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The Political Determinants of the Cost of Equity: Evidence from Newly Privatized Firms

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ABSTRACT

In this paper, we investigate the political determinants of the cost of equity using a unique data set of 236 firms privatized between 1987 and 2006 in 38 countries. We find robust evidence that the cost of equity is increasing in government ownership. We also show that the cost of equity is significantly related to political orientation and the extent of government expropriation. Furthermore, we report a less pronounced effect of state ownership on the cost of equity in more populist governments and in more financially developed countries, in addition to a more pronounced effect of state ownership on the cost of equity when the risk of government expropriation is higher. Results from an event study examining the replacement of left-wing

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governments by right-wing governments suggest a lower cost of equity in more financially developed countries and a higher cost of equity in more autocratic countries and in countries with a high risk of government expropriation. Finally, we find that chief executive turnover is associated with a higher cost of equity in more autocratic countries.

1. Introduction

In this paper, we investigate the political determinants of the cost of equity of firms operating in a wide range of countries. Several studies suggest that political economy has an influence on corporate finance. For instance, Durnev and Fauver [2010] demonstrate that firms have less incentive to practice good governance, disclose information, and increase their value when governments pursue predatory policies or are more likely to expropriate those firms' profits. In their analysis of the impact of political economy on corporate transparency, Bushman, Piotroski, and Smith [2004] show that firms' financial and governance transparency is lower in countries with more state involvement in the economy. Similarly, Piotroski, Wong, and Zhang [2010] find that state-owned firms in China are less likely to release negative financial information around visible political events. In the context of privatization, which is by definition a politically backed change in corporate ownership, several studies underline the conditions for improvements in the corporate performance of former state-owned firms. Shleifer and Vishny [1998] argue, for example, that, if the existing links between politicians and managers of former state-owned firms are not completely severed, the "grabbing hands" of governments will not be neutralized, allowing them to expropriate corporate resources. In this study, we extend this strand of literature by directly analyzing the importance of political economy to equity valuation. In particular, we examine how government ownership and the political environment may affect the cost of equity capital required by shareholders, and we attempt to answer the following questions: Do shareholders consider residual government ownership of a firm a risk factor, and does such ownership influence the firm's cost of equity? Do the political characteristics of a government (e.g., its ideological orientations, the existing political system, its stability, and extent of expropriation) also affect the cost of equity, and, if so, how and to what extent? How does the relation between government ownership and the cost of equity vary with the political characteristics of the privatizing government?

We conduct our research in the specific context of privatization for several reasons. As previously explained, privatization is characterized by major changes in ownership structures, so the dynamic links between a (new) ownership structure (and hence new corporate governance) and a newly privatized firm's cost of equity can be better studied. The transition from state to private ownership that is accompanied by severe information asymmetry problems (Denis and McConnell [2003] and Dyck [2001]) also constitutes a unique setting for investigating new potential determinants of the cost of equity. Specifically, the privatization context is an opportunity to

examine if, and to what extent, the political institutions of the government matter to shareholders. Newly privatized firms also have a unique feature, which is the presence of the government as a shareholder, even several years after privatization (e.g., Boubakri, Cosset, and Guedhami [2005a]; Bortolotti and Faccio [2009]). This is important since governments, unlike typical shareholders, tend to pursue political objectives that rarely coincide with profit maximization. The situation of newly privatized firms thus provides us with a natural laboratory for examining the impact of political factors on firms' cost of equity.

Our study is related to the literature on the impact of government ownership on postprivatization corporate performance. The evidence to date suggests that corporate performance is negatively related to governance ownership. For instance, Boardman and Vining [1989] report that fully privatized firms outperform partially privatized firms and state-owned firms. In the same vein, Gupta [2005] shows that partially privatized Indian firms post higher profits than their state-owned counterparts. Boubakri, Cosset, and Guedhami [2005b] also find that the postprivatization performance of firms in developing countries increases more when the government relinquishes majority control. We contribute to this literature by examining the potential effects of government ownership on privatized firms' equity financing costs during the dramatic organizational changes resulting from privatization.

To address our research questions, we focus on the cost of equity rather than firm value for three main reasons. First, good corporate governance improves a firm's valuation by stemming the diversion of its cash flows (e.g., Claessens et al. [2002] and Gompers, Ishii, and Metrick [2003]). It also increases firm value by reducing agency and information problems and hence the discount rate of the firm's expected future cash flows (i.e., the cost of equity).[1] It is important to consider this latter link through which corporate governance may affect firm value, because the discount rate, as a direct measure of external equity financing costs, affects a firm's financing and investing decisions (e.g., Shleifer and Vishny [2003]). Second, as Pham, Suchard, and Zein [2008] argue, the cost of equity has a particular advantage over Tobin's *Q*, which is frequently used in the corporate finance literature. Unlike Tobin's *Q*, which also reflects a firm's growth opportunities, the cost of equity is based on the firm's current operations risk and is less likely to be exposed to factors exogenous to managerial decisions (such as economic and industry conditions) that affect a firm's growth opportunities. Consequently, the cost of equity is a more accurate response to changes in firms' governance environments (Hail and Leuz, 2006, 2009). Finally, analyzing the cost of equity enables researchers to detect changes in firms' agency and information asymmetry problems (e.g., Easley and

[1] Hail and Leuz (2006, p. 286) use a similar argument to justify their choice of the cost of equity. They note: "It is possible that the valuation effects primarily reflect differences in the level of expropriation and firms' growth opportunities."

O'Hara [2004] and Lambert, Leuz, and Verrecchia [2007]) that are generally associated with privatizations.

Using a unique multinational sample of 236 firms privatized between 1987 and 2006 in 38 countries, we find robust evidence that the cost of equity is increasing under government ownership. Our results also show that the cost of equity of newly privatized firms is significantly related to government political orientations and the extent of government predation. More specifically, we find that firms from countries with left-oriented governments and high risk of government expropriation are characterized by higher equity costs. Moreover, we show that the adverse effects of increased government residual ownership on equity costs are less pronounced when the government is more populist (i.e., left-oriented). In addition, we find that the higher the risk of government expropriation, the more pronounced these effects are. Our results are confirmed by a battery of additional checks and alternative cost of equity measures.

We next adopt another perspective and assess the impact of changes in political structures on the cost of equity. Specifically, we look at chief executive changes or political orientation changes after elections. Our event study shows that the replacement of an incumbent by a new chief executive has adverse effects on the cost of equity in more autocratic countries. It also shows that political orientation changes after elections (from left-wing to right-wing governments) are associated with a lower cost of equity in more financially developed countries. However, we find that the replacement of left-wing governments by right-wing governments has adverse effects on the cost of equity when state ownership is high, in more autocratic countries, and in countries with a high risk of government expropriation, respectively. This finding suggests that the potential positive effects on the cost of equity engendered by right-wing governments are reduced by high levels of state ownership, autocratic regimes, and high risk of expropriation.

Our findings contribute to the literature in the field in several ways. First, we add to recent analyses on the role of corporate governance in determining firms' cost of equity (e.g., Hail and Leuz [2006] and Chen, Chen, and Wei [2009]), by taking into consideration the impact of a government as shareholder. Second, by investigating the political determinants of the cost of equity, we contribute to the growing body of literature on the political economy of corporate finance (e.g., Bushman, Piotroski, and Smith [2004] and Durnev and Fauver [2010]). Finally, we add to the literature on privatization that has to date provided few insights into the external financing costs of newly privatized firms.[2]

The rest of this paper is organized as follows. In section 2, we review the related literature and present our hypotheses. Section 3 describes the sample used and the construction of the implied cost of equity estimates,

[2] A conspicuous exception is the study by Borisova and Megginson [2011] on the cost of debt of newly privatized firms based in Europe.

and provides descriptive information about state ownership in our sample of privatized firms. Section 4 presents our main empirical evidence and reports the results of our sensitivity tests and event-study approach. Our findings and conclusions are summarized in section 5.

2. *Related Literature and Hypotheses*

2.1 GOVERNMENT OWNERSHIP AND THE COST OF EQUITY

In the literature, the impact of state ownership on postprivatization performance is still a topic of debate. On the one hand, the political view argues that state ownership is associated with postprivatization political interference (Boycko, Shleifer, and Vishny [1996] and Shleifer and Vishny [1994]). The proponents of this view maintain that managers in state-owned enterprises (SOEs) can be induced to pursue government leaders' political objectives, rather than maximize profits. Typical evidence of this pursuit of political objectives would include maintaining a high level of employment and promoting regional development by locating production in politically desirable rather than economically attractive regions. Boycko, Shleifer, and Vishny [1996] argue that greater emphasis will be put on profits and efficiency only if privatization transfers control and ownership from the government to private shareholders, who will then strive to "maximize firm value." In the same vein, Paudyal, Saadouni, and Briston [1998] argue that both the level of postprivatization political interference and the risk of renationalization (i.e., policy risk) will be higher when a government sells a relatively low percentage of its capital. Therefore, the "political interference" hypothesis implies that greater government ownership is associated with a higher agency risk and will thus lower postprivatization corporate performance and firm value. Based on this argument, our first hypothesis can be stated as follows:

H1a: State ownership and the cost of equity are positively related, all else being equal.

Several empirical studies support the predictions of the political interference premise. Boardman and Vining [1989] compare the performance of private firms, SOEs, and partially privatized firms listed among the 500 largest non-U.S. industrial firms. They report that fully privatized firms outperform partially privatized firms and SOEs. Similarly, Boubakri, Cosset, and Guedhami [2005b] find that, in developing countries, there is improved postprivatization performance when the government relinquishes majority control. More recently, Fan, Wong, and Zhang [2007] document lower-quality accounting and post-IPO long-term performances for privatized Chinese firms, when the government maintains control through political connections.

On the other hand, state ownership may be positively related to firm performance/valuation because it carries an implicit guarantee of government

bailouts (i.e., a soft-budget constraint). For example, Wang, Wong, and Xia [2008] argue that, because they can appeal to soft-budget constraints when they encounter financial difficulties, SOEs have lower incentives to provide higher quality accounting information in order to obtain better contracting terms. Faccio, McConnell, and Masulis [2006] find that politically connected firms are more likely to be bailed out than their nonpolitically connected peers. In the same vein, Charumilind, Kall, and Wiwattanakantang [2006] show that Thai firms with connections to banks and politicians obtained more long-term loans and needed less collateral during the period preceding the Asian financial crisis of 1997 compared to firms without such connections. Based on this view, the alternative hypothesis is as follows:

H1b: State ownership and the cost of equity are negatively related, all else being equal.

Overall, the literature provides two competing predictions about the impact of state ownership on privatized firms' cost of equity, when all other factors remain constant. However, this relation is likely to be contingent on factors linked to existing government incentives to resolve policy risk or expropriate corporate resources. In the following section, we discuss these underlying incentives and their impact on the links between state ownership and the cost of equity capital.[3]

2.2 POLITICAL FACTORS, GOVERNMENT INCENTIVES, AND THE COST OF EQUITY

Perotti [1995] and Biais and Perotti [2002] suggest that a government's credibility and its commitment to privatization will determine the way the privatization process is conducted as well as the expected level of policy risk. Policy risk arises from postprivatization policies that could be implemented by the government (e.g., deregulation, enactment of new legislation, and new administrative procedures) and that could affect previously recognized rights. Several characteristics of a privatizing government can be related to policy risk. A government's political orientation can impact the level of postprivatization policy risk. Certainly, left-wing governments are more likely to intervene in the economy and to influence postprivatization valuation by undertaking policy changes that modify shareholders' control and cash-flow rights. According to Biais and Perotti [2002], left-wing governments are less likely to apply market-oriented policies and tend to be less committed to these policies than right-wing governments. We therefore expect policy risk to be higher in countries with left-wing governments. An alternative view, however, posits that, traditionally, left-wing governments are politically committed to one core constituency—the working

[3] We gratefully acknowledge the referee's suggestion that the prevailing incentives of local governments should condition the relation between state ownership and the cost of equity of newly privatized firms.

class—(as opposed to right-wing governments being committed to market forces) and would therefore be more likely to bail out large companies (including newly privatized firms) in times of financial difficulty, so as to preserve employment (Cioffi and Höpner [2006]). This leads us to formulate the following hypothesis:

H2a: The effect of state ownership on the cost of equity of newly privatized firms (NPFs) is likely to depend on the government political orientations.

