GOVERNMENT PRIVATIZATION STRATEGIES IN EMERGING ECONOMIES: WHETHER TO GO SOME OR ALL OF THE WAY

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ABSTRACT

We investigate factors that contribute to governmental decisions to fully versus partially privatize state-owned infrastructure services. Drawing from financial economics and strategic management, we develop a model of the decision to partly or fully privatize a given state-owned asset. Using a proprietary database of telecommunications projects in emerging economies, we find that governments are more likely to fully privatize in countries with higher per capita income and lower existing telecommunications infrastructure penetration, and in countries that have made substantial international investment commitments. We also find full privatizations more prevalent in projects associated with local (versus national or international) phone service. The overall findings support a strategic choice perspective of governments' use of privatization as a vehicle to accelerate economic development in technology-intensive industries.

Key Words: Privatization, emerging economies, telecommunications

INTRODUCTION

There is increasing interest in governments as strategic actors, especially in relation to their competition for international investment (Lenway and Murtha 1994, Murtha and Lenway 1994, Porter 1990, Shaffer and Hillman 2000). One of the ways in which governments can exercise strategic choice is through decisions about how, where, and how fast to privatize (Zahra, Ireland, Gutierrez and Hitt, 2000, Ramamurti 2000). In telecommunications, electric power, water, and other sectors, developing countries are increasingly turning to private sector investors to help increase availability, improve access, and move toward market-based pricing of resources and services. In structuring the process of private ownership in previously state-owned or state-controlled infrastructure sectors, governments face a challenging range of options as they seek to balance political, social, and economic goals in determining the extent and pace of reform (Doh 2000).

Research in privatization in emerging markets has examined some of the issues

surrounding the governance and ownership of infrastructure projects, although much of the contemporary literature on privatization has overlooked the strategic choices governments face and the ownership structures that results from those choices. Most research has emanated from the economics and finance disciplines and has focused on governmental privatization transactions and the subsequent success or failure of these privatizations in achieving social or economic goals (e.g., Boubakri and Cosset 1998, Caves 1990, Dewenter and Malatesta 1997, Megginson, Nash and Van Randenborgh 1994, Perotti and Guney 1993, Vickers and Yarrow 1991, Yarrow 1986). While useful, this research has not focused on the range of strategic decisions facing governments as they consider various privatization options and the potential responses of investors to those alternate approaches.

Specifically, few researchers have examined the factors that contribute to decisions about whether to partly or fully privatize from the perspective of strategic management (Doh 2000). In particular, research related to the state's strategic efforts to accelerate economic development through the attraction of foreign investment in infrastructure is an area ripe for exploration and empirical testing. Such research could also have important normative implications for the strategies of private investors who seek to participate in these privatizations. We seek to inform this research by evaluating the choices governments in emerging markets make to partially versus fully privatize state-owned telecommunications firms.

We select emerging markets because it is here that governmental efforts to accelerate economic development through macro- and microeconomic restructuring are most acute. We focus on telecommunications because basic telecommunications service is a requisite addition to capital infrastructure necessary to allow emerging economies to accelerate their development. In addition, investment in telecommunications has been a particularly sensitive area for emerging economies but has recently led other infrastructure privatizations as the "flagship" sector for market opening and restructuring (Kambhato1998). Moreover, because telecommunications involves a greater potential for technology spillovers into the larger economy, the state's decision about how and how fast to privatize telecom has especially significant ramifications for economic development.

The present study seeks to extend existing research by applying theories and perspectives from management to the strategic choices governments face regarding privatization. We draw on theory from financial economics and strategic management to develop our model and frame our hypotheses, and we test the model using binomial logistic regression. In the next section, we develop the theoretical base for our model, and propose several hypotheses to explain the decision by governments whether to privatize a given asset partly or completely. The subsequent sections present the statistical methodology, the results of our analysis, and a discussion and of our findings, including implications for governments and investors, and recommendations for future research directions.

