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Government Support to Private Infrastructure Projects in Emerging Markets

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For citizens to reap the full benefits of private investment in infrastructure, infrastructure prices must be high enough to cover costs, and private investors must assume commercial risk. Good macroeconomic policy matters because it affects the credibility of a price regime and especially the trust in currency convertibility essential for foreign investors.

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Summary findings

Driven by fiscal austerity and disenchantment with the performance of state-provided infrastructure services, many governments have turned to the private sector to build, operate, finance, or own infrastructure in power, gas, water, transport, and telecommunications sectors. Private capital flows to developing countries are increasing rapidly; 15 percent of infrastructure investment is now funded by private capital in emerging markets.

But relative to needs, such private investment is progressing slowly. Governments are reluctant to raise consumer prices to cost-covering levels, while investors, mindful of experience, fear that governments may renege on promises to maintain adequate prices over the long haul.

So investors ask for government support in the form of grants, preferential tax treatment, debt or equity contributions, or guarantees. These subsidies differ in how they allocate risk between private investors and government. Efficiency gains are greatest when private parties assume the risks that they can manage better than the public sector.

When governments establish good policies — especially cost-covering prices and credible commitments to stick to them — investors are willing to invest without special government support.

Privatizing assets without government guarantees or other financial support is possible, even where governments are politically unable to raise prices, because investors can achieve the returns they demand by discounting the value of the assets they are purchasing. But this is not possible for new investments (greenfield projects).

If prices have been set too low and the government is not willing to raise them, it must give the investor financial support, such as guarantees and other forms of subsidy, to facilitate worthwhile projects that would not otherwise proceed.

But guarantees shift costs from consumers to taxpayers, who subsidize users of infrastructure services. Much of that subsidy is hidden, since the government does not record the guarantee in its fiscal accounts. And taxpayers provide unremunerated credit insurance, as the government borrows based on its ability to tax citizens if the project fails, not on the strength of the project itself.

This paper — a joint product of the Regulatory Reform and Private Enterprise Division, Economic Development Institute, and the Private Participation in Infrastructure Group — was presented at the conference “Managing Government Exposure to Private Infrastructure Projects: Averting a New-Style Debt Crisis,” held in Cartagena, Colombia, May 29–30, 1997. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Mansoor Dailami, room G2-071, telephone 202-473-2130, fax 202-34-8350, Internet address mdailami@worldbank.org. January 1998. (29 pages)

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**GOVERNMENT SUPPORT TO
PRIVATE INFRASTRUCTURE PROJECTS
IN EMERGING MARKETS**

Mansoor Dailami and Michael Klein

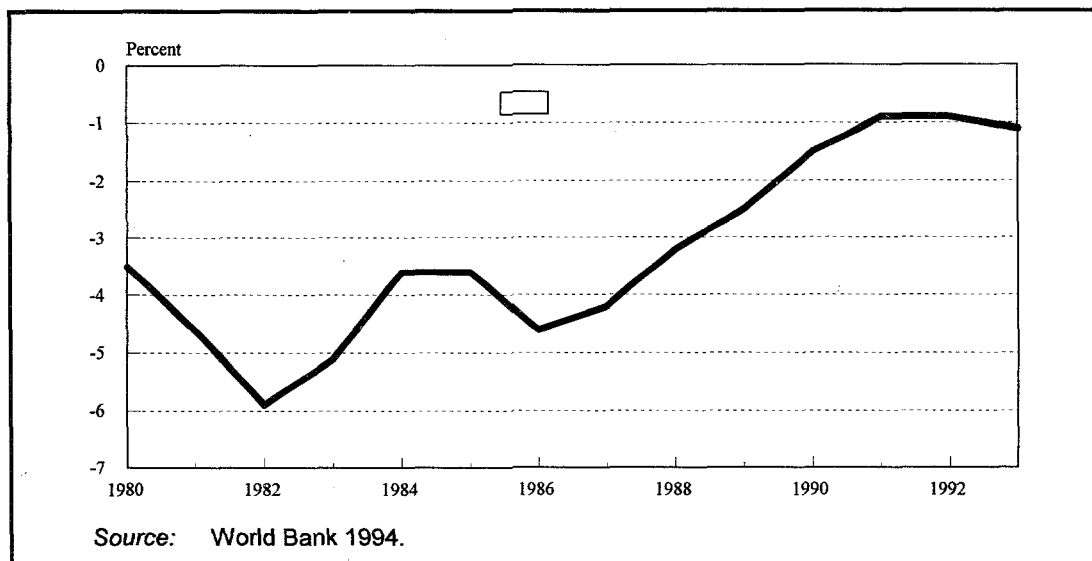
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THE GROWTH OF PRIVATE INVESTMENT IN INFRASTRUCTURE

Following the debt crisis of the early 1980s developing countries significantly restricted public borrowing. The combined public sector borrowing requirement of all developing economies shrank from 6 percent of GDP in 1982 to 1 percent in 1993 (figure 1).

Figure 1 Public sector borrowing requirement
(percent of GDP)



While public funding has been reduced, infrastructure investment requirements remain high. In 1994 the World Bank estimated them at \$200 billion a year for developing countries. Since then other World Bank studies have increased these estimates. In East Asia and Latin America alone average annual investment requirements through 2005 have been estimated at \$150 and \$60 billion, respectively. Investment requirements tend to be dominated by the transport sector, followed by energy, telecommunications, and water. Required investments often reflect excess demand for services. That is, consumers would be willing to pay more for services, but prices are set at levels that are too low to attract suppliers. (Telecommunications may be an exception, as consumer prices exceed cost-covering levels in several countries, albeit sometimes because excise taxes are high.)

Driven by fiscal constraints and growing disenchantment with the performance of state-provided infrastructure services, more and more governments have turned to private solutions for financing and providing telecommunications, energy, transport, and water services (World Bank 1994). The trendsetters were Chile, the United Kingdom, and New Zealand. Deregulation of many sectors—including telecommunications, airlines, independent power generation, natural gas production and transmission, and freight traffic by road and rail—began even earlier in the

United States in the late 1970s. During the 1990s the dual trend toward private involvement in infrastructure and deregulation has caught on in almost all countries.

Private markets are responding with vigor.¹ From 1990 to 1996 total net resource flows to developing countries rose from \$101 to \$285 billion a year (table 1). Private flows rose from \$44 billion to \$244 billion, while official development finance dropped from \$56 to \$41 billion. Cross-border flows dominate infrastructure finance, even in countries with very high national saving rates, partly because of the benefits investors gain from diversification but partly because of the underdevelopment of local capital markets in these countries.

Table 1 Net long-term resource flows to developing countries

Year	1990		1996	
	In billions of dollars	As Share of Total	In billions of dollars	As Share of Total
Total flows	100.6	100	284.6	100
Sources				
Official development finance	56.3	56	40.8	14
Private flows	44.4	44	243.8	86
Recipients				
Public sector	62.8	62	84.8	30
Private sector	37.8	38	199.7	70
Foreign direct investment	(24.5)	(24)	(109.5)	(38)
Portfolio equity flows	(3.2)	(3)	(45.7)	(16)
Nonguaranteed debt	(10.1)	(10)	(44.5)	(16)
Bond	(0.1)	(0.1)	(20.8)	(7)

Source: World Bank 1997a.

Increasingly, private capital has funded private projects and firms rather than public expenditures. Between 1990 and 1996 public sector borrowing from private sources rose from \$63 billion to only \$85 billion, barely offsetting the drop in official development finance. In contrast, private capital (debt and equity) to private recipients rose from \$38 billion to \$200 billion.

Total infrastructure financing raised by developing countries rose from less than \$1 billion in 1988 to more than \$27 billion in 1996. Finance for private infrastructure rose from virtually nothing in 1988 to more than \$20 billion in 1996 (table 2). Although the data on infrastructure capital flows are not strictly comparable with the data on capital flows, cross-border private infrastructure finance appears to account for about 10 percent of all private-to-private cross-border capital flows. About half of cross-border flows are invested from local sources in private infrastructure projects, so that total private investment may currently account for about 15 percent of a total estimated investment requirement of \$200 billion a year.

