

Measuring and Mitigating Regulatory Risk in Private Infrastructure Investment

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I. Background

When the East Asia financial crisis struck in 1997, some countries acted opportunistically and broke commitments with private investors in electricity systems. But other countries stood by their promises and allowed investors opportunities to recover their costs. What made the difference? It turns out that the countries that kept their commitments had in place policies and laws that restricted their abilities to behave opportunistically and that the investors in those countries had put into place their own risk mitigation strategies to complement the governments' policies. The other countries did not have such policies and laws in place.¹

In this article we describe steps that governments and investors can take to mitigate regulatory risk. Such risk mitigation applies a set of institutional and financial instruments to make risks and rewards commensurate with each other, promoting efficient investment. Managers and investors are concerned about risk mitigation for obvious reasons, but policy-makers share these concerns since utility infrastructure is important for economic and social development and excessive risk limits investment. In developing countries in 1990-2001, nearly 2,500 infrastructure projects involved private participation, with commitments of more than \$750 billion. According to World Bank estimates, developing countries will need an additional \$550 to \$600 billion in infrastructure investment by 2010; however, it is unlikely that this investment need will be met because new investment (especially in energy) has declined steadily since 1997.²

One reason for this investment shortfall appears to be the perceived riskiness of infrastructure projects in developing countries. These projects often involve major "sunk" costs that may take more than a decade to recover under the best of circumstances, which raises the possibility of government opportunism to not honor contracts.³ This risk of opportunism reduces investments and output by pushing up the cost of capital by as much as 2 to 6 percentage points depending on the country or region.⁴

There are three basic approaches to mitigating regulatory risk: institutional instruments that limit the possibility of government opportunism, financial instruments that decrease financial risk, and managerial strategies, such as choosing technologies that may not be cost-minimizing but that have lower "sunk" costs than more traditional alternatives. We describe these approaches below and identify ways that policy-makers and investors might measure regulatory risk. The remainder of this article is organized as follows. In the following sections we examine five categories of approaches to mitigating regulatory risk, namely developing a strong regulatory framework, implementing anti-corruption policies, creating sustainable regulatory policies, avoiding contract renegotiation and bailouts, and selecting appropriate financial instruments. Our concluding observations identify some key issues that warrant additional attention.

A. *Regulatory Framework.*

A number of factors affect the risk of cash flows from international energy investments, including currency risk, sub-sovereign interventions, changes in taxes (such as an “excess” profits tax), and forms of political opportunism. In the regulatory area, a crucial factor is the design of the regulatory framework, which includes a fair and predictable judicial system and the presence of checks and balances within the government.

Well-conceived regulatory frameworks, including independent regulators, sound price-setting regimes, and transparent regulatory processes that invite stakeholder participation, can improve the investment climate by increasing predictability of cash flows and reducing political risk. However, new regulators in developing countries might not have their “independence” explicitly guaranteed in law. Moreover, regulators do not operate in a vacuum: their effectiveness can be strengthened or diminished by what we call the regulatory system, which includes the host country’s governmental checks and balances (including the judicial and legal system), systems for regulating the financial sector, environmental policies, country’s conflict resolution mechanisms, political system, and relationships with other countries and with multilateral institutions. Because these factors are different for each country, there is no one-size-fits-all “ideal” regulatory framework.

Nevertheless, certain principles are at play in all governmental systems and knowledge of these principles can help political leaders design a regulatory system and regulatory entity in ways that match the country’s institutional endowment. The effectiveness of the regulatory system and the regulatory entity are dependent on how policymakers answer questions such as: How does the country’s overall regulatory framework affect capital market development for infrastructure projects? Do the strategies for increasing regulatory discretion in contracts match gains in regulatory expertise over the years, and do these strategies actually work? Issues can be divided into two categories: the regulatory entity’s design, including the functions controlled by the regulator, and the broader regulatory system, which is the institutional environment in which the regulator operates and does not directly control. Both detailed national case studies and cross country indicators can help investors understand likely regulatory risks and can help managers devise strategies for building political sustainability locally.

