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Postprivatization Corporate Governance:
the Role of Ownership Structure and Investor Protection

Summary

We investigate the role of ownership structure and investor protection in postprivatization corporate governance. We find that the government relinquishes control over time, mainly to the benefit of local institutions and foreign investors. We also show that private ownership tends to concentrate over time. In addition to firm-level variables, investor protection, political and social stability explain the cross-firm differences in ownership concentration. We find that the positive effect of ownership concentration on firm performance matters more in countries with weak investor protection and that private domestic ownership leads to higher performance.

Keywords: Corporate governance, privatization, performance

JEL: G32, G38

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1. Introduction

Corporate governance is defined as a response to the agency problems that arise from the separation of ownership and control in a corporation. In this paper, we examine corporate governance within the context of privatization. Privatization provides an interesting setting in which to understand corporate governance, because it is a discrete event that often leads to a drastic change in the ownership structure. Thus, privatization is a natural experiment to examine how corporate governance mechanisms evolve, interact, and affect firm performance (Denis and McConnell, 2003).

In this study, we investigate the relation between ownership structure, investor protection and firm performance. Specifically, we seek to answer the following questions: (1) What is the ownership structure that results from privatization and how does it evolve thereafter? (2) Does the level of investor protection influence the postprivatization ownership structure? (3) Does the postprivatization ownership structure depend on other factors? (4) How do ownership structure and investor protection relate to firm performance and what explains this relation?

To our knowledge, our work is the first multinational study that tracks the postprivatization ownership structure and its determinants.[1] Further, we examine how the ownership structure, a key mechanism of corporate governance, affects the postprivatization firm performance.

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[1] See Megginson and Netter (2001) and Djankov and Murrell (2002) for comprehensive surveys of empirical studies on privatization.

We consider a multinational sample of 170 newly privatized firms headquartered in 26 emerging markets. For several reasons, emerging markets provide an excellent laboratory for studying the role of ownership and investor protection in postprivatization corporate governance. First, national legal systems vary markedly across emerging markets. For example, most of these markets suffer from a poor legal environment and a weak enforcement of laws (La Porta et al., 1998). Second, markets for corporate control are not well developed in emerging markets (Shleifer and Vishny, 1997). The deficiencies of these external governance mechanisms (i.e., the market for corporate control and the legal system) offer an interesting opportunity to investigate whether the ownership structure, an internal governance mechanism, plays an important role and interacts with the legal system to address the manager/shareholder postprivatization agency problem. Third, governments in most emerging market countries undertook large-scale privatization programs in the 1990s. With the recent trend towards globalization and the growing interest of investors in emerging markets, documenting and understanding postprivatization corporate governance in these countries takes on particular importance.

We describe the ownership structure that emerges from privatization and examine how it evolves along two dimensions, the degree of ownership concentration and the identity of owners. Our findings suggest that following privatization, private ownership tends to concentrate over time. We also show that on average, privatization results in control relinquishment by the government. The decrease in the government ownership is mostly absorbed by local institutions, foreign investors and domestic individuals.

We then investigate the determinants of the postprivatization private ownership concentration. Building upon Demsetz and Lehn (1985) and La Porta et al. (1998), we include firm- and country-level explanatory variables and take into account the potential

selection effects resulting from the privatization process. Based on panel data, our results show that both sets of explanatory variables are important. For example, we find that firm size, sales growth and industry affiliation as well as investor protection, political and social stability explain the cross-firm differences in ownership concentration.

We empirically examine Shleifer and Vishny's (1997) theoretical claim that ownership concentration is an efficient governance mechanism in countries where investor protection is weak, and should therefore lead to an enhancement in firm performance. We find that ownership concentration is significantly and positively related to the postprivatization firm performance. This effect is more (less) pronounced when the level of investor protection is low (high). Our investigation of the association between the identity of owners and the firm performance suggests that performance is higher when local institutions and domestic investors are involved.