Table 2 Private cross-border financial flows to infrastructure
(billions of U.S. dollars)

	1988	1989	1990	1991	1992	1993	1994	1995	1996
Total	0.1	0.9	2.0	3.5	5.8	12.3	15.7	15.6	20.3
Loans	0.1	0.8	1.4	0.1	1.5	6.3	6.0	11.1	7.7
Bonds	0	0.2	0.5	0.7	1.1	3.9	5.8	3.3	7.2
Equity	0	0	0.1	2.6	3.1	2.1	3.9	1.3	5.4
Latin America and Caribbean									
Loans	0	0.2	0.3	3.1	3.6	4.7	6.6	2.1	7.8
Bonds	0	0	0	0.02	0.2	0.3	1.6	0.7	0.7
Bonds	0	0.2	0.3	0.6	1.0	3.3	3.7	1.4	4.4
Equity	0	0	0.1	2.5	2.4	1.1	1.3	0	2.8
East Asia and Pacific									
Loans	0.1	0.8	1.5	0.4	2.0	5.7	6.8	8.8	9.3
Bonds	0.1	0.8	1.3	0.05	1.2	4.6	3.4	6.1	4.9
Bonds	0	0	0.3	0.2	0.2	0.3	2.1	1.7	2.4
Equity	0	0	0.02	0.1	0.6	0.8	1.3	1.0	2.0

Source: World Bank 1997a

Almost half of all private cross-border infrastructure finance appears to have been invested in East Asia, and more than a third was invested in Latin America (table 2 and figure 2). Power projects have attracted the highest share of investment, accounting for more than 40 percent of the total, followed by telecommunications and transport (figure 3).

Figure 2 Cumulative private sector borrowing for infrastructure, 1986–95

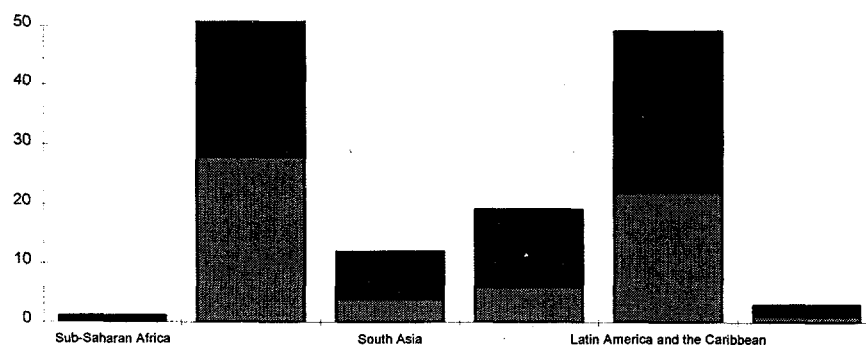
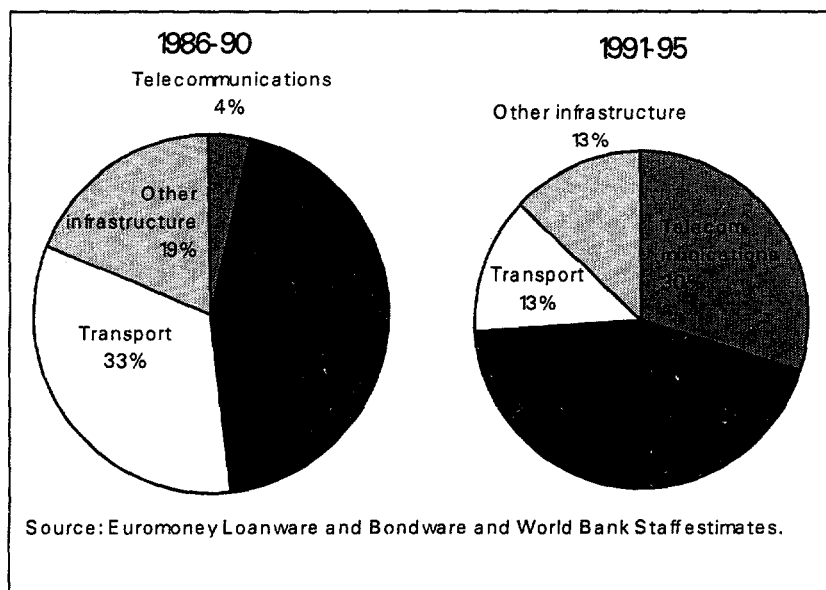
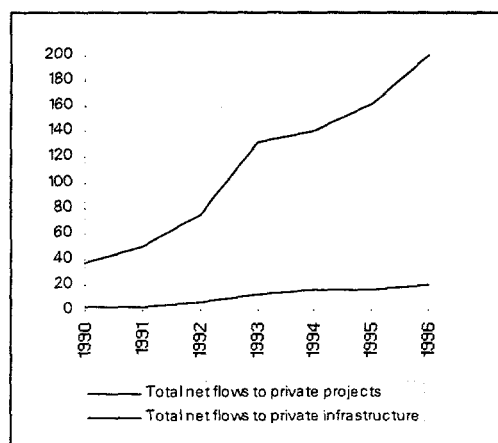


Figure 3 Sectoral composition of infrastructure financing in developing countries



Between 1990 and 1994 private infrastructure finance to developing countries grew at an annual average rate of 67 percent, reflecting the low base from which it started. Since 1994 growth has averaged 14 percent a year, well below the 19 percent growth rate of total private capital flows to developing countries (figure 4). (See also annex tables A1-A4).

Figure 4 New private flows to infrastructure, 1990-96



Source: World Bank 1997a

WHY INFRASTRUCTURE IS DIFFERENT

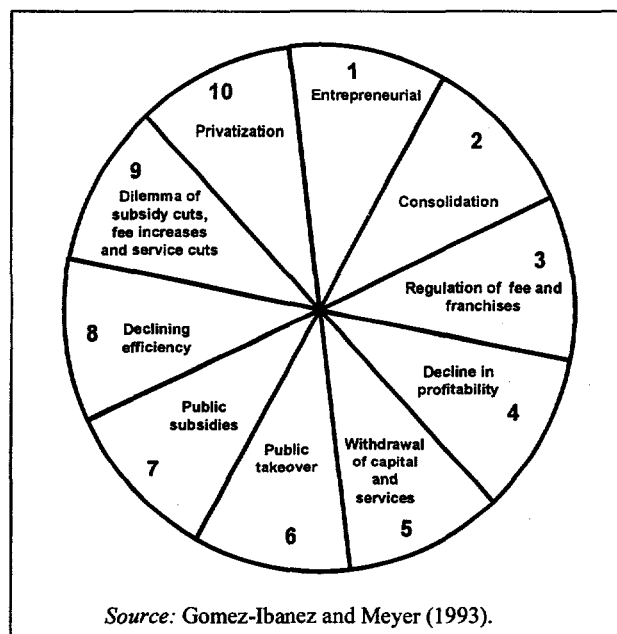
To understand why private financing of infrastructure has not kept pace with overall financial flows to private entities it is necessary to recognize how infrastructure differs from other industries.

First, infrastructure services are often considered essential by consumers, and they are frequently provided by monopolists. Together these factors increase political sensitivity to the prices charged. Pressure from consumers to keep prices low makes it politically difficult for governments to maintain prices that cover costs. Indeed, the World Bank (1994) estimated that user fees fell far short of costs in gas, electricity, and water.

Second, infrastructure projects typically require large sunk investments that take ten to thirty years to recoup. Over such long periods of time investors are exposed to serious risks, in particular the risk that public authorities will not honor their agreements on tariff policy and payments to investors (Klein and Roger 1994). Once investors are committed to projects—and can pull out only by taking a huge loss—governments may be tempted to lower prices or not raise them as agreed. Investors thus risk being the victims of what has been called the "obsolescent bargain."

These factors help explain the familiar privatization–nationalization cycle that has been observed repeatedly (figure 5). Private entrepreneurs may initially develop infrastructure—building the first electricity networks, for example.² As these networks expand toward territories operated by other entrepreneurs, companies merge with or acquire their neighbors, creating larger, consolidated firms. These new firms are perceived as possessing significant monopoly power, and the services they provide—once considered luxuries—are now considered essential, creating pressure for monopoly regulation. Regulation, in turn, reduces prices and profitability, which discourages maintenance and new investment. In the face of declining quality and a slowdown in the industry's growth, the government nationalizes the firm. Low prices and inefficiency sap the finances of the state-owned firm, obliging the government to subsidize it. The very availability of subsidies, however, encourages more inefficiency. Eventually, concerns about fiscal subsidies and inefficiency create pressure for prices increases and privatization—and the cycle begins again.