For example, a Brazilian case study by Brown and De Paula⁵ demonstrates the importance of transparency. They find that full explanations of decisions and the thought processes that go into them are necessary to ensure that disagreements are over matters of substance and not about the fairness or integrity of the process. Transparency also demands that all of the evidence that was presented to the decision makers be publicly exposed, whether fact, opinion, or argument. Absent compelling circumstances, no information should be withheld from public view.⁶

They note that the benefits of having an independent regulatory agency are lost if the government itself hears appeals of regulatory decisions. Also, in many jurisdictions

parties can appeal government decisions to the courts. For example, special or pre-existing tribunals hear regulatory appeals in England, India, and Bolivia, but unless the special tribunal is judicial, its decisions could be subject to judicial review. Where independent regulation is a new concept the judiciary may need training to deal with regulatory matters.

Several quantitative indicators of regulatory risk have been developed and are available to policy makers and investors. Cubbin and Stern develop an index of regulatory governance that includes four elements: whether the country has an electricity or energy law; whether the country has an autonomous or a Ministry regulator for electricity; whether the country's electricity regulator is funded from license fees (or equivalent) or out of the government budget; and whether the staff in the electricity market can be paid as appropriate given skill needs or whether staff have to be paid on civil service pay scales.⁷ Using this index in an econometric study, the authors find some evidence that higher indicators of regulatory governance are associated with greater generator capacity utilization.

Henisz's *Political Constraints (POLCON)* index captures the broader political context of infrastructure policy by focusing on how easy or difficult it is for a government to change policy.⁸ Credible commitments require that there be a number of veto points where arbitrary or opportunistic government initiatives can be blocked. The index also considers whether the checks and balances exist in practice, capturing a country's political capacity to support and sustain investment decisions. The POLCON database includes data for most countries of the world, 1960-1998.

Kaufmann et al. developed governance indicators along six dimensions of government for 199 countries and territories for four time intervals: 1996, 1998, 2000, and 2002.⁹ The indicators are: (1) voice and accountability (political process, civil liberties, and political rights), (2) political stability and absence of violence, (3) government effectiveness, (4) regulatory quality, (5) rule of the law, and (6) control of corruption. These indicators use 250 individual measures taken from 25 different sources, including international organizations, political and business risk-taking organizations, think tanks and non-governmental agencies. The authors rely on subjective perceptions in developing the aggregate governance indicators because, for some dimensions of government – corruption and confidence in property protection – relevant objective data are impossible to obtain. They also empirically examined and discounted ideological biases in the perception data they used for the indicators.

Barth et al. developed a capital access index that ranks 85 countries according to the ability of entrepreneurs within those countries to access financial capital.¹⁰ Using this index, they find that a more developed bond market can lead to more sophisticated financial instruments, such as securitization and various types of derivatives.

Another study develops a framework for identifying the factors in countries that increase risk for commerce and direct investment.¹¹ This Opacity Index uses 65 variables from 41 sources applied to 48 countries. There are five indicators in the index: (1)

corruption, (2) efficacy of the legal system, (3) deleterious economic policy, (4) inadequate accounting and governance practices, and (5) detrimental regulatory structures. A discount rate is calculated for each country that reflects the additional or subtracted return on investment needed to compensate for risk.¹²

The World Resources Institute provides a baseline survey of key facts about the electricity sector and more than 60 indicators assessing questions of good governance in the electricity sector.¹³ The indicators pertain to policy processes, regulation, and environmental and social aspects.¹⁴

Brown, Stern, and Tenenbaum have developed *A Manual for Evaluating the Effectiveness of Infrastructure Regulatory Systems* for the World Bank. Still in the draft stage, it includes measures of governance processes and sector performance and provides a systematic framework for collecting and analyzing the impacts of regulatory systems.

B. Indicators of Corruption.

Because corruption exposes firms to risks, some of the above indicators incorporated corruption as a component of an overall index. Corruption is a concern to policy makers because it decreases service output by increasing costs, diverts capital from productive uses, and takes wealth from its legitimate owners. Moreover, costs of corruption such as for nonpayment of bills resulting from bribery or collusion could be passed on to other ratepayers or utility owners, thus posing a challenge for regulators and undermining the confidence investors have in infrastructure projects. Ongoing corruption is a concern listed by respondents in World Bank investment climate surveys, who also expressed concerns about the effects of corruption on investment.¹⁵

Private participation contracts lacking transparent processes are especially vulnerable to various manifestations of corruption or unethical behavior. Corruption or unethical behavior of this type can occur at various stages in a contractual infrastructure project cycle — project identification, contract award, negotiation, project finance, and implementation.

