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PRIVATIZING TELECOMS AND RESIDUAL STATE INFLUENCE ON FINANCIAL PERFORMANCE*

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Abstract

We test competing theoretical perspectives explaining likely shareholder returns from material investment decisions announced by privatizing telecommunications firms (“telecoms”) with varying levels of residual state ownership. A “principal-agent” perspective suggests that decrease in residual state ownership in privatizing telecoms leads to more positive shareholder returns. Over time, this effect increases. An alternative “credible” privatization perspective suggests that retention of substantial (though not controlling) residual state ownership leads to more positive shareholder returns, but only in the short run. Over time this ownership effect fades quickly. We examine empirical support for these competing perspectives with an event study analyzing cumulative abnormal shareholder returns (“CARs”) associated with 199 major investments announced from 1986-2001 by 15 privatizing telecoms domiciled in industrialized and emerging-market countries. In line with the principal-agent perspective, we find that residual state ownership is negatively related to CARs for telecoms from industrialized countries. Emerging-market telecoms may, however, may exhibit a negative curvilinear trend between CARs and residual state ownership more in line with the credible perspective. Also in line with the credible perspective, we find a negative relationship between CARs and time since initial privatization for telecoms from emerging markets. The influence of residual state factors on privatizing enterprise performance is significant but sometimes contrasting in industrialized versus emerging-market settings. The credible perspective may merit closer attention among researchers and policy-makers interested in the privatizing enterprise management and investment, particularly in emerging markets.

Keywords: privatization, ownership, performance, emerging markets.

JEL Codes: L32, L33, L96, L21

INTRODUCTION

This study examines the impact of residual state ownership factors on shareholder returns associated with investment decisions announced between 1986 and 2001 by privatizing telecommunications enterprises (“telecoms”) located in industrialized and emerging-market countries. In the process, this study provides a test of empirical support for two competing privatization theories (Boycko *et al.*, 1996; Perotti, 1995) predicting different links between residual state ownership and the financial performance of telecoms in transition from state agencies to private for-profit firms. As scholars in management and international business (*AMR*, 2000), finance and economics (Megginson and Netter, 2001), law (Coffee, 1999), public policy (Guislain, 1997), and elsewhere point out, the last two decades of the 20th century witnessed the transfer of thousands of enterprises, millions of employees and billions of dollars in enterprise value from state to private hands globally.¹ Boutchkova and Megginson (2000) and Bortolotti *et al.* (2002) remind us that telecoms figured prominently in this trend for several reasons, including their relative (to many other state-owned enterprises) operating inefficiency in public hands, and their ability to generate substantial government revenues, promote international trade policies related to trade liberalization (WTO), deepen domestic equity markets, and attract technology investment through their privatization.

How have these telecoms performed during the transition from state to private ownership and control? Recent reviews of the privatization literature by Megginson and Netter (2001) note a well-developed empirical research on post-privatization operating (accounting) returns and financial (share returns) performance of privatizing enterprises in cross-country and individual country samples drawn from both industrialized and emerging-market contexts. While not uniform, these studies generally uncover evidence of higher returns of both types after privatization. Once the sample of privatizing enterprises is limited to the telecom sector, the number of studies decreases considerably, with Bortolotti *et al.* (2002) providing the most recent review of this literature as

¹ In the 1980s and 1990s, for example, governments worldwide sold more than 1300 major enterprises with assets worth nearly \$1 trillion. 30 of the 24 largest public share offerings in the 1990’s were privatizations (Megginson and Netter 2001; Dyck 2001; Megginson, 2002). Non-industrialized “emerging-market” countries seem to be increasingly affected by this trend. By the end of 1996, for example, revenues from the privatization of state-owned assets in non-OECD countries accounted for approximately 22% of total privatization revenues, up from 17% in 1990 (*Economist* 1997).

well as the most recent cross-country study of post-privatization telecom performance patterns.² They analyze privatizing telecoms operating from 1981-1998 in 25 different industrialized and emerging-market countries, and observe positive, long-term performance trends. Yet, they uncover no significant link between the specific level of state ownership in these privatizing telecoms and their year-to-year operating performance measured as return on assets, sales and or equity.

These results seem inconsistent with empirical predictions derived from at least two privatization theories concerned specifically with privatizing enterprise performance and residual state ownership. What we call a “principal-agent” theory of privatization developed by Boycko *et al.* (1996) predicts that decreasing state ownership in privatizing enterprises should lead to higher returns, since less state ownership aligns more closely management’s incentives with those of profit-maximizing private shareholders. This alignment improves over time, thus the passage of time from initial privatization is also positively associated with these shareholder reactions. On the other hand, a less well-known “credible” privatization perspective developed by Perotti (1995) predicts a quite different set of relationships. Retention of substantial state equity in privatizing enterprises should lead to more positive shareholder reactions to firm investment decisions, since substantial state equity signals to private shareholders the state’s willingness to intervene in markets on the enterprise’s behalf. This signal, however, loses credibility over time as governments and or policy priorities change. Thus, the passage of time from initial privatization is negatively associated with performance.

When the only cross-country empirical study of privatizing telecom performance published to date finds specific support for neither set of theoretical predictions regarding the performance impact of residual state ownership over time, it leaves researchers to ponder either the appropriateness of these competing theories for telecoms, or more probably, the potential for refining empirical methods to afford an alternative test of the performance impact of residual state ownership. Attempts at such refinement matter for academic research specifically in telecoms privatization and the assessment of residual state-related factors. Recent conceptual work by Ramamurti (2000) on enterprise-, industry- and country-level reforms typically driving the performance of

² Bortolotti *et al.* (2002) cite 13 empirical studies on the telecom privatization and performance since 1990, but only one published study (Ramamurti, 1996) examining links between privatization and enterprise (rather than industry- or economy-wide) performance measures. It concludes positive links between telecom privatization and subsequent telecom enterprise performance.

privatizing enterprises would benefit from a better understanding of the performance contributions linked specifically to residual state ownership. Similarly, a better understanding of the privatizing telecom performance investors might expect as state ownership decreases would complement Ramamurti's (2001; 2003) broader analysis of state privatization policy commitments and their credibility among investors. Research insights from an alternatively structured empirical study has potential prescriptive implications for other telecom stakeholders seeking to manage, invest in, and regulate these privatizing enterprises prudently during their transition.

Understanding the positive, negative or null performance impact of residual state ownership in privatizing telecoms will also add to a small, emerging empirical literature on the enterprise performance impact of partial privatization (Comstock *et al.*, 2003; Gupta, 2005). With a sample of 40 firms from assorted industries sold off in 5 different countries during the 1980s and 1990s, Comstock *et al.* (2003) find indirect evidence of residual state ownership effects on long-term financial performance. Long-term (5-year) cumulative abnormal shareholder returns are negative for the privatized firms, but less so as the size of the initial share offering increases. With a sample of more than 300 manufacturing and services firms partially privatized in India during from 1990-2002, Gupta (2005) finds that operating returns increase as the level of state ownership decreases from total to partial but still controlling blocs.³ These initial pieces of evidence, consistent with the principal-agent view, provide only a starting point for understanding the puzzle of residual state ownership in privatizing enterprises. Practitioners as well as academic researchers dealing with privatization issues have ample incentives to explore alternative empirical contexts and methods designed to such as telecoms (Zahra *et al.*, 2000; DeCastro and Uhlenbruck, 1997).

We respond to these incentives with an alternative empirical study based on an event study method. We analyze cumulative abnormal share returns ("CARs") associated with 199 major investments announced from 1986-2001 by 15 privatizing telecoms domiciled in industrialized and emerging-market countries. Using parametric (regression) and non-parametric analyses, we assess relationships between CARs associated with these

³ Such findings might also complement recent findings about determinants of state ownership in specific investment projects involving telecommunications firms (Doh *et al.*, 2004). They find that telecommunications investment projects in a cross-section of emerging-market countries tend to have greater state ownership where existing telecommunications infrastructure levels, state ownership in foreign investing firms and or project technological sophistication are high. At very low or very high (but not mid-range) investment policy hazard levels, state ownership in such projects is also higher. These results suggest that subsequent project returns in such circumstances may benefit from some level of partial state ownership.

announcements and residual state factors highlighted above in the principle-agent and credible privatization theories. This empirical approach has at least three potential advantages over previous approaches, most notably those taken in Bortolotti *et al.* (2002), Comstock *et al.* (2003) and Gupta (2005). First, it utilizes a single industry sample of privatizing telecoms rather than a broad sample of firms from many industries. This permits us to control more easily for many industry-specific factors that can affect privatizing enterprise performance, particularly industry-specific regulatory factors. We can more sharply focus on residual state ownership factors driving performance. Second, it assesses the impact of residual state ownership in terms of financial returns to shareholders specifically, rather than in terms of accounting returns theoretically controlled by shareholders but often actually controlled by top managers. Third, it assesses the impact of residual state ownership in the context of specific major investment announcements such as announced acquisitions, mergers, joint ventures, and strategic alliances. These refinements permit more fine-grained analysis of the impact of residual state factors shaping telecom performance for specific telecoms from different country settings engaged in different types of investments at different stages of transition from state agency to privately held, for-profit firm.