STRATEGIC CHOICE IN PRIVATIZATION: THEORY AND HYPOTHESES

There are a number of perspectives that can be brought to bear on the analyses of governmental decisions to privatize, and more specifically, on our focus on whether governments will choose to undertake a complete transfer of public assets to private hands, or a more limited, partial privatization. In this session, we outline several of these perspectives, drawing from literature in financial economics and strategic management.

Economic and Managerial Perspectives on Privatization

Most contemporary literature on privatization can be sourced to the economics and finance disciplines (e.g., Boubakri and Cosset 1998, Caves 1990, Dewenter and Malatesta 1997, Megginson, Nash and Van Randenborgh 1994, Perotti and Guney 1993, Vickers and Yarrow 1991, Yarrow 1986). Many of the economic studies have sought to determine the success of privatization as measured by efficiency and to a lesser extent by social welfare (Boubakri and Cosset 1998, Megginson, Nash and Van Randenborgh, 1994, Perotti and Guney 1993).

Perotti and Guney (1993) note that countries appear to undertake privatization in strategic sectors more slowly and tentatively than in other sectors, and that underpricing—the tendency of initial offerings to be priced lower than the subsequent market-adjusted value—is more severe in these industries. One of the most interesting findings of this research is that although underpricing does not seem to be systemic, initial returns in underdeveloped capital markets appear to exceed those of developed country markets. Put differently, "primitive capital markets and nascent government regulations may increase uncertainty about the intrinsic value of privatization offers" (Dewenter and Malatesta 1997, 1677). Hence, the combination of regulatory uncertainty and capital market constraints must compensate investors with higher initial returns.

A complementary set of perspectives has applied a strategic management approach to the nation-state itself. These researchers argue that countries — like companies —develop strategic planning approaches in regard to their economic future (Lenway and Murtha 1994, Murtha and Lenway 1994). In the competition for limited foreign capital, states adopt strategies to maximize the favorable impact of such investment (Porter 1990). States must therefore compete with one and other for limited investment by pursuing outward–oriented economic and trade policies to attract inward FDI, while trying to ensure that the local constituencies, including local firms, benefit from such investment. Ramamurti (1999) asks the question, why have developing countries not privatized faster and deeper? He speculates that bureaucratic interests, institutional constraints, and economic rigidities have slowed the pace of privatization. He also notes that privatization success is less common in low-income countries, and that certain sectors create regulatory complications (Ramamurti 1999).

As states consider privatization options, they face a strategic choice about how and how fast to open their domestic infrastructure industries to private, often foreign participation (Doh 2000, Ramamurti 2000, Zahra, Ireland, Gutierrez and Hitt 2000). In the past, researchers have concluded that environmental constraints and instability

in the general environment limit the range of choices decision-makers face (Aldrich 1979, Pfeffer and Salancik 1978). Dean and Sharfman (1996) suggest that the role of managerial choice is one of attempting to identify viable courses of action in the face of environmental constraints. Such limitations may be particularly acute in developing and transitions economies (Peng and Heath 1996).

In sum, the literature on privatization, and on the development strategies of emerging economies, suggest that economic, institutional, and sectoral factors all play a role in influencing decisions about how – and how fast – to undertake key reforms. These factors are presented below as they inform our specific hypotheses concerning governmental decisions about privatizations.

Macroeconomic and Institutional Infrastructure

Neoclassical economists have maintained that there is a positive relationship between open market economics and growth (Solow 1956, Swan 1956). Barriers to the free flow of information and transfer of technologies from developed to less developed economies have often been cited as among the most important explanations for the lack of convergence in growth performance among economies (Taylor 2000). Institutional economics places great emphasis on the macro-institutional environment for economic growth and the potential for institutional constraints to impede that growth (North 1986, 1993). Focusing specifically on privatization, DeCastro and Uhlenbruck (1997) examined differences between developed and developing country privatization programs and firm strategies. They found that privatization deals in less-developed and former communist countries were more likely to include post-privatization conditions than deals in developed countries, but no more likely than developed countries to impose job, local ownership, and other conditions.