Corruption raises several questions for policy makers and investors. For example, under what conditions is corruption most likely to occur in the various infrastructure sectors? How does corruption affect utility performance? To what extent do competition of service providers, the transparency of the regulatory process, budget oversight, performance audit capability, and other governance oversight institutions affect levels of corruption? Is corruption adequately addressed if strategies are applied only to the public sector? What strategies could be used to reduce the incidence of corruption? This literature review summarizes some papers that address these questions.

One recent study collected enterprise-level data on bribes paid to electricity and telecommunications utilities in 21 countries in Eastern Europe and Central Asia. Approximately 2,000 firms were surveyed. The empirical results revealed that more

profitable businesses, businesses with greater overdue utility bills, and *de-novo* private firms are more likely to be the bribe payers; utilities are less likely to receive bribes in countries with greater capacity in terms of better-developed telecommunications systems, more competition in the telecommunications sector and utility privatization.¹⁶

C. *Developing Political Sustainability*

Sustainability of government institutions, regulatory policies, and anti-corruption policies affects investment risk by improving the predictability of outcomes. The political, popular, and legal support of these features of government and culture support or undermine political sustainability. For example, a regulatory agency's ability to function is determined not just by its own technical capacity to perform its duties, but by legal rules that define its formal authority, the willingness of the courts and other governmental entities to recognize and follow these legal rules, and the belief and acceptance of operators, customers, foreign governments, and multilateral organizations (such as The World Bank) that the regulatory agency is legitimate and capable.¹⁷ Rosenzweig, Voll, and Pabon-Agudelo survey the reasons why power sector reform has seen so few successes.¹⁸ They point to poor political strategies as one misstep with substantial potential costs.

As countries become more democratic, infrastructure projects that fail to deliver affordable services to the poor can result in political pressure on governments to renegotiate or terminate private contracts. For example, subsidies are often part of pro-poor strategies. If they are not effectively targeted or services are under-priced, revenue streams needed to meet contractual performance outcomes may be jeopardized. Therefore, risk mitigation policies need to consider the cash-flow implications of pro-poor strategies.

Sustainability of the institutional and anti-corruption policies raises several questions. What leadership and other skills do utility regulators need to succeed in their roles? How do political party, personal, and informal relationships affect the effectiveness of formal policies on regulatory systems, regulatory agencies, and corruption? To what extent have past infrastructure reforms in developing countries improved access of the poor to utility services? What are the most effective pro-poor strategies used in developing-country infrastructure concessions to date and why have these strategies been effective?¹⁹ How do direct subsidies granted by government ministries for an infrastructure concession dovetail with pro-poor subsidies used in ratemaking and what are the ramifications? There are more questions than answers in this area; however, unless managers and investors give attention to these issues, the swing of the investment pendulum towards expansion of infrastructure could be short.

D. Reacting to Unforeseen Events: Renegotiation and Bailout

What happens if an unforeseen shock makes existing utility policies ineffective, counterproductive, or even unsustainable? What if the regulatory system or agency proves to be unsustainable? Such breakdowns often result in contract renegotiation and bailouts, and governments address these possibilities in several ways.²⁰ Sometimes contracts or concession agreements provide specific provisions for renegotiation, arbitration, or bailouts. In addition, breakdowns involving foreign investors may be the subject of trade agreements between countries. Governments may also provide sovereign guarantees of loans involving multilateral institutions, such as The World Bank or International Monetary Fund.

Formal provisions for renegotiation and bailouts can reduce investment risk by providing certainty for how unusual circumstances will be dealt with. However, once renegotiation and bailout become formal options, they can also become strategic variables for operators interested in behaving opportunistically. Governments can restrict such opportunistic behavior on the part of operators by formally limiting renegotiation and bailout options, but the enforcement of these formal restrictions is in part dependent on the stability and legitimacy of the government institutions that are being stressed by the unforeseen shock or institutional breakdown. One strategy for addressing this problem is to use international institutions and other countries to enforce renegotiation and bailout policies.

Several tensions are present that complicate risk mitigation and risk allocation: (1) those between the benefits of adaptability and the benefits from certainty, (2) during times of crises, the dependence on government institutions that are themselves either involved in or the source of the crisis, and (3) requirements for national sovereignty and the gains from international support. In risk allocations between the public and private sectors, the general consensus is that risk should be borne by the party most equipped to manage it, generally through diversification of risk. For certain situations, the determination of the appropriate party to manage the risk might not be obvious.