Figure 5 The privatization–nationalization cycle



Because of the problem of sunk costs, and the historical experience of the “obsolescent bargain,” investors are typically unwilling to make investments without adequate, frequently complex, contractual protection (Dasgupta and Sengupta 1993; Edlin and Reichelstein 1996). The negotiation of such contracts is time consuming and costly, however, and even the best contracts cannot fully protect investors against the efforts of a determined government. Enforceability of these contracts is essential, but it is difficult to achieve. Investors are continually faced with the possibility of changing contractual agreements or failure by the government to implement tariff adjustments because of political considerations. Even if arbitration and settlement of disputes in a third country are agreed on in advance—such as in the case of the Enron–Dahbol power project in India—such procedures can be time consuming and can add to the cost of the project.

The heavy foreign financing of infrastructure creates additional risks. Most infrastructure projects in developing countries are financed with significant amounts of foreign capital. A typical financing mix consists of 20–40 percent equity (provided by project promoters) and 60–80 percent debt, in the form of syndicated commercial bank loans, bond issues, bridge and backup facilities, and multilateral and export credit agency loans and guarantees. Exposure to currency risk, which is a relatively minor concern for foreign investors in export-oriented manufacturing industries, is a critical feature of infrastructure project investment. Project revenues are often generated in local currencies, while servicing of foreign debt and equity involves payment in foreign currency. Fluctuations in the exchange rate of the domestic currency, as well as capital controls limiting currency convertibility and transferability, create risk for foreign investors and financiers.

While prospects for currency convertibility and transferability have improved in many developing countries with the liberalization of their capital accounts and the surge in foreign capital inflows, the scope for exchange rate hedging and risk management through the use of forward markets or derivatives remains limited. With the exception of Malaysia, Thailand, Brazil, and Mexico, where currency swap and forward markets have grown in the past two years, foreign exchange markets in developing countries suffer from a lack of instruments and liquidity.

The case of the Argentine private natural gas transport company, COGASCO, illustrates several of these problems. COGASCO started operating in 1981, with a guarantee from the central bank that it would be able to convert into hard currency its peso revenues from gas deliveries to state-owned Gas del Estado. In 1982 Argentina's foreign exchange reserves were low because of the conflict with the United Kingdom, and the government would have had trouble honoring its convertibility guarantee. Gas del Estado then reviewed the contract with COGASCO and claimed breach of contract, complaining that COGASCO had found a more efficient way to run a liquid petroleum gas extraction plant than foreseen in the contract. The dispute meant that COGASCO was not paid, mooting the issue of currency convertibility. Because the investor's costs were sunk it had little leverage with the government and the government was unable to renege on its commitment. The dispute lasted until the late 1980s, when COGASCO and its parent company went bankrupt and foreign investment in the gas sector ground to a halt.

Because of this kind of risk, investors require high ex ante rates of return. In many cases real rates of return on equity exceed 20 percent (see annex table A5). This often results in prices that are higher than they were before privatization, when the real cost of capital was not taken into account.

PROVIDING FINANCIAL SUPPORT TO ATTRACT PRIVATE INVESTORS

To render projects attractive to investors despite these risks, governments have to raise user fees or provide special financial support to projects. Whichever route they choose, they need to provide credible assurances to investors that sensible binding obligations (the "rules of the game") will be honored.

Governments use an array of mechanisms to provide financial support to private infrastructure projects (table 3).³ Some of these mechanisms, including preferential tax treatment, grants, and equity or subordinated debt contributions for which governments do not expect commercial returns, directly enhance project cash flow. In contrast, guarantees are targeted at particular risks, such as the risk that a state-owned party will renege on an obligation.

Table 3 Types of sovereign or supranational support for private infrastructure projects

	Multilateral Banks and Export Credit Agency Debt	Government Guarantees	Informal Agreements ^a	Multilateral Banks and Export Credit Agency Guarantees	Government Equity Participation	Government Debt (Senior and Subordinated)	Multilateral Equity Participation	Government Grants	Preferential Tax Treatment
Country and Project	Honduras: Electricidad de Cortes S. De R.L. de C.V. (Elcosa I) 60-MW oil fired power plant; 15-yrs. PPA	India: Dabhol 695-MW power plant; combined cycle; imported liquefied natural gas (LPG)/oil distillate; 20 year PPA with Maharashtra State Electricity Board; tariff 2.4 (\$126) per rupees KWh	Mexico: Mexico City Toluca Toll Road	Peru: Aguaytia 145-MW gas-fired power plant	Malaysia: Kuala Lumpur Sepang Airport	Pakistan: Rousch 412-MW power plant CCPP residual fuel oil; 30-year PPA with Water and Power Development Authority	Philippines: Pagbilao 735-MW power plant, coal fired, 25-year PPA with National Power Corp.	Brazil: Linha Amerala (10-yr., 15 km, 6-lane road)	Chile: 450-MW Empresa Electrica Pangue
Project cost	\$70 million	\$922 million	\$313 million	\$235 million	\$3,924 million	\$507 million	\$933 million	\$174 million	\$465 million
Date financial closure	1994	1995	February 1992	October 1996	1993	1996	1993	June 1996	1993
Example by mechanism	IFC: \$10.5 m senior debt (LIBOR + 375 bps, 12-yr. maturity) FMO: (Dutch) \$10 m senior debt (LIBOR + 375 bps, 12-yr. maturity) IFC B: \$10m loan, 8-yr. maturity IFC: \$3.5m subordinated debt FMO: (Dutch) \$1.0 m subordinated debt	12-year counter-guarantee from the government of India for tariff-payments by the Maharashtra State Electricity Board; and termination guarantee (capped at \$300 m)	Concession guarantees traffic volumes by vehicle category, if traffic volumes fell short of amounts specified in contract. Concessionaire entitled to request an extension of the concession term to permit recovery of its investments.	OPIC: \$60 m political risk guarantee	\$390 m in equity provided by the government of Malaysia	\$40 m standby loan by National Development Finance Corp. (NDFC) \$140 m subordinated debt channeled to the Pakistan Fund from the World Bank (\$70 m) and JEXIM (\$70 m)	IFC: \$60 m ADB: \$40 m CDC: \$35 m	\$112 million grant from the Rio de Janeiro municipal government	\$10 million in deferred tax duties

a. Informal agreements include comfort letters, side agreements, nonbinding tariff increases, and other similar agreements.

The government's obligations to provide support can be defined in laws, decrees, statutes, licenses, concessions, contracts or other legally binding documents. Most countries have also signed some of the more than 1,200 bilateral investment treaties that define investor rights.

Investors and their counterparties normally agree on suitable methods for dispute resolution. If local courts are not credible, the parties can agree to international arbitration. Most countries

have agreed to international conventions, which establish appropriate arbitration mechanisms and render arbitral awards enforceable.

In some cases counterparties may lack the cash flow with which to pay investors. Investors thus often seek additional assurances that any compensation due them under the terms of their contract will actually be paid. For example, the central governments may be asked to provide assurances that a publicly owned electric utility will honor its contracts with the private generating plants from which it buys power. Investors may also seek guarantees that their local currency earnings will be convertible and transferable out of the country.

In sum, infrastructure investors require special assurances that money due to them will be paid when due, in the currency they require. In this sense, all forms of government support ultimately amount to cash flow support to a project and have a significant fiscal impact.

Support through Government Guarantees

Governments often provide financial support by means of guarantees (box 2.1 and table 2.4). Central governments often guarantee the performance of subsovereign entities, including public enterprises and provincial or municipal governments.⁴

Box 1 Government guarantees in OECD countries

Governments throughout the world provide guarantees to private investors in a variety of activities. Prominent among such guarantees are deposit insurance for bank depositors and pension or social security insurance. Guarantees for housing, agriculture, students, exports, and public corporations dominate the picture in OECD countries; little is known about the make-up of guarantee exposure in developing countries. Even in OECD countries information on guarantee exposure is sketchy. Data suggest that total guarantee exposure may amount to 15–20 percent of GDP, or more than a quarter of gross debt. This does not, of course, capture implicit guarantees, under which government may feel obliged to bail out failing firms or banks or help uninsured citizens in need (in the wake of natural disasters, for example).