In brief, results from analysis of these privatizing telecom CARs reveal some support for each of the two theoretical perspectives, though support for the credible perspective in the case of emerging-market telecoms is substantially more compelling. In line with the principle-agent perspective, we find that state ownership is negatively related to CARs for telecoms from industrialized economies. Telecoms from emerging-market countries also exhibit a negative linear relationship between level of residual state ownership and shareholder returns associated with major investment announcements. Closer examination, however, indicates a curvilinear rather than linear relationship. At low to moderate levels of state ownership (< 30%), we observe a positive relationship between shareholder returns and the percentage of residual state ownership. At moderate to higher levels of state ownership (> 30%), the relationship turns negative. CARs from investment events go down as state ownership increases. Also in line with the credible perspective, we find a negative relationship between CARs and time since initial privatization for telecoms from emerging-market countries. Together, these results suggest that the influence of residual state ownership on privatizing enterprise performance is significant but sometimes contrasting in industrialized versus emerging-market settings. Also, these results suggest that a less intuitive

though perhaps better-supported credible privatization perspective may merit closer attention among international business researchers and practitioners interested in understanding the effectiveness of telecom privatization strategies and policies, particularly in emerging markets.

To make these and other points in detail, the remainder of this study is organized into five additional sections. Section 2 immediately below provides more detailed exposition of principle-agent and credible privatization perspectives linking residual state ownership to privatizing enterprise behavior and performance. Section 3 articulates contrasting principal-agent and credible privatization hypotheses for empirical investigation of this link in the context of investment announcements made by privatizing telecoms generally, and by those located in emerging-market countries. Section 4 details the methods used to test these hypotheses, including equations, specific test statistics, estimation approaches, data sources and sampling. Section 5 reports the results from descriptive and regression analyses of the sample. Section 6 concludes the study with discussion of the central results, research and practice implications, and future research directions related to privatization management and policy.

RESEARCH BACKGROUND

A Principal-Agent Privatization Perspective

While the privatization phenomenon may trace its roots back as far as West Germany and its industry denationalization program of the early 1960s, most empirical work on the behavior and performance of privatizing enterprises, including telecoms, has its origins in the 1980s. Almost as soon as privatization policies in the early 1980s were implemented in the UK and elsewhere, researchers sought to understand whether and why privatized enterprises performed differently. In the research that followed, at least two theoretical streams developed. We describe them as principal-agent (Boycko *et al.*, 1996) and credible (Perotti, 1995) privatization theories. Early research by Caves and Christenson (1981) in Canada, Yarrow (1986) and Vickers and Yarrow (1988) in the UK, and Galal *et al.* (1994) in a range of industrialized and emerging-market countries suggested that privatized enterprises were not necessarily more efficient than their publicly-owned counterparts. But this work was followed in the 1990s by the steady flow of empirical research published by William Megginson and his

collaborators (Megginson *et al.* 1994; D'Souza and Megginson, 1999; Jones *et al.*, 1999) and others (*e.g.*, Boubakri and Cosset, 1998) establishing for a range of countries, industries and specific enterprises that shifts from state to private ownership followed by decreasing state-owned equity were associated with superior operating, financial and or economic performance (*e.g.*, employee productivity) levels over time.⁴

Boycko *et al.*'s (1996) theory of privatization draws heavily on these observed links between change in enterprise ownership, governance structure and performance. These changes are justified in terms of the re-alignment of enterprise stakeholder incentives, particularly the incentives of enterprise owners (principals) and enterprise managers (agents) (Jensen and Meckling 1976). Boycko *et al.* (1996) contend that private ownership immediately provides strong incentives for managers to innovate new products and markets and create value for the firm and its shareholders. Where managers and the directorial boards overseeing them fail in this mission, wealth-maximizing shareholders can replace them. And where shareholders fail the market for corporate control will lead to a transfer of shares to more vigilant holders willing to pay more. Timely, substantial post-privatization turnover in management and directors, as well as enhanced employee productivity and firm performance are consistent with this principal-agent perspective.

This principal-agent perspective has clear predictive implications concerning the link between residual state-ownership and privatizing enterprise behavior and performance over time. As Cuervo and Villalonga (2000) suggest, the principal-agent challenge in the privatizing enterprise is exacerbated by a second "public choice" issue. Privatizing enterprises with continued state ownership are predicted to be poorer performers because politicians can use ownership rights to impose objectives consistent with their own political goals, but inconsistent with enterprise efficiency (Buchanan, 1972). The threat of removing such politicians at election time provides at best only a partial response to the public choice issue, particularly if conniving politicians are supported by enterprise stakeholders, like trade unions, with their own rent-seeking designs and substantial electoral influence. A more effective response to the public choice issue is rapid reduction and elimination of residual state ownership (Shleifer and Vishny, 1994). It immediately reduces the influence of political and social objectives inconsistent

⁴ Recent empirical evidence is not unanimous on the positive link between privatization and subsequently improved operating performance. For example, using cross-country panel data on 500 large firms privatized in 1980s and 1990s, Dewenter and Malatesta (2001) find that net earnings improve prior to privatization but decline subsequently.

with the efficient enterprise management, and permits development over time of new organizational incentives and practices consistent with the interests of profit-maximizing shareholders.⁵

Lieberman (1997) and Spicer *et al.* (2000) document several instances of privatization policy implementation consistent with ideas derived from the principal-agent perspective, most notably the rapid mass privatizations, which from 1991-1996 saw more than 30,000 medium- and large-sized enterprises in 14 emerging-market countries –many in Central and Eastern Europe, including the former Soviet Union-- transferred to private owners. Approximately 15,000 of those enterprises were privatized in Russia alone, where Boycko *et al.* (1995) not only chronicled the process, but actually advised the Russian government on its implementation. Consistent with principal-agent assumptions, rapid mass privatizations were expected to create a new private shareholding class, which would seek not only the changes in enterprise behavior and performance noted above, but also broader changes in the political, legal and financial institutions governing such behavior and performance.

A Credible Privatization Perspective

The principal-agent perspective articulated by Boycko *et al.* (1995) and others predicts both the negative performance impact of residual state ownership and the positive performance impact of private ownership of any level over time. An alternative privatization theory also focuses on the level of residual state ownership and its impact on privatizing enterprise performance, but leads to quite different predictions. Perotti and Guney (1993) first described this alternative perspective in research noting the tendency of emerging-market country governments to privatize state-owned financial institutions in sequential tranches rather than in whole blocks. Perotti (1995) developed the formal reasoning of a credible privatization theory to explain more generally why states engaged in privatization, particularly emerging-market states, might resort to only gradual decline in state

⁵ Indeed, reduction of state ownership through sale to one or two large shareholders may speed the process even more by concentrating financial returns from such change into a few more highly motivated hands (Bös, 1991; Cornelli and Li, 1997; Laffont and Tirole, 1993). Foreign investment in privatizing enterprises may also speed the transition contemplated by the principal-agent perspective on privatization. Kogut (1996) suggests that the positive contribution of foreign investment results from the greater access it provides privatizing enterprises to more sophisticated individuals and capabilities. Because foreign investment frequently involves a transfer of equity to foreign individuals and institutions, there is an added beneficial effect in the form of better monitoring of enterprise managers. These different factors raise the probability that the enterprise will be able to draw on a broader international menu of organizational practices associated with higher performance. This may undermine the domestic state's role in guiding privatized enterprises; on the other hand, it also eventually endows the privatizing enterprise with a broader portfolio of competencies *outside* the control of the state. Concentrated strategic shareholding and foreign shareholding policies undertaken by privatizing enterprises may even have the principal purpose of simply raising the costs of state interference in enterprise affairs. States may become more hesitant to impose their political agendas on newly-privatized enterprises if they anticipate a backlash from a few powerful domestic investors or the foreign investment community (Guislain, 1997).

ownership even where existing financial markets and investors might accommodate rapid and complete state divestment.