The issues associated with renegotiation and bailout raise several questions: For the host country and its regulator, what is the impact of contract renegotiations on private investment in future infrastructure projects? Are such renegotiations always bad? How could the incidence of renegotiations be reduced and what is the role of the regulator to that end? Regulators and host countries also must contend with the prospect of bankruptcy or of failure of private infrastructure providers in concessions to deliver on contractual obligations. What strategies could be taken to respond to those possibilities and minimize the risk of such occurrences in the first place? What elements and principles should be considered for inclusion in effective regulatory contracts?

Estache has examined the distributional effects and the historical context of private participation in infrastructure (PPI) partnerships to explain why so many partnerships have failed while others continue to occur.²¹ Latin America with its richer developing countries has been the most successful region in attracting private investment.

The next most successful are East Asian countries for electricity generation and distribution and Eastern Europe for telecommunications. The water sector has fared worst with these arrangements. The poorest countries have been least successful in entering into PPI arrangements. Although short-run effects of PPI have been positive, the longer-run situation is more complex because many countries eventually returned to subsidization for sectors other than transport, where intermodal competition exists. The author concludes that reforms have generally realized efficiency gains but have failed to improve the lot of the poorest. Politicians and the international community need to support developing tools of regulators to provide service efficiently and fairly. Opportunities for the private sector to assume more responsibility for minimizing operation and maintenance costs also needs more emphasis. Additional reform needs to take into consideration weaknesses of the capital markets. In addition, there is a need for greater transparency governing PPI transactions. The new international accounting standards scheduled for 2006 should improve transparency, but strict enforcement will be required.

Others have attempted to quantify the impacts of factors contributing to the increased probability of concession contract renegotiations initiated by firms.²² The existence of a regulator at the time the concession is awarded reduces the probability of renegotiation, but price cap regulation increases that probability. Contracts exclusively financed by private money increase the probability, and minimum income guarantees do not appear to offer protection against shocks (contrary to expectations). Finally, the probability of renegotiation increases significantly in the years after a national election, which suggests that political cycles matter.²³

E. Purchasing Financial Instruments

Risk mitigation products, for their part, are most effectively used if governmental entities and the private sector cooperate in various ways to protect against non-payments and non-delivery of infrastructure services. Innovative financial instruments for risk mitigation are used to encourage private sector investment in infrastructure in developing countries. If applied effectively, they might increase output and investment by decreasing the cost of capital, improve sustainability of utility policies, and reduce the incidence of renegotiated contracts and bailouts. What products have been developed to help strengthen the link between infrastructure development and private financial markets? What are the factors constraining their effectiveness and availability? Are they best applied to privatized infrastructure projects with certain financing structures?

Capital structure is one way to allocate risk. Correira da Silva, Estache, and Jarvela analyzed data from 121 utility companies (electric, gas, water) in sixteen (mostly) developing countries and 23 transport infrastructure and 23 transport service providers in fifteen developing countries to gauge trends in the financing structure of utilities and transport services from 1991 to 2002.²⁴ They find that debt has been increasing relative to equity over that period, particularly after the 1997 Asian crisis and the stock market downturn in 2001. The paper holds that this change in funding mix could slow

privatization efforts and might imperil the financial viability of infrastructure projects. Higher leveraging occurred in the electricity and transport sectors, and the lowest occurred in the water sector. Leverage levels have also increased more in South American and Asian countries than in East European countries. Equity flight might be reduced through selection of rate-of-return or hybrid regulation where the cost of equity is apparently lower than under price cap regulation, the use of guarantees and various types of risk mitigation insurance, and through use of leasing or other arrangements. The authors recommend that regulators monitor the trends of the utility's leverage rates to minimize the risks associated with unexpected shocks.