Guarantee programs can provide valuable support for private economic activity. But they can be costly: in recent years several industrial countries have suffered large losses under some of their guarantee programs, including deposit insurance and export credits. During the 1980s OECD export credit agencies incurred losses equivalent to about 20 percent of new business, while collecting premiums of only 3 percent. Most of the export credit losses were on medium- and longer-term credit. This experience prompted a change in guarantee management procedures. The United States has instituted more transparent accounting principles for its guarantee operations under the 1991 Credit Reform Act. The experience of export guarantee schemes is relevant for governments considering guaranteeing long-term infrastructure investment, as risks are similar (medium- to long-term country risk), although the risk in infrastructure investment may be higher because of the risk of regulatory failure or creeping expropriation for firms with immobile investments, such as power plants.

Table 4 Types of government guarantees in private infrastructure projects

Type of guarantee	Projects
Contractual obligations of government entities	
• Guarantee of off-take in power projects	Birecik Hydro Power Plant, Turkey Electricidad de Cores, Hungary Paguthan & Dabhol Power Plants, India Mt. Aop Geothermal Plant, Philippines
• Guarantee of fuel supply in power projects	Termopaipa Power Plant, Colombia Lal Pir Power, Pakistan
Policy/political risk	
• Guarantee of currency convertibility and transferability	Lal Pir Power, Pakistan
• Guarantee in case of changes of law or regulatory regime	Rousch Power, Pakistan Izmit Su Water Treatment Plant and Pipeline, Turkey
Financial market disruption/fluctuations	
• Guarantee of interest rate	North-South Expressway, Malaysia
• Guarantee of exchange rate	North-South Expressway, Malaysia
• Debt guarantee	Toll roads, Mexico Termopaipa Power Plant, Colombia
Market risk	
• Guarantee of tariff rate/sales risk guarantee	Don Muang Tollway, Thailand Western Harbour Tunnel, Hong Kong Buga-Tulua Highway, Colombia Toll roads, Mexico
• Revenue guarantee	South access to Concepción, Chile M5 Motorway, Hungary

Through central government guarantees, project risks, such as the ability of a public utility to pay its private suppliers, can be transformed into countries risk. Countries can reduce their exposure by replacing full credit guarantees with more narrowly defined guarantees such as power purchase agreements. Such unbundling of risks presumes that the parties can be trusted to honor their commitments; if they cannot be trusted, investors will prefer full guarantees. This helps explain why countries with low credit ratings rely heavily on full financing by export credit agencies or multilaterals, whereas countries with higher credit ratings offer guarantees for specific risks (see table 2.5). Support by multilaterals and export credit agencies appears to substitute for an international contract enforcement mechanism.

Table 5 Patterns of sovereign or supranational support for private infrastructure projects¹

	Number	Pattern
Multilateral Banks and Export Credit Agency Debt	37	Greater incidence of debt assistance by multilateral banks and ECAs in non-investment grade emerging markets (27).
Government Guarantees	28	Nearly three times as many government guarantees in non-investment-grade countries (24) than in investment-grade countries (9).
Informal Agreements ^a	28	Although 9 agreements were issued in Mexico, use of informal agreements is more common in investment grade countries (11).
Multilateral Banks and Export Credit Agency Guarantees	26	Slightly more examples among non-investment-grade emerging markets (15) than in investment-grade countries (11).
Government Equity Participation	18	Greater incidence of government equity participation in investment-grade countries (11).
Government Debt (Senior and Sub-ordinated)	14	Equal split among noninvestment- and investment-grade countries.
Multilateral Equity Participation	13	Much greater incidence of equity share-holding by multilateral banks and ECAs in non-investment-grade emerging markets (11).
Government Grants	12	Greater incidence of government participation through grants in non-investment grade countries (8).
Preferential Tax Treatment	2	Limited use of preferential tax treatment in investment grade countries.

Note: Financing packages of 78 projects (39 power, 26 transport, 7 water/waste, 4 telecommunications, and 2 gas) were disaggregated and then tabulated by type of mechanism and source of funds. All 78 projects has direct participation by the private sector through the provision of debt, equity, or both.

a: Informal agreements include comfort letters, side agreements, nonbinding tariff increases, and other similar agreements.

Valuing and Charging for Government Guarantees

Guarantees provide (contingent) cash flow support to projects and are, in many respects, similar to loans or grants. To be able to compare all forms of assistance, it is useful to calculate the subsidy implicit in each form of support. These "subsidy equivalents" help determine, for example, whether it is cheaper for the government to provide a guarantee or some other form of support. (For more on the role of guarantees in infrastructure finance see Dailami 1997.)

The fact that government guarantees can be valued and may be expensive to government does not imply that governments should charge investors for the guarantees. When government guarantees merely substitute for low prices, charging the full cost of the guarantee would defeat the purpose of the guarantee.

When the guarantor can manage or bear the risk better than the investor, however, the value to the guaranteed party is higher than the cost to guarantor, and the investor may be willing to pay part or all of the cost for a guarantee. Some commercial risks are insured by private insurance companies for this reason. Governments, however, should not be insuring commercial risks, even on a fee basis.

To the extent that private insurers are willing to provide cover for political risk, they need to charge for the value of a guarantee. Governments, however, would be extracting rents from good policy by charging for such guarantees: charging for political risk guarantees would be akin to demanding protection money. Governments should instead ensure that the benefits to investors of such guarantees are passed on to consumers—by awarding projects competitively, for example.

Complications Arising from the Risk of Sovereign Default

Sometimes the government's power of taxation enables it to honor any obligations it has entered into to provide support to a private infrastructure project. Official export credit and mortgage insurance schemes in the United States are examples. In some developing countries, however, the risk of sovereign default is real, and its implications must be considered in structuring government support to private infrastructure companies. The key task is to evaluate infrastructure projects financially within the country risk environment prevailing in developing countries (see Dailami and Leipziger 1997).

When there is a risk of default, one or more creditors or investors may lose all or part of their investment. By obtaining government guarantees an investor or creditor obtains a position near the front of the queue for repayment and secures access to sources of compensation not related to the project, generally taxation. By obtaining a supporting guarantee from an institution such as the World Bank, a private investor can buy a place right at the front of the queue, benefiting from the preferred creditor status of the World Bank. It is not clear, however, whether such guarantees simply improve some investors' positions relative to others' or whether it contributes to a better overall outcome (see Dooley 1997).

The key issue is whether and how the structure of government liabilities may affect the outcome of government liability renegotiations. Even if renegotiation of government liabilities over extended periods of time preserves the net present value of creditor or investor claims, there may be real economic losses, since assets funded by investors may not be used as efficiently as they would otherwise have been during the often acrimonious work-out process. For example, a water concession may not be maintained as well during a dispute as otherwise.

Different creditors or investors hold different types of claims. They thus have varying interests to negotiate. Some "tough" investors may hold up renegotiation, thus imposing real losses (due to the less efficient use of assets during the renegotiation), for which the tough investor does not pay. When a government issues guarantees to an infrastructure investor it tends to create yet another type of claim. In particular, the guarantee may be issued to an investor who has some physical control over the assets. This gives the guarantee holder bargaining power that differs from that of a holder of sovereign debt, for example. To some extent that may be justified for the same reason that trade credit gets treated preferentially during debt renegotiations so as not to disrupt basic economic activity with adverse consequences for all.

To achieve a solid and reasonably speedy settlement in order to minimize economic disruption resulting from inefficient asset use, a mechanism needs to be in place that allows creditors and investors to resolve their differences quickly. This is achieved more easily if the claims held by different investors are similar and the government has the flexibility to come up with various ways of settling its obligations.

When a country properly accounts for its contingent liabilities and reserves for them fiscally, they appear more like normal debt. In fact, it may be preferable for the government to support projects by providing debt finance rather than guarantees. If so, it could be argued that, to provide governments with the right incentives to do so, exposure under government guarantees should be valued like debt and not be reduced by adjusting for probability of default. In a sense such an ultra conservative policy is equivalent to debt management policies in various advanced OECD countries. Germany, for example, actually values certain guarantees the same way as debt with the same maximum exposure.