These findings are consistent with the nascent capital markets view of Perotti and Guney (1993) and Dewenter and Malatesta (1997) who suggest that less developed countries are likely to privatize in stages or tranches because of capital markets constraints, and that privatization programs are likely to move most slowly in strategic or sensitive sectors, such as infrastructure. Echoing this view, Peng and Heath (1996) also suggest that developing and transition economies face inherent institutional constraints that limit their flexibility in terms of how aggressive they may undertake reform. Collectively, these findings would suggest that governments in less developed economies are more hesitant about opening up former state-owned firms completely to private investment, and more likely to retain residual government ownership and control in such firms. By contrast, governments in more advanced economies are expected to be less restrictive and more supportive of private participation and therefore more likely to completely privatize state-owned enterprises.

Hypothesis 1: Governments in countries featuring higher per capita income are more likely to opt for full (versus partial) privatizations.

Although we expect the propensity of governments to engage in full privatizations to be positively associated with the level of macroeconomic

development, in telecommunications, economic models suggest a convergence of countries with low existing penetration levels (few lines for a given population) with those that enjoy higher penetration levels because the marginal returns to infrastructure investment are higher in countries with low existing penetration. This occurs because investors have not yet penetrated the most lucrative service territories. Moreover, it is sometimes cheaper to deploy the most advanced technologies because of falling costs as technology matures, benefiting "follower" developing countries (Henisz 2000a). Further, telecommunications companies in leading countries may have also engaged in a "learning-by-doing" process that benefits firms in laggard countries (Henisz 2000b). Hence, because telecommunications infrastructure assets are long-lived, especially fixed wire-line technology, countries with low existing infrastructure stocks seek to "leapfrog" early adopters because they need not anticipate replacement of as much existing infrastructure, and they are generally less bound by prior complementary investments in old technologies (Antonelli 1993).

Empirical and theoretical research on state-firm relations in developing countries suggests that least developed countries are often most suspicious of private and foreign investment (Kobrin 1987, Vernon 1971). However, when capital and technology are in strong demand as a means to spur development, this suspicion may not only be only overcome, but the very least developed countries may be even more open to private and foreign investment than more developed countries (Lado and Vozikis 1996). Hence, because developing regions see advanced communications as a way to leapfrog stages of economic development, they may be inclined to overcome traditional suspicions about foreign investment because the most advanced technology will inevitably come from investors from more advanced countries (Engardio 1994). Moreover, in removing itself from direct ownership of SOEs by fully privatizing projects, states signal that they recognize that only through complete transfer of assets to private investors will they successfully engineer a strategic transformation of the SOE and gain the R&D spillovers associated with such investment (Hegazi and Safarian 1999).

Hence, somewhat offsetting the tendencies that government managers in wealthier economies will be more likely to fully privatize, we assert that independent of the relative state of overall wealth, within countries that lag in terms of existing telephone penetration rates, government managers will be inclined to fully (versus partially) privatize.

> Hypothesis 2: Governments in countries featuring lower per capita existing telephone infrastructure are more likely to opt for full (versus partial) privatizations.

A number of researchers have examined the relationships between trade policy and foreign investment attractiveness in general, and the impact of tariffs and other import restrictions on inward FDI, in particular (Caves 1996, Dunning 1993). On balance, liberal trade regimes generate both domestic and foreign direct investment, as well as improve general welfare (Caves 1996). Recent research has suggested that

international trade and FDI are highly correlated (Brainard 1997; Grosse and Trevino 1996) and that an open trade regime draws FDI (Taylor 2000).

Foreign direct investment (FDI) may be more important to a country's growth than domestic investment, since investment by multinationals includes the potential for upgrading technology and FDI generates substantial technology spillovers that contribute to domestic productivity improvement (Lado and Vozikis 1996, Hegazi and Safarian 1999). Whether FDI is substitute or a complement in serving local markets, researchers have generally agreed that open countries attract more investment than closed ones (Taylor 2000). One of the ways in which states signal to investors their commitment to market reform and a positive business climate is through unilateral, regional, plurilateral, and multilateral trade liberalization. This strategic choice can be operationalized by measuring specific commitments made by states in investment agreements. Hence, where government policy makers have indicated that they are committed to liberalizing the overall investment environment, they will signal that commitment in the form of specific liberalization commitments.