The political system may also determine the level of postprivatization policy risk, and hence the valuation of NPFs. Democratic governments are more likely to introduce market-supporting reforms and thus should be more committed to privatization. Consequently, democratic governments should be less inclined to interfere with the operations of NPFs through regulation or renationalization. As argued by Banerjee and Munger [2004], democracy also affects rent-seeking incentives. The authors note (p. 220): "The checks and balances penalize self-interested politicians and hence limit rent-seeking opportunities." Consequently, minority shareholders should face a lower level of policy risk in countries with more democratic governments leading them to require a lower compensation for risk when the government retains ownership in the firm. In this case, we propose the following hypothesis:

H2b: A higher degree of democracy in political systems mitigates the relation between state ownership and the cost of equity of NPFs, whereas a lower degree of democracy strengthens that relation.

Furthermore, the level of postprivatization policy risk is likely to depend on government stability; high government turnover increases the likelihood of policy reversals. As a result, the policy risk faced by shareholders of NPFs should be lower in countries with stable governments (Perotti [1995]). In addition, political instability increases (a) the incentives for incumbent governments to embark on expropriation-related activities at the end of their tenure and (b) the likelihood that politically connected firms will have to deal with greater risk and/or lower cash flows arising from a loss of preferential access to credit (i.e. state banks) and the repudiation of existing contracts.[4] These arguments suggest that government stability can potentially affect the level of postprivatization policy risk and the risk and profitability of NPFs. This in turn will affect the returns required by shareholders for investments in NPFs where the government is a residual owner. This brings us to our third hypothesis:

H2c: Government stability mitigates the relation between state ownership and the cost of equity of NPFs.

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[4] We thank the referee for suggesting these explanations for potential increases in equity costs at times of political regime change as well as the use of an event-study approach in the empirical tests.

The level of protection of investor rights provided by the prevailing institutional environment also influences government expropriation-related incentives. In settings where investor protection is weak, expropriation is likely to be more severe, and government predation and expropriation of corporate resources more acute. The resulting policy risk is higher, and we expect investors in such environments to give more weight to government ownership when they estimate their required rate of return or the cost of equity (Bushman and Piotroski, [2004]; Durnev and Guriev, [2010]). Our final hypothesis can be stated as follows:

H2d: A higher risk of government expropriation strengthens the relation between state ownership and the cost of equity of NPFs.

3. Data and Variables

3.1 CONSTRUCTION OF THE STUDY SAMPLE

We obtain the list of privatized firms from several sources such as the World Bank privatization database for developing countries, the Privatization Barometer for OECD (Organisation for Economic Co-operation and Development) countries, and Megginson's [2003] updated list of privatized firms in developed and developing countries. For each privatized firm, we hand-collected data on the ownership structure from many sources including annual reports, Worldscope, Kompass Egypt Financial Year Book, and the Asian and Brazilian Company Handbooks. We also draw on information about ownership structures provided by Boubakri, Cosset, and Guedhami [2005a].

To implement the cost of equity models described in appendix B, we use positive one-year-ahead and two-year-ahead earnings forecasts, and either a three-year-ahead positive earnings forecast or a long-term growth rate forecast from I/B/E/S. In line with the methods used by Frankel and Lee [1998] and Hail and Leuz [2009], we replace missing and negative forecasted earnings per share for the first three years by historical earnings per share. For firms without I/B/E/S coverage, we also use historical earnings per share. These are determined using the beginning year book value per share and the three-year median return on equity in the same year, country, and industry. Financial data are collected from Worldscope, Moody's International, and Mergent Online. We also use data on contemporaneous stock prices from I/B/E/S and Datastream.[5] We then estimate the four models of the implied cost of equity and exclude firm-year observations if: (i) one of the cost of equity models does not converge or is not defined and (ii) we do not have data on the firm's ownership structure. We end up with a final sample of 236 firms privatized in 38 countries over the period between 1985

[5] Following Hail and Leuz [2006], we use analysts' forecasts and the stock price at month +10 after the fiscal year end to compute our estimates of the implied cost of equity. In doing so, we ensure that financial data are publicly available and priced at the time of our computations.

and 2006. Appendix A defines the variables used in our empirical analysis and their sources.[6]

Table 1 provides some descriptive statistics about the 236 firms from 38 countries used in this study. The 236 firms are diversified across development levels. Specifically, 58.05% of the sample firms are located in developing countries, while the remaining 41.95% are located in developed countries. Interestingly, this diversification involves countries with different legal, political, and institutional environments, allowing us to investigate what impact these cross-country differences have on the cost of equity. As reported in table 1, our sample is also diversified across industries, with 18.22% in the financial sector, 5.93% in the petroleum sector, 11.02% in the transportation sector, and 24.58% in the utility sector. Furthermore, 72.88% of our sample's privatization transactions occurred in the 1990s.

3.2 COST OF EQUITY ESTIMATES

One measure of the cost of equity commonly used in the asset pricing literature is the ex post realized return. However, this measure has been criticized in recent finance literature (e.g., Fama and French [1997] and Elton [1999]). Elton [1999], for example, argues that the realized return is a poor and potentially biased proxy for the cost of equity.[7] Additionally, Fama and French [1997] conclude that the single-factor, capital-asset pricing model and the Fama-French three-factor model produce imprecise cost of equity estimates.[8] An alternative cost of equity proxy widely used in recent accounting and finance literature (e.g., Botosan and Plumlee [2005], Dhaliwal, Heitzman, and Li [2006], Hail and Leuz [2006, 2009], Pastor, Sinha, and Swaminathan [2008] and Chen, Chen, and Wei [2009, 2011]) is the ex ante rate of return implied by the discounted cash flow method. We

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[6] We merge the list of privatized firms from (i) the World Bank privatization database, (ii) the Privatization Barometer, and (iii) Megginson's [2003] continuously updated list of privatized firms with Datastream. The number of firms for which stock price data is available is 1,101. We exclude 700 firms due to a lack of accounting and ownership data. We exclude observations for which the cost of equity estimates are undefined (Ohlson and Juettner-Nauroth [2005] model) or do not converge (Easton [2004], Claus and Thomas [2001], and Gebhardt, Lee, and Swaminathan [2001] models). We also exclude observations for which we are not able to estimate the four implied cost of equity models. We end up with a final sample of 236 firms privatized in 38 countries between 1985 and 2006. The distribution of our sample firms by legal origin is as follows: 31.57% of our sample firms come from common law countries and 57.89% of our sample firms come from civil law countries. This distribution closely parallels that of the World Bank, which reports that 31% of firms come from common law countries and 65% from civil law countries. We also note that 73% of the privatization transactions occurred in the nineties. This figure is very close to that of the World Bank, according to which 75% of privatization transactions occurred in the nineties.

[7] Elton [1999] shows that a sequence of correlated information surprises that have a significant permanent effect on realized returns will cause expected and realized returns to differ systematically over long periods.

[8] Fama and French [1997] find that cost of equity estimates based on the single–capital asset pricing model and their three-factor model are characterized by large standard errors.

TABLE 1

Description of the Sample of Newly Privatized Firms

By Country			By Year		
Country	Number	Percentage	Year	Number	Percentage
Australia	3	1.27	1985	1	0.42
Austria	6	2.54	1987	2	0.85
Brazil	6	2.54	1989	2	0.85
Chile	1	0.42	1990	4	1.69
China	20	8.47	1991	5	2.12
Czech Republic	5	2.12	1992	9	3.81
Denmark	1	0.42	1993	8	3.39
Egypt	10	4.24	1994	28	11.86
Finland	8	3.39	1995	23	9.75
France	14	5.93	1996	26	11.02
Germany	8	3.39	1997	28	11.86
Greece	6	2.54	1998	20	8.47
Hungary	5	2.12	1999	21	8.90
India	22	9.32	2000	15	6.36
Indonesia	8	3.39	2001	7	2.97
Ireland	1	0.42	2002	13	5.51
Israel	5	2.12	2003	12	5.08
Italy	17	7.20	2004	8	3.39
Japan	2	0.85	2005	2	0.85
Jordan	4	1.69	2006	2	0.85
Korea	6	2.54	Total	236	100
Malaysia	12	5.08	**By industry**		
Mexico	2	0.85	Industry	Number	Percentage
Morocco	1	0.42	Basic industries	32	13.56
Netherlands	3	1.27	Capital goods	10	4.24
New Zealand	2	0.85	Construction	13	5.51
Norway	1	0.42	Consumer durables	14	5.93
Pakistan	10	4.24	Finance/real estate	43	18.22
Philippines	5	2.12	Food/tobacco	10	4.24
Poland	10	4.24	Leisure	2	0.85
Portugal	4	1.69	Petroleum	14	5.93
Singapore	3	1.27	Services	7	2.97
South Africa	1	0.42	Textiles/trade	7	2.97
Spain	10	4.24	Transportation	26	11.02
Sri Lanka	1	0.42	Utilities	58	24.58
Sweden	1	0.42	Total	236	100
Thailand	8	3.39	**By development level**		
United Kingdom	4	1.69	Category (countries)	Number	Percentage
Total	236	100	Developing countries (19)	137	58.05
			Industrialized countries (19)	99	41.95
			Total (38)	236	100

This table provides some descriptive statistics for the sample of 236 privatized firms used in this study. We report the distribution of privatization in the countries included in the sample by year, industry, and development level.

follow this line of research by relying on the discounted cash flow method to estimate the cost of equity. We use estimates of the implied cost of equity based on the following four models: Claus and Thomas [2001; CT], Gebhardt, Lee, and Swaminathan [2001; GLS]; Easton [2004; ES]; and Ohlson and Juettner-Nauroth (2005 OJ), denoted as R_{CT}, R_{GLS}, R_{ES}, and R_{OJ} , respectively. These four models—based either on the residual income valuation model or on an abnormal earnings growth valuation model—differ primarily in their assumptions about growth rates, forecast horizons, and inputs. A description of these models and detailed implementation procedures for each of them are summarized in Appendix B. As the literature shows no strong consensus on which of the models most accurately estimates the cost of equity, we follow Dhaliwal, Heitzman, and Li [2006] and Hail and Leuz [2006] and use the average of implied estimates from the four models as our estimate of the cost of equity.

Table 2 provides descriptive statistics for the implied cost-of-equity estimates. Panel A shows that the GLS model produces the lowest estimates of the cost of equity, consistent with Gode and Mohanram [2003] and Hail and Leuz's [2006] findings, among others. Our estimate of the implied cost of equity R_{AVG}, the average of the implied estimates from the four models, has a mean of 12.44% and a standard deviation of 5.82%. The first quartile for R_{AVG} is equal to 8.86%, a result suggesting that nearly a quarter of our sample firms have cost of equity estimates lower than 8.86%.[9] To ensure that the relatively low first quartile of cost of capital estimates is not due to a bias in our cost of capital estimate approach, we compare our cost of equity estimates to others based on alternative approaches for forecasting firms' earnings. We estimate the cost of equity for our sample firms using the approach in Easton and Sommers [2007] as well in Larocque [2010]. This approach involves estimating the ex ante bias in analyst forecasts and calculating the cost of equity using debiased analyst forecasts. This approach substantially reduces our sample size (i.e., we end up with a sample of 311 firm-year observations) because it requires historical I/B/E/S data. Consistent with Easton and Sommers [2007], the average cost of equity estimated using this method is lower than the average cost of equity estimated using analyst forecasts. The first quartile for the average cost of equity when we use this approach (Q1 = 8.79%) is lower than the first quartile for the average of our implied cost of equity reported in table 2 (Q2 = 8.86%). We also compare our cost of equity estimates to those based on the methods described in Hou, van Dijk, and Zhang [2010] and Lee, So, and Wang [2010]. We show mechanical earnings forecast using historical financial data (at least three years of data). We find that the first quartile

[9] We obtain higher cost of equity estimates for the I/B/E/S subsample. For example, we find that the first quartile of R_{AVG} for the I/B/E/S is 9.15% which is higher than the first quartile of R_{AVG} reported in table 2. This result is consistent with the findings of Frankel and Lee [1998], suggesting that cost of equity estimates when analysts' forecasts are used are higher than those obtained using historical ROEs, due to analyst forecast errors.

