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Centre Interuniversitaire sur le Risque, les Politiques Économiques et l'Emploi

Cahier de recherche/Working Paper **11-10**

Corporate Risk-Taking in Privatized Firms: International Evidence on the Role of State and Foreign Owners

Narjess Boubakri

Jean-Claude Cosset

Walid Saffar

Avril/April 2011

Boubakri: American University of Sharjah, UAE and Centre interuniversitaire sur le risque, les politiques économiques et l'emploi (CIRPÉE)
nboubakri@aus.edu
Cosset: HEC Montreal, Montreal, Quebec, Canada H3T 2A7 and Centre interuniversitaire sur le risque, les politiques économiques et l'emploi (CIRPÉE)
jean-claude.cosset@hec.ca
Saffar: American University of Beirut, 1107 2020 Beirut, Lebanon
walid.saffar@aub.edu.lb

We thank Najah Attig, Sadok El Ghoul, and Omrane Guedhami for their insightful comments on an earlier version of this paper. We appreciate financial support from Canada's Social Sciences and Humanities Research Council as well as excellent research assistance from Heba Abu Ghazalah and Mira Mneimneh.

Abstract:
Using a unique database of 190 newly privatized firms from 36 countries, we investigate the impact of shareholders' identify on corporate risk-taking behavior. We find strong and robust evidence that state (foreign) ownership is negatively (positively) related to corporate risk-taking. Moreover, we find that these relations depend on the level of government extraction. Our results suggest that relinquishment of government control, openness to foreign investment, and improvement of country-level governance institutions are key factors in the success of privatization reform.

Keywords: Privatization, risk-taking, corporate governance

JEL Classification: G31, G34, L33

Corporate Risk-Taking in Privatized Firms: International Evidence on the Role of State and Foreign Owners

1. Introduction

While a large body of literature documents that agency conflicts resulting from the separation between ownership and control affects various firm decisions (e.g., firm restructuring, divestment, and mergers), an issue that remains largely unexplored is the impact of shareholders' identity on corporate risk taking, a fundamental driver of long-term economic growth (Acemoglu and Zilibotti, 1997; Baumol et al., 2007). Understanding how ownership identity affects risk-taking behavior is important as the recent wave of government bailouts to contain the international financial crisis resulted in an expanding role of the state in troubled firms. In this paper we provide the first evidence on the link between risk-taking behavior and the identity of owners in newly privatized firms (NPFs hereafter), focusing primarily on two types of owners: the government as a residual owner, and foreign shareholders. The privatization context is an opportune setting to investigate the link between ownership identity and corporate risk-taking because of the dramatic change in ownership structure that occurs around divestiture. Also, exploring corporate risk-taking in the privatization context is all the more relevant since privatizations are implemented primarily to foster firm's growth and productivity, both driven by the managerial risk choices in corporate investment decisions (John et al., 2008).

Privatization can be defined as the deliberate sale by a government of state-owned enterprises (SOEs hereafter) or assets to private economic agents. Such reforms are often implemented to restructure SOEs that tend to underperform privately owned firms. The shift in ownership and control to private owners accompanying privatization changes the organization's prevailing incentive structure, with greater emphasis placed on profits and efficiency (Boycko et al., 1996; Shleifer and Vishny, 1997). The shift in incentives resulting from privatization is thus likely to affect the risk-taking behavior and subsequent performance of NPFs. The effect of ownership on postprivatization corporate risk-taking is likely to depend on how control is allocated across types of owners during the privatization process.

The purpose of this paper is to answer the call of John et al. (2008) for research that examines the relation between stakeholder governance and corporate growth as driven by risk-taking. While prior research focuses on the institutional determinants of risk-taking (John et al., 2008; Acharya et al., 2009 and Griffen et al., 2009) or on the link between risk-taking and shareholder diversification/concentration (Faccio et al., 2009 and Paligirova, 2010) for publicly traded firms, we take an alternative perspective and advance the literature on two fronts: we focus on the impact of shareholder identity on investment policy and we consider the special case of privatized firms. More specifically, in this study we narrow the gap in the literature by examining the risk-taking behavior of the government and foreign owners in NPFs.

In this paper, we consider first the impact of residual state ownership in NPFs on corporate risk-taking. We argue that strong government intervention may lead firms to pursue conservative investments (i.e., less risky projects). For instance, government policies that seek to maximize social stability and employment (Fogel et al., 2008) may constrain NPFs' ability to undertake risky investments. These policies seeking to maximize employment and wages, aim at ensuring the government's re-election and its political tenure in power, and are not necessarily in line with profit or value maximization. In addition, in NPFs, the government appoints managers (bureaucrats) that are good at dealing with politicians but not necessarily at effectively facing competitive market conditions. The lack of adequate monitoring of these politically-oriented managers/bureaucrats by an individual owner with the necessary incentives to engage in active monitoring (Vickers and Yarrow, 1988, 1991; Laffont and Tirole, 1993) will likely discourage risky investments, thus hindering or delaying postprivatization performance improvements (Fan et al., 2007; Boubakri et al., 2008).

Second, we analyze the impact of foreign participation in NPFs on corporate risk-taking. Foreign owners who are offered tranches in NPFs tend to be profit maximizers and hence are likely to undertake value-enhancing capital budgeting decisions (i.e., more risky projects). Frydman et al. (1999) argue indeed that, given their financial resources and managerial know-how, foreign investors have an advantage over other types of owners. Gillan and Starks (2003) and Ferreira and Matos (2008) provide supporting evidence that foreign owners play a more active role than local investors in advocating better firm-level governance, leading to positive performance outcomes, reached by undertaking risky investments.

Finally, we investigate whether the quality of the government extraction affects the association between the level of ownership by the state and foreign owners and risk-taking. In better governance environments, corporate risk-taking increases (John et al., 2008). In contrast, in countries with a high level of predation and expropriation, managers have greater incentives to divert resources and consume perks (Stulz, 2005 and Durnev and Fauver, 2009). In NPFs, Guedhami et al. (2009) show that foreign and government owners' incentives for transparency, which reduces information asymmetry and the impulse for expropriation, are conditioned by a country's governance environment. Consequently, the degree of risk-taking by the government and foreign owners in NPFs is likely to depend on such environment.

Using a unique database of 190 NPFs from 36 countries, we find strong and economically significant evidence that state ownership is negatively related to corporate risk-taking while foreign ownership is positively related to risk-taking. These results suggest a divergence in the interests of different types of shareholders. Our results are robust to a battery of tests and sensitivity analysis including considering different proxies for the risk-taking and the government control and confronting the issue of endogeneity and simultaneity between the owners' identity and the risk taking. We also find that the relations between shareholder identity and corporate risk-taking depend on the level of government extraction. Specifically, risk-taking is more adversely affected by residual government ownership in high expropriation-risk environments. This result is in line with prior evidence that government rent-seeking behavior is likely to act as a progressive tax on high earnings (John et al., 2008), or to lead to the outright expropriation of firm assets (Glaeser et al., 2004; Caprio et al., 2009), thus discouraging corporate risk-taking.

Our paper contributes to the literature in several ways. First, by showing how postprivatization ownership structure conditions NPFs' risk-taking, which affects in turn firm performance, we extend the corporate governance literature on the link between ownership structure and firm performance (Frydman et al., 1999; Gupta, 2005; Boubakri et al., 2005). Second, our study contributes to the corporate finance literature by providing evidence that risk choices are affected not only by large shareholder characteristics (Faccio et al., 2009) or country-level investor protection (John et al., 2008) but also by ownership structure/identity. Finally,

we add to the literature on law and finance and privatization by documenting that the extent of government extraction conditions the risk-taking behavior of state and foreign owners.

The rest of the paper is organized as follows. In Section 2, we develop our hypotheses. In Section 3, we describe the sample and variables used in this study and we present descriptive statistics. Section 4 reports empirical results on the relation between ownership identity and risk-taking, and Section 5 provides results on the role of the level of government extraction. Section 6 summarizes and concludes.

2. Hypotheses

Prior research implies that serious agency problems between state owners and private investors (foreign and local) accompany privatization (e.g., Coffee, 1999; Denis and McConnell, 2003; and Boubakri et al., 2005). As we discuss in the introduction, in this paper we exploit this high-information asymmetry setting to estimate the association between shareholders' ownership levels and corporate risk-taking. In particular, we analyze the relations between corporate risk-taking and two forms of ownership, the government as a residual owner and foreign investors. The first two subsections below develop our hypotheses for each of these forms of ownership in turn. In the third subsection we develop our hypothesis on the impact of the level of government extraction.

2.1. Corporate risk-taking of the government

We rely on the economic theory of privatization, namely, the political and managerial views of the inefficiency of SOEs, to develop our hypotheses on corporate risk-taking by the government in NPFs.

The political view of SOEs posits that public enterprises are inefficient because the inefficiency serves politicians' interests (Boycko et al., 1996). Indeed, the goals pursued by politically-oriented managers are not necessarily in line with profit or value maximization. Their objectives are rather to maximize employment and wages, promote regional development, and ensure national security. These objectives generally aim to ensure success in elections and a long tenure in power. In the context of a model in which a firm can deliver benefits to politicians, Shleifer and Vishny (1994: 1009) conclude that "When the government

maintains control over firms, privatizing cash flows simply enables politicians to extract more from managers, in the form of either bribes or excess employment. This also implies that if the government wants to continue tight regulation over firms, it would not get much revenue from privatization. For privatization of cash flows to lead to restructuring, surrender of control by politicians to the managers and private shareholders is the first step." Evidence provided by Boubakri et al. (2008) supports the implications of this model. More specifically, using an international sample of privatized firms, the authors find that politically-connected privatized firms, which are associated with a high level of government ownership, underperform their non-connected counterparts.

The managerial view of SOEs posits that these firms are inefficient because their managers are not adequately monitored, leading to poor incentive structures, as there is no individual owner with the necessary incentives to engage in active monitoring (Vickers and Yarrow, 1988, 1991; Laffont and Tirole, 1993). Privatized firms in which the government has a significant stake have the power to appoint managers (bureaucrats) that are good at dealing with politicians but not necessarily at effectively facing competitive market conditions. In this case, postprivatization performance improvements, reached by undertaking risky investments, may not be achieved (Fan et al., 2007; Boubakri et al., 2008). Indeed, Dyck (2001: 61) argues that "A major obstacle to securing investment is the prospect that those delegated with decision-making power will not use that authority to deliver what was promised but will instead divert the returns for their own benefit." Likewise, John et al. (2008) show that managerial diversion of corporate resources for private benefits prevents firms from undertaking risky projects.

Both the managerial and the political views suggest that state owners pursue objectives that are potentially in conflict with those of shareholders, who tend to focus on profit maximization. For instance, the government is less likely to seek performance improvements through cost cutting or to undertake risky investments that may lead to opposition from employees/voters. Outside the context of privatization, but corroborating the above arguments, Fogel et al. (2008) contend that a powerful government may influence firms to be conservative in their investments to stabilize social benefits and employment. Based on this discussion, we hypothesize that the extent of government control over NPFs is negatively related to corporate risk-taking. More formally:

H1: Government ownership of NPFs is negatively related to corporate risk-taking, all else being equal.

2.2. Corporate risk-taking of foreign owners

Doidge et al. (2009) and Leuz et al. (2009) find that, in contrast to government owners, foreign investors avoid investing in poorly governed firms. Poorly governed firms suffer from serious information problems that have an adverse effect on managerial risk-taking, whereas good corporate governance mitigates these problems. The results of Doidge et al. (2009) and Leuz et al. (2009) therefore suggest that foreign owners should be associated with more managerial risk-taking than government owners. In the same vein, Gillan and Starks (2003) and Ferreira and Matos (2008) document that foreign owners play a more active role than local investors in advocating better firm-level governance which may influence corporate investment policy. Also, Boycko et al. (1996), Dyck (2001), and D'Souza et al. (2005) show that privatized firms exhibit better governance and/or performance when foreign investors own larger stakes, and Denis and McConnell (2003) conclude that ownership by foreign (state) investors is usually associated with better (worse) performance and hence higher (lower) firm value, which John et al. (2008) suggest is likely a result of a more (less) risky investment policy. Likewise, Stulz (1999) argues that opening capital markets to foreign investors can improve corporate governance, which can lead in turn to increased managerial risk-taking.