Our paper complements the literature that examines the link between the design of privatization programs, postprivatization ownership structure and investor protection. Megginson et al. (2002) and Bortolotti et al. (2000) show that the choice of privatization methods (i.e., public share issues versus private asset sales) varies across countries and is influenced, among other factors, by the national legal environment. Likewise, Dyck and Zingales (2002) show that privatizations are more likely to occur through private sales and ownership is more concentrated in countries where private benefits of control are larger, i.e., countries with weak legal protection. Our evidence complements their findings by showing that ownership concentration is higher in civil law countries. This finding captures the fact that privatization occurs mainly through direct sales in these countries.

The paper is organized as follows. Section 2 describes the relation between investor protection, privatization, and firm performance. Section 3 presents the data used in the

study. Section 4 documents the postprivatization evolution in ownership structure and investigates its determinants. Section 5 examines the link between the ownership and performance of newly privatized firms. Section 6 summarizes our findings.

2. Investor protection, privatization and firm performance

The standard principal-agent problem arises when the owner of the firm (the principal) is not the same as the manager that controls the firm (the agent). This problem is often put forward to explain the poor performance of state-owned enterprises (SOEs). In this case, the separation problem involves the public (owner or taxpayers) and bureaucrats (politicians). Shleifer and Vishny (1997) describe this relationship as a situation in which bureaucrats retain concentrated control rights without cash flow rights, which are dispersed among the taxpayers of the country. In SOEs, the bureaucrats' main concern is to achieve their political objectives, which do not necessarily converge with the profit maximization objective. Privatization transfers ownership to outside investors, who place greater emphasis on profits and efficiency (Boycko et al., 1996; Shleifer and Vishny, 1997).

Nevertheless, the ultimate success of privatization depends on the effectiveness of postprivatization corporate governance mechanisms. *T*he literature generally distinguishes two types of governance mechanisms: internal and external. Internal mechanisms include, among other things, the ownership structure of the firm (e.g., large blockholders). External mechanisms include the legal system, and the labor and takeover markets. Several studies reviewed in Shleifer and Vishny (1997) and Denis and McConnell (2003) examine the role of ownership structure and investor protection (internal and external mechanisms, respectively) in providing efficient corporate governance. Unlike developed countries, many emerging market countries lack an established institutional framework for efficient

corporate governance. Such deficiencies point to the possibility that internal mechanisms may substitute to external mechanisms in providing efficient governance.

In this paper, we focus on the role of two key dimensions of the ownership structure: the ownership concentration and the identity of owners. First, concentrated private ownership is more likely to ensure the success of privatization in countries with low investor protection. Large shareholders, whose wealth depends heavily on firm performance, have more incentives to monitor the managers and ensure that their resources are not diverted. Further, when privatization leads to a diffused ownership structure, the agency costs associated with managerial control may increase even when the costs of political control fall (Boycko et al., 1996).

Second, the identity of owners is also likely to influence the performance of newly privatized firms (NPFs). For example, foreign investors require high information disclosure standards and, for reputation concerns, maintain a strict control of managers' actions (Dyck, 2001). Institutional investors also exert a close monitoring of management activities to ensure superior returns (Boutchkova and Megginson, 2000).

We also examine the relationship between internal (ownership structure) and external (investor protection) governance and the subsequent performance of NPFs. To do so, we use a multinational sample of firms diversified across countries and legal systems.

3. Data and variables

3.1. *The sample of privatized firms*

To investigate the relation between investor protection, ownership structure, and firm performance, we use a sample of 170 firms privatized in 26 emerging market countries over

the period 1980-1997.[2] Our sample does not include firms from the ex-communist countries for two reasons. First, the traditional law system in these countries is based on the Soviet law, which has undergone many changes in the transition period (La Porta et al., 2000). Second, the postprivatization ownership structure in these countries is mainly in the hands of insiders (managers and employees).

Table 1 shows that the 170 firms are located in different geographical regions as categorized by the *World Bank*. For example, 27.65 percent are from Africa and the Middle East, 27.06 percent from East and South Asia and the Pacific, 32.35 percent from Latin America, and 12.94 percent from Europe and Central Asia. The diversification across geographic regions is important, because it comprises countries with different legal and institutional environments.

Table 1 also shows that the sample is diversified across industries, with 33.53 percent in the financial sector, 28.24 percent in the energy sector, and 11.18 percent in utilities. Furthermore, 77 percent of the privatizations occurred in the 1990s, which reflects the recent trend towards large-scale privatizations by emerging markets.