From a credible perspective, principal-agent assumptions about the ability of shareholders (principals) to monitor and properly motivate managers (agents) in the privatizing enterprise are limited. This leads to two important insights. First, the sale by the state of equity in privatizing enterprises might have to be discounted to reflect principal-agent oversight limitations as well as broader limitations in the enforcement of shareholder rights and other corporate governance arrangements. Directors, private shareholders and the market for corporate control back-stopping all of them may function quite inefficiently, if at all, in countries without well-developed political, legal and financial institutions clearly laying out and enforcing what North (1990) might call “rules of the corporate governance game.” The absence of these institutional arrangements in many emerging-market countries prompted privatization commentators to question the theoretical underpinnings of mass privatization programs (Pistor and Spicer, 1997; Goldman, 2003; Stiglitz, 2003). Dyck (2001) makes a similar argument about privatization and corporate governance problems in many emerging-market countries. He deplores the poor state of many public (*e.g.*, local share market regulation) and private (local banks and investment advisory services) governance “chains” in emerging-market countries. Without these chains to constrain top managers and other insiders in privatizing firms, there is a predisposition to appropriate shareholder wealth legally or illegally, what Johnson *et al.* (2000) term as “tunneling.” Poor-quality governance chains and threats of tunneling lead emerging-market investors to demand deep discounts on privatizing enterprise equity or to forgo investment altogether.

A second and related insight drawn from the credible privatization perspective suggests that divestment of state ownership in privatizing enterprises should be gradual rather than immediate. Retention of substantial (though not controlling) state ownership communicates to anxious private shareholders an intent to share in their economic fate and, thus, ensure minimal enterprise performance standards. Gradual divestment, therefore, makes the privatization more “credible” to otherwise skittish investors. State ownership in the short- to medium-term translates into additional (to private shareholder) oversight. Perhaps more importantly, it may also translate into a greater likelihood of state interventions on behalf of the privatizing enterprise. Examples in the telecom industry include state guarantees limiting competitive entry into lucrative market segments and or state commitments to

purchase blocks of services and equipment in the short- to medium-term from privatizing telecoms (Guislain, 1997). Wallsten (2000) suggests that these “exclusivity” agreements explain substantial variance in telecom asset valuations during the 1980s and 1990s. Whether by providing additional oversight or by intervening in market relationships to ensure some minimal standard of performance, state investment and related commitments assuage near-term investor concerns about privatizing enterprise performance. These interventions may also permit faster sale of enterprise assets at higher asset valuations at time of sale, and raises investor interest in the remaining stock of state-owned enterprises yet to be privatized.

From Perotti’s (1995) credible privatization perspective, however, such state policy commitments are prone to reversal over time. Privatization equity sales represent a particularly acute form of complex and, therefore, incomplete contractual arrangement, there may be substantial opportunity for the state to renegotiate shareholder property rights in the enterprise *ex post* (Schmidt, 1996). Given the state’s unique position as both a party to *and* frequently, judge overseeing such agreements, incentives to trim back shareholder rights in enterprise assets may be particularly great. Perotti (1995) notes that state commitments to shareholder rights may be positively related to the stock of state-owned enterprises still waiting to be privatized. As that stock dwindles, the state’s “cost” of retreat from initial commitments lessens.

Other privatization research echoes these points. Ramamurti (2001, 2003) notes the tendency of state guarantees to unravel over time, and characterizes this as a contemporary form of the obsolescing bargain phenomenon originally developed by Vernon (1971) to explain fluctuations in foreign direct investment by multinational corporations negotiating with host governments in the developing world. For Emmons (2000) the resulting tendency to renegotiate property rights is central to understanding enterprise privatization’s “evolving bargain” between state and firm. Again, the state’s tendency to pull back from initial commitments may be most acute in emerging-market countries where institutional development regarding the rule of law and respect for property rights and private enterprise are less well-developed (Murtha and Lenway 1994), or where political business cycles make such a pull-back attractive to an elected incumbent government official seeking to retain office (Schipke, 2001). In these and related contexts, privatization and post-privatization development policies are

less likely to be sustained to the detriment of shareholder confidence and enterprise share value (Perotti and Laeven, 2002).

Aside from the initial work on financial institution privatization by Perotti and Guney (1993), more recent empirical evidence reported by Jones *et al.* (1999) reflects aspects of the credible privatization perspective. Analysis of a cross-country sample of privatization share issuances and enterprise valuations from the 1980s and 1990s indicated that state enterprises with high intrinsic enterprise value but with less information available to investors on recent operating experience netted greater investor revenue when privatized in several tranches rather than sold off in a single 100% block. The privatization sell-off of telecoms in industrialized and emerging-market countries is also consistent with insights from the credible perspective. Of 31 privatizing telecoms analyzed in Bortolotti *et al.* (2002) only three were sold off in one 100% block.

HYPOTHESIS DEVELOPMENT

Our review of principal-agent and credible privatization perspectives leads to the two sets of competing hypotheses about the impact of residual state ownership on the performance of privatizing telecoms taking material investment decisions. The first set of hypotheses concerns the impact of residual state ownership at any time in the privatized life of the telecom. The second set of competing hypotheses concerns the performance impact over time of varying levels of state ownership once the privatization process has begun –what is described below as the “temporal distance” of the telecom from its initial date of any equity sell-off to private investors. For both sets of hypotheses, performance is measured in terms of shareholder returns generated in the immediate aftermath of material investment decisions announced by privatizing telecoms. Consistent with the principal-agent perspective we hypothesize that:

H1a: Shareholder returns are negatively related to the percentage of state ownership in a privatizing telecom taking material investment decisions.

H2a: Shareholder returns are positively related to the temporal distance of a privatizing telecom taking material investment decisions.

As noted above, the principal-agent perspective anticipates prospective benefits to enterprise decision-making both from less state ownership at any one time and more temporal distance from the last date of complete state

ownership. It anticipates speedy development of enterprise incentives and governance structures consistent with shareholder wealth-maximization.

From the credible perspective, however, state ownership and temporal distance are predicted to have opposite effects on shareholder returns, that is:

H1b: Shareholder returns are positively related to the percentage of state ownership in a privatizing telecom taking material investment decisions.

H2b: Shareholder returns are negatively related to the temporal distance of a privatizing telecom taking material investment decisions.

The credible privatization perspective evinces skepticism regarding the effectiveness of still-developing enterprise incentives and governance structures. The clarity, consistency and enforceability of still-developing private shareholder rights and related institutions are suspect. In that context, continued state equity participation signals the state's willingness to insure against such risks. Yet, this signal provides only partial and temporary solace for shareholders who also suspect the credibility of such state commitments to assist the privatizing telecom beyond the near-term.

As noted above, both sets of hypotheses are derived from theoretical perspectives borne of experience in emerging-market countries. On comparison, however, researchers might conclude that the principal-agent view tracks more consistently assumptions common to privatizing telecoms from industrialized countries with well-developed political, legal and financial institutions. On the other hand, credible perspective assumptions and hypotheses may seem best suited to emerging-market contexts with still-developing institutions. We examine empirical support for this conjecture as part of our methodology for testing these two sets of alternative hypotheses.

METHODOLOGY

Given the focus on financial performance associated with specific, material investment decisions taken by privatizing enterprise management, we use an event study methodology focusing on the short-term returns to shareholders to assess the performance implications of organizational decision-making. Though used more frequently in the finance field, event studies have been increasingly applied to business strategy, accounting, law,

organizational behavior and marketing research questions implicating shareholder oversight of major management investments (McWilliams and Siegel, 1997; Park, 2004).

Empirical Model

We specify the model below for explaining shareholder returns associated with the announcement of material investment projects by privatizing telecoms domiciled in industrialized and emerging-market countries:

$$\begin{aligned}
 Y_{ijt} = & \beta_0 + \beta_1 \text{percstate}_{ijt} + \beta_2 \log(\text{zeromon}_{ijt}) + \beta_3 \text{emgmt}_{ijt} + \beta_4 (\text{percstate}_{ijt} * \text{emgmt}_{ijt}) \\
 & + \beta_5 (\log(\text{zeromon}_{ijt}) * \text{emgmt}_{ijt}) + \beta_6 \text{eventJV}_{ijt} + \beta_7 \text{eventMA}_{ijt} \\
 & + \beta_8 \text{eventtarget}_{ijt} + \beta_9 \log(\text{sales}_{ijt}) + \beta_{10} \text{roa}_{ijt} + \beta_{11} \text{pubexpdp}_{ijt} + \beta_{12} \text{agency}_{jt} \\
 & + \beta_{13} \text{TPARules}_{jt} + \beta_{14} \text{pricingreg}_{jt} + \beta_{15} \text{rivalry}_{jt} + \sum \omega_{i-14} \text{telecom}_i + \sum \psi_{i-13} \text{year}_t + \mu_{ijt}
 \end{aligned}$$

Subscript i indicates the privatizing telecom, subscript j is an investment announcement event counter, and subscript t indicates the year of the telecom investment announcement event j by privatizing telecom i . Table 1 below provides a description of these variables, their data sources and expected signs.