Hypothesis 3: Governments in countries that have made more substantial international investment commitments are more likely to opt for full (versus partial) privatizations.

Industry and Service Factors

Research in development economics, business-government bargaining, and MNC-host government relations suggests that governments are particularly sensitive about opening critical infrastructure sectors (Kobrin 1987, Vernon 1971, Swan 1956). Practitioner research in privatization and foreign investment in infrastructure supports the view that governments are most sensitive about opening these sectors (Durschlag, Puri and Rao 1994; Wells and Gleason 1995), although investing firms are gaining power in determining the specific terms of the project structure (Strange, 1994, 1996, Stopford and Strange 1991).

The privatization literature (e.g., Dewenter and Malatesta 1997, Durschlag, Puri and Rao 1994, Perotti and Guney 1993, Wells and Gleason 1995), literature on MNC-host government bargaining (Kobrin 1987, Stopford and Strange 1991; Strange 1994 1996; Vernon 1971), and experience with the WTO telecom negotiations (WTO, 1999), suggest that host governments will seek to restrict private and foreign participation in industries that are the most sensitive sectors. Because of its history as a natural monopoly service, universally provided to many citizens, local service is more sensitive than international and long distances service. Privatization and the subsequent "unbundling" of the local loop (the process in which an operator makes its cables which run from customer sites to a telephone exchange available to other companies) would appear to be among the most sensitive of privatization initiatives, while the privatization of long distance, often geared more to business customers, would be less sensitive. Hence, we argue that full privatizations are more likely to occur for projects directed toward national and international service, while projects focused on local service will be more apt to be partially privatized.

Hypothesis 4: Full privatizations are associated with projects that are primarily directed toward national and long distance telephone service (versus local service).

RESEARCH SETTING, DATA SET, AND FINDINGS

In order to test the hypotheses described here, we constructed a comprehensive dataset of international telecommunications privatization projects. First, we acquired a data set of telecommunications projects in developing countries drawn from the World Bank's Private Participation in Infrastructure (PPI) Database (See Appendix). We selected the privatization projects from this database. We gathered extensive data from various secondary sources to supplement the PPI data. Archival data was drawn from the World Bank World Development Indicators report (1997-1999). These data were gathered to assemble a comprehensive but parsimonious range of indicators at the country and project level to inform the research questions posed in this study.

Measures

In this manuscript, we use a multi-level approach. Hence, we have selected country, industry, and firm-level variables to test the proposed relationships. This multi-level approach has been advocated as a particularly appropriate framework for testing international business phenomenon (Klein, Tosi and Cannella 1999; Kostova 1999). Table 1 presents descriptive statistics and Pearson correlation coefficients for these variables.

Table 1: Descriptive Statistics and Pearson Correlation Coefficients

	VARIABLE	MIN	MAX	MEAN	S.D.	1	2	3	4	5
1	Project Size	1	22996	1383.77	2939.59					
2	GNP per capita	160	9125	3353.83	2152.00	.217*				
3	Telecom infrastructure	2	430	141.88	99.41	-.024	.648**			
4	WTO telecom commitments	0	17	10.99	6.61	.162	.483**	.258**		
5	Service Line	0	1	.59	.49	.239*	-.134	-.167	-.144	
6	Mode of Entry	0	1	.62	.49	-.152	-.468	-.138	-.544**	.403

* p < .05,   ** p < .01

GNP Per Capita

Information has been gathered to measure general economic development of the developing countries in the database. Data on GNP per capita for each country was drawn from the World Bank's *World Development Indicators* (1997-1999). The bulk of the projects were grouped in the 1996-1998 period, and we lagged the GNP variable by one year to account for the forward-planning of government policy makers in approaching privatization strategies. The distribution of GNP per capita data ranges from approximately $160 per year to nearly $10,000 per year and did not vary considerably from year to year. Although some researchers prefer GDP as a more

valid measure of country-level economic output, we selected GNP because figures were available for all of the 96 developing countries, whereas GDP data was not.