Beyond making claims more similar to each other, can a commitment mechanism be chosen to facilitate speedy claims resolution? The COGASCO example, mentioned earlier, illustrates that project-based renegotiation can last as long as sovereign debt settlement, with deleterious consequences for investment in a particular sector. It may therefore be useful to involve multilateral creditors, because their interests and actions may be most closely aligned and they may thus help advance resolution most speedily.

It is thus by no means clear that finely tuned risk allocation is always the right approach. Blunter instruments, such as straight sovereign debt, may at times be preferable. The argument for seeking participation by multilaterals may have little to do with the nature of the risk management or product they provide and more with the role they are likely to play in debt renegotiation.

REFORMING POLICY TO ATTRACT INVESTORS

Although guarantees can provide some comfort to investors, a country's interests are better served by thorough-going policy reform. The best way of attracting private investment is by establishing stable macroeconomic policies, adequate tariff regimes, a track record of honoring

commitments, and reasonable economic policymaking. In many OECD countries and other industrial economies, such as Singapore, investors may not require guarantees or other government support, and they may be willing to accept "change of law" risk, which may affect tax rates or other project cost or revenue parameters.

In many emerging markets, however—including relatively advanced economies, such as Chile—investors may not find the right policies in place, or they may doubt the government's ability to sustain such policies over long periods of time. Governments still have a variety of options for reducing the need for special project support.

Projects are subject to country- and project-specific risks. Risks related to a country's overall health tend to be of prime importance. Risks such as currency and interest-rate risks reflect macroeconomic volatility and the risk that the government will not honor its obligations (country risk proper).

That governments with stable macroeconomic policies can attract private infrastructure investors more easily is reflected in the sovereign debt ratings given by various rating agencies and services (see annex table A5). As country ratings improve, governments are able to attract more and more project finance (table 6) (although project finance accounts for only a small percentage of GDP in the most creditworthy countries, where corporate finance is used to finance deals).⁵

Table 6 Credit ratings, deals per capita, and deals as a percent of GDP, by country, 1996

Country	Rating	Deals per capita (\$/population)	Country	Rating	Deals as a percentage of GDP
Qatar	BBB	8,564	Hong Kong	A	13.5
Hong Kong	A	3,229	Indonesia	BBB	7.1
Australia	AA	705	Thailand	A	5.7
Greece	BBB-	282	Chile	A-	4.9
Chile	A-	234	Pakistan	B+	4.5
United Kingdom	AAA	227	Malaysia	A+	4.2
Saudi Arabia	NR	214	Australia	AA	3.7
United States	AAA	185	Greece	BBB-	3.2
Malaysia	A+	178	Saudi Arabia	NR	3.1
Thailand	A	159	Turkey	B	2.4
Canada	AA+	151	India	BB+	2.1
Argentina	BB	99	Argentina	BB	1.2
Italy	AA	78	China	BBB	1.2
Germany	AAA	76	United Kingdom	AAA	1.2
Indonesia	BBB	73	Brazil	BB-	0.8
Turkey	B	63	Canada	AA+	0.8
Brazil	BB-	37	United States	AAA	0.7
Pakistan	B+	21	Italy	AA	0.4
India	BB+	7	Germany	AAA	0.3
China	BBB	7	Qatar	BBB	NA

Note: Population and GDP data are for 1995.

Source: *Euromoney*; World Bank 1997b; World Bank staff estimates.

Problems with Financial Support without Policy Reform

The jury is still out on the consequences of government guarantees and other forms of financial support: although they may have increased the volume of investment, they may not have solved the underlying problems. Several examples illustrate the types of problem that can remain when projects go ahead, with various forms of governments support, in the absence of serious policy problems.

The Mexican toll road program generated several billion dollars of non-performing assets in the domestic banking system. No explicit guarantees had been issued to creditors, but local banks expected the government to bail them out once the toll roads ran into financial difficulties. The government was forced to come to the banks' aid at the worst possible time—during the currency crisis of 1994/95.

The failure of private toll roads has caused problems in other countries as well. In Thailand the Bangkok expressway required government rescue after the authorities declined to raise tolls in line with earlier agreements. In Spain the government was obliged to pay out \$2.7 billion when exchange rate guarantees were called during the 1970s and 1980s.

Other types of projects have also been affected. Malaysia's power company, TENAGA, contracted with private generators (backed by a government guarantee) to supply more power, but consumer tariffs were left unchanged. As a result TENAGA was not able to carry the full cost of private generation forward and was squeezed financially, forcing it to neglect maintenance and investment. Power cuts throughout the country followed—exactly the outcome the new generation capacity was intended to prevent.

In Mexico a water concession in Aguascalientes was concluded in 1993. To guard against currency risk, variable-rate debt financing was obtained in the local markets. Water prices were thus not indexed to exchange rate movements but (partially) to changes in interest rates on domestic debt and inflation. Following the foreign currency devaluation in 1994/95 inflation and domestic interest rates rose, which should have caused large nominal tariff increases. A political decision was made, however, not to raise tariffs as foreseen in the concession contract. Instead the government took on the financing of new investment that the concessionaire was supposed to have made.

These cases have some key features in common. First, problems were resolved by negotiation, as they usually are in cases of government-related risks. In contrast, disputes over technical or commercial risks are often resolved in court. Second, the government generally ended up bearing a substantial part of the costs—costs that could have been avoided if the government had allowed consumer prices to cover full project costs.

These examples reveal how the basic forces that drive infrastructure privatization assert themselves. Private investors do not—and should not—pay for projects; they can only finance them. Either consumers or taxpayers have to pay for projects in the end. If the government

cannot raise money from taxpayers, consumer prices must be adequate. Therefore, when privatization is motivated by fiscal constraints, user fees must be raised to cost-covering levels. Projects that cannot be funded by user fees should not, in the absence of important positive externalities, be built.

Government support could lower overall project cost only if the government had a lower cost of capital than private parties. Although government borrowing costs are often ostensibly lower than private borrowing costs, governments borrow at lower rates not because they tend to operate lower risk projects but because taxpayers stand behind them, providing unremunerated credit insurance. If taxpayers were remunerated for their exposure, the ostensible advantage of government finance would presumably disappear. If not, governments should finance everything, including large corporations—a return to GOSPLAN, which appears nonsensical (Klein 1996).

Government support to private projects compensates private investors for the risks they are unwilling to bear given the prices they receive. Investors may be attracted to infrastructure projects without guarantees if the expected returns are high enough (that is, when rates charged to consumers are high enough).⁶ In that sense the search for guarantees or other forms of government support is a search for suckers who can be made to pay what others are not willing to pay. Guarantees themselves do not appear to affect the cost of capital, which is determined by the risks of the project, not the financing structure. As recent review of the effect of World Bank partial credit guarantees (Huizinga 1997) suggests, the existence of guarantees did not reduce nonguaranteed interest rates, and the duration of nonguaranteed debt remained relatively short.

Privatization of Existing Assets

Recent transactions have shown that even countries with subinvestment grade ratings can attract sizable private investment without special government guarantees if sound sector policies are made credible. Privatizing existing assets reduces the role of government and with it fears of noncommercial interference. In Argentina, Peru, and Bolivia, for example, where certain sectors, such as electricity, were privatized, private investment has been made without government guarantees.

Privatization also allows investors to earn high rates of return without raising consumer tariffs, since investors discount the sale value of assets to the point at which existing tariffs generate the required rate of return, rather than by raising tariffs, as they would have to do in greenfield projects. In fact, tariffs can actually fall after privatizations, as they did in the Buenos Aires water concession, in which the assets of the system were given to the private investor free of charge.⁷

Privatization has also attracted more equity investors than have new investment projects. Since equity markets are easier to develop than long-term debt markets in most developing countries, privatizations have been able to rely more on local currency financing than have greenfield investment projects. The typical new investment project requires about two-thirds foreign

finance, whereas the typical privatization has attracted two-thirds of its finance from local markets (International Finance Corporation 1996).

Many privatizations have occurred in subinvestment grade countries (that is, in countries with credit ratings of less than BBB-), including Argentina, Peru and Bolivia. Privatization has allowed these countries to attract investment despite their unstable macroeconomic environments, allowing them to make the most of existing assets rather than to add new investments.