TABLE 2
Summary of Implied Cost of Equity

Panel A: Descriptive statistics

Variable	Mean (%)	Std. Dev. (%)	Min. (%)	Q1 (%)	Q2 (%)	Q3 (%)	Max. (%)
R_{OJ}	14.11	6.54	1.43	10.05	13.04	17.26	46.52
R_{CT}	12.11	7.34	1.03	7.79	10.57	14.74	57.17
R_{GLS}	10.01	5.97	0.10	5.78	8.97	12.99	37.93
R_{ES}	13.52	6.96	0.44	9.21	12.37	16.73	47.25
R_{AVG}	12.44	5.82	0.84	8.86	11.31	15.19	37.76

Panel B: Pearson correlation coefficients between implied cost of capital estimates

	R_{OJ}	R_{CT}	R_{GLS}	R_{ES}
R_{CT}	0.813			
R_{GLS}	0.625	0.593		
R_{ES}	0.835	0.591	0.549	
R_{AVG}	0.948	0.873	0.783	0.861

Panel C: Implied cost of equity by country (R_{AVG})

Country	Mean (%)	Median (%)	Std. Dev. (%)	Min. (%)	Max. (%)
Australia	9.98	9.07	2.69	6.20	13.59
Austria	11.29	10.13	4.65	2.56	22.09
Brazil	19.52	18.73	7.12	5.68	32.60
Chile	23.40	23.40	11.64	15.16	31.63
China	11.92	11.74	3.29	4.43	21.60
Czech Republic	10.58	9.79	6.20	1.05	20.32
Denmark	6.03	5.99	1.57	4.41	8.00
Egypt	18.56	17.55	7.94	4.32	36.66
Finland	10.28	6.91	7.58	4.79	37.22
France	8.71	8.74	3.61	2.80	19.15
Germany	9.97	10.12	3.71	3.84	17.72
Greece	12.70	12.14	5.19	5.32	23.73
Hungary	14.91	13.43	5.45	6.82	26.82
India	16.83	16.18	5.76	6.35	32.94
Indonesia	13.76	13.07	3.39	9.48	21.56
Ireland	10.57	11.26	1.40	8.95	11.49
Israel	13.90	12.89	4.19	7.95	20.96
Italy	8.57	8.53	2.60	1.50	14.27
Japan	7.26	6.79	4.09	2.27	13.75
Jordan	14.34	12.42	5.60	7.99	22.91
Korea	11.91	11.31	5.89	4.46	23.97
Malaysia	9.06	8.85	1.86	5.02	13.28
Mexico	18.53	15.14	8.04	14.40	32.91
Morocco	10.97	10.97	0.40	10.68	11.25
Netherlands	12.45	11.69	4.23	7.49	20.79
New Zealand	11.87	10.49	2.77	10.01	17.47
Norway	9.37	9.36	0.28	9.09	9.67
Pakistan	20.47	18.97	7.27	11.64	37.76
Philipines	11.74	11.62	6.36	2.37	21.71
Poland	15.11	15.76	4.43	8.17	24.29
Portugal	9.77	9.45	1.74	6.75	13.98
Singapore	10.00	9.89	2.24	6.57	13.67
South Africa	13.74	13.74	4.51	10.55	16.93

(*Continued*)

TABLE 2—*Continued*

Panel C: Implied cost of equity by country (R_{AVG})					
Country	Mean (%)	Median (%)	Std. Dev. (%)	Min. (%)	Max. (%)
Spain	9.55	9.59	4.48	0.84	21.13
Sri Lanka	17.28	16.44	2.29	15.53	19.88
Sweden	14.55	12.95	2.58	12.53	18.49
Thailand	13.19	12.08	6.12	5.26	37.50
United Kingdom	11.35	10.50	3.16	7.19	18.48

This table reports descriptive statistics for the implied cost of equity estimates based on four models for a sample of 236 firms privatized in 38 countries between 1985 and 2006. The implied cost of equity estimates, R_{OJ}, R_{CT}, R_{GLS}, and R_{ES}, are derived respectively from Ohlson and Juettner-Nauroth [2005], Claus and Thomas [2001], Gebhardt, Lee, and Swaminathan [2001], and Easton [2004]. R_{GLS} is the average of the four estimates for the implied cost of equity. A detailed description of these models can be found in appendix B.

of the average implied cost of equity estimated using this approach (Q1 = 4.65%) is lower than the first quartile for the average implied cost of equity reported in table 2 (Q2 = 8.86%). Overall, these findings indicate that our cost of equity estimates are not lower than those based on the approaches in Easton and Sommers [2007] and Lee, So, and Wang [2010].

Panel B of table 2 shows the pair-wise Pearson correlations between the estimates from the four models. Like Hail and Leuz [2006], we find that the cost-of-equity estimates from the four models are highly correlated. Panel C, which reports descriptive statistics on the implied cost of equity (R_{AVG}) by country, shows differences on R_{AVG} between countries. R_{AVG} ranges from 6.03% in Denmark to 23.40% in Chile.

3.3 EXPLANATORY VARIABLES

3.3.1. State Ownership. Direct state ownership is our main proxy for state involvement in privatized firms. We show the equity stake held by the state in each of the six years from year 0 to year +5 (i.e., from the privatization year to five years afterward) in panel A of table 3 . We observe that stakes held by the state decline after privatization. Indeed, average state ownership decreases from 42.13% in the privatization year to 30.66% while median state ownership declines from 49.00% to 29.43% five years after privatization. In unreported results, we examine the evolution of ultimate state ownership over the period from the privatization year to five years afterward. To measure the ultimate control (voting) rights of the largest shareholders of our sample firms, we use the approach described in La Porta, Lopez-de-Silanes, and Shleifer [1999], Claessens, Djankov, and Lang [2000], and Faccio and Lang [2002]. Corporate ownership is measured by cash flow rights, and control is measured by voting rights. Following Bortolotti and Faccio [2009], we define a large shareholder as an entity that, directly or indirectly, holds at least 10% of a privatized firm's voting rights. This approach takes into account ownership leveraging devices such as pyramids, dual-class shares, cross-holdings and multiple control chains. We find that average ultimate state ownership decreases from 43.67% in the privatization year to 33.44% while median ownership decreases from 51.29% to

TABLE 3
Distribution of State Ownership

	(Year relative to privatization)					
	0	1	2	3	4	5
Panel A: Full sample						
Mean	42.13	42.00	41.22	35.57	32.73	30.66
Median	49.00	49.00	46.32	38.49	33.87	29.43
N	81	123	144	128	110	83
Panel B: By important industry						
			Finance/Real Estate			
Mean	37.97	43.25	43.02	34.23	32.48	28.09
Median	45.89	53.13	47.02	38.92	41.14	26.88
N	19	21	25	20	17	16
Petroleum						
Mean	63.69	68.48	59.96	54.96	51.31	50.20
Median	64.63	66.20	63.15	58.20	53.31	53.31
N	4	5	8	7	6	6
Transportation						
Mean	49.23	43.77	49.33	41.09	40.53	37.25
Median	53.53	53.98	54.70	45.43	38.33	39.70
N	9	17	20	18	17	11
Utilities						
Mean	53.24	47.45	45.14	39.04	32.21	31.15
Median	53.03	51.00	51.00	45.26	36.00	34.12
N	22	36	36	30	23	20
Panel C: By development level						
			Developing countries			
Mean	48.61	51.88	48.96	43.88	38.91	39.47
Median	53.13	59.54	53.13	51.37	41.26	45.61
N	39	66	71	62	54	40
Industrialized countries						
Mean	36.12	30.56	33.70	27.76	26.76	22.47
Median	42.15	30.30	37.50	28.97	25.00	19.30
N	42	57	73	66	56	43

This table shows the percentage evolution of direct state ownership for our sample of 236 firms privatized between 1985 and 2006 in 38 countries. The descriptive statistics are reported for the period from year 0 (i.e., the privatization year) to year +5 (i.e., five years after privatization).

38.80%. However, the sample corresponding to firms with ultimate ownership is substantially reduced, particularly for firms based in developing countries. Furthermore, leveraging devices that allow shareholders to obtain excess control (control rights in excess of ownership rights) are not well developed in developing countries (Boubakri et al. [2011]). We therefore use the direct ownership sample in our main tests to maximize the number of usable observations. We nevertheless consider the ultimate state ownership sample as an additional test.[10] The additional tests reported in

[10] In unreported results, we test the differences between our dependent variable R_{AVG} for the subsamples of direct and ultimate state ownership. We find that, whether we use median

section 4.3.2 show that our main findings are robust to the use of ultimate ownership to measure the state's direct involvement in privatized firms.

Panel B of table 3 presents the distribution of state ownership by important industries. We observe that divestiture is gradual. More specifically, even five years after privatization, the state retains ownership in important industries: finance/real estate, petroleum, transportation, and utilities. Finally, panel C presents the distribution of state ownership by level of country development. We observe that the pace of divestiture is slower (i.e., sales are more gradual) in developing countries. Indeed, five years after privatization, the state retains, on average, 39.47% of direct ownership in NPFs from developing countries, compared to 22.47% in NPFs from industrialized countries.[11]

3.3.2. Political Economy Variables. As proxies for the political characteristics of the privatizing governments, we use the following variables from the Worldbank's Database of Political Institutions (DPI):

Political Orientation (*LEFT*): A dummy variable equal to one (1) if the government is left-oriented, and zero (0) otherwise. Following Biais and Perotti [2002], we distinguish between left-wing and right-wing governments, since right-wing governments tend to be more committed to programs of market reform and can thus be expected to be associated with lower postprivatization policy risk.

Degree of Autocracy *(AUTOCRACY)*: *AUTOCRACY* is defined as the difference between Marshall and Jaggers's [2009] autocratic index and democratic index. The autocratic index measures the general secrecy of political institutions, whereas the democratic index measures the general openness of political institutions. The difference between the autocratic index and the democratic index ranges from −10 (strongly democratic) to +10 (strongly autocratic). To facilitate interpretation, we add a constant to the

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or median tests, the differences in R_{AVG} between the two subsamples are not statistically significant. This would suggest that our results will not be biased by the use of direct state ownership instead of ultimate state ownership. We also compare R_{AVG} between the subsample of direct state ownership and the subsample of ultimate state ownership for firms from countries with a high risk of government expropriation (i.e., we run the univariate tests for the subsample of countries with a risk of government expropriation index higher than the median of *GOV_EXPROP*). The results show that the difference in R_{AVG} between the two sub-samples is not statistically significant when the mean and median tests are used, suggesting that even for countries with a high risk of government expropriation, R_{AVG} for the subsample of direct ownership and for the subsample of ultimate state ownership are comparable.