When we classify our sample of NPFs by legal origin, we see that 37.65 percent of the firms come from common-law countries and 62.35 percent from civil-law countries. This diversification across legal origins allows us to examine whether the extent of investor protection helps explain the cross-firm differences in the postprivatization ownership structure.[3]

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[2] Our sample countries are either "major" or "frontier" emerging markets (*Emerging Markets Data Base*).

[3] Our sample largely represents the population of privatized firms in developing countries. By using the *World Bank* list of privatized firms in developing countries, we find that 30.48 percent of the firms

< Table 1 >

3.2. *Ownership variables*

To examine the postprivatization ownership structure and its determinants, we focus on two measures of private ownership concentration that are used in the literature (e.g., Demsetz and Lehn, 1985; La Porta et al, 1998; Demsetz and Villalonga, 2001), the percentage of shares held by the three largest private investors, *L3*, and an approximation of the Herfindahl index (the sum of squared ownership shares by the three largest private investors), *H3*. We apply a logistic transformation to *L3*, using the formula log(L3/(1-L3)) to convert a bounded variable to an unbounded one; and a logarithmic transformation to *H3*. The resulting variables are *LL3* and *LH3*. Throughout this paper, we focus on the *LL3* measure of ownership concentration. However, our findings are robust to the use of *LH3* as an alternative measure.

To describe the postprivatization ownership structure and its evolution over time, we identify five groups of investors, the government, domestic institutions, foreign investors, employees, and individuals. We define the date of privatization as the date on which the government sold, for the first time, a certain amount of shares. We collect ownership data - from several sources from year –1 to year 3 around the privatization year. The main sources for privatization ownership data are the offering prospectus and annual reports, but we

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are from Africa and the Middle East, 17.08 percent from East and South Asia and the Pacific, 42.35 percent from Latin America, and 10.09 percent from Europe and Central Asia. We find that 20.52 percent of the firms are from the financial sector and 15.97 percent are utilities. We also note that 80 percent of the privatization transactions occurred in the nineties. Finally, when we examine the legal origin in the *World Bank* list the distribution shows that 31.12 percent of the firms come from common law countries and 65.27 percent from civil law countries.

also use additional sources such as *Worldscope Disclosure,* the *Asian, Brazilian* and *Mexican Company Handbooks,* as well as the *Guide to Asian Companies.*

3.3. *Performance variables*

We measure firm performance by the return on sales (net income to sales), the return on assets (net income to assets), and the return on equity (net income to equity) (Megginson et al., 1994; Boubakri and Cosset, 1998; D'Souza and Megginson, 1999). We obtain financial information from the firms' financial statements, their web sites, and from databases such as *Worldscope Disclosure, Global Vantage,* and *Moody's International.* Since we are examining the relation between the postprivatization firm performance and ownership structure, we compute the performance measures for a period of five years (from one year before to three years after privatization including the year of privatization itself). To check whether privatization leads to performance improvements, we also report the three-year average performance before and after privatization.

4. Ownership structure

4.1. *Evolution of ownership structure*

Panel A of Table 2 reports descriptive statistics on the concentration of ownership measured by the cumulative number of shares of the three largest private investors and the Herfindahl index. The average number of shares held by the three largest shareholders increases from 10.64 percent before privatization to 38.57 percent in the year of privatization. Shareholdings continue to increase at a rate of 6.4 percent per year to 45.96 percent after three years. In comparison, La Porta et al. (1998), using a sample of 49 developed (24) and developing (25) countries, report an average ownership of the three largest shareholders of 46 percent in the 10 largest private nonfinancial firms.

We also report the evolution of the Herfindahl index of ownership concentration. Our results show higher levels of ownership concentration after privatization. The average index increases from 3.36 percent before privatization to 20.58 percent in the year of privatization. It continues to increase to 23.42 percent by the end of the third year. Overall, the results presented here show that the private ownership of NPFs becomes more concentrated over time.