Telecommunications Infrastructure (Phone Lines Per Capita)
Information on the level of telecommunications infrastructure (1997-1999 data) was gathered from the *World Development Indicators* report using phone lines per capita ('000) as a more precise macroeconomic measure of development relevant to the telecommunications industry. The number of phone lines per capita in these countries ranges from 2 to 430 for every thousand population. We also lagged the telecom infrastructure variable by one year.

Investment Policy
In order to measure more precise macro-institutional factors, specifically, the institutional environment for investment, we gathered information on the relative investment liberalization of the countries represented in the database. The WTO telecom commitment schedule measures the number of sectors in which a country has made a market liberalization commitment under the WTO telecom agreement negotiated in 1995 and 1996 and finalized in 1997 (WTO 1999). The number of specific sectoral telecommunications commitments made by countries in this sample range from 0 to 17.

Segment/Service
Industry factors are measured by classifying telecom infrastructure projects by service segment. Service options include: Local (0), National (1), International (2). Analysis of the dynamics of recent telecommunications liberalization programs (See Kambhato 1998; WTO 1999) suggest that local service is the most established and sensitive to market opening of the range of telephone services. No clear distinction can be drawn in terms of service sensitivity between national and international service. Hence, this variable is used as a dummy variable – if projects include only local service, a (0) is recorded, if they include national and/or an international service, a (1) is recorded.

Partial versus Full Privatizations
Our dependent variable captures all of divestiture acquisition projects, with (0) representing full privatization, and (1) representing partial privatization. Although limited information was available for some of the projects regarding the specific percentage privatized, we believed that differences between percentages, even those representing minority versus majority control privatizations, would not necessarily capture the more fundamental decisions about whether to open up all the way, versus partially. As can be shown in the results, we also had considerable variation within the sample.

Project Size
We control for project size as a standard approach to minimizing effects of size and scale. We expect the size of the project to be positively related to partial privatizations

because of the capital market constraint phenomenon described by Perotti and Guney (1993) and Dewenter and Malatesta (1997). We also tested for country and region effects using regional dummy variables and found no statistically significant results. We did not include these variables in our model because we sought to maintain a parsimonious model and to preserve statistical power.

Methods

We use binomial logistic regression, a form of regression that is appropriate when the dependent is a dichotomy and the independents are interval variables, categorical variables, or both. Logistic regression applies maximum likelihood estimation after transforming the dependent variables into a logit variable (the natural log of the odds of the dependent occurring or not) (Tabachnick and Fidell 1996). Linear probability models are similar to multiple regression and produce output that can be roughly compared to multiple regression (e.g., beta coefficients for each independent variable, significance levels, and a form of R^2 that is similar to the R^2 in OLS analysis) (Tabachnick and Fidell 1996). The Cox and Snell R^2 is based on the log likelihood for the model compared to the log likelihood for a baseline model. The Nagelkerke R^2 is an adjusted version of the Cox and Snell R^2. The Cox and Snell R^2 has a maximum value of less than 1, even for a "perfect" model. The Nagelkerke R^2 adjusts the scale of the statistic to cover the full range from 0 to 1.

Unlike OLS regression, however, logistic regression does not assume linearity of the relationship between the independent variables and the dependent, does not require normally distributed variables, and does not assume homoscedasticity. The success of the logistic regression can be evaluated by examining the classification table, the overall chi square significance of the model, and the R^2 like statistic (Tabachnick and Fidell 1996). The Wald statistic is commonly used to test the null hypothesis in logistic regression that a particular LOGIT (effect) coefficient is zero. It should be noted that in logistic regression, beta coefficients are not standardized and therefore cannot be interpreted as representing the relative strength of the contribution of each independent variable to variation in the dependent variable (Tabachnick and Fidell 1996). Hence, we report the Wald statistic and accompanying significance level.

We used a hierarchical regression modeling approach. In Model 1, we included only the control, GDP per capita and telecommunications infrastructure variables. In Model 2, we added the investment liberalization variable. In model 3, we added the line-of-service variable.

Results

We hypothesized that the tendency of a government to opt for full versus partial privatization is positively associated with country development level, negatively associated with existing telecommunications infrastructure, positively associated with international investment commitments, and positively associated with national and long distance (versus local) telephone service.