Evaluating the impact of privatization on firm performance, Frydman et al. (1999) argue that, given their financial resources and managerial know-how, foreign investors have an advantage over other types of owners. The authors also show that foreign-owned firms are less inclined to reduce employment than all other categories of firms, which they interpret as evidence that foreign owners have a longer-term value-enhancing perspective. Consistent with these findings, Lizal and Svejnar (2003) show that in transition economies, firms privatized to a domestic owner exhibit a large long-term decline in profits while privatization to a foreign entity leads to a large positive impact on profits. They also show that capital stock increases at a faster rate for foreign-owned firms and, irrespective of the performance measure used, foreign owners unambiguously improve long-term performance of NPFs. One possible explanation for this evidence is that foreign ownership leads to increased firm value as a result of following a more risky investment policy.

Based on this discussion, we hypothesize that foreign investors, which bring with them not only fresh capital but also stronger corporate governance, are positively associated with corporate risk-taking in NPFs. More formally:

H2: Foreign ownership of NPFs is positively related to corporate risk-taking, all else being equal.

2.3. The impact of the level of government extraction on risk-taking

John et al. (2008) show that in better governance environments, stakeholders such as creditors, labor groups, and the government are less able to reduce corporate risk-taking to pursue their self interest, that is, corporate risk-taking increases with the quality of country-level governance. Similarly, Stulz (2005) and Durnev and Fauver (2009) argue that managers have greater incentives to divert resources in countries with a high level of predation and expropriation. In assessing foreign and government owners' incentives for transparency, which reduces information asymmetry and the impulse for the consumption of private interests, Guedhami et al. (2009) also find that a country's governance environment matters. As a result, the degree of risk-taking by government and foreign owners is likely to depend on the level of a country's institutions.

Under weak governance institutions, government expropriation and political benefits are typically high. Given that political benefits arising from predation are secured by the government, incentives to undertake risky investments are low. Consistent with this argument, Durnev and Fauver (2009) find that firms generally have less incentive to practice good governance, which positively affects risk-taking (John et al., 2008), if the government is predatory. This is all the more likely in privatized firms in which residual government ownership is high. In contrast, foreign owners are more likely to take risk in less predatory governments. As Knack and Keefer (1995:210) argue, "It is likely that if private actors cannot count on the government to respect the contracts it has with them, they will also not be able to count on the government enforcing contracts between two private parties…. This restriction on economic activity severely limits the universe of possible Pareto-improving exchanges that would otherwise be undertaken." As a result, we expect risk-taking incentives by foreign owners to be stronger in environments with lower government extraction and higher investor protection.

Based on the arguments presented above, we hypothesize that risky investments by foreign and state owners are conditioned by a country's level of government extraction. More formally:

H3: Low (high) corporate risk-taking by government (foreign) owners is stronger given a high (low) level of government extraction.

3. Sample and Variables

In this section, we begin by describing our sample of privatized firms. We then present our measures of corporate risk-taking and ownership structure along with the standard control variables used in the literature to explain corporate risk-taking.

3.1. Sample

To investigate the impact of state and foreign ownership on corporate risk-taking, we compile a sample of 190 firms privatized from 23 emerging markets and 13 industrialized countries over the 1980 to 2004 period.[1] We start with the sample constructed by Guedhami et al. (2009), which is well suited to our research objectives as it tracks state and foreign ownership following the divestiture of SOEs. Next, we exclude financial firms from the sample.[2] We then update the database to include ownership data for up to the sixth year after the first privatization and we add recent privatizations. We use different sources for the addition of privatizations, including the World Bank's privatization database for developing countries and the *Privatization Barometer* for developed countries. To be included in the sample, we require that the firm's volatility of earnings be available for at least four consecutive years over the six years after privatization.

[1] This sample is comparable with recent multinational studies on privatized firms: Boubakri et al. (2005) with a sample of 209 firms from 39 countries, Guedhami and Pittman (2006) with a sample of 190 firms from 31 countries, Bortolotti and Faccio (2009) with a sample of 141 firms from 22 countries, and Guedhami et al. (2009) with a sample of 176 firms from 32 countries.

[2] Financial firms (SIC 6000-6999) are excluded because they are heavily regulated and hence are highly sensitive to the burden of regulation in a country (Faccio et al., 2009). We refer readers to Laeven and Levine (2009) for a cross-country analysis of corporate risk-taking by banks.

Table 1 presents descriptive statistics for the 190 firms considered in this study. Table 1 shows that the 190 privatized firms are fairly evenly spread across geographical regions as categorized by the World Bank. In particular, 32.64% of firms are from Africa and the Middle East, 21.58% are from East and South Asia and the Pacific, 18.94% are from Latin America and the Caribbean, and 26.84% are from Europe and Central Asia. The sample thus comprises countries with different levels of development as well as different legal, political, and institutional environments. Table 1 also reveals that our sample shows variation across Campbell's (1996) industries with 28.42% of firms in utilities, 16.84% in basic industries, and 13.16% in consumer durables. Table 1 further shows that 10.52% of the privatizations occurred in the 1980s compared to 89.48% between 1990 and 2004. These figures largely reflect the trend toward privatization in recent years, especially in the emerging markets.[3] [4]

[Insert Table 1 about here]

3.2. Variables

3.2.1. Risk-taking

Our measure of corporate risk-taking (*RISK1*) is the volatility of an NPF's earnings over four-year overlapping periods for a maximum of six years after privatization (i.e., 0,+3; +1,+4; +2,+5; and +3,+6),[5] where firm earnings are given by return on assets (*ROA*), which is equal to

[3] We follow the standard practice in the privatization literature and exclude firms from ex-communist countries (Megginson et al., 2004; Boubakri et al., 2005, 2011; Guedhami et al., 2009). There are two reasons for this exclusion. First, the legal systems in these countries are based on Soviet law, and have gone through many changes in their respective transition periods (La Porta et al., 2000). Second, the post-privatization ownership structure in these countries is mainly determined by insiders (managers and employees). Recent references on the experience of these transition economies include Djankov and Murrell (2002) and Svejnar (2002).

[4] When we examine the World Bank list of privatized firms, we find that 30.48% of the firms are from Africa and the Middle East, 17.08% from East and South Asia and the Pacific, 42.35% from Latin America, and 10.09% from Europe and Central Asia. In addition, 80% of the privatization transactions occurred in the 1990s. These figures are comparable to those discussed in the text in reference to our sample.

[5] In our main analysis we consider volatility over four years as in Paligorova (2010) rather than over five years as in Faccio et al. (2009) given frequent changes in ownership structure in NPFs (Boubakri et al., 2005). In robustness tests we rerun our analysis using five-year overlapping periods. The results are qualitatively similar.

the ratio of earnings before interest and taxes (EBIT) to total assets.[6] The Appendix presents more details on the estimation of *RISK1*. Table 2 reports descriptive statistics for our variables. We see that the mean (median) four-year volatility of *ROA, RISK1,* is 0.033 (0.022). For robustness, we also estimate five other measures of corporate risk-taking. The results throughout the paper remain qualitatively similar when using the alternative risk-taking proxies.

3.2.2. Ownership

To analyze the incentives of governments and foreign investors to take risk, we follow John et al. (2008) and determine their ownership stakes at the end of the first year of the period over which the corporate risk-taking proxy is measured. We hand-collect ownership structure and financial information from several data sources including *Worldscope*, *BankScope*, Asian, Brazilian, and Mexican Company Handbooks, Kompass Egypt Financial Year Book, and firms' annual reports and offering prospectuses. Boubakri and Cosset (1998), Megginson (2003), and Bortolotti and Siniscalco (2004) provide supplementary data.

In Table 2, we find that state ownership in NPFs displays a steep decline after the privatization date. Specifically, the average government stake (*STATEOWN*) plummets to 41.1% after privatization. Interestingly, control privatizations, in which the government maintains its control by selling less than 50% of the firm's shares (*CONTROL*), comprise 45% of the total sample. Foreign investors' average stake (*FOREIGNOWN*) reaches 10.5% after privatization. Consistent with prior privatization research (e.g., Jones et al., 1999 and Boubakri et al., 2005), governments tend to preferentially allocate higher stakes to domestic investors over foreign investors. Jones et al. (1999) argue that favoring local investors through share allocation allows governments to elicit more political support for privatization, create a culture of share ownership (popular capitalism), and develop local stock markets. Table 2 also reports significant shifts in domestic institutional ownership (*LINSTOWN*) for our sample. In particular, the average equity stake held by domestic institutions increases to 21.2% after privatization.[7] It

[6] To mitigate concerns regarding outliers and data entry omissions, we winsorize *ROA* at the 1% level on both sides of the sample distribution.

[7] We follow prior research in presenting the three major types of investors participating in the privatization process (Jones et al., 1999; Boubakri et al., 2005; Guedhami et al., 2009). Total equity capital

is important to stress, however, that the lion's share of NPFs' ownership change occurs immediately after privatization.

3.2.3. Control variables and summary statistics

In addition to the ownership variables above, we include standard controls that prior studies show to be associated with risk-taking (Claessens et al., 2001; John et al., 2008; Faccio et al., 2009).

First, we control for firm growth using total sales denominated in US$ (*SALESGROWTH*), which captures the influence of firm-specific growth opportunities on corporate risk-taking, and country-level growth using growth in real GDP in 1995 constant US$ (*GDPGROWTH*), which captures the effect of the country's overall growth on managerial investment decisions. We expect both measures of growth to be positively related to corporate risk-taking. Next, we control for the effect of firm size (*SIZE*), which we measure using the natural log of total sales in millions of US$. In general, small firms are more risk-seeking than large firms and thus we expect a negative relation between firm size and our measure of risk-taking. Our fourth control variable is firm profitability (*ROA*), which as before is equal to the ratio of EBIT to total assets. Our fifth control variable is the ratio of total debt to assets (*LEVERAGE*), which captures a firm's level of leverage. Finally, we include country, year, and industry (as categorized by Campbell, 1996) dummies to control for the different fixed effects of these factors. We winsorize the firm-level variables at the 1% level in each tail of the sample distribution to reduce the influence of outliers in our estimates. All the independent variables enter the regression at the first year-end of the sample period over which the corporate risk-taking proxy is measured (as in John et al., 2008). Firm-level control variables are mainly drawn from firms' annual reports, *Worldscope*, and the different countries' company handbooks.

Table 2 shows that our sample of privatized firms includes both small and large firms as well as high and low leverage firms. Companies in the sample appear to be relatively profitable, with a mean (median) *ROA* of 0.075 (0.066), and exhibit a high level of growth, with a mean (median) *SALESGROWTH* of 0.111 (0.061).

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averages slightly under 100% in Table 2, reflecting the presence of other owners that data limitations prevent us from identifying.

[Insert Table 2 about here]

Table 3 Panel A presents correlation coefficients for our variables of interest. As expected, risk-taking is negatively and significantly related with the level of state ownership (0.121) and positively and significantly related with the level of foreign ownership (0.125). We also find that risk-taking is positively related to firm profitability and sales growth and negatively related to firm size, firm leverage and GDP growth. The correlation between state and foreign ownership is negative and equal to -0.462 (significant at the 1% level).

4. Corporate Risk-Taking and Ownership of NPFs

In this section we present evidence on the corporate risk-taking of state and foreign shareholders in NPFs using two different frameworks. First, we perform univariate analysis that does not control for the potential determinants of corporate risk-taking. We then capitalize on the panel nature of our data after privatization and run a pooled multivariate regression that controls for firm-level and country-level variables shown in the literature to explain corporate risk-taking.