**** Insert Table 1 Approximately Here ****

Dependent Variables

The dependent variable, Y_{ijt} , denotes shareholder returns associated with privatizing telecom investment events, and is measured two ways below:

$$Y_{ijt} = \begin{cases} \text{CAR}_{ijt} \\ \text{abpos}_{ijt} \end{cases}$$

The first dependent variable measure, CAR_{ijt} , designates cumulative abnormal returns (“CARs”) associated with privatizing telecom investment events, and is calculated following Brown and Warner’s (1985) standard event study methodology. We identify an investment announcement event j for privatizing telecom i , and record its date as $T = 0$. Share returns during the estimation window $T = -200$ to $T = -10$ are observed, and expected to follow the trend defined by:

$$E(r_{iT}) = \alpha_i + r_{mT}$$

where $E(r_{iT})$ is the expected shareholder return of privatizing telecom i on day T , r_{mT} is the corresponding daily market return on the equal-weighted Standard & Poor's ("S&P") 500 index, and α_i is an intercept. For the privatizing telecom, abnormal returns on day T are calculated as:

$$AR_{iT} = r_{iT} - E(r_{iT})$$

where AR_{iT} is the difference between the actual shareholder returns, r_{iT} , and expected shareholder returns, $E(r_{iT})$, on the same day. CAR sums these daily abnormal returns over a three-day ($T = 0-2$) event window:

$$CAR = \sum_T AR_{iT} .^6$$

The second dependent variable measure, $abpos$, permits a slightly different estimation based on the likelihood of an investment announcement event resulting in a three-day event window with a positive CAR , no matter the magnitude of such returns. We define $abpos$ as a dummy variable taking values of:

$$abpos_{ijt} = \begin{cases} 0 & \text{if } CAR_{ijt} \leq 0 \\ 1 & \text{if } CAR_{ijt} > 0 \end{cases}$$

Together, CAR and $abpos$ represent complementary aspects of shareholder performance. CAR emphasizes magnitude, while $abpos$ emphasizes favorable frequency.

Independent Variables of Central Interest

Consistent with the two sets of competing hypotheses stated above, independent variables of central interest in our model concern investment event CARs related to residual state ownership and temporal distance from initial privatization. The variable, $percstate$, measures the percentage of equity held by the state at the end of the year of each investment event. The variable, $zeromon$, is the number of months from the month of initial privatization to the month of the observed investment event. We take the natural log of $zeromon$, $\log(zeromon)$. We also interact $percstate$ and $zeromon$ with a dummy variable $emgmt$, which assumes the value 1 if the telecom is domiciled in an emerging-market country and 0 otherwise. Interaction with the emerging-market dummy permits us to assess differences in state ownership and temporal distance effects between privatizing telecoms from industrialized versus emerging-market countries.

⁶ Results with two- and five-day windows yield consistent results and are available from the authors on request.

Independent Control Variables

The right-hand side of our model includes several different types of additional controls for other factors that may also explain investment event CARs. A first set of independent variables control for CARs associated with particular types of investment events. Our principal source for investment events, the Securities Data Corporation's ("SDC") Mergers & Acquisitions ("M&A") Database (SDC, 2002), describes transactions for firms either as strategic alliances, joint ventures, mergers/acquisitions ("M&A") events, and seasoned (secondary) equity offerings. Based on these descriptions we can include several dummies to control for shareholder returns that may be tied to the type of events announced. The variable, *eventJV*, takes the value of 1 when the event is a joint venture resulting in the creation of a third-party entity but where there is no equity transferred from one participating party directly to any of the others. M&A transactions noted in the SDC database distinguish between equity acquiring and equity giving (target) firms. Thus, the variable, *eventMA*, takes on the value of 1 when the announced investment event is a merger or acquisition transaction involving the direct transfer of equity from one party to another and where the privatizing telecom is deemed by SDC to be the equity-acquiring firm. The variable, *eventtarget*, takes on a value of 1 if the same merger or acquisition transaction occurs but the privatizing telecom is deemed by SDC to be the equity-giver (seller). This variable also takes the value of 1 in the case of a seasoned equity offering. Strategic alliance events are the omitted category. For each type of event, previous research suggests both positive and negative effects on shareholder returns.⁷ Accordingly, we make no predictions concerning their respective signs in our model.

A second related set of controls note firm characteristics. Grover (2001) and Fuller *et al.* (2002) note that executives in larger and more profitable firms are more likely to undertake investments, and may do so to increase the size of the firm and their own individual compensation rather than to increase shareholder wealth. We, therefore, include two explicit controls for the privatizing telecom's size and profitability during the year of an investment event. Size is measured as the natural log of telecom revenues in US\$ ($\log(\text{sales})$). Profitability is measured as operating income divided by net assets in US\$ (roa). These controls are predicted to enter the model

⁷ Previous research on shareholder wealth effects from joint venture announcements suggests both positive (*e.g.*, Crutchley *et al.*, 1991) and negative (Chung *et al.*, 1993) effects. Recent empirical research on shareholder wealth effects related to corporate acquisitions and diversification (Denis *et al.*, 1997; Fuller *et al.*, 2002) also notes both positive and negative effects connected with these announcements.

with negative signs. In addition to these explicit controls, we include dummies for each telecom (less one) in our sample (*telecom*) to control for effects on shareholder returns related to unspecified idiosyncratic telecom factors. We also include year dummies to control for unspecified effects linked to each year (less one) in our sample (*year*).

A third set of controls account for country-level factors that may affect investment event CARs. Given an investment event announced in year t , we include first the change from year $t-1$ to t in the percentage of GDP comprised by public (government) expenditure (*pubexpgpd*). Ramamurti (2000) argues that shifts in public policy leading to less state involvement in the economy promote the development of market-oriented institutions favorable to private enterprise ownership generally. Faster institutional reform should be associated with greater telecom ability to complete investment transactions efficiently and effectively, thus raising the likelihood of positive investment returns from a shareholder perspective. Accordingly, we expect the *pubexpgpd* term to enter the model negatively.

Wallsten (2000) and Bortolotti *et al.* (2003) note four other country-level factors specific to institutional development in the telecommunications sector. One such factor concerns the existence and independence of regulatory authorities to oversee privatizing telecoms operating in the industry. Two telecom regulatory variables are likely to enter with negative signs. An independent regulatory agency is less likely to favor incumbent privatizing telecoms than government ministries that previously ran the incumbent enterprise and may remain close to its top management and employees. We, therefore, include a 0-1 dummy variable that takes the value of 1 if the telecom announcing an investment is domiciled in a country with an agency (*agency*) exercising regulatory power over industry pricing and related behavior with a substantial degree of independence from the legislative or executive branches or government. Another variable measures the numbers of mobile telephony service operators (*rivalry*) not owned by the privatizing telecom at the time of an investment event. We predict negative signs on both terms. Two more telecom regulatory variables are likely to enter the model positively. Findings by Bortolotti *et al.*, (2002) indicate that price regulation actually enhances telecom profitability. They surmise that price controls moderate the otherwise negative impact of competition with telecom rivals, thus, aiding incumbent performance. Accordingly, we predict positive effects when a 0-1 dummy takes the value of 1 and indicates that

an event occurs when the privatizing telecom services to final (retail) customers are controlled (*pricingreg*). Similarly, we predict positive effects when another 0-1 dummy takes the value of 1 and indicates that an event occurs when terms for providing rival telecoms with access to the privatizing telecom's network is controlled (*TPArules*). In sum, shareholder returns will be higher for investment events where the privatizing telecom making the announcement faces no independent regulatory agency, vies with fewer mobile rivals, and is able to temper price competition with controls on wholesale and retail service offerings.

Hypothesis Tests

The resulting model of investment event CARs facilitates straightforward tests of our two sets of competing hypotheses. Hypotheses 1a and 2a make predictions consistent with the principal-agent view espoused by Boyck et al. (1996) and others. Privatizing telecoms will take investment decisions resulting in higher CARs (*CAR*) and or more frequent positive CARs (*abpos*) as the percentage of state ownership decreases and temporal distance from the initial date of privatization increases. In a model excluding the emerging-market indicator (*emgmt*) and related interactions and thus making no distinction between privatizing telecoms from industrialized or emerging-market countries, the principal-agent perspective implies a negative coefficient sign on *percstate* and a positive coefficient sign on *log(zeromon)*. In terms of our model, the hypothesis tests reduce to:

$$H1a: \beta_1 < 0$$

and

$$H2a: \beta_2 > 0.$$

Expansion of the model to include the emerging-market indicator and its interactions permits tests of this same principal-agent hypothesis for privatizing telecoms from both industrialized and emerging-market countries. The *percstate* sign now indicates the impact of residual state ownership for industrialized telecoms, and the sign on the linear combination of *percstate* and *percstate*emgmt* indicates the same effect for emerging-market telecoms. Similarly, the *log(zeromon)* term now indicates the impact of temporal distance for industrialized telecoms, and the sign on the linear combination of *log(zeromon)* and *log(zeromon)*emgmt* indicates the impact for emerging-market telecoms. In terms of our model, the hypothesis tests reduce to:

$$H1a: \beta_1 < 0 \text{ (Industrialized Country Telecoms)}, \beta_1 + \beta_4 < 0 \text{ (Emerging-Market Country Telecoms)}$$

and

H2a: $\beta_2 > 0$ (Industrialized Country Telecoms), $\beta_2 + \beta_5 < 0$ (Emerging-Market Country Telecoms).