Table 2 presents the results of the binomial logistic regression analysis. In Model 1, we evaluated only the contribution of control, GNP per capita, and existing

telecommunications infrastructure variables. The overall model is significant (p < .001) with 76.9 percent of the cases accurately classified, a robust result for logistic regression results (Tabachnick and Fidell, 1996). The Cox and Snell R^2 is .255 and the Nagelkerke R^2 is .346. The project size variable is not significant, while both the GNP per capita (p < .001) and existing telecommunications infrastructure variable (p < .05) are significant and in the hypothesized direction. Partial privatizations are negatively associated with higher per capita GNP (full privatizations are positively associated with higher GNP) and positively associated with higher telecommunications infrastructure (full privatizations are positively associated with lower existing telecommunications infrastructure).

Table 2: Results of Hierarchical Binomial Logistic Regression Analysis[a]

Hypothesis	Variable	Expected Sign	Model 1	Model 2	Model 3
Constant			14.28***	14.75***	6.22†
Control	Project size	+	0.00	0.184	0.48
1	GNP per capita	-	-16.67***	-9.85**	-8.50**
2	Telecom infrastructure	+	4.34*	7.14**	7.17**
3	WTO telecom commitments	-		-11.39***	-8.25**
4	Services	-			11.11**
	Overall Classification Rate %		76.9	79.1	91.2
	Cox and Snell R^2		0.255	0.417	0.495
	Change in R^2 from Model 1			0.162	0.240
	Nagelkerke R^2		0.346	0.566	0.673
	Change in R^2 from Model 1		.	0.220	0.327
	Hosmer and Lemeshow Test (F)		28.146***	18.12**	8.219**
	N		91	91	91

a. Table shows Wald statistic, sign, and significance level for each variable. Tests are one-tailed.
† p < .10,   * p < .05,   ** p < .01,   *** p < .001

In the second model, the addition of the investment commitment variable improves the classification accuracy to 79.1 percent. The Cox and Snell R^2 is 0.417 while the Nagelkerke R^2 is 0.566, improvements over Model 1 of 0.162 and 0.220, respectively. WTO telecommunications commitments are negatively associated with partial privatizations (p < .001) and positively associated with full privatizations, a result consistent with Hypothesis 3.

In Model 3, we included the line of service variable in the equation. The addition of this variable improves the overall classification rate to an impressive 91.2 percent. The Cox and Snell R^2 rises to 0.495 and the Nagelkerke R^2 to 0.673, improvements over Model 1 of 0.240 and 0.327, respectively. The sign for the line of service variable, however, is in the opposite direction than expected. Partial privatizations are positively associated with national and long distance (p < .01) while full privatizations positively

associated with local service projects, a result inconsistent with hypothesis 4.

DISCUSSION AND IMPLICATIONS

The results of this research present a number of implications for government policy-makers, private investors, and project developers. In particular, these results present interesting explanatory observations related to government privatization strategy and normative implications for investors seeking to participate in those privatizations.

Implications for Government Policy

This research suggests that governments are strategic actors and exhibit strategic choices analogous to private corporations. In this study, we focused on an important set of choices regarding whether to completely open state-owned projects to private investment or to partly privatize such assets and in so doing, retain a measure of state control. We found that macro-institutional, investment policy, and line of services variables are important determinants of these policy options. Not surprisingly, more advanced economies are more likely to fully privatize. However, another measure of macro-institutional development specific to telecommunications – the level of existing telecommunications infrastructure – is associated with privatization, but in the opposite direction from the GNP per capita variable. Governments in countries featuring lower existing telecommunications infrastructure are more inclined to fully privatize. We assert that they do so as part of a strategic decision to accelerate their development progress by providing investors with majority control in return for the critical technology-intensive investment that have been demonstrated to bring important spillover benefits to the overall economy (Lado and Vozikis 1996, Hegazi and Safarian 1999).

Governments signal their commitment to welcoming foreign telecommunications investment by joining international telecommunications investment agreements. We find that these same governments are more likely to honor these commitments by fully privatizing their state-owned assets and allowing private investors to undertake the necessary strategic transformation of such assets in order to render them more efficient.