Greenfield Projects

Government guarantees and financial support are more difficult to avoid for new investments, for which prices must be raised. Well-structured project finance for greenfield projects may allow governments to avoid guarantees or other forms of support, however. Under project finance investors look to cash flow generated by the project to amortize debt and to pay interest payments and dividends.⁸ Project finance can help investors structure a project so that different risks can be separated and allocated to the parties most willing to bear them. An example is the Mamonal power project in Colombia, where a foreign power generator sells electricity directly to private firms at cost-covering prices. This project structure has allowed the project company to set high user fees and rely on payment discipline by creditworthy corporate customers rather than on government guarantees.

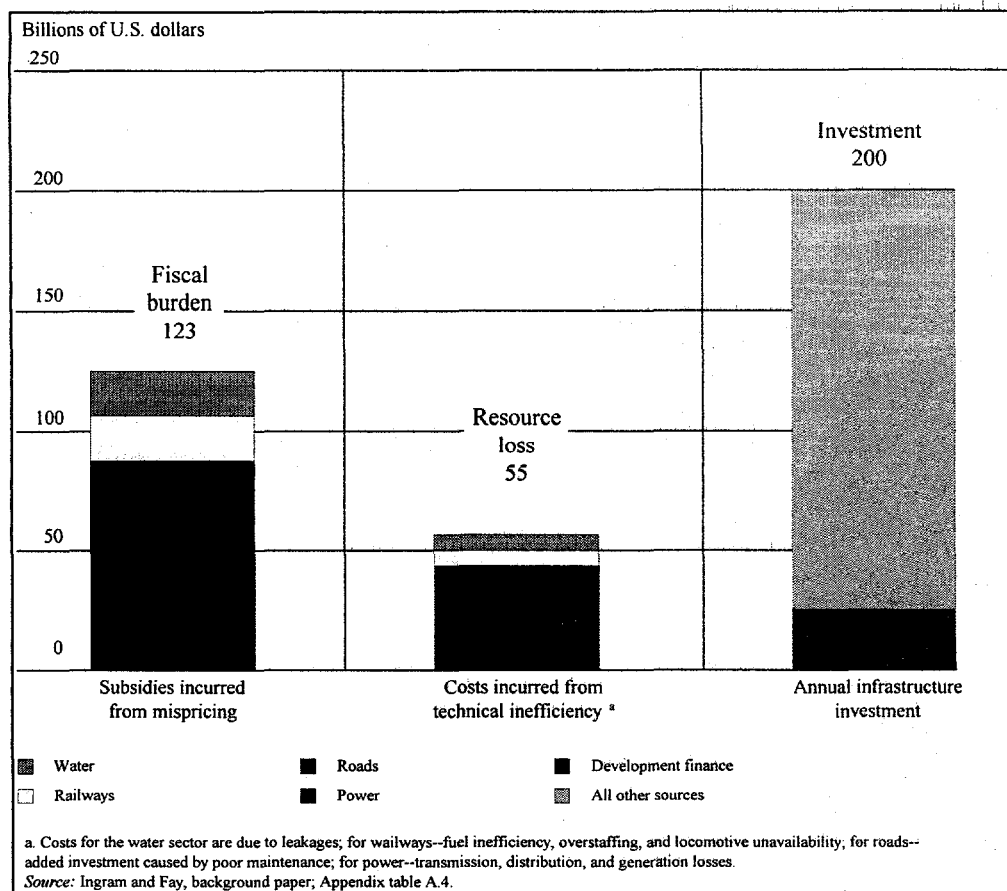
Several countries are trying to reduce reliance on sovereign support for new infrastructure projects. Most of the countries that have been successful in doing so have had investment-grade ratings. Indonesia attracted investors by issuing comfort letters on foreign exchange convertibility in its PAITON power project. China and India have declared that they are unwilling to issue sovereign guarantees for private infrastructure projects. In China, an investment-grade country, investors have been willing to accept guarantees from provincial governments in place of the national government. In India, a subinvestment-grade country, the verdict is still out, but it appears that projects going ahead require heavy backing from state-owned financial institutions.

Colombia, an investment-grade country, has been able to move away from sovereign guarantees in projects in which ECOPETROL, the state-owned oil company, is backing payment obligations (Centragas and Transgas). Several Colombian entities have recently issued investment-grade paper (for the El Dorado airport expansion and the city of Bogotá). Petropower, a Chilean co-generation project, was able to issue bonds in the U.S. capital markets without the help of the government or supranational agencies. Although Argentina is not an investment-grade country, Transportadora de Gas del Norte in Argentina was able to issue investment-grade paper with the help of IFC participation (other innovative capital market issues are described in annex table A6).

Rethinking the Problem of Future Investment Requirements

The “financing gap” may in fact be a “policy gap”—what is needed is not so much the mobilization of new financial resources on a vast scale but a thorough-going reform of policy. Raising consumer prices to cost-covering levels would generate some \$123 billion a year, allowing infrastructure companies to fund most of the \$200 billion a year needed for infrastructure from internal cash generation, leaving only \$77 billion to be funded in the financial markets (World Bank 1994). In addition, private participation could create efficiency gains of \$55 billion a year, reducing financing requirements to \$22 billion (figure 6). Moreover, the increase in tariffs to consumers should reduce demand and therefore investment requirements. To be politically able to raise consumer prices and to obtain the benefits of greater efficiency, governments should proceed with privatization. If they choose to go this route, however, the long-run financing problems will be minimal—financing requirements from sources other than internal cash generation may not be much larger than the existing level of private capital flows.

Figure 6 Estimated cost of mispricing and technical inefficiency



The shift to private infrastructure finance reduces the financing requirements of the country as a whole only if private investors generate efficiency gains (that is, they provide the same level of service at lower cost). For efficiency gains to materialize the private sector needs to bear risks it can manage better than the public sector. As long as financial structures are found that shift some of those risks away from the government—even if limited guarantees remain—benefits can be obtained from privatization. The fact that privatization reduces the likelihood of noncommercial interference by government can be the source of major efficiency gains (Galal, Tandon, and Vogelsang 1994).

Managing Guarantee Exposure during the Transition

In the long run, governments can attract private investment in infrastructure without providing guarantees if they have good policies in place. The most difficult challenges arise during the transition from publicly to privately funded infrastructure, when guarantees are most common. Even during the transition, however, government guarantees risk simply postponing the day of reckoning. Assuming that private investors cannot consistently be duped into investing in

unsustainable projects, providing guarantees imposes costs on taxpayers in the future. For this reason alone governments should develop ways of quantifying all their exposures to private infrastructure projects and reserving for them fiscally.

Two governments in the developing world—the Philippines and Colombia—are trying to develop ways to manage their guarantee exposure. Both countries are establishing ways of valuing their exposure and creating fiscal reserves against it. Managing guarantees correctly will demonstrate the fiscal cost of not implementing good policies and help garner support for more lasting reform.

Governments must also recognize their exposure from implicit guarantees. Ways must be found to manage implicit guarantees by letting investors (at least equity investors) go under in case of failure. Mechanisms must be established that allow new investors to take the place of old ones to ensure service continuity to consumers. If this cannot be done, implicit guarantees should be treated like explicit ones, and reserves should be budgeted to cover these contingent liabilities.

CONCLUSION

Governments can attract private investment in infrastructure in two ways. They can offer financial support to investors—in the form of grants, cheap loans, or guarantees—in order to compensate them for low tariffs, unstable macroeconomic conditions, poor performance by state-owned enterprises, and other problems. Or they can address the policy problems that underlie investors' concerns by raising prices to cost-covering levels, ensuring macroeconomic stability, and establishing a sound regulatory framework.

Both methods can attract investors, but the provision of government support tends not to reduce overall costs. Instead, it allocates costs to taxpayers, who have no choice but to accept them. The costs of providing guarantees may be deferred, but they are real—as the examples of the Mexican and Spanish toll roads show so vividly. In contrast, policy reforms such as price increases and the establishment of credible regulatory frameworks improve project fundamentals, making them attractive to investors without imposing extra costs on captive taxpayers.