4.1. Univariate analysis

In Table 3 Panel B we report results of univariate tests. Specifically, we compare the means and medians of the corporate risk-taking proxy (*RISK1*) for above- and below-median (i.e., high and low) subsamples of state and foreign ownership. We find that *RISK1* is significantly higher (lower) for the subsample of firms with high foreign (state) stakes in their ownership structure. In particular, we find that the mean (median) of *RISK1* is equal to 0.041 (0.026) for firms with below-median state ownership and drops to 0.025 (0.017) for firms with above–median state ownership, whereas the mean (median) of *RISK1* is equal to 0.028 (0.019) for firms with below-median foreign ownership and rises to 0.038 (0.025) for firms with above-median foreign ownership.[8]

[Insert Table 3 about here]

[8] We do not find evidence at the univariate level that risk-taking is significantly different between above- and below-median subsamples of local institutional owners.

Although these univariate tests provide preliminary support for our hypotheses on the impact of ownership identity on corporate risk-taking in NPFs, they only document binary relations and do not account for other potential explanatory variables. In the following section we perform a multivariate regression that controls for other determinants of firms' risk-taking decision.

4.2. Multivariate analysis

In this section, we report our results on the impact of ownership identity on risk-taking using a pooled multivariate regression framework. Given the shift in NPFs' ownership structure, especially immediately after privatization, a panel framework is well suited to our research question and can help shed light on the impact of shareholder identity on risk-taking in NPFs.[9] We estimate the regressions using OLS and calculate robust standard errors corrected for clustering by firms as in Petersen (2009).

Specifically, we estimate the following model (subscripts are suppressed for notational convenience):

$$RISK1 = \alpha + \gamma_1 OWNERSHIP + \gamma_2 CONTROLS + \sum_{Y=1}^{Y-1} YEAR + \sum_{K=1}^{K-1} IND + \sum_{C=1}^{C-1} CNT + \eta, \quad (1)$$

where *RISK1* is the volatility of firms' *ROA* over four-year overlapping periods, *OWNERSHIP* is the percentage of shares held by the government or foreigners, *CONTROLS* denotes the set of control variables (*SIZE, LEVERAGE, SALESGROWTH, ROA,* and *GDPGROWTH*), *YEAR, IND,* and *CNT* are dummies that control for year, industry, and country fixed effects, respectively, and η is an error term. Given evidence that foreign investors are major stakeholders in the privatization process, especially in developing countries (Kikeri and Nellis, 2002; Boubakri et al., 2009), we perform the regressions by introducing state and foreign ownership separately to reduce the multicollinearity raised by cases in which the stake sold by the government is

[9] Although Table 2 reports averages of post-privatization ownership stakes, the evolution of state and foreign ownership over the six years after privatization—available from the authors—stems from staggered sales (or subsequent share issues). For example, the ownership share of the state drops from 42.14% in the year of privatization to 35.24% the third year following the divestiture. In the same vein, on average, foreign investors' capital stake increases from 8.05% in the year of privatization and to 12.53% after three years. Local institutions' ownership is 20.29% in the year of privatization and slightly higher at 22.27% the third year following privatization. These descriptive statistics highlight the importance of conducting panel estimation rather than cross-sectional estimation that does not capture the specificity of NPFs' capital structure when compared to publically traded firms as in John et al. (2008).

absorbed by foreigners. Nevertheless, in untabulated analysis in which we include state and foreign ownership in the same regression, the results remain qualitatively similar.

Our focus is on the coefficient γ_1, which measures the sensitivity of corporate risk-taking to the level of ownership of different types of owners.

4.2.1. The impact of state ownership on corporate risk-taking

Table 4 reports the results of regressing corporate risk-taking on state ownership (*STATEOWN*) along with the control variables. In our main regression, Model 1, we use *RISK1* as the dependent variable. The results show that *STATEOWN* is negatively associated with corporate risk-taking in NPFs. This association is statistically significant at the 1% level. In line with the univariate results, these results support hypothesis H1, which posits that governments adopt more conservative risk-taking behavior. Our results are also economically significant. Indeed, the coefficient estimate on *STATEOWN* suggests that increasing state ownership from the first to the third quartiles (from 13% to 65%) results in a 58% decrease in the risk-taking proxy (from 0.041 to 0.026), holding all other variables at their mean values.

Turning to the control variables, we observe several significant relations that are consistent with John et al. (2008) and Faccio et al. (2009). In particular, we find that *ROA* and *LEVERAGE* load positive and are statistically significant at the 5% level. We also find that firm size (*SIZE*) is negatively related to *RISK1* and is statistically significant at the 5% level. Finally, *SALESGROWTH* is positively associated with *RISK1* and statistically significant at the 5% level.

In the remaining models of Table 4, we use alternative measures of corporate risk-taking to mitigate concerns that our evidence is driven by the proxy for firm risk-taking. In Model 2 we use *RISK2,* which is the standard deviation of *ROA* over five overlapping years for a maximum of six years following privatization (i.e., 0,+4; +1,+5; and +2,+6). Our previous results remain unchanged. Indeed, *STATEOWN* loads negative and is statistically significant at the 1% level. In Models 3 and 4 we consider *RISK3* and *RISK4,* which are the maximum minus the minimum *ROA* over four and five overlapping periods, respectively. Our results again remain unchanged, with *STATEOWN* loading negative and statistically significant at the 1% level in Models 3 and 4.

In Model 5 of Table 4, we consider a country-adjusted measure of the earnings volatility. This country adjustment presents difficulties and is debatable. First, using our sample firms to calculate the average ROA for a given country-year to adjust our firms' earnings is inappropriate given the limited number of available observations. Second, in our regressions we control for the economic conditions by including *GDPGROWTH* and the country-fixed effects. Third, John et al. (2008) find that the results using a country-adjusted measure or total risk are qualitatively similar. Fourth, several sample firms are monopolies and a country or industry adjustment might be inappropriate (see also Boubakri and Cosset, 1998). Finally, relying on *Compustat Global* database to calculate the average ROA for a given country-year to adjust our firms' earnings reduces our sample. [10] Nevertheless, in Model 5 we present this specification using a country-adjusted measure of risk-taking (*RISK5*) for a subsample of firms. *RISK5* is equal to the volatility over four overlapping years of the difference between a firm's ROA and the average ROA across all non-financial firms covered by *Compustat Global* in the country in which the firm is registered. The results continue to support our evidence. Indeed, *STATEOWN* enters negative and statistically significant at the 1%level.

In Model 6 of Table 4, we consider the volatility of the return on sales (*ROS*), measured by the ratio of EBIT to total sales, over four overlapping years (*RISK6*). D'Souza and Megginson (1999) and Fan et al. (2007) stress that using ROS mitigates concerns that ROA is sensitive to inflation and accounting conventions and management since it involves two flow measures (EBIT and sales). Also, ROS reduces the bias on performance measures based on assets since the privatizations are primary offerings that increases the asset base of the firm substantially after the divestiture. Introducing *RISK6* as a dependent variable does not change our evidence. Indeed, *STATE* enters negative and statistically significant at the 1% level.[11]Taken together, the evidence presented in Table 4 suggests that our results are unaffected by the choice of proxy for risk-taking or by the length of period over which the risk-taking proxy is calculated.

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[10] The number of observations drops from 547 for *RISK1* to 402 for *RISK5*. Indeed, our sample includes only observations after 1987 when *Compustat Global* coverage began. Also, *Compustat Global* starts covering many developing countries of our sample in the middle of the nineties or latter. For example, Bangladesh enters in the database in 2000, Egypt in 1996, Jordan in 1997, Morocco in 1996, and Nigeria in 2001.

[11] Our results are also robust to using the volatility of ROS over five overlapping years as a dependent variable. Also, all the results in the paper remain qualitatively similar when using *RISK6* as a dependent variable.

[Insert Table 4 about here]

Table 5 presents additional tests to ensure the robustness of our findings. First, in Models 1 and 2 we perform alternative econometric approaches. Specifically, in Model 1 we cluster errors at the country level instead of the firm level to introduce country specificity into our regressions, and in Model 2 we run a panel regression with random effects to account for unobservable firm-specific effects given that the determinants of corporate risk-taking are likely to be firm-specific. We find that using these alternative econometric approaches does not change our evidence. Indeed, *STATEOWN* loads negative and is statistically significant at the 1% level in both models.

Second, in Models 3, 4, 5, and 6 we consider different proxies for state control. Given the staggered nature of government sales after privatization, introducing *STATEOWN* in the first year over which *RISK1* is calculated as in John et al. (2008) may overestimate the impact of government ownership during this period. To adjust for this fact, in Model 3 we replace *STATEOWN* with the average state ownership for the period over which *RISK1* is calculated (*AVG_STATEOWN*). The results remain qualitatively unchanged, with *AVG_STATEOWN* loading negative and statistically significant at the 1% level. In Model 4 we follow Boubakri et al. (2005) and Guedhami et al. (2009) and replace *STATEOWN* with the dummy variable *CONTROL*, which is equal to one if the government retains control over the NPF (i.e., maintains more than 50% of the firm's shares). We expect risk-taking to be lower in firms in which the government maintains control than in those in which it relinquishes control. The results are consistent with this expectation: *CONTROL* is negatively related to *RISK1* and is statistically significant at the 1% level. This finding is also economically material: moving *CONTROL* from 0 to 1 (i.e., government maintains control) while holding all other variables at their mean value decreases risk-taking by 38%, from 0.039 to 0.024. In Model 5 we control for *CONNECTED*, a dummy variable from Boubakri et al. (2008) that is equal to one if the firm is politically connected, that is, " … if at least one member of its board of directors (BOD) or its supervisory board is or was a politician, that is, a member of parliament, a minister or any other top appointed-bureaucrat" (Boubakri et al., 2008: 657). Table 2 reports that 28% of our sample is politically connected. Fan et al. (2007) and Boubakri et al. (2008) show that politically connected NPFs exhibit lower accounting performance compared to unconnected firms. Accordingly, we

expect that governments appointing politicians in key positions within an NPF anticipate a conservative investment approach that serves the government's political goals, that is, we expect connected NPFs to be less likely to undertake aggressive investment activities. Consistent with this expectation, we find that *CONNECTED* loads negative and is statistically significant at the 1% level. This finding is also economically material: moving *CONNECTED* from 0 to 1 (i.e., government maintains control through political connections) while holding all other variables at their mean value decreases risk-taking by 39%, from 0.036 to 0.022. In Model 6 we consider an alternative definition of political connectivity, also from Boubakri et al. (2008), that allows the influence of political connections to depend on the strength of the connection. In particular, we consider the percentage of politically-experienced directors on the board, *PERCON*. The higher the number of politicians on the board, the higher the government's influence should be. In contrast, an isolated politician on the board is not likely to have such influence. The results in Table 5 show that including this variable as a proxy for government control does not change our inference on the negative impact of government ownership on risk-taking: *PERCON* loads negative and is statistically significant at the 10% level.

[Insert Table 5 about here]

In summary, the results in Tables 4 and 5 show that state ownership is negatively related to corporate risk-taking. These results hold when using alternative lengths and measures for corporate risk-taking, when considering alternative econometric methods, and when using alternative measures of government ownership and control. We next turn to our results for hypothesis H2 on the impact of foreign ownership on corporate risk-taking.