This set of hypotheses competes with those motivated by the credible perspective espoused by Perotti (1995) and others. In a model excluding emerging-market terms, it predicts positive coefficient sign on *percstate* and a negative coefficient sign on *log(zeromon)*. Tests of Hypotheses 1b and 2b reduce to:

H1b: $\beta_1 > 0$

and

H2b: $\beta_2 < 0$

Expansion of the model to include the emerging-market indicators and interactions results in the following tests of credible perspective effects for privatizing telecoms from industrialized and emerging-market countries:

H1b: $\beta_1 > 0$ (Industrialized Country Telecoms), $\beta_1 + \beta_4 > 0$ (Emerging-Market Country Telecoms)

and

H2b: $\beta_2 < 0$ (Industrialized Country Telecoms), $\beta_2 + \beta_5 < 0$ (Emerging-Market Country Telecoms).

Estimation Approach

As MacKinlay (1997) recently pointed out, event study methods used today are remarkably similar to those developed by Brown (1968) and Fama *et al.* (1969) more than 30 years ago. Our own approach to model estimation follows standard method closely. When *CAR* is our dependent variable, we estimate the model using a generalized least squares (“GLS”) estimator. This estimator permits the use of robust standard errors to correct for cross-sectional (telecom) heteroskedasticity, and event clustering on privatizing telecoms. With *abpos*, we use a binary probit estimator consistent with the 0-1 measurement of this second dependent variable. This probit estimator also permits the use of robust standard errors and clustering adjustments.

Data Sources and Sampling

Our model requires several data sources and sampling approaches. To obtain our sample of privatizing telecoms, we use data from the “Telecom/Data Networking” category of Bank of New York’s Depository Directory (Bank of New York 2002). This directory lists all firms that have issued depository receipts (“DRs”) in the US, whether they are traded on regulated exchanges or on over-the-counter and whether they are sponsored or

not. By limiting our data to privatizing telecoms with DRs in the US, we are able to assess shareholder returns associated with investment events announced by privatizing telecoms from different countries with a common currency (US\$) and against a single (US) stock market index of returns (S&P 500).

From this data source, we sample firms operating in the fixed-line telecommunications services industry, with a history of state ownership or effective state control, and having experienced either the sale of former state-owned equity or the release from *de facto* control of such equity by the state since 1980. These sampling restrictions result in 18 privatizing telecoms, 15 of which were previously wholly-owned by the state, and three of which had *de jure* private owners but were under *de facto* state control (*i.e.*, Telecom Italia, Telefónica de España and Philippine Long-Distance Telephone Company). We note the date of initial equity sale, either through private placement, public offering of shares, material asset sale, voucher distribution or related means as the date of initial privatization for the 15 previously state-owned telecoms. For the remaining three telecoms, we followed an approach taken by Vaaler (2001) and noted their date of initial privatization as the date of fixed-line telecommunications operation deregulation, which, in each case also shifted *de facto* control to private owners.

From this group of 18 privatizing telecoms, we eliminate non-operating (corporate holding company) firms and those for which there was no data on DR prices from the Center for Research in Security Prices (“CRSP”) database (CRSP 2002). Our final sample reported in Table 2 reduces to 15 privatizing telecoms, 10 from industrialized and five from emerging-market countries. Dates of initial privatization range from 1984 (British Telecom) to 1997 (France Telecom and Rostelecom), with the majority undergoing initial privatization in the early to mid-1990s.⁸

Our two dependent variables, CAR (*CAR*) and the 0-1 positive CAR indicator (*abpos*), are both derived from DR and broader US stock market price data associated with privatizing telecom investment events.

Accordingly, we collect data on prices in US\$ for DRs from CRSP and note daily percentage returns associated

⁸ The nine privatizing telecoms domiciled in industrialized states (and year of initial privatization) are: British Telecom (1984), Deutsche Telekom (1996), France Telecom (1997), Netherland’s KPN (1994), New Zealand Telecom (1991), Nippon Telephone & Telegraph (1986), Denmark’s TDK (1994), Telecom Italia (1986) and Telefónica de España (1989). The six privatizing telecoms domiciled in emerging-market states (and year of initial privatization) are: Greece’s Hellenic Telecom (1996), Korea Telecom (1993), Philippine Long Distance Telephone Company (1995), Portugal Telecom (1995), Russia’s Rostelecom (1997) and Teléfonos de Mexico (1991). Countries are judged to be emerging markets if they are constituents of &P’s Emerging Market Database (“EMDB”) are classified as emerging-market telecoms. Portugal was not removed from the EMDB until March 31, 1999, and is therefore judged an emerging market in this study. Greece and the other countries continue to be a member of the EMDB (S&P 2003).

with event returns for each investment announced by the 15 privatizing telecoms. To compare them with broader market returns over a comparable period, we also obtain from CRSP daily percentage returns for an equally weighted S&P 500 index.

For data on investment event types, we use the SDC database and their investment event designations (M&A acquirer, target, secondary offering, JV participant, alliance participant). We then screen these investment events for their materiality to shareholders. If announcement of the investment event appears in subsequent US Securities & Exchange Commission (“SEC”) filings or is reported in the American editions of the *Wall Street Journal*, the *Financial Times*, or the Reuters News Network, it is deemed material. Finally, we screen remaining investment events to eliminate those occurring prior to the issuance of the privatizing telecom’s DR, or if two investment events for the same privatizing telecom are reported within an interval of five business days.

To estimate our model, we also require additional data on the privatizing telecoms, and their respective countries of domicile. 20-F filings from the US SEC⁹ provide information on year-to-year telecom state ownership percentages and also permit confirmation of all initial privatization dates. Using Compustat (2002) corporate-level data, we obtain information on telecom annual net sales, operating income and net assets. Using S&P’s Emerging Market Database, we group the 15 privatizing telecoms into industrial and emerging-market countries. The World Bank’s World Development Indicators database (World Bank 2002) provides data on aggregate yearly government spending as percentage of country GDP. Complete data for all of these variables is available for 199 investment events announced by the 15 privatizing telecoms from 1986-2001.

RESULTS

Descriptive Analyses

Column 1 in Table 2 reports descriptive statistics for our sample. The sample of investment events is not surprisingly skewed toward those announced by privatizing telecoms from industrialized countries. Emerging-market telecoms account for only 11.5% (21) of the investment event announcements. Even so, it seems sufficient to estimate separate effects with the three variables linked to emerging-market telecom effects (*emgmt*,

⁹ 20-F filings are required annually for the registration of securities by foreign private issuers pursuant to section 12(b) or (g) of the US Securities Exchange Act of 1934.

*percstate*emgmt, log(zeromon*emgmt)*. Average operating returns for the sample is 3.9% with little difference between annual operating returns for industrialized versus emerging-market telecoms. Substantial variation in other variables, however, suggests that inclusion of terms distinguishing industrialized from emerging-market country telecom effects may be warranted. For example, average telecom size in terms of sales is approximately \$35 billion, but telecoms from industrialized countries exhibit substantially greater average sales (\$37 billion) than telecoms from emerging-markets (\$3.5 billion). Average state ownership over the period sampled is roughly 26% with more than 80% of telecom investment events taking place in the context of some residual state ownership. On the other hand, industrialized telecoms register lower average state ownership (25%) compared to their emerging-market counterparts (38%). Timing of investment events also illustrates this divide. The average investment event took place approximately 111 months after privatization for the total sample, but for emerging-market telecoms, the average is only 60 months. A summary interpretation of these statistics suggests that all of our privatizing telecoms were busy with investments in the later half of the 1990s, a period coinciding with the so-called “telecom bubble.” Industrialized telecoms were doing so with much less state involvement and more experience with private ownership of any amount, while their emerging-market counterparts were often doing so with substantial residual state ownership and less temporal distance from their days as a state agency.

**** *Insert Table 2 Approximately Here* ****

Regression Analyses

Results from GLS (*CAR*) and binary probit (*abpos*) estimation are given in Columns 2-5 of Table 2. Columns 2 and 4 exhibit results based on a model excluding emerging-market variables, and thus analyzing the sample without distinguishing the telecom’s country of domicile. Columns 3 and 5 include the emerging-market dummy and interactions, thus permitting examination of investment event CARs for industrialized versus emerging-market telecoms.