REFERENCES

- Chen, A.H., J.W. Kensinger, and J.D. Martin. 1989. "Project Financing as a Means of Preserving Financial Flexibility." Working Paper. Austin, Texas: University of Texas.
- Dailami, M. 1992. "Optimal Corporate Investment in Imperfect Capital Markets: The Case of Korea." In S. Ghon Rhee and R.P. Change, eds. *Pacific-Basin Capital Market Research*. Amsterdam: North-Holland.
- Dailami, M. 1997. "Infrastructure Project Financiability: The Role of Government Guarantees." Unpublished World Bank discussion paper.
- Dailami, M., and D. Leipziger. 1997. "Infrastructure Project Finance and Capital Flows: A New Perspective." Paper presented at the Development Economic Study Group Conference, Birmingham, England, September 7–8, 1997.
- Dasgupta, S., and K. Sengupta. 1993. "Sunk Investment, Bargaining, and Choice of Capital Structure." *International Economic Review*. February: 203–220.
- Dooley, M.P. 1997. "Governments' Debt and Asset Management and Financial Crisis: Sellers Beware."
- Edlin, A., and S. Reichelstein. 1996. "Holdups, Standard Breach Remedies, and Optimal Investment." *American Economic Review* 3: 478–501.
- Galal, A., L. Jones, P. Tandon, and I. Vogelsang. 1994. *Welfare Consequences of Selling Public Enterprises: An Empirical Analysis*. Washington, D. C.: World Bank.
- Gómez-Ibáñez, José A., and John R. Meyer. 1993. *Going Private: The International Experience with Transport Privatization*. Washington, D.C.: Brookings Institution.
- Haberer, L. 1996. *Global Project Finance*. New York: Standard & Poor's.
- Huizinga, H. 1997. "Are There Synergies Between World Bank Partial Credit Guarantees and Private Lending?" Policy Research Working Paper 1802. World Bank, Department Research Group, Washington, D.C.
- Ingram, Gregory, and Marianne Fay. 1994. "Valuing Infrastructure Stocks and Gains from Improved Performance." Background paper prepared for the World Bank's *World Development Report 1994*.
- Inter-American Development Bank. 1995. *Directory of Innovative Financing*. Washington, D.C.: Inter-American Development Bank.

- International Finance Corporation. 1996. *Financing Private Infrastructure*. Washington, D.C.: World Bank and International Finance Corporation.
- Kensinger, J.W., and J.D. Martin. 1988. "Project Finance: Raising Money the Old-Fashioned Way." *Journal of Applied Corporate Finance* 3: 69–81.
- Klein, Michael. 1996. "Risk, Taxpayers, and Role of Government in Project Finance." Policy Research Working Paper 1688. World Bank, Washington, D.C.
- Klein, M., and N. Roger. 1994. "Back to the Future: The Potential in Infrastructure Privatization." *Finance and the International Economy*: 8.
- Nevitt, P.K., and F. Fabozzi. 1995. *Project Financing*. Sixth Edition. London: Euromoney Publications.
- Project Finance International. 1997. "PFI League Tables 1996—PF Business Nears US\$50 bn." *Project Finance International*, 113, 29 January 1997.
- Sayer, R ed. 1997. *Project and Trade Finance*.
- Vives, A. 1997 *Infrastructure Finance Directory*. Washington, D.C.: Inter-American Development Bank.
- World Bank. 1994. *World Development Report*. Washington, D. C.: Oxford University Press.
- World Bank. 1997a. *Global Development Finance 1997*. Washington, D. C.: World Bank.
- World Bank. 1997b. *World Development Indicators 1997*. Washington, D.C.: World Bank.

Table A1 Signed project finance deals, by country, 1996

Country	Standard & Poor's long-term, foreign currency sovereign debt rating (March 11, 1997)	Number of signed project finance deals	Value of signed project finance deals (\$ millions)	Value of signed project finance deals, by population (\$ million/ per capita)	GDP (\$ millions)	Value of signed project finance deals as a percent of GDP
United States	AAA	103	48,669	185.0	6,952,020	0.70
Hong Kong	A	36	19,376	3,229.3	143,669	13.49
Indonesia	BBB	72	14,145	73.0	198,079	7.14
United Kingdom	AAA	41	13,227	227.0	1,105,822	1.20
Australia	AA	44	12,731	705.3	348,782	3.65
Thailand	A	31	9,432	158.8	167,056	5.65
China	BBB	64	8,383	6.9	697,647	1.20
India	BB+	28	6,911	7.4	324,082	2.13
Germany	AAA	9	6,236	76.4	2,415,764	0.26
Brazil	BB-	23	5,796	37.2	688,085	0.84
Qatar	BBB	3	4,710	8,563.6	---	---
Canada	AA+	23	4,469	150.9	568,928	0.79
Italy	AA	6	4,443	77.7	1,086,932	0.41
Turkey	B	14	3,890	63.1	164,789	2.36
Saudi Arabia	NR	6	3,833	214.4	125,501	3.05
Malaysia	A+	13	3,575	177.5	85,311	4.19
Argentina	BB	19	3,447	99.1	281,060	1.23
Chile	A-	15	3,321	233.9	67,297	4.93
Greece	BBB-	2	2,951	282.1	90,550	3.26
Pakistan	B+	13	2,738	21.1	60,649	4.51

Note: Population and GDP data are for 1995.

Source: Project Trade and Finance Database; World Bank 1997b; Standard & Poor's; World Bank staff estimates.

Table A2 Top ten emerging markets for project finance deals, 1996

Country	Number of projects	Total project value (\$ millions)
Indonesia	72	14,145
Thailand	31	9,432
China	64	8,383
India	28	6,911
Brazil	23	5,796
Turkey	14	3,890
Malaysia	13	3,575
Argentina	19	3,447
Chile	15	3,231
Pakistan	13	2,738

Source: Project & Trade Finance March 1997.

Table A3 Top ten emerging markets, 1995–1996

1995		1996	
Country	\$ millions	Country	\$ millions
Indonesia	3,384	Indonesia	4,306
Qatar	1,911	Colombia	1,557
Mexico	1,066	Philippines	1,097
Pakistan	1,062	Argentina	735
Turkey	929	Mexico	272
Colombia	660	Thailand	272
China	621	India	267
India	523	Chile	167
Chile	500	Poland	128
Hungary	397	Pakistan	97

Source: Project Finance International 1995; Project Finance International 29 January 1997.

Table A4 Privatization transactions in selected emerging markets, 1991–1995

Country	Number of infrastructure privatizations	Total number of privatizations	Infrastructure privatization as a percent of total privatizations
Argentina	11,424	14,378	79.5
Mexico	4,958	21,278	23.3
Malaysia	4,248	8,735	48.6
Hungary	4,064	7,013	57.9
Indonesia	3,428	4,014	85.4
Peru	2,520	4,457	56.5
Venezuela	1,983	2,501	79.3
China	1,370	7,033	19.5
Czech Republic	1,361	2,297	59.3
Pakistan	1,011	1,565	64.6
India	973	4,447	21.9
Russia	787	1,255	62.7
Bolivia	770	811	94.9
Philippines	629	3,338	18.8
Brazil	491	9,606	5.1
Chile	403	619	65.2
Turkey	347	2,401	14.4
Thailand	180	953	18.9
Poland	172	2,932	5.9
Latvia	160	160	100.0
Slovak Rep.	28	1,482	1.9
Estonia	6	245	2.6
Nigeria	3	176	1.6
Vietnam	1	3	22.2
Colombia	---	905	0.0
Jordan	---	15	0.0
Kazakhstan	---	315	0.0
Oman	---	62	0.0
Slovenia	---	521	0.0
South Africa	---	5	0.0
Uruguay	---	2	0.0
Zimbabwe	---	307	0.0
<i>Total</i>	<i>39,583</i>	<i>114,964</i>	<i>34.4</i>

Source: World Bank Privatization Database; International Economics Department; World Bank staff estimates.