Panel B of Table 2 reports changes in ownership by type of owner. The results indicate a significant change in the ownership structure of the sample firms following privatization. The average government stake declines substantially after privatization. We find a shift of 55 percent in the average government ownership (from 78.16 percent before privatization to 35.23 percent in the privatization year). The average postprivatization government stake continues to decrease over the following three years to 21.41 percent. This finding is consistent with the predominance of partial, staggered sales (Perotti and Guney, 1993; Perotti, 1995). Although the government is the controlling shareholder (more than 50 percent of shares) in 82 percent of the sample firms before privatization, this percentage drops to 34 percent in the privatization year and to 20 percent after three years. Those firms that remain under government control three years after privatization come primarily (46 percent) from strategic sectors (e.g., utilities, telecommunications, airlines, and banking), and from East and South Asia and the Pacific region (82 percent), where partial privatizations are more common. Gupta (2002), for example, provide a comprehensive study of the Indian partial privatization program.

Local institutions absorb much of the decrease in the state ownership. Their average stake increases from 4.68 percent prior to privatization to 19.17 percent in the year of privatization and continues to increase up to 26.59 percent in the third year. These results

indicate the importance of local institutions as key players in the ownership structure of privatized firms. These findings complement Boutchkova and Megginson's (2000) evidence for privatized firms in developed economies.

Foreign investors' average stake doubles in the year of privatization to 14.43 percent and continues to increase in the following three years to 16.26 percent. In a more detailed examination, unreported here, we find that on average, 60 percent of foreign investors are institutions. This finding could reflect the foreign ownership consolidation wave and the inflow of foreign consortiums following the financial liberalization that preceded or accompanied privatization (e.g., Latin American countries).

To ensure employees' support for the privatization policy, many governments allocate a fraction of the share issues (between 5 and 20 percent) to the firm's employees through Employee Stock Ownership Plans (ESOPs). The average employees' stake increases from 0.87 percent before privatization to 3.61 percent in the privatization year. However, we observe a decline in the average employees' stake over the following three years. This result could be explained by the existence of a lock up period during which employees are not allowed to sell their stake (Megginson et al., 1994).

One objective of a privatization program is to widen ownership among individuals. In our sample of privatized firms, individuals' average ownership increases from 3.17 percent before privatization to 14.50 percent in the year of privatization. At the end of the third year, the average stake held by individuals is 15.78 percent. This result suggests that privatization helps create a certain "equity culture" and ensures a minimum level of popular capitalism. For example, privatization in Malaysia has been driven to a large extent by the government's willingness to increase the ownership share of Bumiputras in key sectors of the economy.

< Table 2 >

4.2. *Investor protection and ownership structure*

To examine the evolution of the ownership structure according to the origin of commercial laws, we divide the sample into two groups: firms from common law countries and those from civil law countries. The rationale behind this partition is that common law countries provide a better investor protection that may influence the postprivatization ownership structure (La Porta et al., 1998).

Panel A of Table 3 presents the changes in private ownership concentration by legal origin. Using both measures of ownership concentration, we show that the highest postprivatization concentration levels are found in countries with a poor investor protection (civil law countries). In the privatization year, the average stake held by the three largest shareholders is 49.03 percent for firms from civil law countries and 22.67 percent for firms from common law countries. Three years after privatization, the average stake held by the three largest shareholders is 28.64 percent and 58.42 percent for common law and civil law countries, respectively. These postprivatization differences between the common law and civil law countries are statistically significant at the 1 percent level.

Panel B of Table 3 shows how ownership by the government, local institutions, foreign investors, employees, and individuals change and differ according to the legal origin of a given country. The average government stake is 77 percent prior to privatization for firms in common law countries, and 78.86 percent for firms in civil law countries. In contrast, the average government stake after privatization is statistically lower in civil law countries than in common law countries. The average government stake decreases by 50.77 percent in the privatization year for common law countries to 30.82 percent in the third year. For firms from civil law countries, the average government stake decreases by 57.40 percent in the

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privatization year and continues to decrease to 15.65 percent in the third year. These results suggest that governments in civil law countries tend to sell higher stakes faster than do those in common law countries.