4.2.2. The impact of foreign ownership on corporate risk-taking

Table 6 reports results of regressing Equation 1 using *FOREIGNOWN* as the independent variable of interest. In Model 1, our basic model, we regress *RISK1* on *FOREIGNOWN* and the other control variables highlighted in section 3.2.3. In line with our univariate results, we find that *FOREIGNOWN* loads positive and is statistically significant at the 5% level, suggesting that in contrast to the government, foreign owners take more risk. In addition, the results are economically significant. For example, the coefficient on *FOREIGNOWN* suggests that foreign owners increase their risk-taking by 23% (from 0.031 to

0.038) when increasing foreign ownership by one standard deviation from its mean value (from 10% to 29%), holding the other variables at their mean values. As in Table 4, Models 2, 3, 4, 5 and 6 of Table 6 report results using the alternative dependent variables *RISK2*, *RISK3, RISK 4*, *RISK5* and *RISK6*, respectively. The results suggest that irrespective of the proxy for or the length of the measure of corporate risk-taking, our results remain unaffected with *FOREIGNOWN* loading positive and statistically significant at the 5% level or better in the different models.

[Insert Table 6 about here]

In Table 7, we run additional tests to ensure the robustness of our results. First, using alternative econometric procedures, namely, clustering of observations at the country level in Model 1 and estimation with random effects in Model 2, does not affect our evidence: *FOREIGNOWN* is positive and statistically significant at the 1% and 5% levels, respectively. Second, when we introduce different types of ownership identity, namely, *STATEOWN, FOREIGNOWN,* and *LINSTOWN*, in Model 3, the results continue to remain unchanged. In particular, *STATEOWN* (*FOREIGNOWN)* remains negatively (positively) and statistically significantly at the 5% level associated with *RISK1*. *LINSTOWN* loads positive but is insignificant.[12] Third, following Faccio et al. (2009), we additionally introduce two institutional variables, namely, *ACC* an index driven from Kurtzman et al. (2004) that measures the financial reporting quality, which is one of the subindices of their opacity index, and the Djankov et al.'s (2008) *ANTISELFDEALING* score that capture the regulation of corporate self-dealing transactions along three dimensions: disclosure, approval procedures for transactions, and facilitation of private litigation when self-dealing is suspected.[13] [14] The results are reported in

[12] In an unreported specification, we regress *RISK1* on *LINSTOWN* and the other firm-level control variables and fixed effects. Introducing *LINSTOWN* alone as a control for ownership identity does not change the evidence reported in Model 3 of Table 7. Indeed, *LINSTOWN* continues to load positive (=0.007) but insignificant (t-stat=0.59).

[13] We rely on *ACC* index rather than other accounting quality measures since Kurtzman et al. (2004) database covers more countries contained in our sample, especially the developing countries. Also, when controlling for the earnings management, as measured by Leuz et al. (2003), at the firm-level, we lose a significant number of observations due to the scarcity of detailed financial data, especially in African countries and for firms privatized in the eighties (see also Boubakri and Cosset, 1998).

Model 4 and show that our evidence remains qualitatively similar. However, we do not find that *ACC* and *ANTISELFDEALING* enter significantly in this regression.

In a natural extension of the analysis in Model 1 of Table 6, Models 5 and 6 of Table 7 report results according to whether the government relinquishes control to evaluate whether foreign owners continue to play a significant role in the risk-taking of NPFs in which there is less government interference. Consistent with such a role, *FOREIGNOWN* loads positive and significant at the 10% level in Model 6 when the government no longer holds a majority equity stake. In sharp contrast, the coefficient on *FOREIGNOWN* is statistically indistinguishable from zero when the government retains control in Model 5, implying that foreign owners take more risk in firms in which they are less likely to face government interference.

Next, in Models 7 and 8 of Table 7 we divide our sample into firms that are politically connected and those that are not in order to evaluate whether foreign owners' risk-taking behavior takes political interference into account. Consistent with such considerations, we find that *FOREIGNOWN* loads positively significant (at the 5% level) only for the subsample of firms in which the government does not play a role through political appointments (Model 8). For the subsample of politically connected firms (Model 7), the coefficient on *FOREIGNOWN* is insignificant.

Finally, in Models 9 and 10 of Table 7 we divide our sample according to whether the firm holds a golden share. A golden share endows the government with special veto power over major financing and operating decisions.[15] The dummy variable *GOLDEN SHARE,* which is equal to one for firms holding a golden share, is drawn from Boubakri et al. (2009). In Model 10 we find that foreign investors take more risk in firms without a golden share: in this

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[14] Djankov et al. (2008) stress that anti-self dealing index performs better than the other investor protection measures.

[15] Bortolotti and Faccio (2009: 2918) define a golden share in privatized firms as "the set of the state's special powers and statutory constraints on privatized companies. Typically, special powers include (1) the right to appoint members in corporate boards; (2) the right to consent to or to veto the acquisition of relevant interests in the privatized companies; and (3) other rights such as to consent to the transfer of subsidiaries, dissolution of the company, ordinary management, etc. The above mentioned rights may be temporary or not. On the other hand, statutory constraints include (1) ownership limits, (2) voting caps, and (3) national control provisions."

regression, *FOREIGNOWN* loads positive and is statistically significant at the 5% level. In contrast, we do not find such evidence in Model 9.[16]

[Insert Table 7 about here]

Overall, the results in Tables 6 and 7 show that foreign ownership is positively associated with corporate risk-taking. These results hold when using alternative lengths and measures for corporate risk-taking, and when considering alternative econometric methods. Foreign owners tend to take more risk, especially if the government relinquishes direct or indirect control (i.e., through majority residual ownership, by appointing politicians within the NPF, or by holding a golden share).

4.2.3. Endogeneity and sample composition

One potential concern with the base-case regressions in Tables 4 and 6 is that *STATEOWN* and *FOREIGNOWN* may not be exogenous. Specifically, some unobserved determinants of corporate risk-taking may also explain ownership structure, leading OLS estimates to be biased and inconsistent. In Table 8, Models 1-4, we confront the issue of endogeneity using two-stage instrumental variable estimations.[17] We use a country's institutional environment, measured by *LAWORDER,* as an instrument for state ownership. *LAWORDER* ranges from 0 to 6. It is derived from the ICRG, and captures the extent of law enforcement in addition to the laws on the books. This choice of instrument is motivated by prior literature that shows that a country's institutional environment is exogenous (La Porta et al., 1998, 2006) and closely associated with both the pervasiveness of state ownership (e.g., La Porta et al., 1999; Bortolotti and Faccio, 2009) and the extent of privatization by governments (Bortolotti et al., 2004).[18] We use the property rights index derived from *Economic Freedom of the World* by Gwartney et al. (2008), *PROPERTY,* as an instrument for foreign ownership. This

[16] This result should be interpreted carefully given the small number of firms in our sample that maintain a golden share. Indeed, we find that only 17 firms in our sample hold a golden share compared to 88 without such a control device.

[17] This approach to addressing endogeneity of state and foreign ownership is common in research on privatization (e.g., Guedhami et al., 2009; Ben-Nasr et al., 2009; Borisova and Megginson, 2010).

[18] Adding support to our choice of *LAWORDER* as an instrument, in John et al. (2008) this proxy loads insignificantly when explaining risk-taking in an international sample.

choice is motivated by evidence in Chhibber and Majumdar (1999) that foreign owners in India are more inclined to invest in Indian firms after the implementation of reforms that result in stronger protection of property rights. *PROPERTY* ranges from 0 to 100 and assesses the ability of individuals to accumulate private property, secured by clear laws that are fully enforced by the state. It also assesses the likelihood that private property will be expropriated and the independence of the judiciary, the extent of corruption within the judiciary, and the ability of individuals and businesses to enforce contracts.

In first-stage regressions, we predict state and foreign ownership using the institutional environment index, *LAWORDER,* in Model 1 and the property rights protection index, *PROPERTY,* in Model 3, respectively, along with the other independent variables discussed earlier. Consistent with prior research (Boubakri et al., 2005 and Chhibber and Majumdar, 1999), the first-stage regressions show that *LAWORDER* and *PROPERTY* are good predictors of state and foreign ownership, respectively. Indeed, *LAWORDER* enters negatively and is statistically significant at the 1% level in Model 1, suggesting that governments retain higher stakes in countries with weak institutions, while *PROPERTY* loads positively and is statistically significant at the 5% level in Model 3, suggesting that foreign investors have more incentives to acquire stakes in countries that enforce property rights. Using the first-stage fitted values for *STATEOWN* and *FOREIGNOWN* in the second-stage regressions reported in Models 2 and 4, respectively, we continue to find that the coefficient on *STATEOWN* is negative, and that on *FOREIGNOWN* is positive, both statistically significant at the 1% level. Thus, correcting for endogeneity, that is, using the instrumental variable (IV) approach, does not appear to affect our main evidence on the divergent impact of state and foreign owners on corporate risk-taking. When we perform the exogeneity J-test of over-identifying restrictions, we find supportive evidence that these instruments are relevant and exogenous. When we additionally regress the residuals of the IV regressions on the instruments and control variables, we find that the independent variables are jointly insignificant, further suggesting that the instruments are exogenous.

Another concern with our main analyses may be that government and foreign ownership are influenced by the economic characteristics of the firm, with corporate risk-taking being one of these characteristics. For example, the government could maintain a higher stake in

less risk-taking firms to extract higher private benefits (e.g., political benefits). Alternatively, the government may retain control over less risk-taking NPFs because no acquirer is interested in investing such firms; similarly, foreign owners may choose to invest exclusively in high risk-taking firms. Given the potential for endogeneity between ownership identity and risk-taking, in Models 5 through 8 of Table 8 we estimate two systems of simultaneous equations that treat ownership identity (*STATEOWN* and *FOREIGNOWN*) and risk-taking as jointly determined. We perform the estimation using a two-stage procedure as described in Maddala (1983) that allows for correlation of errors across equations (see also Guedhami et al., 2009). In Models 5 and 7, we find that *LAWORDER* (*PROPERTY)* is negatively (positively) and significantly related to state (foreign) ownership. More important for our purposes, we continue to find that *STATEOWN* and *FOREIGNOWN* are positively and negatively associated with *RISK1* and statistically significant at the 1% level, respectively.[19]

A final concern with our main analyses may relate to our sample being dominated by firms privatized during the 1990s. Several countries, under pressure from the World Bank and the International Monetary Fund, launched a privatization program during the 1990s, especially in the emerging markets (Megginson and Netter, 2001). To mitigate concerns that our results are driven by privatizations that occurred outside this period, we rerun our analyses limiting attention to transactions over the 1990-2000 period. The results reported in Table 8 Models 9 and 10 for the state ownership equation and foreign ownership, respectively, show that our main evidence is not affected. *STATEOWN* loads negative and statistically significant at the 1% level, and *FOREIGNOWN* loads positive and statistically significant at the 5% level.

[Insert Table 8 about here]

5. The Impact of Country-Level Government Extraction

Recent evidence implies that firm-level corporate risk-taking hinges on country-level governance institutions (e.g., John et al., 2008). Theoretically, Stulz (2005) and Durnev and Fauver (2009) show that managers have greater incentives to divert resources in countries with

[19] Also, since *RISK1* is calculated over the upcoming four years in which the ownership variables enter, this mitigates concerns that governments (foreigners) choose to invest in low (high) risk-taking firms and hence reduces concerns about reverse causality.

a high level of predation and expropriation. Avoiding value-maximizing projects and risk-taking could be a mechanism that managers use to divert or at least stabilize company resources. Empirically, Guedhami et al. (2009) find evidence that foreign and government owners' incentives for transparency, which reduces information asymmetry and increases the impulse for risk-taking, differ according to the level of a country's governance institutions. Caprio et al. (2009) further find that in countries where the threat of political extraction and corruption is higher, firms hold a lower fraction of their assets in liquid form. Firms with scarce liquid assets might have to forgo profitable investment opportunities that would increase firm value if sufficient funds could be generated. These studies therefore suggest that our findings of low (high) risk-taking by state (foreign) owners could differ according to the level of government extraction.

