical in most

project financings, in which one or more sponsors agree to partially or totally insure the project's lenders against a failure of the plant to meet a series of pre-established performance criteria or tests. Most performance guarantees are usually limited to a small percentage of total funds borrowed.

Postcompletion: The period after completion of project construction. Generally, the operating period.

Precompletion: The period prior to completion of project construction. Usually the construction period.

Profit (Loss): Total revenues minus total expenses; accounting constructs which only indirectly relate to current period receipts and expenditures. This should not be confused with project cash flow. Profit is an accounting definition used to determine if a business venture is economically viable over the long run. A negative profit is called a loss.

Project Capital Cost: Total construction costs of a project on an unleveraged (all-equity) basis. Includes project hard costs, land, other owners' costs of construction, and initial working capital.

Project Cash Flow: Profits plus depreciation, depletion, and amortization. A measure of a company's liquidity (that is, assets easily traded or converted into cash). In credit analysis, cash flow is analyzed to assess the probability that debt retirement commitments can be met without refinancing, that regular dividends will be maintained in the face of less favorable economics, or that plant and equipment can be modernized, replaced, or expanded without an increase in the equity or debt capital.

Project Company: The legal entity which owns and operates a project. In project financing, this company has assets that include the project's physical assets and the underlying contracts supporting the project.

Project Completion: Stage when the physical construction of the project plant is complete, and the project is ready to begin commercial operations. This stage may also be referred to as physical project completion. Project completion may also encompass technical completion, the stage when, in addition to physical completion, the plant equipment has been operating as expected and producing output of the specified quality and volume for a defined period (for example, 60 days). Project completion may also encompass financial completion, the stage when, in addition to physical and technical completion, the project is operating to meet predetermined financial standards (for example, level of working capital, sales revenues, debt service ratio) for a defined period such as 12 months.

Project Cost: Can mean either the project capital cost or project financing requirement.

Project Finance: A form of financing in which lenders look solely or primarily to the cash flows of a project to repay debt service and to all of the underlying project assets (including all physical and contractual assets) as collateral for the loan. Also known as limited or nonrecourse financing.

Project Financing Requirement: Also called project cost. The total financing (debt and equity) required to complete construction of a project. Includes capital costs, financing fees, interest that accumulates during the construction period, and any amounts required to be set aside to be available to pay debt service when a problem develops.

Project Funds Agreement: Agreement, usually by sponsors, to provide additional funds as needed until project completion or other agreed date.

Project Participants: In project financing, refers to all of the commercial and contractual parties to the project other than the new project company itself. The quality of a project's other participants (most importantly the host-country government and the project sponsors) as perceived by prospective project lenders is a critical determinant of financeability.

Project Sponsor: A primary beneficiary and proponent of a project. A party interested in supporting a project financing. A party providing the credit to support a project financing.

Put Option: The right to sell an asset at a fixed price during a particular period of time. The opposite of a call option.

Put-or-Pay Agreement: A type of contractual obligation in which a seller agrees to provide a fixed amount of product or else pay an amount equal to the cash value of the difference between the contractually specified amount to be sold and the amount actually provided. This form of contract is especially used for fuel supply contracts.

Rate of Return: A loosely used term often indicating some measure of investment return to equity investors in a project. Can mean return on investment or return on equity or internal rate of return, on a pretax or after-tax basis.

Risk Allocation: The process of identifying and quantifying risks associated with a project, and assigning those risks to the parties. Generally, risks are assigned to those most able

to bear and control them with the least cost. In theory, efficient risk allocation leads to the lowest cost, most financeable commercial structure for the project.

Risk Mitigation: The process of contractually allocating risks associated with a project to project participants other than the lenders (see Mitigate).

Rule 144a: U.S. Securities and Exchange Commission (SEC) rule covering sale of securities by non-U.S. issuer.

Security: Tangible (physical) property, contractual assets, intangible property, cash, and securities which a lender can use or sell in the event of default under a loan agreement in order to recover the unpaid loan principal outstanding at the time of default.

Share Retention Agreement: An agreement, usually by sponsors, not to sell their shareholding(s) in the project company (or to maintain an agreed percentage shareholding).

Subordinated Creditor: A creditor having a lower priority of payment than other liability holders of the firm, and whose rights/remedies in the event of nonpayment are expressly limited and subject to the rights of nonsubordinated liability holders.

Syndication: A group of creditors, usually financial institutions, that combine to help finance a project.

Take-if-Tendered Agreement: A type of contractual obligation in which a purchaser agrees to take and pay for all product that is delivered by the seller, up to a specified amount.

Take-or-Pay Agreement: A type of contractual obligation in which a purchaser agrees to take a fixed amount of product or else to pay an amount equal to the cash value of the difference between the contractually specified amount to be purchased and the amount actually purchased.

Term Sheet: A document which outlines in general terms the key agreements to be contained in a legal document; other terms loosely associated and often used interchangeably are a letter of understanding (LOU) and a memorandum of understanding (MOU).

Underwrite/Underwriter: An arrangement under which a financial house (or syndicate of houses) agrees to buy a certain agreed amount of securities of a new issue on a given

date and at a certain price, thereby assuring the issuer the full proceeds of a financing. A project debt financing is successfully committed (but still subject to formal legal commitment via loan documents and meeting of disbursement covenants by the borrower before funds can be drawn) when underwriting commitments have been obtained from credible lenders for the full amount required.

Working Capital: Current assets minus current liabilities. More specifically, funds tied up in a project for short periods of time due to timing differentials between expenditures and receipts.

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Project Finance in Developing Countries

Project finance in developing countries has grown dramatically over the past decade, stimulated by the benefits of globalization and by major domestic policy reforms. Project finance can have a special relevance for developing countries, because it provides a structure for financing large projects, even in relatively risky environments. Relying primarily on a project's own revenues and assets for repayment, such structuring is based on a careful appraisal of the project's risks and potential returns and on sharing those risks, costs, and rewards among a group of sponsors and investors.

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