Controls. We first report results for control variables, which generally exhibit predicted signs in Columns 2-5. Investment events are well distributed across the four types. JV announcements comprise 35.6% of the sample while M&A acquisitions comprise 22.1%, targets comprise 12.5%, and strategic alliances comprise 29.8%. Recall that we made no prediction concerning the sign on the investment type dummies. Compared to

strategic alliance announcements, JVs (*eventJV*) yield more positive CARs or likelihood of positive CARs as do acquisition announcements (*eventM&A*). Announcements where the privatizing telecom is a giving away equity to others (*eventtarget*) yields no significant differences from alliance events.

Both size (*log(sales)*) and operating returns (*roa*) exhibit negative signs and, in the case of the probit regression (*abpos*), significance. An increase in ROA of 1% lowers investment event CARs by more than 30%, and lowers the likelihood of positive CARs to virtually zero when all other model terms are held at their mean levels. Higher performing privatizing telecoms are apparently much less adept at generating investor support based on prominent M&A or JV announcements and more adept at generating operating returns and investor support based on what it does between those announcements.

Telecom sector controls also enter the model with predicted signs, and often, significance. The existence of an independent agency (*agency*) is associated with a significantly lower likelihood of an investment announcement with positive CARs. Similarly, rivalry exhibits a negative sign and, for the constrained GLS model, significance at the 10% level. Retail pricing (*pricingreg*) and wholesale price controls (*TPArules*) enter positively as predicted, and in the case of wholesale price controls (*TPArules*), significantly across all model specifications. Only the public expenditure country control (*pubexpgdp*) enters the model significantly but with a contrary sign. A 1% increase in public expenditures as a percentage of GDP raises by more than 38% CARs and virtually guarantees a positive CARs for privatizing telecoms when other terms are held at their mean values. Positive rather than negative links between public expenditures and shareholder returns undercuts Ramamurti's (2000) proposition that a state retreat from economic activity necessarily leads to faster development of institutional arrangements conducive to incumbent firms, at least in the telecom sector.

Variables and Hypothesis Tests of Central Interest. We turn next to results linked specifically to our two sets of competing hypotheses. Columns 2 and 4 of Table 2 reports results excluding emerging-market terms. Consistent with the Boycko *et al.*'s (1996) principal-agent perspective, residual state ownership as a percentage of all telecom equity (*percstate*) exhibits a negative sign and significance at the 1% level in both columns. The temporal distance variable (*log(zeromon)*) also exhibits a negative sign but is significant only at the 10% level in the GLS estimation and is not significant at commonly acceptable levels in the probit estimation. These results

suggest clear support for the principal-agent view and Hypothesis 1a's prediction of higher quality (to shareholders) decision-making by telecoms as the state's equity holdings and associated penchant for interference decreases. But there is also some evidence consistent with the Perotti's (1995) credible perspective and Hypothesis 2b. There may be negative trends in investment event CARs as temporal distance from the initial date of privatization increases, and state commitments to the telecom ebb. If borne out in subsequent analyses below, these negative time trends would be consistent with Comstock *et al.* (2003) who observed long-term negative abnormal share returns for 40 firms privatized in the 1980s and 1990s.

Columns 3 and 5 include emerging-market dummy and related interaction terms and permit analysis of distinct effects for telecoms from industrialized versus emerging-market countries. In Columns 3 and 5, the state ownership (*percstate*) on its own now captures effects on investment event CARs for telecoms from industrialized countries only, while state ownership effects for emerging-market telecoms are captured in the linear combination of the state ownership (*percstate*) term plus the term interacting state ownership and the emerging-market dummy (*percstate*emgmt*). Temporal distance effects are similarly partitioned using the emerging-dummy and temporal distance terms. Sign and significance for both ownership and temporal distance for industrialized telecom remain virtually unchanged from Columns 2 and 4. Residual state ownership (*percstate*) is significantly and negatively linked to CARs, while temporal distance from initial privatization (*log(zeromon)*) exhibits a negative sign but is significant in the GLS estimation only at the 10% level, and is not significant at commonly acceptable levels in the probit. Results for privatizing telecoms from industrialized countries again support the principal-agent perspective in Hypothesis 1a for residual state ownership effects, and the credible perspective in Hypothesis 2b for temporal distance.

Emerging-market telecom state ownership (*percstate + percstate*emgmt*) and temporal distance effects (*log(zeromon) + log(zeromon)*emgmt*) exhibit the same negative signs and significance, and in some cases even more negative estimates than their industrialized telecom counterparts. Differences in these estimates have substantial practical implications. Using the GLS results in Column 3, we find that a one percent increase in residual state ownership decreases CARs by 0.2% for investment events announced by telecoms from industrialized countries. CARs decrease by 0.7% for investment events announced by emerging-market telecoms.

An increase in the log of temporal distance by one unit decreases CARs by 3.3% for industrialized telecoms but 20.2% for emerging-market telecoms. The probit results in Column 5 contrast these differences even more. Holding all other independent variables at their mean values, a one percent increase in state ownership reduces the likelihood of an investment announcement leading to positive CARs by 5.2% in industrialized countries but by 57.0% in emerging market countries. Increasing the log of temporal distance by one unit in emerging-market countries reduces the likelihood of yielding positive CARs for telecoms from industrialized countries by approximately 8.1%, but for telecoms from emerging-market countries, the likelihood decreases by a substantial 1249.2%. Once again, the principal agent view espoused in Hypothesis 1a for residual state ownership, and the credible privatization view espoused in Hypothesis 2b for temporal distance find clear support.

Related Analyses

Non-Parametric Analyses. Figures 1 and 2 utilize non-parametric methods to provide additional insight on links between residual state ownership and privatizing telecom performance in industrialized and emerging-market countries. Figure 1 represents the probability of a positive CARs investment event on the Y-axis plotted against smoothed values of state ownership percentages on the X-axis. Smoothing is performed around each state ownership percentage measure in the sample, based on an unweighted mean, with a specified proportion of the sample (40% in this case) around a given point (Stata, 2002). In this non-parametric graph, the relationship yields a shallow but consistently negative trend line for privatizing telecoms from industrialized countries. With higher state ownership percentages, events leading to positive CARs become less likely consistent with the principal-agent view and Hypothesis 1a. Privatizing telecoms from emerging-market countries, however, exhibit a more complex curvilinear trend. The trend line is shallow but consistently negative for state ownership levels exceeding approximately 30%, but steeply positive from 0-30% of state ownership. Together, these two segments of the non-parametric trend line yield a curve with an inverted U shape. Linear trends imposed on this inverted U apparently result in the negative coefficient estimate we obtain using the parametric analyses above.

**** *Insert Figure 1 Approximately Here* ****

Results from this non-parametric analysis run counter to previous findings. Rather than supporting the principal-agent view and Hypothesis 1a, residual state ownership effects on shareholder returns for emerging-

market telecoms may, in certain circumstances, support the credible view and Hypothesis 1b. To further investigate this possibility, we re-estimate the model and include additional quadratic terms for state ownership. Linear combination of this quadratic term ($percstate^2$) and its interaction with the emerging-market dummy ($percstate^2*emgmt$) is negative and significant (-0.231, $p < 0.01$) in the probit model estimation, and negative though not significant at commonly acceptable levels in the GLS model estimation. This result again suggests that residual state ownership and CARs for emerging-market telecoms have an inverted U relationship. Residual state ownership in privatizing telecoms from emerging-market countries may, indeed, be positively related to shareholder returns as predicted by the credible perspective and Hypothesis 1b, but only at low to moderate levels of state ownership. At moderate to higher levels, the positive relationship becomes negative consistent with the principal-agent perspective and Hypothesis 1a.

Figure 2 illustrates the smoothed relationship between the likelihood of positive CARs on the Y-axis and temporal distance now measured as the number of months (rather than natural log) since the date of initial privatization on the X-axis. Privatizing telecoms from emerging-market countries exhibit a steeply negative trend line suggested by our parametric analyses, but temporal distance effects on shareholder returns for industrialized telecoms are less clear. What may be interpreted as a shallow inverted U for industrialized telecoms could again indicate a negative curvilinear rather than negative linear trend. Exploration of that possibility is again implemented through re-estimation of our full model with the inclusion of quadratic terms for temporal distance. While the sign on the first quadratic term ($log(zeromon^2)$) is negative, it is not significant at commonly acceptable levels. With additional observations, we might indeed observe significant higher order effects providing partial support for the principal-agent perspective and Hypothesis 2b.