**Table A5 Sovereign credit ratings, country risk assessment, and sovereign defaults
in selected emerging markets**

Country	Standard & Poor's long-term foreign currency sovereign debt rating (April 9, 1997)	Moody's long- term foreign currency sovereign debt rating (April 9, 1997)	Euromoney country ratings (March 1997)	Institutional Investor country ratings ¹ (March 1997)	Years in default since 1975 (foreign currency external bank Debt)
Malaysia	A+	A1	83.32	67.5	None
Thailand	A	A2	77.09	61.1	None
Czech Republic	A	Baa1	74.54	62.8	None
Chile	A-	Baa1	79.94	62.0	1983-1990
Slovenia	A	A3	73.97	52.1	1992-1995
China	BBB	A3	70.50	58.0	None
Indonesia	BBB	Baa3	70.95	51.6	None
Latvia	BBB	NR	55.04	29.1	None
Hungary	BBB-	Baa3	70.06	47.6	None
Oman	BBB-	Baa2	69.92	52.8	None
Colombia	BBB-	Baa3	63.68	47.7	None
Poland	BBB-	Baa3	56.58	47.9	1981-1994
Slovak Rep.	BBB-	Baa3	63.46	43.9	None
India	BB+	Baa3	64.61	46.3	None
South Africa	BB+	Baa3	69.88	46.0	1985-1987, 1989, 1993
Philippines	BB+	Ba2	63.14	42.3	1983-1992
Uruguay	BB+	Ba1	63.42	41.7	1983, 1987, 1990-1991
Peru	BB+	B2	48.19	32.0	1976, 1978, 1980, 1984-1995
Mexico	BB	Ba2	64.14	42.6	1982-1986, 1988-1990
Argentina	BB	B1	59.17	39.9	1982-1993
Jordan	BB-	Ba3	53.20	33.8	1989-1993
Russia	BB-	Ba2	43.97	23.5	1991-1995
Brazil	BB-	B1	59.11	38.8	1983-1994
Kazakhstan	BB-	Ba3	40.25	20.9	None
Pakistan	B+	B2	48.94	27.7	None
Turkey	B	B1	53.39	40.8	1978-1981
Venezuela	B	Ba2	49.08	33.1	1983-1988, 1990
Vietnam	NR	NR	52.41	32.5	1985-1995
Zimbabwe	NR	NR	42.00	32.3	None
Estonia	NR	NR	53.21	33.6	None
Nigeria	NR	NR	26.78	14.8	1982-1992
Bolivia	NR	NR	45.93	24.9	1980-1993

Note: ^a The scale for *Euromoney* and *Institutional Investor* country credit ratings range from 0-100. The highest possible score is 100 and the lowest possible score is 0.

Source: Standard & Poor's; Moody's; *Euromoney*; and *Institutional Investor*.

Table A6 Capital market innovations, 1991–1996

Year	Capital Market Innovation	Project	Project Location/ Country of Origin
1991	Developer took long-term project risk.	Midlands Power Project	United States
1992	Project received investment grade rating and obtained capital market financing in precompletion stage.	Sithe Energy 144A Bond Offering	United States
	Project risk undertaken by developer in transport sector project in an emerging market. Longer maturities. Securitization of toll road revenues through offshore debt fund for a 144a issue.	Mexico City-Toluca Toll road	Mexico
1993	Developer took long-term market risk.	Deer Park Refinery	United States
	Pooling debt of multiple projects. Project financing to receive an investment grade	Refinancing of Project Partnerships Owned by Coso Energy	United States
	First IPP in Latin America	Mamonal Power Project	Colombia
	First major private infrastructure project in Eastern Europe. Project also did not have government guarantees.	M1/M15 Motorway	Hungary
	Project risk undertaken by developer in power sector in emerging market	Subic Bay Power Project	Subic Bay, Philippines
1994	Construction risk was undertaken by project developer.	Indiantown Cogeneration	United States
	Debt of multiple projects was pooled to provide liquidity for investors in an otherwise illiquid long-term fund.	Energy Investors Fund Pooled Portfolio Refinancing	United States
	Limited recourse refinancing of an IPP in the public bond markets in Europe.	Kilroot Electric Bond Issue	Northern Ireland, United Kingdom
	Take-or-pay contract with state-owned utility allowed for much longer maturities (10-years versus 50 years).	YTL Power Generation Local Currency Bond Issue	Malaysia
	First investment-grade project finance bond issue from an emerging market. Construction and operation risk in emerging market.	Centragas Bond Issue	Colombia
	First financing in the U.S. for a Chinese power project. Blind pool / power projects.	LIPTEC 144a Bond Offering	China
	Rated Asian project financing of raising funds in the United States.	Regco Project Financing	Thailand
	Debt fund created to secure private loan. Eligible for CARIFA bonds. Used multilateral bank guarantees to fund IPP.	Rockfort Power Project	Jamaica
	Market risk for power project in emerging market.	Alicura Hydro Project	Argentina
	Discrete pool in emerging market.	Tribasa Toll roads	Mexico
	Limited recourse financing for water and environmental project. Indexed project revenues to inflation.	Chihuahua Norte Municipal Wastewater Treatment Plant	Chihuahua, Mexico

Year	Capital Market Innovation	Project	Project Location/ Country of Origin
1995	Privately financed undersea telecommunications cable. 18-country political risk package.	Fiberoptic Link Around the Globe (FLAG)	23 political jurisdictions between UK and Japan
	Offering of limited recourse notes in high-yield notes market.	California Energy Co./Salton Sea Funding Corp. Debt Refinancing	United States
	Toll road financing syndicated in the equity and bond markets.	M2 Toll Toad	New South Wales, Australia
	Power transmission and cross-border project with multilateral bank guarantees.	Líneas de Transmisión del Litoral S.A.	Argentina, Paraguay
	Emerging market debt issue exceeded sovereign debt rating ceiling. Notes secured with a portion of future receivables through long-term oil purchase agreement.	YPF Structured Export Notes Private Placement	Argentina
	Debt fund established. Used multilateral bank guarantees to fund IPP.	Hub River Power Project	Pakistan
1996	Capital market refinancing in an emerging market.	Pehuenche Bond Offering	Chile
	Precompletion financing obtained by emerging market without political risk insurance, multilateral bank support or PPA.	Ibener Power Project	Chile
	Latin American company to enter US 100-yr. bond market.	Endesa 3-Tranche Bond Offering.	Chile
	Long-term refinancing of project finance with investment grade.	Paiton Energy Co. Bond Offering	Indonesia
	Latin American municipality syndicated loan.	Bogotá Syndicated Loan	Colombia
	Toll road financing syndication in the equity bond market by a local government entity within an emerging market.	Guangdong Provincial Expressway Shareholding	Guangdong Province, China
	Municipal government financing of greenfield toll road.	Linha Amerela	Rio de Janeiro, Brazil

Source: Inter-American Development Bank 1995; Vives 1997.

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- ¹ The key sources for the information presented here are Project Finance International (1997), Sayer (1997), Vives (1997), and World Bank (1997a).
- ² Some countries may begin with public ownership, but the cyclical forces are the same.
- ³ In fact, they have been doing so for some time. Land grants and credit guarantees for international bond issues were extended to railroads in India and South Africa in the nineteenth century, for example.
- ⁴ Such guarantees are primarily meant to support providers of long-term debt. Project financings are typically funded with a very high share of debt, usually ranging from 60 to 80 percent of total project cost. Reliance on steady uninterrupted adherence to scheduled debt repayment is key to the remuneration of long-term creditors, who

do not benefit from the high returns that equity holders may expect. Guarantees of continuous creditworthiness are thus of great value to creditors.

- ⁵ In project financing, debt often accounts for 60–80 percent of total project cost. In contrast, corporate finance, equity, particularly in the form of internal cash generation, tends to dominate funding. For a discussion of corporate finance in developing countries see Dailami (1992). Project financing has also been revived in industrial countries as a method of financing large-scale investment projects (see, for instance, Kensinger and Martin [1988]; Chen, Kensinger, and Martin [1989]; and Nevitt and Fabozzi [1995]).
- ⁶ In some cases risks are so high that no investors will invest, and funding is effectively rationed.
- ⁷ There is no fundamental difference between a concession in which the government remains the notional owner, as in the French water system, and a full asset sale, in which the government retains special supervision rights defined in a license, as in the water privatizations in England and Wales.
- ⁸ Under corporate finance investors look towards the cash flow of the whole company that sponsors the project. Corporate finance allows project sponsors to use other existing revenue-earning activities to "collateralize" investment in a project. Various hybrid schemes exist such as project finance of a toll road expansion that benefits at the same time from toll collection on already completed stretches of highway.

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