We extend our analyses above to study the impact of the level of government extraction on risk-taking by governments and foreign owners. We rely on two different measures to capture country-level of government extraction, namely, the level of government corruption, *CORRUPTION,* and the level of government expropriation, *EXPROPRIATION*. Both variables come from the ICRG and are widely used in the literature as a measure of government extraction (e.g., Caprio et al., 2009; Durnev and Fauver, 2009; among others). *EXPROPRIATION* ranges from 0 to 12 and is defined by the ICRG as "an assessment of factors affecting the risk to investment that are not covered by other political, economic and financial risk components. The subcomponents are: Contract Viability/Expropriation; Profits repatriation; Payment Delays." Each subcomponent ranges from 0 to 4. *CORRUPTION* ranges from 0 to 6 and is defined by the ICRG as "an assessment of corruption within the political system…. The most common form of corruption met directly by business is financial corruption in the form of demands for special payments and bribes." The ICRG continues, stating that "Such corruption is a threat to foreign investment for several reasons; it distorts the economic and financial environment, it reduces the efficiency of government and business by enabling people to assume positions of power through patronage rather than ability, and, last but not least, it introduces an inherent instability into the political process…. Such corruption can make it difficult to conduct business effectively, and in some cases may force the withdrawal or withholding of an investment." Both indices are designed such that higher scores reflect greater government expropriation or corruption. We expect that state owners will take less risk in countries with higher corruption or expropriation,

compared to countries with lower corruption or expropriation. Knack and Keefer (1995) show that a high level of corruption negatively affects the level of economic development, which is itself shaped by risk-taking (Baumol et al., 2007). In the same vein, Durnev and Fauver (2009) find that owners have less incentives to encourage value maximization by managers, and hence risk-taking, if the government is likely to expropriate firm profits. This finding is especially true in the NPFs in which the state maintains an important stake.

To avoid complications stemming from the high correlations between the government extraction variables and their interaction terms, we bisect the sample at the median values for *EXPROPRIATION* and *CORRUPTION*. We then estimate Equation (1) focusing on state ownership in Models 1 to 4 of Table 9 and on foreign ownership in Models 5 to 8 of Table 9. We find that in countries where the level of government extraction is high (Models 1 and 3), *STATEOWN* loads negative and statistically significant at the 1% level. This relation is not significant, however, in countries with low government extraction (Models 2 and 4). These results suggest that the risk-taking behavior of the government varies with the level of government extraction.

The behavior of foreign owners is expected to be different from that of state owners. In particular, foreign owners are expected to take more risk in countries with lower levels of corruption and expropriation. Indeed, Knack and Keefer (1995) argue that if contracts are not respected by the government, investment by private investors, including foreigners, will be lower. Government quality is thus likely to condition the risk-taking by foreign owners. Consistent with this expectation we find that *FOREIGNOWN* loads negative and statistically significant at the 5% level only in the subsample of countries with a low level of corruption or expropriation (Models 6 and 8). We do not find evidence that foreign owners undertake risky activities in the subsample of countries with a high level of expropriation or corruption (Models 5 and 7).

[Insert Table 9 about here]

In summary, the results of this section suggest that although government (foreign) owners tend to take less (more) risk, all things being equal, this relation is stronger in countries with high (low) levels of government extraction.

6. Conclusion

In this paper we rely on a unique database of 190 privatized firms from 36 countries to investigate the impact of state and foreign ownership on corporate risk-taking, where we measure risk-taking using the volatility of earnings over four overlapping periods following the divestiture of SOEs. Corporate risk-taking behavior is important as it is fundamental to long-term economic development (Baumol et al., 2007).

Our first objective is to evaluate the impact of state ownership on risk-taking in NPFs. Heavy government intervention may lead firms to pursue conservative (i.e., less risky) investments. Our second objective is to assess the impact of foreign ownership on corporate risk-taking in NPFs. Foreign investors who have been offered tranches in NPFs are expected to bring financial resources and managerial know-how to former SOEs', and thus are expected to positively affect risk-taking.

In a pooled panel regression that controls for firm- and country-level variables associated with risk-taking, we provide evidence that state ownership is negatively related to corporate risk-taking while foreign ownership is positively related to risk-taking. These results, which are robust to a battery of sensitivity tests including endogeneity of the ownership structure and simultaneity of the relation, suggest a divergence in different types of shareholders' interests with respect to investment. Moreover, we find that the relations between shareholder identify and corporate risk-taking depend on the level of government extraction.

Our results have broad implications for policy makers. First, the benefits expected to result from privatization may not materialize under continued government control over NPFs. Moreover, reducing barriers to foreign direct investment and improving a country's governance institutions, which condition the behavior of shareholders, can lead to a significant increase in corporate risk-taking, which is an important driver of a country's economic growth and development.

APPENDIX

Variables, definitions, and sources

Variable	Definition	Source
Panel A. Corporate risk-taking variables		
RISK1	Company earnings volatility equal to $Risk1= \sqrt{\frac{1}{T-1}\sum_{t=1}^{T}\left(E_{i,t}-\frac{1}{T}\sum_{t=1}^{T}E_{i,t}\right)^2}$/*T=4;* Where $E_{i,t}=\frac{EBIT_{i,t}}{A_{i,t}}$ $N_{i,t}$ indexes the firm *i* and year *t*, and $EBIT_{i,t}$ is defined as the earnings before interest and taxes of firm *i* in year *t;* $A_{i,t}$ is equal to the total assets; T over (0 to+3, +1to+4,+2to+5;+3to+6).	Mainly from firms' annual reports and *Worldscope*
RISK2	Company earnings volatility equal to $Risk2= \sqrt{\frac{1}{T-1}\sum_{t=1}^{T}\left(E_{i,t}-\frac{1}{T}\sum_{t=1}^{T}E_{i,t}\right)^2}$/*T=5;* Where $E_{i,t}=\frac{EBIT_{i,t}}{A_{i,t}}$ $N_{i,t}$ indexes the firm *i* and year *t*, and $EBIT_{i,t}$ is defined as the earnings before interest and taxes of firm *i* in year *t;* $A_{i,t}$ is equal to the total assets; T over (0 to+4, +1to+5,+2to+6).	As above
RISK3	Company risk-taking is equal to *RISK3*= Max($E_{i,t}$) -Min ($E_{i,t}$) where $E_{i,t}=\frac{EBIT_{i,t}}{A_{i,t}}$ $N_{i,t}$ indexes the firm *i* and year *t*, and $EBIT_{i,t}$ is defined as the earnings before interest and taxes in year *t;* $A_{i,t}$ is equal to the total assets; T over (0 to+3, +1to+4,+2to+5,+3to +6)	As above
RISK4	Company risk-taking is equal to *RISK4*= Max($E_{i,t}$) -Min ($E_{i,t}$) where $E_{i,t}=\frac{EBIT_{i,t}}{A_{i,t}}$ $N_{i,t}$ indexes the firm *i* and year *t*, and $EBIT_{i,t}$ is defined as the earnings before interest and taxes in year *t;* $A_{i,t}$ is equal to the total assets; T over (0 to+4, +1to+5,+2to+6).	As above
RISK5	Company risk-taking is equal to $Risk5= \sqrt{\frac{1}{T-1}\sum_{t=1}^{T}\left(E_{i,c,t}-\frac{1}{T}\sum_{t=1}^{T}E_{i,c,t}\right)^2}$/*T=4;* where $E_{i,c,t}=\frac{EBIT_{i,c,t}}{A_{i,c,t}}-\frac{1}{N_{c,t}}\sum_{k=1}^{N_{c,t}}\frac{EBIT_{k,c,t}}{A_{k,c,t}}$, $N_{c,t}$ indexes the firms within country *c* and year *t*, and $EBIT_{i,c,t}$ is defined as the earnings before interest and taxes in year *t;* $A_{i,c,t}$ is equal to the total assets; T over (0 to+3, +1to+4,+2to+5,+3to +6)	Mainly from firms' annual reports, *Worldscope,* and *Compustat Global*
RISK6	Company earnings volatility equal to $Risk6= \sqrt{\frac{1}{T-1}\sum_{t=1}^{T}\left(E_{i,t}-\frac{1}{T}\sum_{t=1}^{T}E_{i,t}\right)^2}$/*T=4;* Where $E_{i,t}=\frac{EBIT_{i,t}}{SALES_{i,t}}$ $N_{i,t}$ indexes the firm *i* and year *t*, and $EBIT_{i,t}$ is defined as the earnings before interest and taxes of firm *i* in year *t; SALES*$_{i,t}$ is equal to the total sales; T over (0 to+3, +1to+4,+2to+5;+3to+6).	Mainly from firms' annual reports and *Worldscope*

Panel B. Ownership and state control variables		
STATEOWN	The percentage of shares held by the government.	Mainly from firms' annual reports and offering prospectuses
AVG_STATEOWN	Average state ownership for the period over which *RISK1* is calculated.	As above
FOREIGNOWN	The percentage of shares held by foreign investors.	As above
LINSTOWN	The percentage of shares held by local institutions.	As above
CONTROL	A dummy variable equal to one for firms in which the state maintains control following privatization.	As above
CONNECTED	A dummy variable equal to unity for politically connected firms, and zero otherwise.	Boubakri et al. (2008)
PERCON	The percentage of politically connected directors in the BOD.	As above
GOLDEN SHARE	A dummy variable equal to unity for firms holding a golden share, and zero otherwise.	Boubakri et al. (2009)
Panel C. Firm-level control variables		
ROA	The ratio of EBIT to total assets.	Mainly from firms' annual reports and offering prospectuses, and *Worldscope*
LEVERAGE	The ratio of total debt to total assets.	As above
SIZE	The natural logarithm of total sales in US$.	As above
SALESGROWTH	The firm sales growth using total sales denominated in US$.	As above
Panel D. Country-level control variables		
ACC	An assessment of the quality of countries' corporate accounting standards.	Kurtzman et al. (2004)
ANTISELFDEALING	Average of ex-ante and ex-post private control of self-dealing.	Djankov et al. (2008)
PROPERTY	An assessment of the ability of individuals to accumulate private property, secured by clear laws that are fully enforced by the state. It also assesses the likelihood that private property will be expropriated and analyzes the independence of the judiciary, the existence of corruption within the judiciary, and the ability of individuals and business to enforce contracts. This variable ranges from 0 to 100. Higher scores indicate higher property rights protection.	Gwartney et al. (2008)

LAWORDER	Assessment of the law and order tradition in the country. This variable ranges from 0 to 6. Higher scores indicate higher rule of law in the country.	ICRG (2008)
EXPROPRIATION	Assessment of factors affecting the risk to investment that are not covered by other political, economic and financial risk components. The subcomponents are: Contract Viability/Expropriation; Profits repatriation; Payment Delays. This variable ranges from 0 to 12 with higher scores for higher risks.	As above
CORRUPTION	Assessment of the corruption in government. High scores indicate "high government officials are likely to demand special payments" and "illegal payments are generally expected throughout lower levels of government" in the form of "bribes connected with import and export licenses, exchange controls, tax assessment, policy protection, or loans". This variable ranges from 0 to 6. Higher scores indicate higher corruption in the country.	As above
GDPGROWTH	The annual change in the estimated GDP, at constant 1995 prices, of a given country is expressed as a percentage increase or decrease.	World Development Indicators. World Bank

References

Acemoglu, D., Zilibotti, F., 1997. Was prometheus unbound by chance? Risk, diversification, and growth. *Journal of Political Economy* 105, 709-751.

Acharya, V. V., Amihid, Y., Litov, L., 2009. Creditor rights and corporate risk-taking. *Working Paper 15569*. National Bureau of Economic Research.

Baumol, W., Litan, R., Schramm, C., 2007. *Good capitalism, bad capitalism, and the economics of growth and prosperity.* New Haven, CT: Yale University Press.

Ben-Nasr, H., Boubakri, N., Cosset, J.-C., 2009. The political determinants of the cost of equity: Evidence from newly privatized firms. HEC Montreal, Unpublished working paper.

Borisova, G., Megginson, W. L., 2010. Does government ownership affect the cost of debt: Evidence from privatization? *Review of Financial Studies*, forthcoming.