[11] To the best of our knowledge, no other study contrasts the postprivatization state ownership of privatized firms in developed and developing countries. However, our evidence is consistent with the literature that reports that state ownership is higher in many developing countries, where most privatizations are partial and gradual, than in developed countries, where privatizations are generally a one-time sale (e. g., Boubakri, Cosset, and Guedhami 2005a). In the same vein, Boubakri, Cosset, and Guedhami [2011] find that state ownership is decreasing with financial development, which has been shown to drive long-term economic growth (e.g., Levine and Zervos, 1998).

difference between the autocratic index and the democratic index. The scale changes from −10 to +10 and from 0 to +20. A higher score indicates a more autocratic government.

Government Tenure (*YRSOFFC*): We employ the number of years that the government has been in office. This variable measures the credibility of the government and its ability to implement economic reforms and privatization (Cukierman and Leviatan [1992] and Banerjee and Munger [2004]), as these characteristics both lower the postprivatization policy risk faced by shareholders (Perotti [1995]).

Risk of Government Expropriation (*GOV_EXPROP*): This index from La Porta et al. [1998] measures the risk of outright confiscation or forced nationalization by the state. Recent studies use this index as a proxy for the degree of state involvement in the economy and government predation (e.g., Bushman and Piotroski [2004] and Durnev and Fauver [2010]). It ranges from 0 to 10, higher scores indicating a higher probability that the government will interfere in the economy to extract rents.

3.3.3. Control Variables. Following the recent empirical literature on the cost of equity, we control for the following risk and control variables:

Firm Size *(SIZE)*: Fama and French [1992] suggest that the cost of equity is negatively related to a firm's size. Hail and Leuz [2006] document that the implied cost of equity is negatively and significantly related to a firm's size. We use the logarithm of a firm's total assets in U.S. dollars as our proxy for the firm's size and we expect to find a negative association between the cost of equity and *SIZE*.

Time Trend *(TIME)*: To account for the effects of trends or years from privatization events, we control for the number of years following the first year of privatization. Specifically, we introduce a variable *TIME* that is equal to the number of years since the year of privatization.

Volatility of Stock Returns (*RETURN_VOL*): The CAPM suggests that the market beta should be positively associated with the cost of equity. However, in the tests based on realized returns (e.g., Fama and French [1992 and 1997]), use of the beta method to estimate the cost of equity is found to be imprecise. Furthermore, some empirical studies on the cost of equity (Gebhardt, Lee, and Swaminathan [2001] and Lee, Ng, and Swaminathan [2004], among others) document no association (or even a negative one) between the implied cost of equity and the market beta. In addition, Hail and Leuz [2006] find that stock-return volatility explains cross-country differences in the cost of equity better than does the market beta. We therefore use stock-return volatility rather than the market beta to measure market risk. Lee, Ng, and Swaminathan [2004], and Hail and Leuz [2006] find that stock-return variability is positively related to the cost of equity. Consequently, we expect a positive association between stock-return volatility and the implied cost of equity.

Leverage (*LEVERAGE*): Modigliani and Miller [1958] show that, without taxes and transaction costs, a firm's cost of equity is an increasing function of its debt ratio. With corporate taxes, Modigliani and Miller [1963]

also show that the cost of equity is positively related to a firm's leverage ratio. The same result is implied by Dhaliwal, Heitzman, and Li [2006], who expand on Modigliani and Miller [1963] to include investor level taxes. Using implied cost-of-equity estimates and proxies for a firm's corporate tax rate and the personal tax disadvantage of debt, Dhaliwal, Heitzman, and Li [2006] conclude that the cost of equity is positively associated with leverage. Accordingly, we can expect the cost of equity to be positively associated with the firm's leverage ratio.

Market-to-Book Ratio (*MARKET TO BOOK*): Fama and French [1992] find that realized stock returns are positively related to the book-to-market ratio, suggesting a negative association between the market-to-book ratio and the implied cost of equity. Recent empirical studies on the implied cost of equity (e.g., Gebhardt, Lee, and Swaminathan [2001], Gode and Mohanram, [2003], Hail and Leuz [2006]) report evidence consistent with the findings of Fama and French [1992]. Consequently, we can expect a negative association between the market-to-book ratio and the implied cost of equity.

Long-Term Growth Rate (*GROWTH_RATE*): Gebhardt, Lee, and Swaminathan [2001] and Gode and Mohanram [2003], among others, measure a firm's long-term growth rate by the five-year earnings growth rate available in I/B/E/S, and find a positive association between the earnings growth rate and the implied cost of equity. This evidence suggests that the market perceives high growth firms as riskier, consistent with the asset pricing argument. Consequently, we can expect a positive association between the cost of equity and the expected long-term earnings growth rate.

Inflation *(INFL)*: Analyst forecasts, stock prices, the book value of equity—the key inputs of the cost of equity—are all expressed in nominal terms and local currencies. Consequently, our estimates of the cost of equity reflect a country's expected inflation rate. Following Hail and Leuz [2006], we control for the expected inflation rate, measuring it as the annualized yearly median of a country-specific, one-year-ahead realized monthly inflation rate.

Logarithm of GDP per Capita (*LNGDP*): We include the logarithm of GDP per capita to control for cross-country differences in the level of economic development. We also introduce *LNGDP*, which can capture country-fixed effects, to control for potential country-specific unobservable or omitted variables.

Financial Development (*FD*): Several empirical studies (e.g., Wurgler [2000]) document a link between financial development and certain economic outcomes, such as investment efficiency, economic growth, and the cost of capital. Therefore, we control for financial development, calculated as the sum of stock market capitalization and private credit relative to gross domestic product.

Industry Membership *(INDUSTRY CONTROLS)*: Several empirical studies on the cost of equity (e.g., Gebhardt, Lee, and Swaminathan [2001], Gode and Mohanram [2003], and Hail and Leuz [2006]) show that a firm's

implied cost of equity is significantly associated with its industry membership. To control for this effect, we introduce a set of dummy variables representing the 12 industries in Campbell [1996].

4. Empirical Analysis

To test our predictions in H1 and H2, we regress privatized firms' cost of equity on state ownership, the political variables, and the interaction terms between state ownership and the political variables, while controlling for standard firm- and country-level determinants of the cost of equity. More specifically, we estimate several specifications of the following general model:

$$R_{AVG_{it}} = \delta_0 + \delta_1 STATE_{it} + \delta_2 POLITICS_t + \delta_3 STATE_{it} * POLITICS_t + \delta_4 FD_t + \delta_5 STATE_{it} * FD_t + \delta_7 CONTROLS_{it} + \gamma_t + \varepsilon_{it} \quad (1)$$

where $R_{AVG_{it}}$ is the average of implied cost-of-equity estimates for firm i at time t based on the four different models described in appendix B, $STATE_{it}$ represents the stake held by the government in firm i at time t, $POLITICS_t$ represents the political economy variables outlined in section 3.3.2, FD_t holds for financial development, $CONTROLS_{it}$ comprises the set of firm- and country-level control variables outlined in section 3.3.3, γ_t are year dummies (i.e., an indicator for each postprivatization year) controlling for year fixed effects, and ε_{it} is the error term.

Megginson and Netter [2001] identify some methodological shortcomings (mainly related to selection bias) that weaken existing empirical studies on the impact of privatization on corporate performance. One of the selection bias problems is related to the fact that, in order to make privatization "attractive," a government may divest the "healthiest" and the "easiest" firms first (Megginson and Netter [2001]). Also, a government may be reluctant to relinquish control in large firms and/or in sectors that it believes to be economically and politically strategic. Therefore, state ownership may be systematically related to both unobservable and observable firm characteristics. Following several privatization studies (e.g., Villalonga [2000], Boubakri, Cosset, and Guedhami [2005a] and Gupta [2005]), we address selection bias by estimating a fixed-effects model. We believe that specific firms exhibit the same characteristics as the whole industry. Governments generally privatize firms from particular industries using the same timing and sales methods. Therefore, using industry-fixed effects allows us to control for unobservable selection effects.

Table 4 provides summary descriptive statistics on the regression variables and their pairwise correlations. Panel A presents statistical properties of individual explanatory variables. Panel B provides Pearson correlation coefficients between the regression variables. The correlation coefficients that are significant at the 1% level are shown in bold. Consistent with our predictions in H1a, we find that *STATE* is significantly and positively correlated with the cost of equity at the 1% level over our five-year postprivatization window. This initial evidence is consistent with the political

TABLE 4

Descriptive Statistics for the Explanatory Variables

Panel A: Summary of the variables

Variable	Mean	Median	Std. Dev.	Min.	Max.
STATE	0.370	0.398	0.267	0.000	1.000
CONTROL	0.395	0.000	0.489	0.000	1.000
STATE_ULTIMATE	0.394	0.420	0.269	0.000	1.000
LEFT	0.548	1.000	0.498	0.000	1.000
AUTOCRACY	6.232	9.000	6.046	−7.000	10.000
YRSOFFC	5.471	3.000	5.321	1.000	31.000
GOV_EXPROP	8.455	8.900	1.315	5.220	10.270
SIZE	14.839	14.643	1.873	9.997	19.213
TIME	2.8244	3.000	1.3630	0.000	5.000
RETURN_VOL	0.131	0.113	0.094	0.003	0.904
LEVERAGE	0.368	0.387	0.254	0.000	2.651
MARKET TO BOOK	2.190	1.610	2.266	0.140	27.280
GROWTH_RATE	0.181	0.130	0.331	−0.371	5.196
INFL	0.037	0.026	0.039	0.000	0.285
LNGDP	26.569	26.723	1.240	23.184	29.172
FD	140.629	128.873	85.720	20.175	492.178

(*Continued*)

TABLE 4—*Continued*

Panel B: Correlation coefficients

Variable	R_{AVG}	*STATE*	*LEFT*	*AUTO CRACY*	*YRSOFFC*	*GOV_ EXPROP*	*SIZE*	*TIME*	*RETURN_ VOL*	*LEVERAGE*	*MARKET TO BOOK*	GROWTH_ *RATE*	*INFL*	*LNGDP*
STATE	**0.144**													
LEFT	**0.145**	**0.112**												
AUTOCRACY	**−0.148**	**−0.328**	**−0.329**											
YRSOFFC	0.046	**0.208**	**−0.130**	**−0.645**										
RISKOFEXP	**−0.477**	**−0.241**	**0.619**	**0.576**	**−0.290**									
SIZE	**−0.186**	0.035	**0.211**	**0.249**	**−0.236**	**0.325**								
TIME	0.093	−0.128	−0.016	−0.004	0.019	0.040	0.030							
RETURN_VOL	**0.183**	0.012	**−0.109**	−0.051	−0.059	**−0.135**	**−0.140**	0.046						
LEVERAGE	**−0.113**	**−0.126**	0.155	**0.336**	−0.277	0.243	0.518	−0.020	−0.008					
MARKET TO BOOK	**−0.218**	**−0.119**	**0.101**	0.083	0.012	0.050	−0.060	−0.044	**−0.137**	−0.028				
GROWTH_RATE	**0.183**	0.027	−0.051	0.055	−0.041	−0.048	−0.057	0.007	0.017	−0.014	0.017			
INFL	**0.314**	0.034	**−0.354**	**0.099**	**−0.105**	**−0.352**	−0.061	0.016	−0.093	−0.035	0.040	0.068		
LNGDP	**−0.225**	−0.025	**0.183**	0.077	**−0.190**	**0.562**	**0.332**	0.002	−0.042	**0.110**	0.021	−0.007	**−0.259**	
FD	**−0.322**	−0.064	0.364	−0.022	0.235	0.266	**−0.099**	0.018	**−0.131**	0.033	**0.289**	**−0.026**	**−0.248**	0.031

This table reports summary descriptive statistics for the explanatory variables (panel A) and Pearson pairwise correlation coefficients between the regression variables (panel B) for a sample of 236 firms privatized in 38 countries between 1985 and 2006. Boldface type indicates statistical significance at the 1% level. R_{AVG} is the average cost of equity estimated using the four models described in appendix B. Descriptions and data sources for the explanatory variables are outlined in appendix A.

interference hypothesis that higher government ownership is associated with greater postprivatization political interference and thus with a higher cost of equity. We also find that the correlation coefficients between the cost of equity and the control variables are highly significant. We generally report lower correlation coefficients between *STATE*, the political economy variables, and our control variables, respectively, thus reducing multicollinearity concerns that could affect our regression results. However, we report higher correlation coefficients between the country-level political variables. To avoid multicollinearity issues, we do not enter all the political economy variables in the same specification.