The evidence on the changes in local institutions' ownership suggests significantly higher levels of institutional ownership in countries with relatively poor investor protection (civil law countries) compared to countries with a better investor protection (common law countries). For the subsample of firms from common law countries the average stake is 13.56 percent in the third postprivatization year and 35.58 percent for the subsample of firms from civil law countries. This result suggests that institutional investors may play a key role in countries with low investor protection.

Before privatization, the average stake held by foreign investors is 13.64 percent for firms from common law countries and 2.37 percent for firms from civil law countries. The difference is statistically significant at the 1 percent level. In the year of privatization, the average foreign stake increases by 10.56 percent for the first subsample and almost fivefold for the second subsample. Three years after privatization, the average stake is 16.05 percent for the common law countries subsample and 16.40 percent for the civil law countries subsample. The difference is not statistically significant. These results suggest that, ceteris paribus, foreign investors are drawn to privatized firms in emerging markets, regardless of the degree of legal protection in a country.

We also explore how employees' ownership is affected by the legal origin. The preprivatization employees' average stake is higher for the subsample of firms from common law countries compared to the subsample of firms from civil law countries. However, this difference is not statistically significant.

We investigate the patterns of individuals' ownership in both common law and civil law countries. Before privatization, the average stake held by individuals is 4.39 percent for firms from common law countries and 2.44 percent for firms from civil law countries. The results indicate that in common law countries, individuals own significantly higher levels for the privatization year and onwards. Three years after privatization, the average stake is 30.39 percent for the common law subsample and 8.11 percent for the civil law subsample. Although we are unable to document the evolution in the number of shareholders, these results suggest that privatization is more likely to create a popular capitalism in common law countries than in civil law countries. In other words, wherever investors are protected by law, we can expect an "equity culture" to emerge and individuals to have more incentives to invest.

< Table 3 >

Overall, the results of Tables 2 and 3 indicate a high concentration of private ownership following privatization and support Shleifer and Vishny' s (1997) and Dyck' s (2001) contention that privatization should result in higher levels of concentrated ownership in countries with poor investor protection. The following section investigates the determinants of ownership concentration.

4.3. Determinants of ownership concentration

Although the univariate results suggest that privatization yields higher levels of private ownership concentration in countries with a weak investor protection (civil law countries), the results only document bivariate relations.

Demsetz and Lehn (1985) investigate the determinants of ownership concentration in the US. The authors find (1) a negative association between ownership concentration

and firm size; (2) a positive association between ownership concentration and profit instability; and (3) a lower ownership concentration in regulated firms (utilities and financial firms). Recent papers by Himmelberg et al., (1999), Demsetz and Villalonga (2001), and Palia (2001) extend the Demsetz and Lehn analysis, and show that managerial ownership is endogenously determined by a set of firm-level variables in the contracting environment.

La Porta et al. (1998) use country-level explanatory variables to explain ownership concentration in a wide set of developed and emerging markets. These authors measure ownership concentration in each country by the average ownership stake of the three largest shareholders in the ten largest publicly traded companies. They use several measures of legal protection including the quality of law enforcement, the shareholder rights, the creditor rights, and legal origin dummies, and find a negative association between the extent of legal protection and ownership concentration.

While Demsetz and Lehn (1985) and La Porta et al. (1998) examine the determinants of ownership concentration of publicly traded firms, in this research we focus on the determinants of the postprivatization private ownership structure. We extend their empirical specifications by simultaneously including firm- and country-level explanatory variables, and we formulate our conjectures within the following equation

$$LCONC_{it} = \alpha + \beta FLV_{it} + \vartheta CLV_{it} + \gamma_t + \varepsilon_{it},$$ (1)

where $LCONC_{it}$ is the private ownership concentration measured by $LL3$, FLV_{it} represents firm-level variables, CLV_{it} represents country-level variables, γ_t are year fixed effects (i.e., an indicator for each postprivatization year) included to capture unobservable changes at the firm- and country-level, and ε_{it} is a disturbance term.