Contrary to our expectations, governments are more likely to fully-privatize assets associated with local telephone services, a line of services we hypothesized to be more prone to governmental sensitivities over private and foreign ownership. One explanation of this result is that like countries facing overall telecommunications infrastructure deficits, countries that face the most severe challenges in local service must cede greater control to investors in order to correct those deficiencies and do so in a way that will bring the highest level of investment and most advanced technology available, namely full privatization. The results reported here suggest that governments use their approach to privatization as a strategy to selectively encourage investment in their former state-owned firms. Most importantly, governments in more advanced economies and those with telecommunications infrastructure deficits are more likely to privatize fully and cede all shares of the assets to private investors.

The Multi-Staged Nature of Privatization

In examining a series of privatization from our dataset, it appears as if many governments begin the privatization process with partial privatizations, and subsequently take a more aggressive approach to complete privatizations of individual assets, or in some cases, an entire industry. As a number of researchers have noted, many privatizations are conducted in multiple stages, partly because of domestic capital markets constraints (Dewenter and Malatesta 1997; Perotti and Guney 1993) and learning curve effects. For example, the privatization of Compania Anonima Nacional Telefonos de Venezuela (CANTV), the state-owned Venezuelan telecom operator, included a series of four separate transactions, followed by a series of specific commitments on the part of the newly privatized operator.

As suggested by Doh (2000), in the case of telecommunications, privatization often includes an initial sale of the state-owned or controlled monopoly followed by market liberalization in which other investors are permitted to participate selectively in the newly privatized industry (Kambhato 1998). For example, in December 1990, the Mexican government accepted a $1.757 billion bid for a minority but controlling interest in Telefonos de Mexico (Telmex), and later, opened the long distance market to competition. In Brazil, the government privatized the long distance and local service concessions, and then established "mirror" concessions (one each to compete against the incumbent firms), and this particular structure may have influenced the initial privatization decision. Other projects, such as the SPT privatization in the Czech Republic and the Svyazinvest privatization in Russia show similar approaches.

Implications for Private Investors and Developers

For investors seeking to participate in privatizations, it is important to recognize that developing countries provide differing approaches to privatization that may favor some types of investment strategies over others. For those firms seeking complete ownership and control over the investment project, the most advanced economies are the most suitable investment targets. However, if these countries already have relatively higher levels of existing telecommunications infrastructure, they will be less apt to provide a full transfer of state assets to private hands. Conversely, those countries that have telecom infrastructure deficits are more likely to privatize fully and to provide private investors with complete ownership and control. Some investing firms may not seek this level of control and risk, and may prefer to work in countries and with governments that will remain partners in the partly privatized SOE.

Investing firms can get a sense of the likelihood that governments will privatize fully by examining those countries' multilateral telecommunications commitments, obligations that provide an important signal of the government's willingness to turn over all of a given set of state assets to private parties. Because firms that retain state-ownership may also retain the bureaucratic, risk-minimizing orientations of their previous governance as government-dominated enterprises (Wright, Hoskisson, Busenitz and Dial 2000), investors may want to predict in which jurisdictions the likelihood of full versus partial privatization is greatest.

Limitations

This research focuses on private participation in developing country infrastructure, specifically, the telecommunications industry. Certain limitations and delimitations result directly from the way in which the research questions are framed and the scope of the research is defined. First, the methodological scope of this study deliberately excludes private participation in infrastructure in developed country markets. In the past, researchers have examined questions and charted relationships between developed and developing countries. In this study, we have sought to examine differences *within* the developing country classification. Because many developed countries have encouraged private participation in infrastructure for many years, the exclusion of developed country projects may result in conclusions that overestimate the importance of the environment of host countries. However, in the past 10 years it is in developing countries where the most dynamic privatization is taking place, reversing long historical prohibitions or severe limitations to private investment in infrastructure industries. Moreover, we found considerable variation in terms of per capita income and existing telecommunications penetration within this developing country category (See Table 1).