4.1 MAIN EVIDENCE

Table 5 reports the results from estimating equation (1) for the five-year postprivatization window (i.e., from one year after privatization to five years afterward). In all models, we control for firm- and country-level determinants of the firm's cost of equity as well as for the level of economic and financial development using *LNGDP* and *FD*. We also control for the time trend using *TIME*.[12] The results of model (1), our basic regression, where we include *STATE*, the control variables, as well as *LNGDP* and *FD*, provide evidence that confirms our predictions in H1a that the cost of equity of NPFs is increasing under state ownership. To be precise, we find that the coefficient of *STATE* is positive and statistically highly significant, suggesting that higher state ownership is associated with higher postprivatization political interference and thus with a higher cost of equity. This finding is consistent with the political interference hypothesis (H1a). We can interpret it as implying that minority shareholders will anticipate postprivatization political interference and will discount share prices, hence raising the cost of equity financing and potentially reducing the ability of the NPFs to fund their investments. *STATE* is economically highly significant. It shows conclusively that a 1% increase in state ownership induces an increase in the cost of equity by 26 basis points.

We test the robustness of this finding to the use of an alternative proxy of state involvement in the privatized firm. Specifically, we run a fixed effect model of the average implied cost of equity on *CONTROL*, a dummy variable equal to one (1), if the state holds more than 50% of the shares of a privatized firm, and the political variables. We control for firm- and country-level determinants of firms' cost of equity as well as for the level of economic and financial development using *LNDPG* and *FD*. The unreported results show that the coefficient of *CONTROL* is positive and significant at the 1% level, suggesting that investors anticipate increased

[12] A number of observations are lost due to missing financial and ownership data. This results in an unbalanced panel. We then re-estimate all models reported in this section on a balanced panel to ensure that our findings are not due to the changes in our sample composition over time. Balanced panel estimation reduces our sample size substantially. For example, we are able to estimate our basic model using only 228 observations. The unreported results obtained show that our main evidence holds true.

TABLE 5

State Ownership, Political Variables, Financial Development, and the Cost of Equity

Variable	Prediction	Basic Model (1)	*LEFT* (2)	*AUTOCRACY* (3)	*YRSOFFC* (4)	*GOV_EXPROP* (5)	*FD* (6)
STATE	+	**0.032**	**0.044**	**0.021**	**0.028**	**0.011**	**0.009**
		(**4.120**)***	(**3.920**)***	(**2.168**)**	(**2.361**)**	(**4.743**)***	(**4.334**)***
LEFT	+		0.012				
			(1.731)**				
*STATE * LEFT*	?		**−0.028**				
			(**−1.822**)**				
AUTOCRACY	+			−0.001			
				(−0.910)			
*STATE * AUTOCRACY*	+			**0.002**			
				(**1.283**)*			
YRSOFFC	−				−0.001		
					(−1.310)*		
*STATE * YRSOFFC*	−				**0.001**		
					(**0.847**)		
GOV_EXPROP	+					0.015	
						(4.586)***	
STATE * GOV_EXPROP	+					**0.006**	
						(**2.039**)**	
FD (*100)	−	−0.007	−0.008	−0.008	−0.007	−0.005	−0.006
		(3.684)***	(3.822)***	(4.035)***	(3.123)***	(2.547)***	(3.546)***
*STATE*FD*	−						**−0.005**
							(**2.745**)***
SIZE	−	−0.005	−0.005	−0.005	−0.005	−0.005	−0.005
		(2.563)**	(2.569)**	(2.726)***	(2.640)***	(2.323)**	(2.539)**

(*Continued*)

TABLE 5—*Continued*

Variable	Prediction	Basic Model (1)	*LEFT* (2)	*AUTOCRACY* (3)	*YRSOFFC* (4)	*GOV_EXPROP* (5)	*FD* (6)
TIME	−	0.002	0.002	0.002	0.002	0.002	0.002
		(1.010)	(1.036)	(0.931)	(1.096)	(1.025)	(0.944)
RETURN_VOL	+	0.100	0.096	0.101	0.097	0.109	0.098
		(3.525)***	(3.265)***	(3.598)***	(3.383)***	(3.621)***	(3.447)***
LEVERAGE	+	0.013	0.013	0.019	0.013	0.022	0.012
		(1.362)*	(1.288)*	(1.872)**	(1.295)*	(2.039)**	(1.235)
MARKET TO BOOK	−	−0.004	−0.004	−0.003	−0.004	−0.004	−0.003
		(−3.481)***	(−3.400)***	(−3.330)***	(−3.533)***	(−2.901)***	(−3.328)***
GROWTH_RATE	+	0.019	0.019	0.026	0.019	0.015	0.019
		(2.479)***	(2.500)***	(3.323)***	(2.445)***	(2.026)**	(2.558)***
INFL	+	0.347	0.349	0.350	0.339	0.287	0.326
		(4.870)***	(4.891)***	(4.802)***	(4.630)***	(3.726)***	(4.524)***
LNGDP	−	−0.004	−0.004	−0.004	−0.004	0.001	−0.005
		(−2.209)**	(−1.737)**	(−2.305)***	(−2.271)**	(0.643)	(−2.598)***
Intercept	?	0.282	0.257	0.296	0.297	0.135	0.306
		(4.678)***	(3.993)***	(4.792)***	(4.641)***	(2.021)**	(5.150)***
Industry effects		YES	YES	YES	YES	YES	YES
Year effects		YES	YES	YES	YES	YES	YES
Adj. R^2		0.237	0.242	0.252	0.24	0.301	0.245
N		563	563	553	563	466	563

This table presents fixed effects estimation results obtained by regressing the average of implied cost of equity estimates on state ownership, political variables, and financial development and control variables. The full sample includes 236 firms privatized in 38 countries between 1985 and 2006. The results are reported for a period of five years, that is, from one year after privatization to five years after privatization. The *z*-statistic is shown below each estimate. Boldface type indicates test variables. The superscript asterisks ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels respectively, one-tailed when directional predictions are made, and two-tailed otherwise. R_{AVG} is the average cost of equity estimated using the four models described in appendix B. Descriptions and data sources for the variables are outlined in appendix A.

political interference, and so require a higher cost of equity when a government maintains control of a firm. *CONTROL* is also economically significant. Indeed, the cost of equity of firms in which governments maintain control are higher by 14 basis points when compared to firms in which governments relinquish control.

In models (2)–(5), we separately include the political variables as well as interaction terms between state ownership and the political variables. In model (2), we examine how political orientation (*LEFT*) affects the association between *STATE* and the cost of equity. The results show that the coefficient for *LEFT* is positive and statistically significant at the 5% level. Our regression results therefore support the argument that firms from countries whose left-wing governments pose a higher policy risk are penalized by higher equity financing costs. The coefficient for *STATE∗LEFT* is negative and statistically significant at the 5% level, suggesting that state ownership is associated with a lower cost of equity in countries with left-wing governments. The results are also economically significant. If state ownership increases by 1%, the cost of equity of firms from countries with left-wing governments will only increase by $(0.044–0.028)\% = 0.016\%$, which implies an increase in the cost of equity by 13 basis points compared to 35 basis points for firms from right-wing governments. This finding is consistent with the fact that, in countries with left-wing governments that are more likely to intervene in the economy than their right-wing counterparts, state ownership is associated with an implicit guarantee of government bailout that lowers investor risk and provides access to low-cost equity capital. The introduction of *LEFT* and *STATE∗LEFT* slightly increases the explanatory power of our basic regression (model (1)). In this case, the adjusted R^2 increases by 2.11% from model (1) to model (2).

In model (3), we examine whether the *STATE* leads to a lower cost of equity in more democratic countries. We find that the coefficient for *AUTOCRACY* is not statistically significant and fails to support the prediction that firms from more autocratic countries are penalized by a higher cost of equity. The coefficient for *STATE∗AUTOCRACY* is positive and marginally significant, supporting the argument that the adverse effects of state ownership on the cost of equity are more pronounced in more autocratic countries (H2b). The introduction of *AUTOCRACY* and *STATE∗AUTOCRACY* boosts the adjusted R^2 increases by 6.33%.

In model (4), we explore whether the relation between *STATE* and the cost of equity is affected by government tenure. The results show that the coefficient for *YRSOFFC* is negative and statistically significant, supporting the prediction that more stable governments are associated with a lower policy risk, hence a lower cost of equity. The coefficient for *STATE∗YRSOFFC* is not statistically significant, and fails to support the argument that the adverse effects of state ownership on the cost of equity are less pronounced in more stable governments (H2c).[13] The incremental explanatory of *YRSOFFC* and *STATE∗YRSOFFC* is also limited. The adjusted R^2 increases only by 1.26% from model (1) to model (4).

[13] We use an alternative for government tenure: the years left in the current term of the

In model (5), we test whether the risk of government expropriation affects the relation between state ownership in the firm and the cost of equity. We find that the coefficient for *GOV_EXPROP* is negative and significant at the 1% level, suggesting that a higher risk of government expropriation is associated with a higher cost of equity. We can interpret this finding as implying that shareholders in NPFs from countries with greater state intervention in the economy will require higher returns on their investments in such firms. The coefficient for *STATE∗GOV_EXPROP* is positive and significant at the 5% level, suggesting that the adverse effects of state ownership on the cost of equity are more pronounced in countries with a high risk of expropriation (H2d).[14] This finding is consistent with the argument that, in environments with a high risk of government expropriation, managers are more likely to collude with politicians and expropriate minority shareholders' wealth. *GOV_EXPROP* and *STATE∗GOV_EXPROP* have a substantial incremental explanatory power. The adjusted R^2 increases by 27.00% from model (1) to model (5).

In model (6), we investigate the impact of financial development on the association between state ownership and the cost of equity.[15] We find that the coefficient for *FD* is negative and statistically significant as in models 1 to 5, supporting the prediction that NPFs from financially developed countries enjoy a lower cost of equity. The coefficient for *STATE∗FD* is negative and statistically significant at the 1% level, suggesting that the adverse effects of state ownership on the cost of equity are less pronounced in more financially developed countries. This evidence is consistent with the findings of Wurgler [2000], who suggests that financial development affects several economic outcomes such as capital allocation. The adjusted R^2 increases by 3.36% from model (1) to model (6). To gauge the relative importance of political factors versus financial development in the association between state ownership and the cost of equity, we introduce the political factors along with *FD* in the same model. The results show that only the coefficient of *STATE∗FD* remains negative and statistically significant at the 1% level, a finding that suggests that market development activities remain important even after the application of controls for political/legal factors.

We also document significant relations between our firm-level and country-level control variables, on the one hand, and the cost of equity, on the other. We find that the coefficient of our proxy for firm size is

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executive (*YRSCURRENT*). The results show that the coefficient for *STATE∗YRSCURRENT* is not statistically significant, and fails to support the argument that the adverse effects of state ownership are less pronounced in more stable governments.

[14] The results are also economically significant. To illustrate, we compare the impact of a 1% increase in state ownership between the country with the highest risk of government expropriation in our sample (the Philippines) and the country with the lowest risk of government expropriation in our sample (the Netherlands). A 1% increase in state ownership increases the cost of equity in the Philippines by 4 basis points. However a 1% increase in state ownership increases the cost of equity in the Netherlands by only 1 basis point.