**** Insert Figure 2 Approximately Here ****

DISCUSSION AND CONCLUSION

Central Findings and Significance

Recall the principal motives for this study. Research on privatizing firms has established that the shift from public to private ownership and control enhances performance, but empirical evidence indicating how residual state factors affect that process is curiously lacking. We responded by identifying two state-related

factors that might influence that transformation: the level of residual state ownership in a privatizing enterprise and the temporal distance of the enterprise from its initial privatization date. We also identified two prominent but competing privatization theories about the impact of these state factors on privatizing enterprise performance: the principal-agent perspective developed by Boycko *et al* (1996); and the less familiar credible perspective developed by Perotti (1995). We also identified two distinct country contexts in which to evaluate the impact of these residual state factors and privatization theories: industrialized and emerging-market countries. Our results indicate that these factors, theoretical perspectives and country contexts all matter for purposes of understanding the dynamics of financial performance for privatizing telecoms undertaking material investments during their organizational transition in the 1980s and 1990s.

Generally, we find some support for both theoretical perspectives linking state-related factors to financial performance. Consistent with the principal-agent perspective, privatizing telecoms from industrialized countries exhibit a negative relationship between shareholder returns associated with announcement of an investment event, and the percentage of telecom equity held by the state at the time of the investment event. But we also find substantial support for the credible perspective. As time passes from the initial date of privatization, investment events announced by telecoms from both industrialized and emerging-market countries lead to lower shareholder returns. Additionally, we find substantial evidence suggesting that privatizing telecoms from emerging-market settings may obtain higher shareholder returns as residual state ownership increases to moderate levels. This is, again, consistent with the credible perspective.

In the context of still developing legal, political and economic institutions, some low but still significant level of state ownership in privatizing telecoms provides assurance to investors and related stakeholders, thereby enhancing the telecom's prospects in the short term. This view implies that the state has an important role to play as an equity holder, and should not necessarily stay out of the equity fray so that it can be a neutral regulatory arbiter. But any assurance and performance enhancement this state ownership may bring is only temporary. State commitments designed to compensate for institutional underdevelopment tend to unravel quickly with substantially negative implications for investment events and shareholder returns. In the end, it may be only

through institutional development in emerging-markets that privatizing telecoms re-build credibility with shareholders that may have been eroded shortly after initial transfer of the enterprise from state to private sectors.

Implications and Future Research

We see several implications to draw from our findings. First, our findings indicate that credible perspectives on the determinants of privatizing telecom behavior and performance have substantial explanatory power in emerging-market settings, and may merit greater academic attention, particularly when assessing the performance of privatizing enterprises in emerging markets. Principal-agent views also merit closer, but perhaps, more critical attention from academic researchers. Our results suggest that this view of state factors shaping performance has more narrow application than the credible view. Principal-agent perspectives are most relevant to understanding how the percentage of residual state ownership may affect investment decision-making and shareholder returns for privatizing telecom from industrialized country settings. Yet, this same factor does not so consistently apply to telecoms from emerging-market countries, and temporal distance effects for both types of telecoms run counter to the principal-agent view. This inconsistency calls for a closer examination of basic assumptions in the principal-agent view. Divestment by the state and replacement with private shareholders, particularly foreign shareholders, is supposed to enhance enterprise performance through closer enterprise monitoring of managerial behavior (Boycko *et al.*, 1996) as well as through the transfer of valuable competencies (Kogut, 1996). Future work on privatizing enterprise performance might examine factors possibly impeding such monitoring and competence transfer.

We showed that differing levels of state ownership are related to financial performance in privatizing telecoms. With this finding, we fill an important research gap left by recent research on privatizing telecom performance by Bortolotti *et al.* (2002). Our success may have followed from shifting the empirical research focus from examination of long-run returns to short-term financial returns associated with specific investment events. Our findings using this empirical research focus also have implications for prior research findings by Gupta (2005), who uncovered evidence of increasing operating returns as the level of state ownership decreased from total to partial but still controlling blocs in a large sample of Indian firms. By contrast, our study of abnormal shareholder returns associated with specific investment events announced by privatizing telecoms from

emerging-market countries uncovered evidence that state ownership at certain levels (0-30%) might actually be positively related to performance. Reconciling these two sets of findings leads to an interesting conjecture. As state ownership levels pass from total, to partial but still controlling, to partial but no longer controlling, the role of the state may also change from an emerging-market shareholder perspective. The state's shift from primary if not dominant ownership to a secondary and perhaps supporting owner may also create a context favorable to positive shareholder signaling contemplated by the credible privatization perspective. Future research would benefit from further research addressing this conjecture.

For investors, policy-makers and managers, there are also implications. Our study highlights important differences in the pattern of shareholder returns for investment events depending on whether the privatizing telecom is from an industrialized or emerging-market country. Recall, for instance, the very steep and negative temporal distance effects for shareholder returns realized by emerging-market (but not industrialized) telecoms announcing major investments. Privatizing telecom investors, particularly those moving in and out of equity positions around the time of material investment announcements, might benefit from structuring their business structures and strategies to reflect these differences. For example, decisions involving the management of privatizing telecom investments could be substantially decentralized, so that investment managers might have greater freedom to adopt oversight and financial performance assessment criteria tailored to the particular telecom's country/institutional setting.

Telecom industry policy-makers and managers might also consider the value of less standardized and decentralized industry oversight. EU telecom officials, for instance, might develop multiple tracks for telecom regulatory convergence, some of which permit or even encourage emerging-market member and candidate-member states to retain substantial state ownership in their privatizing telecoms in the short- to medium-term. At the same time, these convergence tracks might encourage privatizing telecoms from the same member and candidate-member states to speed up programs for major investment in and modernization of their technology, infrastructure and labor resources –perhaps with financial incentives from Brussels. Otherwise, major investment projects announced by managers keen to acquire and develop new resources and capabilities for long-term viability are more likely to be punished by shareholders with a negative response, particularly in emerging-market

countries where the initial privatization bargain is especially prone to obsolescing (Ramamurti, 2001, 2003). As state equity ownership and related commitments to privatizing telecoms recede in the medium-term, such firms may nonetheless continue to create rather than destroy shareholder value through development of more durable, and indeed, traditional sources of competitive advantage.

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TABLE 1
Description of Variables

Information→ Variable↓	Variable Name (Model Abbreviation and Coefficient)	Description	Data Source	Expected Sign
Dependent Variables	Cumulative Abnormal Returns (<i>CAR</i> [Y_{ijt}])	Cumulative abnormal return, 3-day event window, market-adjusted return model.	CRSP (2002) and SDC (2003)	N/A
	Positive Cumulative Abnormal Returns Dummy (<i>abpos</i> [Y_{ijt}])	Dummy variable assuming value 1 if event CAR is positive, otherwise 0.	CRSP (2003) and SDC (2002)	N/A
Independent Variables of Central Interest	Residual State Ownership (<i>percstate_{ijt}</i> [β_1])	Percent of state-owned equity in telecom at end of event year.	Compustat (2003)	H1a: Negative H1b: Positive
	Log (Months Since Privatization Initiated) (<i>log(zeromon_{ijt})</i> [β_2])	Natural log of number of months between date of privatization and event.	SDC (2002) and SEC 20-F's	H2a: Positive H1b: Negative
	Emerging Market Dummy (<i>emgmt_{ijt}</i> [β_3])	Dummy variable assuming value 1 if telecom's home country is an emerging market, otherwise 0.	S&P Emerging Markets Index (2003)	None
	Residual State Ownership*Emerging Market Dummy (<i>percstate*emgmt_{ijt}</i> [β_4])	Interaction Term. $\beta_1 + \beta_4$ = Residual state ownership effect for telecoms based in emerging-market countries.	S&P Emerging Markets Index and Compustat (2003)	H1a: Negative H1b: Positive
	Log (Months Since Privatization Initiated)*Emerging Market Dummy (<i>log(zeromon * emgmt_{ijt})</i> [β_5])	Interaction Term. $\beta_2 + \beta_5$ = Temporal distance effect for telecoms based in emerging-market countries.	SDC (2002) , SEC 20-F's and S&P Emerging Markets Index (2003)	H2a: Positive H2b: Negative
Other Independent Variables (Controls)	JV Event Dummy (<i>eventJV_{ijt}</i> [β_5])	Dummy variable assuming value 1 if event is a transaction creating third-party without equity transfer between creating parties, otherwise 0.	SDC (2002)	None
	M&A Event Dummy (<i>eventMA_{ijt}</i> [β_6])	Dummy variable assuming value 1 if event is a merger or acquisition transaction involving direct transfer of equity from one party to another and where the telecom is deemed by SDC to be the equity-acquiring company, otherwise 0.	SDC (2002)	None
	Target Event Dummy (<i>eventtarget_{ijt}</i> [β_7])	Dummy variable assuming the value 1 if event involves direct transfer of equity from one party to others and where the telecom is deemed by SDC to be the equity-giving company, otherwise 0.	SDC (2002)	None
	Log(Sales) (<i>log(sales)_{ijt}</i> [β_8])	Natural log of gross revenues of telecom in event year.	Compustat (2003)	None
	ROA (<i>roa_{ijt}</i> [β_9])	Return on assets of telecom in event year.	Compustat (2003)	None
	Δ Public Expenditure (<i>pubexpgd_{ijt}</i> [β_{10}])	Telecom's home country total public expenditures in event year less last year, as percentage of GDP.	WDI (2003)	Negative
	Regulatory Agency Dummy (<i>agency_{ijt}</i> [β_{11}])	Dummy variable assuming value of 1 if telecom's home country has independent regulatory agency in event year, otherwise 0.	Bortolotti <i>et al.</i> , (2003) and ITU (2003)	Negative
	Third Party Access Rules Dummy (<i>TPARules_{ijt}</i> [β_{12}])	Dummy variable assuming value of 1 if telecom's home country has third-party access and interconnection rules imposed by law on owner(s) of fixed networks in event year, otherwise 0.	Bortolotti <i>et al.</i> (2003) and ITU (2003)	Positive
	Pricing Regulation Dummy (<i>pricingreg_{ijt}</i> [β_{13}])	Dummy variable assuming value of 1 if telecom's home country has price regulation on final telecom services in event year, otherwise 0.	Bortolotti <i>et al.</i> (2003) and ITU (2003)	Positive
	Number of Mobile Competitors (<i>rivalry_{ijt}</i> [β_{14}])	Number of mobile telephony service operators not owned by telecom, but licensed to operate and allocated spectrum in event year.	Bortolotti (2003) and ITU (2003)	Negative
	Separate Telecom (Company) Dummies (<i>telecom_i</i> [ω_{i-14}])	Dummy variables assuming value of 1 if event involves particular telecom, otherwise 0.	SDC (2002)	None
Separate Year (Time) Dummies (<i>year_t</i> [ψ_{t-13}])	Dummy variables assuming value of 1 if event occurs in a particular year, otherwise 0.	SDC (2002)	None	