Bortolotti, B., Faccio, M., 2009. Government control of privatized firms. *Review of Financial Studies* 22, 2907-2939.

Bortolotti, B., Fantini, M., Siniscalco, D., 2004. Privatization around the world: Evidence from panel data. *Journal of Public Economics* 88, 305–332.

Bortolotti, B., Siniscalco, D., 2004. *The challenges of privatization: an international analysis*. Oxford University Press.

Boubakri, N., Cosset, J.-C., 1998. The financial and operating performance of newly privatized firms: Evidence from developing countries. *Journal of Finance* 53, 1081-1110.

Boubakri, N., Cosset, J.-C., Guedhami, O., 2005. Post-privatization corporate governance: The role of ownership structure and investor protection. *Journal of Financial Economics* 76, 369-399.

Boubakri, N., Cosset, J.-C., Guedhami, O., 2009. From state to private ownership: Issues from strategic industries. *Journal of Banking and Finance* 33, 367-379.

Boubakri, N., Cosset, J.-C., Guedhami, O., Saffar, W., 2011. The political economy of residual state ownership in privatized firms: Evidence from emerging markets? *Journal of Corporate Finance* 17, 244-258.

Boubakri, N., Cosset, J.-C., Saffar, W., 2008. Political connections of newly privatized firms. *Journal of Corporate Finance* 14, 654-673.

Boycko, M., Shleifer, A., Vishny, R., 1996. A theory of privatization. *The Economic Journal* 106, 309-319.

Campbell, J., 1996. Understanding risk and return. *Journal of Political Economy* 104, 298-345.

Caprio, L., Faccio, M., McConnell, J., 2009. Sheltering corporate assets from political extraction. Purdue University, Unpublished Working paper.

Chhibber, P. K., Majumdar, S. K., 1999. Foreign ownership and profitability: Property rights, control and the performance of firms in Indian industry. *Journal of Law and Economics* 62(1), 209–238.

Claessens, S., Djankov, S., Nenova, T., 2001. Corporate risk around the world. World Bank Policy Research, Working Paper 2271.

Coffee, J. C., 1999. Privatization and corporate governance: The lessons from securities market failure. *Journal of Corporate Law* 25: 1-39.

Denis, D. K., McConnell, J. J., 2003. International corporate governance. *Journal of Financial and Quantitative Analysis* 38: 1-36.

Djankov, S., La Porta, R., Lopez-de-Silanes, F., Shleifer, A., 2008. The law and economics of self-dealing. *Journal of Financial Economics* 88, 430-465.

Djankov, S., Murrell, P., 2002. Enterprise restructuring in transition: A quantitative survey. *Journal of Economic Literature* 40, 739-792.

Doidge, C., Karolyi, G., Lins, K., Miller, D., Stulz, R., 2009. Private benefits of control, ownership, and the cross-listing decision. *Journal of Finance* 64, 425-466.

D'Souza, J., Megginson, W., 1999. The financial and operating performance of privatized firms during the 1990s. *Journal of Finance* 54, 1397-1438.

D'Souza, J., Megginson, W. L., Nash, R., 2005. Effect of institutional and firm-specific characteristics on post-privatization performance: Evidence from developed countries. *Journal of Corporate Finance* 11, 747-766.

Durnev, A., Fauver, L., 2009. Stealing from thieves: Firm governance and performance when states are predatory. McGill University, Unpublished working paper.

Dyck, A., 2001. Privatization and corporate governance: Principles, evidence, and future challenges. *The World Bank Research Observer* 16, 59-84.

Faccio, M., Marchica, M., Mura, R., 2009. Large shareholder diversification and corporate risk-taking. Vanderbilt University, Unpublished Working Paper.

Fan, P. H., Wong, T. J., Zhang, T., 2007. Politically-connected CEOs, corporate governance and post-IPO performance of China's newly partially privatized firms. *Journal of Financial Economics* 84, 330-357.

Ferreira, M. A., Matos, P., 2008. The colors of investors' money: The role of institutional investors around the world. *Journal of Financial Economics* 88, 499-533.

Fogel, K., Morck, R., Yeung, B., 2008. Corporate stability and economic growth: Is what's good for general motors good for america? *Journal of Financial Economics* 89, 83-108.

Frydman, R., Gray, C., Hessel, M., Rapaczynski, A., 1999. When does privatization work? The impact of private ownership on corporate performance in the transition economies. *Quarterly Journal of Economics* 114, 1153-91.

Gillan, S. L., Starks, L. T., 2003. Corporate governance, corporate ownership, and the role of institutional investors: A global perspective. *Journal of Applied Finance* 13, 4-22.

Glaeser, E., La Porta, R., Lopez-de-Silanes, F., Shleifer, A., 2004. Do institutions cause growth? *Journal of Economic Growth* 9, 271-303.

Griffin, D., Li, K., Yue, H., Zhao, L., 2009. Cultural values and corporate risk-taking. University of British Columbia, Unpublished working paper.

Guedhami, O., Pittman, J.A., 2006. Ownership concentration in privatized firms: The role of disclosure standards, auditor choice, and auditing infrastructure. *Journal of Accounting Research* 44, 889-929.

Guedhami, O., Pittman, J.A., Saffar, W., 2009. Auditor choice in privatized firms: Empirical evidence on the role of state and foreign owners. *Journal of Accounting and Economics* 48, 151-171.

Gupta, N., 2005. Partial privatization and firm performance. *Journal of Finance* 60, 987-1012.

Gwartney, J.D., Lawson, R., Norton, S., 2008. Economic freedom of the world: 2008 annual report. www.freetheworld.com

John, K., Litov, L., Yeung, B., 2008. Corporate governance and risk-taking. *Journal of Finance* 63, 1679-1728.

Jones, S., Megginson, W. L., Nash, R., Netter, J., 1999. Share issue privatizations as financial means to political and economic ends. *Journal of Financial Economics* 53, 217-253.

Kikeri, S., Nellis, J., 2002. Privatization in competitive sectors: The record so far. World Bank Research, Working paper 2680.

Knack, S., Keefer, P., 1995. Institutions and economic performance: Cross country test using alternative institutional measures. *Economics and Politics 7*, 207-227.

Kurtzman, J., Yago, G., Phumiwasana, T., 2004. The global costs of opacity. *MIT Sloan Management Review* 46, 38–44.

Laeven, L., Levine, R., 2009. Bank governance, regulation and risk-taking. *Journal of Financial Economics* 93, 259-275.

Laffont, J.-J., Tirole, J., 1993. *A theory of incentives in procurement and regulation*. MIT Press, Cambridge, Massachusetts.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., 1999. Corporate ownership around the World. *Journal of Finance* 54, 471-518.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., 2006. What works in securities laws? *Journal of Finance* 61, 1-32.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., Vishny, R. W., 1998. Law and finance. *Journal of Political Economy* 106, 1113-1155.

La Porta, R., López-de-Silanes, F., Shleifer, A., Vishny, R.W., 2000. Agency problems and dividend policies around the world. *Journal of Finance* 55, 1-33.

Leuz, C., Lins, K., Warnock, F., 2009. Do foreigners invest less in poorly governed firms? *Review of Financial Studies* 22, 3245-3285.

Leuz, C., Nanda, D., Wysocki, P., 2003. Earnings management and investor protection: An international comparison. *Journal of Financial Economics* 69, 505-527.

Lizal, L., Svejnar, J., 2003. Privatization revisited: The effects of foreign and domestic owners on corporate performance. CERGE-EI DP 2002-89, Unpublished working paper.

Maddala, G.S. 1983. *Limited dependent and qualitative variables in econometrics*. Cambridge University Press.

Megginson, W. L., 2003. Appendix 1: Details of share issue privatizations, 1961-2002. *Financial Economics of Privatization.* Oxford University Press: New York.

Megginson, W. L., Netter, J. N., 2001. From state to market: A survey of empirical studies on privatization. *Journal of Economic Literature* 39, 321-389.

Megginson, W. L., Nash, R., Netter, J. N., Poulsen, A.B., 2004. The choice of private versus public capital markets: evidence from privatization. *Journal of Finance* 59, 2835-2870.

Paligorova, T., 2010. Corporate risk-taking and ownership structure. Bank of Canada, Unpublished Working Paper

Petersen, M.A., 2009. Estimating standard errors in finance panel datasets: Comparing approaches. *Review of Financial Studies* 22, 435-480.

Shleifer, A., Vishny, R.W., 1994. Politicians and firms. *Quarterly Journal of Economics* 109: 995-1025.

Shleifer, A., Vishny, R.W., 1997. A survey of corporate governance. *Journal of Finance* 52, 737-777.

Stulz, R. 1999. Globalization, corporate finance, and the cost of capital. *Journal of Applied Corporate Finance*: 8-25.

Stulz, R., 2005. The limits of financial globalization. *Journal of Finance* 60, 1595-1638.

Svejnar, J., 2002. Transition economies: performance and challenges. *Journal of Economic Perspectives* 16, 3-28.

Vickers, J., Yarrow. G., 1988. *Privatization: An economic analysis*, MIT Press Series on the Regulation of Economic Activity 18, MIT Press, Cambridge, MA.

Vickers, J., Yarrow, G., 1991. Economic perspectives on privatization. *Journal of Economic Perspectives* 5, 111-132.

TABLE 1

Description of the sample of newly privatized firms

Distribution of privatizations

Panel A. By year

Year	Number	Percentage
1980	1	0.53
1981	1	0.53
1985	4	2.11
1986	3	1.58
1987	4	2.11
1988	3	1.58
1989	4	2.11
1990	12	6.32
1991	9	4.74
1992	10	5.26
1993	9	4.74
1994	15	7.89
1995	20	10.53
1996	19	10.00
1997	23	12.11
1998	15	7.89
1999	9	4.74
2000	11	5.79
2001	4	2.11
2002	5	2.63
2003	5	2.63
2004	4	2.11
Total	190	100.00

Panel B. By industry

Industry	Number	Percentage
Basic industries	32	16.84
Capital goods	6	3.16
Construction	10	5.26
Consumer durables	25	13.16
Food/tobacco	20	10.53
Leisure	2	1.05
Petroleum	17	8.95
Services	2	1.05
Textiles/trade	10	5.26
Transportation	12	6.32
Utilities	54	28.42
Total	190	100.00

Panel C. By region*

Region (countries)	Number	Percentage
Africa and the Middle East (11)	62	32.64
East and South Asia and the Pacific (12)	41	21.58
Latin America and the Caribbean (5)	36	18.94
Europe and Central Asia (8)	51	26.84
Total (36)	190	100.00

Notes: This table reports the distribution of the sample of 190 privatized firms by year, industry, and region, *World Bank country group classification.

TABLE 2

Descriptive statistics for the key regression variables

	Mean	Median	Std. Deviation	Min	Max
RISK1	0.033	0.022	0.033	0.000	0.163
RISK2	0.036	0.025	0.033	0.001	0.151
RISK3	0.072	0.049	0.071	0.000	0.403
RISK4	0.082	0.058	0.077	0.000	0.403
RISK5	0.040	0.031	0.031	0.003	0.157
RISK6	0.077	0.036	0.113	0.001	0.627
STATEOWN	0.411	0.443	0.282	0.000	0.972
FOREIGNOWN	0.105	0.031	0.190	0.000	1.000
LINSTOWN	0.212	0.147	0.228	0.000	1.000
CONTROL	0.450	0.000	0.498	0.000	1.000
CONNECTED	0.277	0.000	0.448	0.000	1.000
ROA	0.075	0.066	0.074	-0.206	0.288
LEVERAGE	0.298	0.245	0.248	0.000	1.176
SIZE	11.883	11.764	2.742	3.183	18.139
SALESGROWTH	0.111	0.061	0.426	-0.738	3.033
LAWORDER	4.115	4.000	1.140	1.000	6.000
PROPERTY	57.289	50.000	14.483	30.000	90.000
GDPGROWTH	4.429	4.642	2.631	-13.127	12.822
EXPROPRIATION	7.924	7.833	1.868	2.417	12.000
CORRUPTION	2.952	2.417	1.185	1.250	6.000

Notes: This table reports summary descriptive statistics for the key regression variables used in the hypotheses tests to examine the impact of state and foreign ownership on corporate risk-taking for a maximum sample of 190 privatized firms from 36 countries. The definitions and data sources for the regression variables are outlined in the Appendix.