Table 4 summarizes the firm-level and country-level variables we consider. Following Demsetz and Lehn (1985), we use the following firm-level variables displayed in Panel A: Operating risk, for which we use, as a proxy, the standard deviation of the annual return on equity ratios (*RISK*) during the three years preceding the privatization year; Growth, for which we use, as a proxy, the average annual sales growth rate (*SALESGR*) during the three preceding years preceding the privatization year; Firm size, for which we use, as a proxy, the natural logarithm of total sales (*SIZE*); and Industry affiliation. We include a dummy variable for each industry: *IND1* for the finance industry, *IND2* for utilities, *IND3* for telecommunications, *IND4* for oil and gas, petrol/petrochemical, cement and mining, and *IND5* for other industries.

In addition to the firm-level variables, we control for the timing of privatization. To do so, we include a dummy variable for privatization timing that takes the value of one if the sample firm is privatized after the median privatization date in the country, and zero otherwise (*LATE*). This variable captures the privatizing government's preferences on the choice of the to-be-privatized firm and the extent of the stake sold. For example, because of social and political costs and for fear of losing revenues, governments could be reluctant to sell higher stakes and relinquish state control at early exploratory stages of the privatization program. Similarly, in an effort to attract private investors, governments might choose to relinquish control in the early stages. The empirical results will validate either one or the other of these arguments.

Panel B presents the country-level variables. Legal system refers to the legal origin of the country. This is a dummy variable that takes the value of one for common law countries

and zero otherwise (*LAW*).[4] In civil law countries, governments tend to sell higher stakes using direct sales, which is more likely to yield a concentrated ownership (Dyck, 2001; Bortolotti et al., 2000). Thus, we expect a negative association between ownership concentration and ownership protection.

As a proxy for legal enforcement, we use La Porta (1998) index of the efficiency of the judicial system (JUDICIAL). Strong legal enforcement could substitute for the weakness of rules since "active and well-functioning courts can step in and rescue investors abused by the management" (La Porta et al. 1998, p.1140). Thus, we expect a negative correlation between ownership concentration and legal enforcement.

As a proxy for income inequality, we use the Gini index (*GINI*). Demsetz (1997) contends that a society's wealth and its distribution are likely to explain ownership concentration. Demsetz claims that wealthy people are more likely to buy large stakes while still enjoying diversification of their wealth. Therefore, we expect income inequality to have a positive impact on ownership concentration.

As a proxy for the stability of the political environment, we use the index of government stability (*GS*) provided by *International Country Risk Guide* (ICRG). This indicator measures the credibility and ability of the government to carry out declared economic reforms and privatization, which have the merit of reducing private investors' worries about future policy reversals (Perotti, 1995; Perotti and van Oijen, 2001). Therefore,

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[4] The exogeneity of the legal origin dummy makes its use as a measure of investor protection appealing in contrast to other measures of investor protection such as the shareholder rights index that might be endogenous to ownership concentration (La Porta et al., 1998; Dyck, 2001).

we expect a positive association between private ownership concentration and political stability.

As a proxy for the stability of the social environment, we use the index of ethnic tensions provided by ICRG (*ET*). This indicator measures the degree of tension within a country that is attributable to cultural, racial, nationality, or language divisions. These factors are all likely to adversely affect the business environment, private investors' confidence, and their willingness to invest a large portion of their wealth. Therefore, we expect a positive association between private ownership concentration and the stability of the social environment.

< Table 4 >

Some of the variables we describe above try to act as proxies for the extent of selection effects inherent to the privatization process. In the context of privatization, we must deal with the likelihood that a government's choices affect the resulting ownership structure. Given the prevailing economic and institutional environment, the privatizing government may privatize (keep) or sell higher (lower) stakes in better-quality firms, which could result in a more (less) concentrated private ownership in these firms. Moreover, the government might be reluctant to relinquish control in large firms and/or in sectors that it believes are economically and politically strategic. Finally, certain types of owners (e.g., local institutions, foreign investors) may be able to identify better-quality firms from institutionally healthier countries. All these cases suggest that the private ownership concentration that emerges after privatization is likely to be systematically related to unobservable firm- and country-characteristics in addition to observable firm- and country-characteristics.

We can control for this unobservable firm and country heterogeneity in panel data. Since our study is multinational, and given that some of our main country-level variables are invariant within firms and countries, we assume that we can capture firm (country) unobservable heterogeneity by introducing industry- (and region-) fixed effects. We believe that a particular firm (country) exhibits the same characteristics as the whole industry (region). Governments generally privatize firms from particular industries using the same timing and sales methods. These practices are also common to countries from a particular region.