[15] We thank the referee for suggesting this analysis.

negative and highly significant across all models. This finding is consistent with Fama and French [1992] and Gebhardt, Lee, and Swaminathan [2001] findings that suggest that the cost of equity is negatively associated with a firm's size. We also find positive and very highly significant coefficients for *RETURN_VOL* and *GROWTH_RATE* across all models, in line with the literature on the implied cost of equity (e.g., Gode and Mohanram [2003]). The coefficient of *LEVERAGE* is also positive and generally significant, lending support to the theoretical and empirical literature on the impact of leverage on the cost of equity. Furthermore, we find that the coefficient of the market-to-book ratio is negative and significant at the 1% level in all regressions, consistent with Gode and Mohanram [2003] and Hail and Leuz [2006], among others. Like Hail and Leuz [2006], we also find that the coefficient of our proxy for a country's expected inflation rate, *INFL*, is positive and significant at the 1% level across all models. Finally, we find that the coefficient of *LNGDP* is negative and generally significant, suggesting that firms from more economically developed countries have cheaper equity financing.

4.2 SENSITIVITY TESTS

In this section, we describe additional tests conducted to ensure the robustness of our findings.[16] The results of these tests, reported in table 6, generally confirm the core findings presented in table 5: (i) the cost of equity is increasing under state ownership, (ii) the adverse effects of state ownership on the cost of equity are less pronounced in countries with left-oriented governments and more pronounced in countries with a high risk of government expropriation, and (iii) the adverse effects of state ownership on the cost of equity are less pronounced in more financially developed countries. [17]

Nongovernmental Concentrated Ownership. We test the robustness of our findings to the introduction of a proxy for the concentration of private ownership. On the one hand, private ownership concentration alleviates the agency problems between shareholders and managers by giving incentives to major shareholders to monitor managers (the incentive effect). On the other hand, private ownership concentration may deter corporate performance because major shareholders have incentives to expropriate corporate resources (the entrenchment effect). We use the percentage of shares held by the three largest private investors, *L3*. Following Boubakri, Cosset, and Guedhami [2005a], we apply a logistic transformation to *L3*, using the formula log (*L3*/(1–*L3*)) to convert a bound variable into an unbound one. The resulting variable is *LL3*. We run models (2)–(6) of table 5, while controlling for *LL3*. The results reported in models 1, 2, 3, 4, and

[16] The unreported results mentioned in this section are available from the authors upon request.

[17] In all models, we introduce the control variables used in our main analysis. For the sake of brevity, we report only the coefficients for the test variables.

TABLE 6
Sensitivity Tests

		Private Ownership Concentration					I/B/E/S Subsample					Alternative Aggregation of the COE				
Variable	Prediction	*LEFT* (1)	*AUTOCRACY* (2)	*YRSOFFC* (3)	*GOV_EXPROP* (4)	*FD* (5)	*LEFT* (6)	*AUTOCRACY* (7)	*YRSOFFC* (8)	*GOV_EXPROP* (9)	*FD* (10)	*LEFT* (11)	*AUTOCRACY* (12)	*YRSOFFC* (13)	*GOV_EXPROP* (14)	*FD* (15)
STATE	+	**0.067**	**0.036**	**0.058**	**0.014**	**0.014**	**0.041**	**0.024**	**0.034**	**0.009**	**0.008**	**0.445**	**0.164**	**0.188**	**0.107**	**0.070**
		(**3.461**)***	(**1.688**)**	(**2.314**)**	(**3.050**)***	(**3.111**)***	(**3.894**)***	(**2.473**)***	(**3.009**)***	(**4.063**)***	(**3.999**)***	(**4.571**)***	(**1.825**)*	(**1.762**)*	(**5.087**)***	(**3.630**)***
LEFT	+	0.033					0.021					0.232				
		(2.123)**					(3.051)***					(3.553)***				
STATE*LEFT	?	**−0.073**					**−0.032**					**−0.484**				
		(**−2.108**)**					(**−2.150**)**					(**−3.437**)***				
AUTOCRACY	+		0.000					−0.001					−0.006			
			(0.326)					(−0.607)					(−0.589)			
STATE*AUTOCRACY	+		**0.001**					**0.001**					**0.018**			
			(**0.547**)					(**0.440**)					(**0.998**)			
YRSOFFC	−			−0.001					0.000					−0.012		
				(−0.878)					(0.478)					(−1.591)*		
STATE*YRSOFFC	−			**0.000**					**−0.001**					**0.016**		
				(**0.179**)					(**−0.369**)					(**1.172**)		
GOV_EXPROP	+				0.012					0.012					0.114	
					(2.246)**					(3.585)***					(3.570)***	
STATE*GOV_EXPROP	+				**0.011**					**0.007**					**0.076**	
					(**2.200**)**					(**2.607**)***					(**2.743**)***	
FD	−					−0.009					−0.008					−0.046
						(−2.595)***					(−4.360)***					(−2.833)***
STATE*FD	−					**−0.006**					**−0.005**					**−0.048**
						(**−2.069**)**					(**−3.246**)***					(**−3.004**)***
Intercept	?	0.299	0.333	0.370	0.219	0.346	0.236	0.271	0.277	0.141	0.297	2.116	2.690	2.710	1.415	2.798
		(2.452)**	(2.720)***	(2.871)***	(1.914)*	(2.992)***	(4.008)***	(4.889)***	(4.994)***	(2.135)**	(5.500)***	(3.786)***	(4.934)***	(4.875)***	(2.465)**	(5.429)***
Industry effects		YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year effects		YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Adj R^2		0.318	0.316	0.311	0.370	0.310	0.288	0.288	0.278	0.320	0.287	0.198	0.184	0.183	0.241	0.190
N		188	183	188	176	188	490	477	490	401	490	566	556	566	469	566

This table presents additional tests of the implied cost of equity estimates on state ownership, political, and control variables (not reported). The results are reported for a period of five years, that is, from one year after privatization to five years after privatization. The *z*-statistic is shown below each estimate. Boldface type indicates test variables. The superscript asterisks ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively, one-tailed when directional predictions are made, and two-tailed otherwise. The implied costs of equity are estimated using the four models described in appendix B. Descriptions and data sources for the variables are outlined in appendix A.

5 of table 6 show that: (i) the coefficient for *STATE* is positive and significant, (ii) the coefficient for *STATE∗LEFT* is negative and significant, (iii) the coefficient for *STATE∗GOV_EXPROP* is positive and significant, and (iv) the coefficient for *STATE∗FD* is negative and significant, corroborating our previous findings. The unreported coefficient for *LL3* is positive and significant at the 5% level. Consistent with the entrenchment effect, this finding suggests that NPFs with a high private ownership concentration are penalized with a higher cost of equity.

I/B/E/S Subsample. In our main empirical analysis, we include all firms with or without I/B/E/S data in order to yield the highest range of firms to be considered. We test the robustness of our findings using the I/B/E/S subsample. The results of I/B/E/S are reported in models 6–10 of table 6. In these models, we control for analyst forecast bias (*FORBIAS)* to ensure that the cost of equity estimates for the I/B/E/S subsample are not affected by the errors in analyst forecasts.[18] The results show that our previous findings are robust: (i) the cost of equity is increasing in *STATE*, (ii) this effect is less pronounced in countries with left-wing governments and more pronounced in countries with a high risk of government expropriation, and (iii) the adverse effects of state ownership on the cost of equity are less pronounced in more financially developed countries.[19]

Additional Country-Level Control Variables. Recent empirical studies emphasize the important role the institutional environment plays in protecting minority shareholder rights (e.g., Hail and Leuz [2006], Chen, Chen, and Wei [2009]). They report findings suggesting that sound institutions and extensive disclosure standards are associated with lower agency risk and

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[18] Forecast bias may reflect a firm's disclosure policies. For example, Hope [2003] documents significant cross-country differences in forecast accuracy and reports a significant association between forecast accuracy and firms' annual reported disclosure practices. Forecast bias may also reveal earnings surprises. For example, Gebhardt, Lee, and Swaminathan [2001] argue that forecast bias reflects unpredictable earnings forecasts. Mikhail, Walther, and Willis [2004] find that firms with repeated earnings surprises experience a higher cost of equity.

[19] Analyst coverage may affect the implied cost of equity estimates for the I/B/E/S subsample. Firms with higher analyst coverage are more likely to have more precise public information (Bowen, Chen, and Cheng [2006]) and will thus obtain fairer valuation of their stocks. Gebhardt, Lee, and Swaminathan [2001], among others, document a negative association between the implied cost of equity and analyst coverage. We control for analyst coverage (*ANALYSTCOV)*, measured as the number of analysts who provided estimates of the forecasted earnings per share reported in I/B/E/S. The unreported results show evidence that corroborates our previous findings. Dispersion in analyst forecasts may also affect the implied cost of equity estimates for the I/B/E/S subsample. A higher dispersion in earnings forecasts implies greater disagreement among analysts, thus causing greater uncertainty about forecasted earnings per share and resulting in a higher cost of equity. Empirical evidence provided by Gode and Mohanram [2003] is consistent with this point of view. We control for *VAR_ANALYSTCOV*, measured as the standard deviation of estimated first year earnings per share divided by average forecasted first year earnings per share. The unreported results reinforce our previous findings.

with lower equity financing costs. Therefore, we control for the country's legal environment using the anti self-dealing index (*ANTISELF*) developed by Djankov et al. [2008]. The unreported results support our earlier findings. We also introduce an interaction term between *STATE* and *ANTISELF*. The unreported results show that the coefficient for *STATE∗ANTISELF* is not significant, thus failing to support the argument that the adverse effects of state ownership on the cost of equity are less pronounced in firms from countries with a high level of legal investor protection.

Additionally, we test the sensitivity of our results to the introduction of a proxy of disclosure standards. We use disclosure requirements (*DISCREQ*) from La Porta, Lopez-de-Silanes, and Shleifer [2006].[20] The results suggest that our previous finding that the cost of equity is increasing in *STATE* remains unaffected, and that this effect is less pronounced in countries with left-wing governments and more pronounced in countries with a high risk of government expropriation. We also report a negative and significant coefficient for *STATE∗FD*, which suggests that the adverse effects of state ownership on the cost of equity are less pronounced in highly financially developed countries. Furthermore, we introduce an interaction term between *STATE* and *DISCREQ*. The unreported results show that the coefficient for *STATE∗DISCREQ* is not significant, failing to support the argument that the adverse effects of state ownership are less pronounced in countries with high disclosure standards.

Finally, we check the sensitivity of our findings to the introduction of an additional control variable, country-specific risk. Erb, Harvy, and Viskanta [1996], for example, find a significant relation between a country's credit rating and the cost of equity. We add *COUNTRY_RISK* (which is equal to the natural logarithm of 100 minus the country's credit ratings from *Institutional Investor*) to our basic regression. The unreported results confirm our previous findings.[21]

Alternative Estimates and Specifications of the Cost of Equity Models. We test the sensitivity of our findings to an alternative aggregation of the four implied cost of equity estimates. More specifically, we use the first principal component of the four individual estimates instead of their average. The results reported in models 11–15 of table 6 confirm our previous findings. Additionally, we use risk premium, the difference between the average implied cost of equity and the expected inflation, as a dependent variable. The unreported results corroborate our earlier findings that the cost of equity is

[20] We use alternative accounting quality proxies from Bushman, Piotroski, and Smith [2004]: CIFAR, disclosure intensity, governance disclosure, timeliness of financial disclosures, and the credibility of financial accounting disclosures. The unreported results also confirm our earlier findings.