TABLE 3

Pearson Correlation Coefficients and Univariate analysis

Panel A: Pearson Correlation Coefficients

	RISK1	*FOREIGNOWN*	*STATEOWN*	*ROA*	*LEVERAGE*	*SIZE*	*SALESG*
FOREIGNOWN	**0.1249***						
STATEOWN	**-0.1206***	**-0.4617***					
ROA	0.0043	0.0144	-0.0290				
LEVERAGE	-0.0427	0.0223	-0.0547	**-0.2126***			
SIZE	**-0.1148***	-0.0098	0.0513	**-0.0693***	**0.2399***		
SALESGRWOTH	**0.1308***	0.0057	0.0116	**0.1084***	-0.0274	0.0408	
GDPGROWTH	**-0.0786***	-0.0580	**0.0874***	**0.1214***	**-0.0823***	**-0.1452***	0.0300

Notes: Panel A reports Pearson correlations for the regression variables. Boldface indicates statistical significance at the 1% level. The definitions and data sources for the variables are outlined in the Appendix.

Panel B: Univariate tests of risk-taking by shareholder identity and level

	RISK1					
	Means			Medians		
	Low Ownership (A)	High Ownership (B)	*T*-Statistics	Low Ownership (C)	High Ownership (D)	*Z*-Statistics
STATEOWN	0.041	0.025	5.812***	0.026	0.017	5.510***
FOREIGNOWN	0.028	0.038	-3.447***	0.019	0.025	-3.869***

Notes: Panel B reports measures of central tendency for risk-taking proxy (*RISK1*) for the high and low subsample of state and foreign ownership. The full sample includes 190 privatized firms from 36 countries. The superscripts asterisks ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. The definitions and data sources for the variables are outlined in the Appendix.

TABLE 4

Regressions of risk-taking on state ownership and control variables

	Basic Model	Alternative Dependent Variables				
Variable (Prediction)	*RISK1*	*RISK2*	*RISK3*	*RISK4*	*RISK5*	*RISK6*
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept (?)	0.073***	0.029	0.159***	0.074	0.092***	0.149**
	(2.799)	(1.339)	(2.721)	(1.516)	(3.937)	(2.057)
STATEOWN (-)	-0.028***	-0.037***	-0.061***	-0.091***	-0.028***	-0.102***
	(-2.780)	(-2.934)	(-2.843)	(-3.120)	(-3.008)	(-4.227)
LEVERAGE (+)	0.015**	0.026**	0.028*	0.054**	0.013	0.111**
	(1.646)	(1.959)	(1.478)	(1.869)	(1.437)	(1.992)
ROA (+)	0.070**	0.106***	0.162**	0.261***	0.032	-0.273***
	(1.982)	(2.898)	(2.075)	(2.997)	(0.860)	(-2.752)
SIZE (-)	-0.003**	-0.002*	-0.006**	-0.005*	-0.002*	-0.007**
	(-2.212)	(-1.557)	(-2.113)	(-1.510)	(-1.826)	(-2.261)
SALESGROWTH (+)	0.008**	0.003	0.017**	0.007	0.005	-0.021**
	(2.039)	(0.522)	(2.013)	(0.508)	(1.195)	(-2.363)
GDPGROWTH (+)	0.000	0.001	-0.000	0.001	-0.000	0.002
	(0.062)	(0.518)	(-0.057)	(0.504)	(-0.707)	(1.147)
YEAR EFFECTS	YES	YES	YES	YES	YES	YES
INDUSTRY EFFECTS	YES	YES	YES	YES	YES	YES
COUNTRY EFFECTS	YES	YES	YES	YES	YES	YES
P-value	0.00	0.00	0.00	0.00	0.00	0.00
R-Squared	0.286	0.353	0.290	0.365	0.273	0.325
Observations	547	358	547	358	402	547

Notes: this table reports OLS estimation of the following risk-taking model:

$$RISK = \alpha + \gamma_1 STATEOWN + \gamma_2 CONTROLS + \sum_{Y=1}^{Y-1} YEAR + \sum_{K=1}^{K-1} IND + \sum_{C=1}^{C-1} CNT + \eta$$

where *RISK* is a measure of corporate risk-taking; *STATEOWN* is the percentage of shares held by the government; and *CONTROLS* is a set of control variables (*ROA, LEVERAGE, SIZE, SALESGROWTH* and *GDPGROWTH*). Model 1 considers *RISK1* as the dependent variable. Models 2, 3, 4, and 5 consider *RISK2, RISK3, RISK4, RISK5* and *RISK6* as a dependent variable, respectively. The definitions and data sources for the variables are outlined in the Appendix. The full sample includes 190 privatized firms from 36 countries. Beneath each estimate is reported the robust *t*-statistic clustered at the firm level. 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.

TABLE 5

Regressions of risk-taking on state ownership and control variables: Robustness tests

	Alternative Econometrics		Alternative State Control Variables			
Variable (Prediction)	Cluster Country (1)	Random Effects (2)	*AVG_STATE* (3)	*CONTROL* (4)	*CONNECTED* (5)	*PERCON* (6)
Intercept (?)	0.073***	0.074***	0.096***	0.070***	0.098***	0.064*
	(4.096)	(3.900)	(3.155)	(2.616)	(2.764)	(1.761)
STATEOWN (-)	-0.028***	-0.028***				
	(-2.831)	(-2.331)				
AVG_STATEOWN (-)			-0.028***			
			(-2.562)			
CONTROL (-)				-0.016***		
				(-3.408)		
CONNECTED (-)					-0.014***	
					(-3.000)	
PERCON (-)						-0.029*
						(-1.401)
LEVERAGE (+)	0.015***	0.013*	0.019*	0.016**	0.027***	0.023**
	(2.356)	(1.506)	(1.488)	(1.744)	(2.332)	(1.834)
ROA (+)	0.070**	0.110***	0.085***	0.071**	0.053*	0.053
	(2.198)	(2.643)	(2.338)	(2.030)	(1.280)	(1.203)
SIZE (-)	-0.003***	-0.002***	-0.003***	-0.003**	-0.002**	-0.003**
	(-3.121)	(-2.422)	(-2.355)	(-2.209)	(-2.066)	(-2.222)
SALESGROWTH (+)	0.008**	0.008***	0.006*	0.008**	0.013***	0.013***
	(2.098)	(2.931)	(1.298)	(2.273)	(3.027)	(3.152)
GDPGROWTH (+)	0.000	-0.000	-0.001	-0.000	-0.000	-0.000
	(0.071)	(-0.347)	(-1.401)	(-0.056)	(-0.196)	(-0.306)
YEAR EFFECTS	YES	YES	YES	YES	YES	YES
INDUSTRY EFFECTS	YES	YES	YES	YES	YES	YES
COUNTRY EFFECTS	YES	YES	YES	YES	YES	YES
P-value	0.00	0.00	0.00	0.00	0.00	0.00
R-Squared	0.286	0.265	0.351	0.291	0.361	0.345
Observations	547	547	398	547	415	415

Notes: this table reports OLS estimation of the following risk-taking model:

$$RISK1=\alpha+\gamma_1 STATEOWN+\gamma_2 CONTROLS+\sum_{Y=1}^{Y-1} YEAR+\sum_{K=1}^{K-1} IND+\sum_{C=1}^{C-1} CNT+\eta$$

where *RISK1* is a measure of corporate risk-taking; *STATEOWN* is the percentage of shares held by the government; and *CONTROLS* is a set of control variables (*ROA, LEVERAGE, SIZE, SALESGROWTH* and *GDPGROWTH*). Model 1 clusters the observations at the country level. Model 2 consider random effect panel estimation. Models 3, 4, 5 and 6 control for *AVR_STATEOWN, CONTROL*, *CONNECTED* and *PERCON*, respectively, instead of *STATEOWN.* The definitions and data sources for the variables are outlined in the Appendix. The full sample includes 190 privatized firms from 36 countries. Beneath each estimate is reported the robust *t*-statistic clustered at the firm level. 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.

TABLE 6

Regressions of risk-taking on foreign ownership and control variables

	Basic Model	Alternative Dependent Variables				
Variable (Prediction)	*RISK1*	*RISK2*	*RISK3*	*RISK4*	*RISK5*	*RISK6*
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept (?)	0.078***	-0.005	0.183***	-0.005	0.035	0.213***
	(3.107)	(-0.182)	(3.324)	(-0.071)	(1.277)	(2.790)
FOREIGNOWN (+)	0.034**	0.035**	0.077**	0.083**	0.032**	0.135***
	(2.140)	(1.908)	(2.159)	(1.871)	(2.243)	(3.081)
LEVERAGE (+)	0.014*	0.019*	0.025	0.036	0.014	0.126**
	(1.344)	(1.373)	(1.151)	(1.217)	(1.306)	(1.909)
ROA (+)	0.058*	0.087***	0.135**	0.220***	0.015	-0.275***
	(1.652)	(2.375)	(1.731)	(2.437)	(0.384)	(-2.845)
SIZE (-)	-0.004***	-0.004**	-0.009***	-0.010**	-0.004**	-0.014***
	(-2.491)	(-1.860)	(-2.486)	(-1.945)	(-2.247)	(-3.595)
SALESGROWTH (+)	0.006*	-0.000	0.014*	0.000	0.003	-0.018*
	(1.545)	(-0.059)	(1.561)	(0.012)	(0.652)	(-1.941)
GDPGROWTH (+)	0.001	0.001	0.001	0.003	-0.000	0.002
	(0.709)	(1.202)	(0.594)	(1.151)	(-0.204)	(1.060)
YEAR EFFECTS	YES	YES	YES	YES	YES	YES
INDUSTRY EFFECTS	YES	YES	YES	YES	YES	YES
COUNTRY EFFECTS	YES	YES	YES	YES	YES	YES
P-value	0.00	0.00	0.00	0.00	0.00	0.00
R-Squared	0.282	0.355	0.286	0.353	0.304	0.349
Observations	436	300	436	300	299	436

Notes: this table reports OLS estimation of the following risk-taking model:

$$RISK=\alpha+\gamma_1 FOREIGNOWN+\gamma_2 CONTROLS+\sum_{Y=1}^{Y-1} YEAR+\sum_{K=1}^{K-1} IND+\sum_{C=1}^{C-1} CNT+\eta$$

where *RISK* is a measure of corporate risk-taking; *FOREIGNOWN* is the percentage of shares held by foreigners; and *CONTROLS* is a set of control variables (*ROA, LEVERAGE, SIZE, SALESGROWTH* and *GDPGROWTH*). Model 1 considers *RISK1* as the dependent variable. Models 2, 3, 4, and 5 consider *RISK2, RISK3, RISK4, RISK5* and *RISK6* as a dependent variable, respectively. The definitions and data sources for the variables are outlined in the Appendix. The full sample includes 190 privatized firms from 36 countries. Beneath each estimate is reported the robust *t*-statistic clustered at the firm level. 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.