The focus on telecommunications may constitute an additional limitation and delimitation. This limitation is somewhat offset by the fact that there is considerable variation within the telecommunication industry. Moreover, the industry is the largest in terms of emerging markets infrastructure investment (World Bank 1999), and is viewed as the early pioneer in the sequential liberalization of traditional infrastructure industries (Kambhato 1998). As noted in the introduction, privatization of telecommunications industries may have particularly powerful implications for national economic strategies, and this is likely one reason why telecom industries are the early pioneers in a process that is just beginning to affect electric power, transport, and other infrastructure industries. Nonetheless, generalizations about telecom many not be applicable to other industries such as power and water that are only now undergoing the sort of privatization that has taken place in telecommunications for decades.

The measure of whether states fully or partly privatize is by definition a crude one. In some instances, partial privatizations may still convey high levels of ownership control rights over assets, while full privatization may come with conditions and requirements that constrain the plans of the investing firms. In addition, as noted above, many privatizations take place in stages. Although the evaluation of the initial choices by governments is a relevant measure of their willingness to open up to foreign investment, subsequent privatization steps are also an important factor in determining the overall propensity of the governments in question to reform and restructure their economic strategies. Within these project structures, ownership influence as measured by initial decisions to fully versus partially privatizations constitutes the most relevant and useful measure of the control over project management and the willingness of the state to open the gates to private investment or continue to restrict investment. In addition, some of our explanatory variables were highly correlated, and although we used a hierarchical regression technique in order to

properly attribute variation to our individual predictors, the attribution of explanatory power to any one variable should be interpreted cautiously.

CONCLUSIONS AND SUGGESTIONS FOR FUTURE RESEARCH

The powerful forces set in motion by the introduction of private participation in newly developed infrastructure industries stimulates a series of pressures on countries, industries, and investing firms regarding the ownership and governance of these projects. In this article, we have isolated variables at several levels of analysis that to drive the decisions by governments over whether to open the previously state-owned assets more fully or only partially to private investors.

Future research focusing on comparisons of privatization between developed and developing countries, and between specific regions, would be an additional enhancement to the research presented here. Some limited work has been undertaken to compare privatization from the government policy perspective among developed and developing countries (Boubakri and Cosset 1998), but no studies have included a comparison of characteristics of the broader phenomena of privatization in infrastructure between developed and developing country settings. This would be one fruitful direction for future research.

Extension of the models and application to other industries such as power, water, and transport would also add value. Moreover, comparisons between and among sectors would be an interesting research direction. Within partial privatizations, there is undoubtedly variation. Research could evaluate the "strategic fit" between state and investing firm to predict the anticipated benefits of merger to the strategy of the acquirer based on the congruence or complementarity of the assets and operations of the merging firms (Chatterjee 1986, Uhlenbruck and DeCastro 1998, 2000).

Privatization in developing country infrastructure is one of the most fascinating and still relatively unexamined areas of research in strategic management and international business. In this paper, we have attempted to make a contribution to the existing research record by examining the strategic approaches by governments to privatization using previously unavailable data and linking and integrating literature, empirical approaches, and practical assumptions. Only through continued theoretical and empirical exploration can we more fully explain patterns of privatization in developing country infrastructure, and use those efforts to better inform both public and private managerial theory and practice.

APPENDIX: DESCRIPTION OF PRIVATE PARTICIPATION IN INFRASTRUCTURE DATABASE[1]

Database Coverage

The database includes projects that have reached financial closure and directly or indirectly serve the public. Projects are in the water, transport, electricity, telecommunications, and natural gas sectors. The telecommunications sector includes local, national, and international phone services and mobile phone services. Other services (Internet, paging, trunking, and value added services) and private networks are excluded. The projects are located in 96 low- and middle-income developing countries, as defined and classified by the World Bank.

Definition of Private Participation

The private company must assume operating risk during the operating period or development and operating risk during the contract period. A foreign state-owned firm is considered a private entity.

Definition of a Project Unit

A corporate entity created to operate infrastructure facilities is considered a project. When two or more physical facilities are operated by the corporate entity, all are considered as one project.

Divestiture

A private consortium buys an equity stake in a state-owned enterprise. In this sample, 91 projects from 47 developing counties are included. All projects reached closure during the period 1990-1998.

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