[21] *COUNTRY_RISK* is a measure of sovereign credit ratings. *Institutional Investor* magazine reports country credit ratings in its March and September issues each year. We use the ratings reported in the September issue.

increasing under state ownership and that this effect is less pronounced in countries with left-wing governments and more pronounced in countries with a high risk of government expropriation. We also still find that the adverse effects of state ownership are less pronounced in more financially developed countries.

We use an alternative proxy for cost of equity, the earnings to price ratio (EP), in keeping with Francis et al. [2005], defined as the ratio of one-year-ahead forecasted earnings per share divided by the current stock price. The unreported results show that (i) the coefficient of *STATE* is positive and significant, (ii) the coefficient for *STATE∗LEFT* is negative and significant, (iii) the coefficient for *STATE∗GOV_EXPROP* is positive and significant, and (iv) the coefficient for *STATE∗FD* is negative and significant, corroborating our earlier findings.

Finally, we test the sensitivity of our findings to alternative assumptions on the long-term growth rate. In our previous analysis, we assumed that the long-term growth rate is equal to a country's expected inflation rate. This assumption affects the GLS and OJ cost of equity models that have the long-term growth rate as an output. We replace a country's expected inflation rate by a fixed constant rate of 3% for all countries and we recalculate R_{AVG}. The unreported results show that our earlier findings continue to hold: that the cost of equity is increasing in *STATE* and this effect is less pronounced when the government is left-oriented and more pronounced when the risk of government expropriation is high. We also still report a negative and significant coefficient for *STATE∗FD*, suggesting that the adverse effects of state ownership on the cost of equity are less pronounced in more financially developed countries.

Ultimate State Ownership. We test the sensitivity of our findings to the use of ultimate ownership structures, by replacing direct state ownership, *STATE*, by ultimate state ownership, *STATE_ULTIMATE*. Although using ultimate ownership results in a smaller sample, the unreported results show that (i) the coefficient for *STATE_ULTIMATE* is positive and significant at the 1% level, (ii) the coefficient for *STATE_ULTIMATE∗LEFT* is negative and significant at the 1% level, (iii) the coefficient for *STATE_ULTIMATE∗GOV_EXPROP* is positive and significant at the 5% level, and (iv) the coefficient for *STATE_ULTIMATE∗FD* is negative and significant at the 5% level, confirming our previous findings.

Endogeneity of State Ownership. One potential concern is that *STATE* itself may not be exogenous. In fact, control rights held by a government may be governed by unobserved variables that also affect the cost of equity, and this can lead to biased and inconsistent OLS estimates. We address this issue by using an instrumental variable approach. The instrumental variables must be highly correlated with *STATE* but not with our estimate of the implied cost of equity, that is, R_{AVG}. We use the country's legal origin as an instrumental variable. Specifically, we use a dummy variable that is

equal to one (1) for firms from common law countries, and zero (0) otherwise. The significant relation between government ownership and control and legal rights has been well documented in the finance literature (e.g., Bortolotti and Faccio [2009]). We estimate each model in table 5, using a two-stage least squares regression. For the first stage, we predict *STATE* for each model using the country's legal origin as well as the other independent variables used in each model of table 5. For the second stage, we use the first-stage fitted values as instruments for *STATE*. The unreported results support our earlier findings.

Developing Countries. In an unreported test, we run the models of table 5 for the subsample of firms from developing countries. For the 137 firms from developing countries, we find that the cost of equity is also increasing under state ownership and that this effect is less pronounced in countries with left-wing governments, further confirming our previous findings. Similar results are obtained for the I/B/E/S subsample.

Alternative Political Economy Variables. We test the sensitivity of our main findings to the use of alternative political economy variables. First, we use the type of political system—presidential system, assembly elected presidential system, and parliamentary system—from DPI. The unreported results show that the coefficient for *STATE* is positive and highly significant, corroborating our earlier finding. We also find that the coefficient of the interaction term between *STATE* and the political system index is not significant, suggesting that the type of political system does not affect the relation between state ownership and the cost of equity. Second, we use a more general political risk index (*PRISK*) from the International Country Risk Guide (ICRG).[22] The unreported results show that the coefficient of *STATE* is positive and statistically significant at the 1% level, which is consistent with earlier findings. We also find that the coefficient for *STATE*∗*PRISK* is positive and significant at the 1% level, suggesting that the adverse effects of state ownership on the cost of equity are more pronounced in environments with high political risk, corroborating our earlier finding.

4.3 EVENT-BASED SPECIFICATIONS

We extend our previous analysis by examining the impact of changes in the political structure on the cost of equity. The event study framework is well suited to the examination of the consequences of changes in the political characteristics of governments and allows us to isolate any direct effects of these changes on the cost of equity of NPFs.

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[22] The components of the ICRG political risk index are: government stability, socioeconomic conditions, investment risk, internal conflict, external conflict, corruption, military influence in politics, religious tensions, law and order, ethnic tensions, democratic accountability, and the quality of bureaucracy. A higher score indicates lower political risk. The index ranges from 0 (high political risk) to 100 (low political risk).

We proceed as follows: First, we identify the dates of elections that we obtain from the World Bank's Database of Political Institutions (DPI). We then cross-check those dates with several sources, including Boutchkova et al. [2011]. We identify 123 elections during our sample period and find 101 replacements of incumbent governments during our sample period. Furthermore, we make an effort to identify the number of regime changes (transitions from autocratic to democratic governments). To this end, we merge our database with Marshall and Jaggers's [2009] polity data, which provides information about "regime transitions," but we find no evidence of such transitions during our sample period.

Second, we perform multivariate analyses of the effects of changes in government orientations and the replacement of an incumbent chief executive on the cost of equity. Following the research design presented in Bhattacharya and Daouk [2002] and Bushman, Piotroski, and Smith [2004], we examine the effects of changes in political orientation and the replacement of an incumbent by a new chief executive on the cost of equity, conditional on the political environment, state involvement in NPFs, and the country's degree of financial development. We use two indicator variables: (i) an indicator variable that changes from zero to one in the year after the replacement of an incumbent by a new chief executive ($\Delta CHIEF\_EXEC$), and (ii) an indicator variable that changes from zero to one in the year after the replacement of a left-wing government by a right-wing government ($\Delta RIGHT$). Panel A of table 7 reports the results of the regressions we use to assess the impact of a chief executive change on the cost of equity, conditional on state ownership, the political environment, and financial development.[23] In model (1), we examine the impact of chief executive turnovers on the cost of equity, conditional on state ownership. We find that the coefficient for $\Delta CHIEF\_EXEC$ is not statistically significant, failing to support the argument that chief executive turnovers are associated with a lower cost of equity. We also observe that the coefficient for $\Delta CHIEF\_EXEC{*}STATE$ is positive, but not statistically significant. In model (2), we examine the impact of chief executive turnovers on the cost of equity, conditional on $AUTOCRACY$. We find that the coefficient for $\Delta CHIEF\_EXEC$ is positive and significant at the 10% level, suggesting that chief executive turnovers lead investors to anticipate positive policy changes, hence a lower cost of equity. We also find that the coefficient for $\Delta CHIEF\_EXEC{*}AUTOCRACY$ is positive and significant at the 5% level, suggesting that the impact of chief executive turnovers is overshadowed by the adverse impact of autocracy. This finding is consistent with the argument that, in environments with autocratic governments, chief executive turnovers are not necessarily associated with expectations of positive policy changes and a consequent lower cost of equity.

In model (3), we investigate the impact of chief executive turnovers on the cost of equity, conditional on the risk of government

[23] In all models, we introduce the control variables used in our main analysis. For the sake of brevity, we report only the coefficients for the test variables.

TABLE 7

Chief Executive and Political Orientation Changes, and the Cost of Equity

Panel A: Chief Executive Changes

Variable	Prediction	(1)	(2)	(3)	(4)
ΔCHIEF_EXEC	−	0.005	−0.005	−0.010	−0.016
		(0.468)	(−1.049)	(−1.452)	(−1.349)*
STATE	+	0.034			
		(3.952)***			
ΔCHIEF_EXEC * STATE	+	−0.011			
		(−0.525)			
AUTOCRACY	+		0.001		
			(3.388)***		
ΔCHIEF_EXEC * AUTOCRACY	+		0.002		
			(2.313)**		
GOV_EXPROP	+			0.016	
				(5.933)***	
ΔCHIEF_EXEC * GOV_EXPROP	+			0.005	
				(1.017)	
FD (∗100)	−				−0.010
					(−6.074)***
ΔCHIEF_EXEC * FD	−				0.008
					(1.192)
Intercept	?	0.332	0.284	0.042	0.302
		(5.800)***	(5.869)***	(0.798)	(6.152)***
Industry effects		YES	YES	YES	YES
Year effects		YES	YES	YES	YES
Adj. R^2		0.195	0.204	0.251	0.185
N		629	766	741	780

Panel B: Political Orientation Changes

Variable	Prediction	(1)	(2)	(3)	(4)
ΔRIGHT	−	−0.001	−0.014	−0.019	−0.004
		(−0.403)	(−3.504)***	(−3.375)***	(−2.416)***
STATE	+	0.007			
		(3.483)***			
*ΔRIGHT*STATE*	+	0.007			
		(3.161)***			
AUTOCRACY	+		0.001		
			(1.922)**		
*ΔRIGHT_EXEC *AUTOCRACY*	+		0.018		
			(2.530)***		
GOV_EXPROP	+			0.013	
				(4.416)***	
*ΔRIGHT *GOV_EXPROP*	+			0.014	
				(2.679)***	
FD (*100)	−				−0.010
					(−3.823)***
*ΔRIGHT*FD*	−				−0.009
					(−3.475)***
Intercept	?	0.261	0.207	0.024	0.185
		(3.789)***	(3.538)***	−0.394	(3.057)***
Industry effects		YES	YES	YES	YES
Year effects		YES	YES	YES	YES
Adj. R^2		0.259	0.247	0.281	0.23
N		528	628	506	642

This table reports the results of the multivariate analysis of the impact of state ownership, the replacement of an incumbent government by a new government, and changes in the party composition of a government on the cost of equity. The full sample includes 236 firms privatized in 38 countries between 1985 and 2006. The results are reported for a period of six years, i.e., from the privatization year to five years afterward. Panel A presents fixed effects estimation results from regressing the average of implied cost of equity estimates (R_{AVG}) on *ΔCHIEF_EXEC* (an indicator variable that changes from zero to one in the year after the replacement of an incumbent government by a new one) and control variables. Panel B presents fixed effects estimation results from regressing the average of implied cost of equity estimates (R_{AVG}) on *ΔRIGHT* (an indicator variable that changes from zero to one in the year after the replacement of a left-wing government by a right-wing government) and control variables. Beneath each estimate is reported the *z*-statistic. Boldface type indicates test variables. The superscripts asterisks ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively, one-tailed when directional predictions are made, and two-tailed otherwise. R_{AVG} is the average cost of equity estimated using the four models described in appendix B. Descriptions and data sources for the variables are outlined in appendix A.

expropriation. We find that the coefficient for $\Delta CHIEF\_EXEC$ is not significant, so fails to support the argument that chief executive turnovers are associated with a lower cost of equity. We also find that the coefficient for $\Delta CHIEF\_EXEC*GOV\_EXPROP$ is positive but not statistically significant, so fails to support the argument that the risk of government expropriation affects the association between the replacement of an incumbent by a new chief executive and the cost of equity. In model (4), we examine the impact of financial development on the association between chief executive turnovers and the cost of equity. We find that the coefficient for $\Delta CHIEF\_EXEC$ is negative and significant at the 5% level, suggesting that chief executive turnovers are associated with a lower cost of equity. We also find that $\Delta CHIEF\_EXEC*FD$ is negative but not statistically significant, so does not support the argument that the replacement of an incumbent by a new chief executive should produce the greatest effect on the cost of equity in more financially developed countries.