Dealing with foreign exchange risk mitigation for water and power projects is the subject of another recent World Bank study. Matsukawa, Sheppard, and Wright define foreign exchange risk, present arguments for assigning risk to various stakeholders (investors, consumers, government), explain why infrastructure projects are more exposed to exchange rate risk than are other sectors, and outline mechanisms for allocating exchange rate risk.²⁵ Regulatory agreements that are sensitive to affordability issues are more likely to be respected in times of crisis. Strategies might include tariff methodologies that reduce price volatility, tariff structures that provide pro-poor protections, and transparent contingent subsidy schemes in response to sharp tariff increases. Credible regulatory and appellate frameworks also increase investor confidence that tariff structures will be respected. They also describe various forms of government guarantees to mitigate concerns about regulatory risk. However, if available, long-term fixed-rate local currency debt is considered a preferred option for mitigating foreign exchange rate risk.

Investors will be familiar with more approaches taken by ratings agencies. Rigby, in a Standard & Poors Report on "Project Finance: Technical Risk Criteria" (1999), notes that the dependability of a project's design, construction, and operation is a precondition for a successful project. Without it, most contractual and other legal remedies will not protect investors. S&P reviews and critiques the reports of independent engineers and other supporting documentation as part of due diligence for infrastructure projects. After doing so, S&P assigns a debt rating to projects, which provides information to debt holders as to how much construction risk they will need to assume. The activities that are subject to S&P evaluation include: engineering and design, siting plans and permits, construction, testing and commissioning, and operations and maintenance. For example, projects that complete permitting and siting with widespread political and legal support are more likely to enter the construction phase without disruption. The highest rated projects will be those that have assigned construction risk to those parties most likely to assume that risk (e.g., construction contractors and vendors). Turnkey, fixed price contracts effectively allocate construction risk, as do owners with extensive experience in the proposed technology who serve as general contractors, if complemented by strong and acceptable completion guarantees. Contractual provisions protecting against damages for delays are also important for risk mitigation, but the creditworthiness of the contractor to honor those liabilities is even more important. A letter of credit that is unconditional, irrevocable, and drawable upon a highly reputed bank, is likewise important in mitigating risk. Although no contract can eliminate all risks, the better

projects try to minimize risks through insurance, sovereign guarantees, and provisions to renegotiate tariff cost-offsetting power purchase agreements terms.

Salinger contends that it is better for the public sector to complement rather than compete with the private sector to provide political risk insurance.²⁶ To that end, three strategies could be followed: (1) the public agency could be an insurer of record and syndicate risk to the private sector by buying reinsurance from credit-worthy reinsurers, (2) stand behind the private sector by selling reinsurance to qualified underwriters, and (3) work alongside private underwriters by sharing the risk of co-insurers. The paper covers the author's assessment of various types of insurance coverage but notes that regulatory risk is beyond the scope of insurance coverage. He observes that there might be a basis for underwriting those risks if there is a way to internationalize standards or regulatory behavior.

3. Concluding Observations

Risk mitigation is a dynamic, iterative process. Contractual language and the application of risk mitigation products contribute to and affect a regulator's or host government's choice of risk reduction strategy. Regulatory decisions, in turn, affect the credibility of the system (for investors) and the legitimacy of the system (for citizens). The process is one in which regulators are charged, on the one hand, with serving the interests of the citizens of the country (who themselves have diverse needs) and, on the other hand, with providing proper incentives for service providers to meet contractual obligations to the country's taxpayers and ratepayers. To add to the complexity, investors are not passive actors; they both shape and respond to the business climate that underpins long-term investment decisions in infrastructure.

Despite the importance of regulatory risk mitigation, there remain important gaps in our understanding of the various instruments. Tradeoffs between predictability and flexibility and between independence and accountability raise issues. Much of the literature appears to assume a consistent, positive relationship between investment and regulatory instruments that increase policy stability. However, arguably there exist situations where policy flexibility is needed to lower risk or increase expected returns on investment, both of which would encourage long-term investment. Effective regulatory independence may reduce opportunism, but independence also limits politicians' abilities to respond to situations that may jeopardize the sustainability of the regulatory agency and elements of the regulatory system.

Managerial strategies for addressing regulatory risk remain important areas for research. The easiest way to mitigate risk is to avoid it, but alternatively, there are strategies for making incremental investments—gaining experience with the regulatory system and determining whether there is truly a national political consensus supporting private investments. Emmons has surveyed these strategies.²⁷ Henisz and Zelter²⁸ recommend that operators develop business models that are appropriate for the country's normal business practices, shape public opinion in favor of investment, develop relationships with policymakers and key domestic businesses, and avoid doing business

with governments that lack political checks and balances, have unclear authority, and weak regulatory institutions.