TABLE 2
Regression Results^{a,b}

Dependent Variable→	Estimator→	Cumulative abnormal return (CAR)		Cumulative abnormal positive return dummy (abpos)		
		(1) Mean (Std. Dev.)	(2) GLS	(3) GLS	(4) Probit	(5) Probit
Constant [β_0]			0.518 (0.322)	0.422 (0.326)	46.694*** (0.000)	48.685*** (0.000)
Residual State Ownership [β_1]		25.317 (23.678)	-0.002*** (0.000)	-0.002*** (0.000)	-0.129*** (0.023)	-0.143*** (0.027)
Log (Months Since Privatization) [β_2]		4.543 (0.746)	-0.041* (0.020)	-0.033* (0.017)	-0.728 (0.675)	-0.142 (0.411)
Emerging Market Dummy [β_3]		0.111 (0.229)		0.721* (0.350)		43.566** (18.036)
Residual State Ownership*Emerging Market Dummy [β_4]		0.765 (3.996)		-0.005* (0.003)		-0.401*** (0.143)
Log(Months Since Privatization)* Emerging Market Dummy [β_5]		0.205 (0.857)		-0.169** (0.066)		-11.682*** (3.259)
JV Event Dummy [β_6]		0.356 (0.480)	0.024* (0.011)	0.023* (0.011)	0.699*** (0.259)	0.689*** (0.254)
M&A Event Dummy [β_7]		0.221 (0.416)	0.033 (0.018)	0.032 (0.018)	0.925*** (0.260)	0.878*** (0.257)
Target Event Dummy [β_8]		0.125 (0.332)	-0.023 (0.016)	-0.025 (0.017)	-0.621 (0.487)	-0.688 (0.514)
Log (Sales) [β_9]		10.258 (0.849)	-0.035 (0.026)	-0.030 (0.027)	-4.750*** (1.341)	-5.216*** (1.460)
ROA [β_{10}]		0.039 (0.036)	-0.316*** (0.094)	-0.335*** (0.100)	-19.275*** (5.835)	-27.418*** (6.317)
Δ Public Expenditure [β_{11}]		-0.001 (0.029)	0.386** (0.129)	0.387** (0.128)	20.168*** (4.150)	21.463*** (3.927)
Regulatory Agency Dummy [β_{12}]		0.450 (0.498)	-0.039 (0.030)	-0.050 (0.029)	-6.287*** (1.703)	-7.996*** (2.113)
Third Party Access Rules Dummy [β_{13}]		0.625 (0.485)	0.087*** (0.020)	0.076*** (0.018)	2.129*** (0.737)	1.478*** (0.471)
Pricing Regulation Dummy [β_{14}]		0.629 (0.484)	0.088*** (0.023)	0.104*** (0.016)	12.199 (15.283)	14.169 (16.191)
Number of Mobile Competitors [β_{15}]		1.522 (0.857)	-0.027* (0.013)	-0.024 (0.013)	-0.463 (0.338)	-0.221 (0.285)
Number of Observations		199	199	199	199	199
R-squared			0.269	0.278	0.180 ^c	0.199 ^c
State Ownership Effects in Emerging Markets: $\beta_1 + \beta_4$				-0.007** (0.003)		-0.544*** (0.144)
Temporal Distance Effects in Emerging Markets: $\beta_2 + \beta_5 = 0$				-0.202*** (0.057)		-11.825*** (3.198)

* significant at 10%; ** significant at 5%; *** significant at 1%.

^a Robust standard errors reported in parentheses.

^b Results reported in columns 2-7 include year and telecom dummy variables. Most coefficient estimates for indicator variables of each type are significant at $p < 0.05$ or higher levels. Joint significance of coefficient estimates for indicator variables of each type is also significant at $p < 0.05$ or higher levels. Additional results available from authors on request.

^c Pseudo R-squared.

FIGURE 1

Smoothed Relationship between State Ownership Effects and Probability of Abnormal Positive Returns for Industrialized and Emerging-Market Telecoms

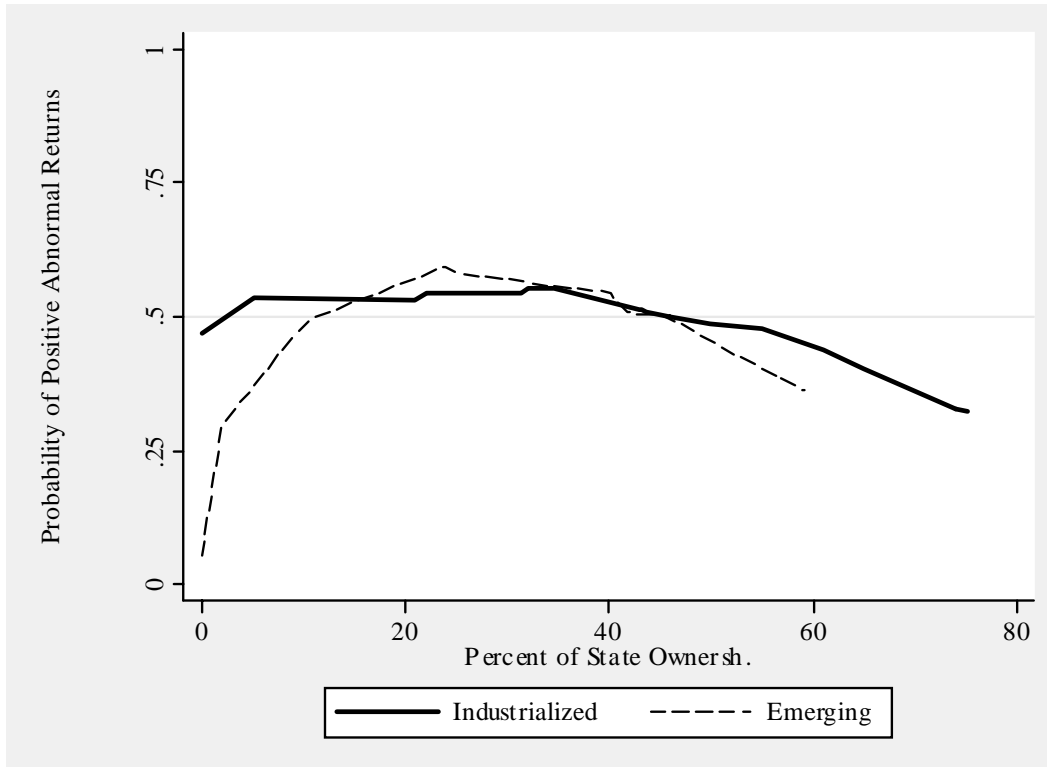


FIGURE 2

Smoothed Relationship between Temporal Distance Effects and Probability of Abnormal Positive Returns for Industrialized and Emerging-Market Telecoms