TABLE 7

Regressions of risk-taking on foreign ownership and control variables: Robustness tests

	Alternative Econometrics		Additional Controls		*CONTROL*		*CONNECTED*		*GOLDEN SHARE*	
Variable (Prediction)	Cluster Country (1)	Random Effects (2)	Ownership variables (3)	Institutional variables (4)	YES (5)	NO (6)	YES (7)	NO (8)	YES (9)	NO (10)
Intercept (?)	0.078***	0.051***	0.025**	0.033	0.016	0.135***	0.055	0.093***	-0.091	-0.001
	(4.007)	(2.625)	(2.078)	(1.541)	(1.105)	(3.779)	(1.120)	(3.085)	(-0.459)	(-0.029)
FOREIGNOWN (+)	0.034***	0.038**	0.032**	0.036**	0.008	0.025*	-0.046	0.037**	0.018	0.038**
	(7.192)	(1.808)	(1.781)	(1.940)	(0.395)	(1.280)	(-0.758)	(2.318)	(0.155)	(1.801)
STATEWON (-)			-0.024**	-0.022**						
			(-1.924)	(-1.709)						
LINSTOWN (?)			0.003	0.008						
			(0.263)	(0.568)						
LEVERAGE (+)	0.014*	0.016**	0.005	0.003	0.013*	0.032**	0.043	0.026**	-0.095	0.028**
	(2.010)	(1.654)	(0.574)	(0.313)	(1.578)	(1.899)	(0.864)	(1.785)	(-0.781)	(1.800)
ROA (+)	0.058**	0.104**	0.008	-0.011	0.182***	0.053	0.042	0.071**	0.230	0.107**
	(1.935)	(2.216)	(0.188)	(-0.248)	(5.295)	(0.934)	(0.612)	(1.879)	(0.682)	(2.171)
SIZE (-)	-0.004***	-0.003***	-0.001*	-0.002*	-0.000	-0.004**	-0.004	-0.002**	0.005	-0.003*
	(-4.155)	(-2.519)	(-1.276)	(-1.462)	(-0.129)	(-1.666)	(-1.075)	(-2.088)	(0.560)	(-1.358)
SALESGROWTH (+)	0.006**	0.007***	0.002	0.002	0.003	0.003	0.018**	0.002	0.019	0.002
	(1.698)	(2.154)	(0.459)	(0.605)	(0.717)	(0.592)	(2.042)	(0.569)	(1.078)	(0.397)
GDPGROWTH (+)	0.001	-0.000	0.000	-0.000	-0.000	0.000	-0.004	0.000	-0.003	0.001
	(0.965)	(-0.143)	(0.354)	(-0.106)	(-0.674)	(0.195)	(-1.652)	(0.301)	(-0.539)	(1.196)
ACC				-0.000						
				(-0.263)						
ANTISELFDEALING				0.004						
				(0.197)						
YEAR EFFECTS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
INDUSTRY EFFECTS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
COUNTRY EFFECTS	YES	YES	YES	NO	YES	YES	YES	YES	YES	YES
P-value	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
R-Squared	0.282	0.251	0.289	0.202	0.675	0.310	0.617	0.410	0.972	0.309
Observations	436	436	406	397	193	243	77	256	25	298

Notes: this table reports OLS estimation of the following risk-taking model:

$$RISK1=\alpha+\gamma_1 FOREIGNOWN+\gamma_2 CONTROLS+\sum_{Y=1}^{Y-1} YEAR+\sum_{K=1}^{K-1} IND+\sum_{C=1}^{C-1} CNT\ +\eta$$

where *RISK1* is a measure of corporate risk-taking; *FOREIGNOWN* is the percentage of shares held by foreigners; and *CONTROLS* is a set of control variables (*ROA, LEVERAGE, SIZE, SALESGROWTH* and *GDPGROWTH*). Model 1 clusters the observations at the country level. Model 2 considers a random-effects panel estimation. Model 3 includes *STATEOWN* and *LINSTOWN* as additional control variables. Model 4 includes *ACC* and *ANTISELFDEALING* as additional control variables to Model 3. Models 5 and 6 split the sample according to whether the government keeps or relinquishes control, respectively. Models 7 and 8 split the observations according to whether the firm is connected or not, respectively. Models 9 and 10 split the observations according to whether the firms hold a golden share or not, respectively. The definitions and data sources for the variables are outlined in the Appendix. The full sample includes 190 privatized firms from 36 countries. Beneath each estimate is reported the robust *t*-statistic clustered at the firm level. 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.

TABLE 8

Additional tests: instrumental variables, simultaneous equations, and alternative sample composition

Variable (Sign)	*Instrumental Variable* 1st Stage (1)	*Instrumental Variable* 2nd Stage (2)	*Instrumental Variable* 1st Stage (3)	*Instrumental Variable* 2nd Stage (4)	*Simultaneous Equations* *STATE* (5)	*Simultaneous Equations* *RISK1* (6)	*Simultaneous Equations* *FOREIGN* (7)	*Simultaneous Equations* *RISK1* (8)	*Sample Composition* 1990-2000 period (9)	*Sample Composition* 1990-2000 period (10)
Intercept (?)	-0.589**	0.034	0.245	0.068	-0.309	0.083***	-0.244	0.029	0.021	0.089***
	(-2.253)	(1.543)	(0.638)	(1.652)	(-1.327)	(4.130)	(-1.125)	(1.243)	(0.843)	(2.876)
STATEOWN (-)		-0.040***				-0.040***			-0.029***	
		(-3.697)				(-3.657)			(-2.758)	
FOREIGNOWN (+)				0.098***				0.098***		0.034**
				(2.412)				(2.521)		(2.083)
LEVERAGE (+)	-0.094	0.007	0.207*	0.003	-0.057	0.007	0.179	0.003	0.017**	0.015*
	(-1.152)	(0.759)	(1.820)	(0.204)	(-0.736)	(0.854)	(1.655)	(0.211)	(1.703)	(1.350)
ROA (+)	-0.297	0.054*	0.660*	0.040	-0.207	0.054*	0.481	0.040	0.073**	0.060*
	(-1.315)	(1.505)	(1.951)	(0.761)	(-0.984)	(1.569)	(1.508)	(0.810)	(1.954)	(1.530)
SIZE (-)	0.036***	-0.001	-0.008	-0.002**	0.029***	-0.001*	-0.001	-0.002**	-0.003**	-0.004***
	(3.564)	(-1.231)	(-1.041)	(-1.702)	(2.763)	(-1.302)	(-0.124)	(-1.784)	(-2.155)	(-2.438)
SALESGROWTH (+)	-0.078***	0.006*	0.057*	0.002		0.006*		0.002	0.009**	0.006*
	(-3.593)	(1.417)	(1.776)	(0.466)		(1.389)		(0.481)	(1.959)	(1.342)
GDPGROWTH(+)	-0.004	-0.001	0.005	0.001		-0.001		0.001	-0.000	0.000
	(-0.872)	(-1.249)	(0.665)	(0.855)		(-1.220)		(0.807)	(-0.033)	(0.453)
LAWORDER (-)	-0.094***				-0.092***					
	(-3.560)				(-3.378)					
PROPERTY(+)			0.005**				0.004**			
			(2.004)				(2.128)			
RISK1					-1.660***		1.331**			
					(-3.937)		(1.688)			
YEAR EFFECTS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
INDUSTRY EFFECTS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
COUNTRY EFFECTS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
P-value	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
R-Squared	0.442	0.128	0.247	0.220	0.466	0.155	0.261	0.125	0.291	0.276
Observations	547	547	356	356	547	547	356	356	512	415

Notes: This table reports results from additional robustness tests that address the endogeneity of ownership structure and account for the simultaneous relation between risk taking and ownership levels. First-stage regressions results predicting state ownership (*STATEOWN*) and foreign ownership (*FOREIGNOWN*) are reported in Models 1 and 3, respectively. In Models 2, and 4, we report the second-stage regressions of corporate risk-taking on fitted-values of *STATEOWN* and *FOREIGNOWN*, respectively. We use in the first-stage regressions related to Model 2 a country's law and order derived from the ICRG database to predict state ownership and in the first-stage regressions related to Model 4 the government's property rights protection score derived from the Economic Freedom of the World database to predict foreign ownership. This table reports in Models 5-8 the risk taking model results from estimating two systems of simultaneous equations that treat state ownership and risk taking (Models 5 and 6) and foreign ownership and risk taking (Models 7 and 8) as jointly determined. This table also reports in Models 9 and 10 the results for the subsample of firms privatized during the period 1990-2000. The definitions and data sources for the variables are outlined in the Appendix. The full sample includes 190 privatized firms from 36 countries. Beneath each estimate is reported the robust *t*-statistic clustered at the firm level. 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.

TABLE 9

The impact of government extraction on risk-taking by state and foreign owners

	EXPROPRIATION		*CORRUPTION*		*EXPROPRIATION*		*CORRUPTION*	
	HIGHT	LOW	HIGHT	LOW	HIGHT	LOW	HIGHT	LOW
Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Intercept (?)	0.100***	0.149***	0.042	0.055	0.179***	0.068*	0.144***	0.033
	(2.798)	(4.286)	(0.932)	(1.008)	(4.399)	(1.703)	(3.849)	(0.800)
STATEOWN (-)	-0.044***	-0.004	-0.040***	-0.008				
	(-2.713)	(-0.308)	(-2.365)	(-0.600)				
FOREIGNOWN (+)					0.019	0.046**	0.020	0.045**
					(1.005)	(2.029)	(0.990)	(2.026)
LEVERAGE (+)	0.019*	0.011	0.020*	0.022*	0.021*	0.025*	0.026**	0.019
	(1.394)	(0.827)	(1.281)	(1.565)	(1.620)	(1.458)	(1.907)	(1.077)
ROA (+)	0.093**	0.064	0.104**	0.050	0.058	0.079*	0.062	0.072
	(1.947)	(0.974)	(1.832)	(0.750)	(0.938)	(1.487)	(0.915)	(1.232)
SIZE (-)	-0.002	-0.006***	-0.001	-0.004**	-0.007***	-0.003*	-0.006***	-0.003*
	(-1.181)	(-2.613)	(-0.882)	(-2.120)	(-3.559)	(-1.480)	(-3.224)	(-1.283)
SALESGROWTH (+)	0.005	0.012***	0.003	0.014***	0.010**	0.001	0.010***	0.002
	(0.834)	(2.378)	(0.419)	(3.149)	(2.196)	(0.095)	(2.358)	(0.350)
GDPGROWTH (+)	0.001	0.000	0.001*	-0.001	-0.000	0.001	-0.000	0.001
	(0.759)	(0.127)	(1.454)	(-1.138)	(-0.050)	(0.994)	(-0.362)	(0.837)
YEAR EFFECTS	YES	YES	YES	YES	YES	YES	YES	YES
INDUSTRY EFFECTS	YES	YES	YES	YES	YES	YES	YES	YES
COUNTRY EFFECTS	YES	YES	YES	YES	YES	YES	YES	YES
P-value	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
R-Squared	0.379	0.325	0.293	0.359	0.383	0.303	0.404	0.284
Observations	312	235	273	274	183	253	208	228

Notes: This table reports pooled OLS estimation results of the following corporate risk-taking model:

$$RISK1=\alpha+\gamma_1 OWNERSHIP+\gamma_2 CONTROLS+\sum_{Y=1}^{Y-1} YEAR+\sum_{K=1}^{K-1} IND+\sum_{C=1}^{C-1} CNT+\eta$$

where *RISK1* is a measure of corporate risk-taking; *OWNERSHIP* is the percentage of shares held by foreigners or governments; and *CONTROLS* is a set of control variables (*ROA, LEVERAGE, SIZE, SALESGROWTH,* and *GDPGROWTH*). For the state ownership case, Columns 1 and 2 report the results for the subsample of firms from high and low *EXPROPRIATION* scores, respectively. Columns 3 and 4 report regression for the subsample of firms from high and low level of corruption, respectively. For the foreign ownership case, Columns 5 and 6 report the results for the subsample of firms from high and low *EXPROPRIATION* scores, respectively. Columns 7 and 8 report regression for the subsample of firms from high and low level of corruption, respectively. The definitions and data sources for the variables are outlined in the Appendix. The full sample includes 190 privatized firms from 36 countries. Beneath each estimate is reported the robust *t*-statistic clustered at the firm level. 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.