Finally, we turn to the importance of leadership as a set of skills that can bring festering issues to the fore, so they are resolved in a timely and structured fashion. Much has been learned about the institutional, economic, financial, legal, and political instruments of infrastructure policy, but much less is known about the human processes of making changes when they are needed and staying the course when short-term anxieties or specific interest groups are pressing for changes that are not in the country's long term interests. Research is needed to identify the leadership characteristics that contribute to regulatory success, facilitate policy champions, create and orchestrate dialogue, and identifying problems before they become the elephants in the room that no one wants to talk about. As Peter Drucker said, "The most important task of an organization's leader is to anticipate crisis.... To wait until crisis hits is abdication."²⁹

Endnotes:

¹ Witold Henisz and Bennet Zelner. 2004. "The Political Economy of Private Electricity: Provision in Southeast Asia," Reginald H. Jones Center for Management Policy, Strategy and Organization, University of Pennsylvania.

² Ada Karina Izaguirre, 2002, "Private Infrastructure: A Review of Projects with Private Participation, 1990-2001," Note No. 250, Washington, D.C.: The World Bank; Antonio Estache, 2005, "PPI Partnerships versus PPI Divorces in LDCs," World Bank Policy Research Paper 3470, Washington, D.C.: The World Bank.

³ Opportunism is said to occur when the government changes the rules affecting cost recovery after the utility has made irreversible investments.

⁴ Estache, Antonio and Maria Elena Pinglo, "Are Returns to Private Infrastructure in Developing Countries Consistent with Risks Since the Asian Crisis?" World Bank Policy Research Working Paper 3373, August 2004.

⁵ Brown, Ashley C., and Ericson De Paula. 2002. "Strengthening of the Institutional and Regulatory Structure of the Brazilian Power Sector." World Bank Report on the PPIAF Project for Brazil Power Sector, Task 4, Washington, D.C., The World Bank.

⁶ Olson's recent article reinforces these points. Wayne Olson (2005). "Secrecy and Utility Regulation," *Electricity Journal*, May, Vol. 18, Issue 4.

⁷ An indicator for telecommunications was developed by Luis H Gutiérrez "[Regulatory Governance in the Latin American Telecommunications Sector](#)," *Utilities Policy*, 11(4): 225-240, 2003

⁸ It has been applied to the penetration growth of telephone lines for numerous countries. See, W. Henisz and B. Zelner, "The Institutional Environment for Telecommunication Investment." *Journal of Economics & Management Strategy* 10.1 (2001).

⁹ Kaufmann, Daniel, Aart Kraay, Massimo Mastruzzi. Revised 2004. "Governance Matters III: Governance Indicators for 1996-2002," World Bank.

¹⁰ Barth, James, Cindy Lee, Don McCarthy, Triphon Phumiwasana, Sunny Zhitao Sui, and Glenn Yago. 2004. *Capital Access Index 2004: Emerging Growth in Asian Bond Markets*, Milken Institute. (Index; includes regulatory system indicators). Indicators for the index include 54 quantitative and qualitative variables, including various institutional governance and environment issues and corruption.

¹¹ Kurtzman, Joel, Glenn Yago and Triphon Phumiwasana. 2004. "The Global Costs of Opacity." *MIT Sloan Management Review* 46 (1): 38-44.

¹² For another look at the cost of capital, see Jaime Sabal, "The Discount Rate in Emerging Markets: A Guide," *Journal of Applied Corporate Finance*, Spring/Summer 2004, pp.155-165.

¹³ World Resources Institute, National Institute of Public Finance and Policy, and Prayas-Prune. 2005. *Electricity Governance Toolkit: Benchmarking Best Practices and Promoting Accountability in the Electricity Sector* (Pilot version).

¹⁴ Another study estimates the returns on investments of private investors in 34 Latin American infrastructure concessions. This study shows that the quality of regulation during privatization makes a difference and explains at least in part the variance of returns across concessions (bringing into alignment a company's rate of return and its cost of capital). Sirtaine, Sophie, Maria Elena Pinglo, J. Luis Guasch, and Vivien Foster. 2004. "How Profitable are Infrastructure Concessions in Latin America? Empirical Evidence and Regulatory Implications," Washington, D.C.: The World Bank.