Panel B of table 7 reports the results of our regressions when we assess the impact of a change of political orientation on the cost of equity, conditional on state ownership, the political environment, and financial development. In model (1), we examine the impact of a change in political orientation on the cost of equity, conditional on the state's direct involvement in NPFs. We find that the coefficient for $\Delta RIGHT$ is negative, but not statistically significant, so that it fails to support the argument that replacement of a left-wing government by a right-wing government leads investors to anticipate a lower policy risk, and a consequent lower cost of equity. We also find that the coefficient for $\Delta RIGHT*STATE$ is positive and significant at the 1% level, suggesting that the impact of a change of government orientation toward a more market supportive government is offset by the adverse impact of high state ownership. In model (2), we find that the coefficient for $\Delta RIGHT$ is negative and significant at the 1% level, suggesting that the replacement of left-wing government by a right-wing government is associated with a lower cost of equity. We also find that the coefficient for $\Delta RIGHT*AUTOCRACY$ is positive and significant at the 1% level, suggesting that the replacement of a left-wing government by a right-wing government leads to a higher cost of equity in firms from countries with more autocratic governments. This finding is consistent with the fact that the positive impact of policy orientation changes is offset by the adverse effects of autocracy. In model (3), we find that the coefficient for $\Delta RIGHT$ is negative and significant at the 1% level. We also find that the coefficient for $\Delta RIGHT*GOV\_EXPROP$ is positive and significant at the 1% level, suggesting that the positive effect of the switch from a left-wing to a right-wing government is offset by the adverse effects of government expropriation. Finally, in model (4), we report a negative and significant coefficient for $\Delta RIGHT$ at the 1% level, corroborating our earlier findings. The significant coefficient for $\Delta RIGHT*FD$ is negative and significant at the 1% level, suggesting that the replacement of left-wing by right-wing governments produces the greatest effect in more financially developed countries.

5. *Conclusion*

In this study, we investigate the effects of state ownership and the political characteristics of the privatizing government on the cost of equity of newly privatized firms. Using a unique sample of 236 firms privatized between 1987 and 2006 in 38 countries, we find strong evidence that the cost of equity financing of these firms is increasing under government ownership, after controlling for firm-level and country-level variables that are shown to affect the cost of equity. This finding implies that minority shareholders, anticipating some level of postprivatization political interference, discount share prices, hence raising the cost of equity financing for newly privatized firms. This behavior could adversely affect the ability of such firms to fund their investments and growth.

We also show that the cost of equity of newly privatized firms is significantly related to governments' political orientations and the extent of government predation. More specifically, we find that firms from countries with left-oriented and more predatory governments—the types of governments associated with high policy risk—exhibit a higher cost of equity. The adverse effects of increased government residual ownership on the cost of equity are less pronounced when the risk of government expropriation is lower, and when the government is more populist (i.e., left-oriented). Our results are robust to additional checks and alternative cost of equity measures.

Using an event study approach, we examine how changes in political structure affect the cost of equity of newly privatized firms. Specifically, we look at chief executive changes (or political orientation changes) after elections. Our event study shows that the replacement of a chief executive by a new incumbent is associated with a higher cost of equity in more autocratic countries. Government political orientation changes after elections (from left-wing to right-wing governments) are associated with a lower cost of equity in more financially developed countries. However, we find that the replacement of left-wing by right-wing governments leads to a higher cost of equity when state ownership is high, in environments characterized by a high risk of government expropriation, and in more autocratic countries.

Our study contributes to the literature on the links between political economy and corporate finance (e.g., Bushman, Piotroski, and Smith [2004] and Durnev and Fauver [2010]) by showing that the nature of political institutions affects corporate financing decisions. We also add to the literature on the external financing costs of privatized firms (e.g., Borisova and Megginson [2011], who look at the cost of debt of such firms). This issue is important, since the survival of privatized firms (and hence the success of the privatization process) depends to a large extent on their easy access to new funding resources on capital markets, at a reasonable cost. Overall, economic growth is also at stake, for when newly privatized firms can borrow money on capital markets at a lower cost, they are better positioned to carry forward value-enhancing and positive net-present-value projects that will foster economic growth.

APPENDIX A

Variables, Descriptions, and Sources

Variable	Description	Source
Dependent variable		
R_{AVG}	Dependent variable, our estimate of the cost of equity, which is the average of R_{OJ}, R_{CT}, R_{GLS}, and R_{ES}. R_{OJ} is the implied cost of equity estimated from the Ohlson and Juettner-Nauroth [2005] model. R_{CT} is the implied cost of equity estimated using the Claus and Thomas [2001] model. R_{GLS} is the implied cost of equity estimated using the Gebhardt, Lee and Swaminathan [2001] model. R_{ES} is the implied cost of equity estimated using the Easton [2004] model. The four models are described in appendix B.	Authors' estimation
Proxies of state ownership		
STATE	The stake held by the government.	Authors' calculation
CONTROL	A dummy variable equal to one (1) if the government maintains control of the privatized firm, and zero (0) otherwise.	Authors' calculation
STATE_ULTIMATE	The government's ultimate ownership.	Authors' calculation
Political variables		
LEFT	A dummy variable equal to one (1) for left-oriented governments, and zero (0) otherwise.	Database of Political Institutions
AUTOCRACY	The difference between Marshall and Jaggers's [2009] autocratic index and democratic index. The autocratic index measures the general secrecy of political institutions, whereas the democratic index measures the general openness of political institutions. The difference between the autocratic index and the democratic index ranges from −10 (strongly democratic) to +10 (strongly autocratic). We add a constant to the difference between the autocratic index and the democratic index to change the scaling from −10-to-10 and from 0-to-20.	Marshall and Jaggers's [2009]
YRSOFFC	The years that the chief executive has been in office.	Database of Political Institutions
GOV_EXPROP	The ICRG assessment of the risk of outright confiscation or forced nationalization by the state. The index ranges from 0 to 10, with higher scores for higher risk.	La Porta et al. [1998]
SYSTEM	Political system index: Direct presidential (0); Strong president elected by assembly (1); Parliamentary (2).	Database of Political Institutions

(*Continued*)

Variable	Description	Source
PRISK	The ICRG political risk index. The components of this index are: government stability, socio-economic conditions, investment risk, internal conflict, external conflict, corruption, military influence in politics, religious tensions, law and order, ethnic tensions, democratic accountability, and the quality of bureaucracy. A higher score indicates lower political risk. The index ranges from 0 (high political risk) to 100 (low political risk).	International Country Risk Guide
Control variables		
SIZE	The logarithm of a firm's total assets in U.S. dollars.	Worldscope
TIME	The number of years since the year of privatization.	Authors' calculation
RETURN_VOL	The annual standard deviation of monthly stock returns.	Authors' calculation
LEVERAGE	Total book value of debt divided by the sum of market value of equity and the book value of debt.	Worldscope
MARKET TO BOOK	The market-to-book ratio.	Worldscope
GROWTH_RATE	Five-year growth rate from I/B/E/S. If this rate is not available in I/B/E/S, we estimate it using forecasted second and third year earnings per share.	I/B/E/S
INFL	The annualized yearly median of a country-specific one-year-ahead realized monthly inflation rate.	Datastream
LNGDP	The natural logarithm of the GDP per capita.	World Development Indicators
FD	The sum of stock market capitalization and private credit relative to gross domestic Product.	World Development Indicators

APPENDIX

Models of Implied Cost of Equity Estimates

Ohlson and Juettner-Nauroth [2005]

$$P_t = (FEPS_{t+1}/R_{OJ}).(g_{st} + R_{OJ} \cdot DPS_{t+1}/FEPS_{t+1} - g_{lt})/(R_{OJ} - g_{lt}) \quad \text{(B1)}$$

where $g_{st} = (FEPS_{t+2} - FEPS_{t+1})/FEPS_{t+1}$.

This model is derived from the abnormal earnings valuation model developed by Ohlson and Juettner-Nauroth [2005]. It uses one-year-ahead and two-years-ahead earnings per share, the future dividend per share, and a proxy of the long term growth rate. The future dividend, DPS_{t+i}, is estimated as $FEPS_{t+i}$ multiplied by $POUT$. The asymptotic long-term growth

We first define the following variables that are common to the four models:	
$P_t =$	Market price of a firm's stock at time t.
$B_t =$	Book value per share at the beginning of the fiscal year.
$FEPS_{t+i} =$	Mean forecasted earnings per share from I/B/E/S or implied EPS forecasts for year $t+i$.
$LTG =$	The consensus long-term growth rate from I/B/E/S or the percentage change in forecasted earnings between year $t+2$ and year $t+3$.
$POUT =$	The forecasted payout ratio. To estimate the dividend per share for year $t+i$, we use the firm's dividend payout ratio at time t if available and 50% if not, as in Claus and Thomas [2001].
$R_j =$	The implied cost of equity derived from each of the four different models.

rate, g_{lt}, is calculated using the annualized yearly median of country specific one-year-ahead realized monthly inflation rates. g_{lt} constitutes a lower bound for the cost of equity estimates.

Claus and Thomas [2001]

$$P_t = B_t + \sum_{i=1}^{5} \frac{FEPS_{t+i} - R_{CT} B_{t+i-1}}{(1+R_{CT})^i} + \frac{[FEPS_{t+5} - R_{CT} B_{t+4}]\ (1+g_{lt})}{(R_{CT} - g_{lt})(1+R_{CT})^5} \tag{B2}$$

In this model, the price is a function of the future forecasted earnings per share, the book value per share and the asymptotic long-term growth rate. Claus and Thomas [2001] implement the model using the I/B/E/S forecasted earnings per share for the next five years. If the forecasts for earnings per share, $FEPS_{t+i}$, are not available in I/B/E/S for the years $t+3$, $t+4$, and $t+5$, $FEPS_{t+i} = FEPS_{t+i-1}(1+LTG)$. The long-term abnormal earnings growth rate, g_{lt}, is calculated using the annualized yearly median of a country specific one-year-ahead realised monthly inflation rates. Future book values are estimated by assuming the clean surplus relation, that is, $B_{t+i} = B_{t+i-1} + FEPS_{t+i} - DPS_{t+i}$. The future dividend, DPS_{t+i}, is estimated by multiplying $FEPS_{t+i}$ by $POUT$. g_{lt} constitutes a lower bound for the cost of equity estimates.

Gebhardt, Lee, and Swaminathan [2001]

$$P_t = B_t + \sum_{i=1}^{T} \frac{(FROE_{t+i} - R_{GLS}) B_{t+i-1}}{(1+R_{GLS})^i} + \frac{(FROE_{t+T+1} - R_{GLS}) B_{t+T}}{(1+R_{GLS})^T R_{GLS}} \tag{B3}$$

For the years $t+1$ to $t+3$, $FROE_{t+i}$ is equal to $FEPS_{t+i}/B_{t+i-1}$. After the forecast period of three years, $FROE_{t+i}$ is derived by linear interpolation to the industry-median ROE. Average ROEs are computed in a given year and country for each of the 12 industry classifications of Campbell [1996]. Negative industry median ROEs are replaced by country-year medians. The

abnormal earnings at year $t + 12$ are then assumed to remain constant afterwards. Future book values are estimated by assuming clean surplus. The future dividend, DPS_{t+i}, is estimated as $FEPS_{t+i}$ multiplied by $POUT$. We assume that $T = 12$.

Easton [2004]

$$P_t = \frac{FEPS_{t+2} - FEPS_{t+1} + R_{ES}DPS_{t+1}}{R_{ES}^2} \tag{B4}$$

To implement the model, Easton [2004] uses the one-year-ahead and two-years-ahead forecasted earnings per share reported in I/B/E/S. The future dividend, DPS_{t+i}, is estimated by multiplying $FEPS_{t+i}$ by $POUT$. This model requires a positive change in forecasted earnings per share to yield a numerical solution.

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