¹⁵ Mary Hallward-Driemeier and David Stewart, 2004, "How Do Investment Climate Conditions Vary Across Countries, Regions, and Types of Firms?" Background paper prepared for the *World Development Report 2005: A Better Investment Climate for Everyone*. The focus here is on the perceptions of local entrepreneurs but utility investors ranked corruption highly as a constraint in the "East Asia & Pacific Private Investors in Infrastructure: Perception Survey."

¹⁶ Clarke, George R.G., and Lixin Colin Xu. 2004. "Privatization, Competition, and Corruption: How Characteristics of Bribe Takers and Payers Affect Bribes to Utilities." *Journal of Public Economics* 88: 2067-2097.

¹⁷ Mark A. Jamison, 2005, "Leadership and the Independent Regulator," Public Utility Research Center, University of Florida, Gainesville, Florida.

¹⁸ Michael B. Rosenzweig, Sarah P. Voll, and Carlos Pabon-Agudelo (2004). "Power Sector Reform: Experiences from the Road," *Electricity Journal*, November. 16-28.

¹⁹ Estache, Antonio, Vivien Foster, and Quentin Wodon. 2002. *Accounting for Poverty in Infrastructure Reform: Learning from Latin America's Experience*, Washington, D.C.: The World Bank.

²⁰ Approximately 50% of all concession contracts signed since the mid-1980s were ultimately renegotiated either by government or provider initiative. See Antonio Estache, 2005, "PPI Partnerships Versus PPI Divorces in LDCs." World Bank Policy Research Working Paper 3470, Washington, D.C.: The World Bank, at p. 1.

²¹ Estache, Antonio. 2005. "PPI Partnerships versus PPI Divorces in LDCs." World Bank Policy Research Working Paper 3470, Washington, D.C.: The World Bank.

²² Guasch, J. Luis, Jean-Jacques Laffont, and Stephane Straub. 2003. "Renegotiation of Concession Contracts in Latin America," Policy Research Working Paper No. 3011, Washington, D.C.: The World Bank.

²³ Another paper reviewed infrastructure projects that were canceled if one or more of the following events occurred before the end of the project's expected life, as determined in a contract or license: 1) the private company sold or transferred its economic interests in the project to the public sector, 2) the private company physically abandoned the project (such as withdrawing all staff from the project), and 3) the private company ceased to provide services to all customers or halted construction of the project for around 20 percent or more of the project's expected life following the revocation of a license or repudiation by the relevant contracting or licensing authorities. The authors recommend ensuring transparency in the award process, building public consensus for the reform, phasing in tariff increases, making judicious use of transitional subsidies, and being realistic in the user fee structure. Harris, Clive, John Hodges, Michael Schur, and Padmesh Shukla. 2003. "A Review of Canceled Private Projects." Note No. 252, Washington, D.C.: The World Bank.

²⁴ Correia da Silva, Luis, Antonio Estache, and Sakari Jarvela. 2004. "Is Debt Replacing Equity in Regulated Privatized Infrastructure in Developing Countries?" World Bank Policy Research Working Paper No. 3374, Washington, D.C.: The World Bank.

²⁵ Matsukawa, Tomoko, Robert Sheppard, and Joseph Wright. 2003. "Foreign Exchange Risk Mitigation for Power and Water Projects in Developing Countries." Energy and Mining Sector Board Discussion Paper No. 9, Washington, D.C.: The World Bank.

²⁶ Salinger, John J. 1999. "Guarantees and Insurance: Future Directions for Public Agencies." Preliminary draft presentation for conference, Private Infrastructure for Development: Confronting Political and Regulatory Risks; September 8-10, Rome, Italy.

²⁷ Willis Emmons (2000). *The Evolving Bargain: Strategic Implications of Deregulation and Privatization*, Boston: Harvard Business School Press, ix-259.

²⁸ Henisz, Witold, and Bennet Zelner. 2005. "Managing Political Risk in Infrastructure Investment," Reginald H. Jones Center for Management Policy, Strategy and Organization, University of Pennsylvania. See also, "Political Risk Management: A Strategic Perspective, in Theodore Moran, ed. *International Political Risk Management: the Brave New World*, Washington D.C., The World Bank Group (2003), pp. 154-170.

²⁹ Peter F. Drucker, 2004, *The Daily Drucker*, New York, NY: HarperCollins Publishers, Inc., p. 112.