Table 5 reports the regression results for estimating Equation (1). We find that the growth variable *SALESGR* is positive and significantly (at the 1 percent level) related to ownership concentration. This finding is consistent with the fact that firms with high growth prospects are more attractive. We find a negative and significant (at the 1 percent level) relation between ownership concentration and firm size. That is, an increase in the firm's size leads to an increase in the level of ownership dispersion.

Our results also show significantly higher levels of ownership concentration for financial firms. One possible explanation for this finding is that the financial liberalization that accompanied or preceded privatization created a wave of foreign ownership consolidation, particularly in Mexico and other Latin American countries.

Our results also indicate significantly lower levels of ownership concentration for utilities and telecommunications. This evidence supports the previous discussion on the monitoring role of regulation and the reluctance of the government to fully privatize strategic industries. We note that neither the operating risk of the firm nor the privatization timing variable is significantly related to ownership concentration.

At the country level, the results show several significant relations. Specification (1) contains region-fixed effects. Specifications (2) through (4) contain interaction between regions and county-level variables. We find a negative and significant (at the 5 percent level) association between ownership concentration and the level of investor protection across all the specifications. Firms in civil law countries exhibit a level of ownership concentration that is higher than that for firms in common law countries. These results confirm those in Table 3 (Panel A) and suggest that, after controlling for firm and country characteristics, ownership concentration is significantly higher in civil law countries.

The legal enforcement variable *JUDICIAL* is not a statistically significant determinant of ownership concentration. One possible explanation for this result is that legal enforcement is irrelevant in emerging markets and does not substitute for the weakness of rules. We also find that the measure of income inequality *GINI* is not significantly related to ownership concentration. However, specification (2) shows that the impact of income inequality is positive and significant (at the 1 percent level) in Latin America and the Caribbean, the region that exhibits the highest income inequality.[5]

As predicted, we find that the government stability *GS* and ethnic tensions *ET* variables are key determinants of private ownership concentration. This result suggests that private investors are more inclined to hold larger stakes of firms in more stable political and social environments.

Specifications (3) and (4) indicate that the interactions between regions and government stability *GS*, and between regions and ethnic tensions *ET*, are positive and

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[5] Over the 1980-2000 period, the average index of income inequality (GINI) for Latin America and the Carribean is 57, compared to 41 for Africa and the Middle East, 40 for Europe and Central Asia, and 38 for East and South Asia and the Pacific.

significant (at the 1 percent level) for Latin America and both Latin America and Europe, respectively.

In all regressions, none of the year effects is significant. Overall, the results indicate that firm- and country-level explanatory variables explain at least 49 percent of the variation in ownership concentration. These results confirm the endogeneity of private ownership concentration and the necessity to take it into account when testing the ownership-performance relationship.

The results can also be related to the patterns of government ownership reported in Panel B of Table 3, which show higher levels of postprivatization government ownership for firms in common law countries. Governments in emerging markets seem to privatize higher stakes when there is a poor investor protection, which is more likely to lead to a higher private ownership concentration. This result could also explain why privatization methods tend to vary across countries.

The empirical evidence on the privatization methods appears to be mixed. Megginson et al. (2002) show that privatization through private sales is more likely when the investor protection is better (common law countries), but Bortolotti et al. (2000) report a higher frequency of direct sales in civil law countries. Dyck and Zingales (2002) examine the effects of private benefits of control on the development of markets, particularly on the ownership structure of firms and the choice of privatization methods. The authors show that countries that exhibit higher benefits of control, i.e., countries with weak legal protection, have more concentrated ownership. In these countries, privatization is less likely to occur through public offerings.

Our evidence, drawn exclusively from emerging markets, concurs with this line of research on the link between the design of privatization programs, postprivatization ownership structure, and investor protection: we show that postprivatization ownership concentration is higher in countries where investor protection is weak. This evidence indirectly captures the fact that privatization occurs mainly through direct sales in these countries (e.g., in Africa and Latin America).

< Table 5 >

5. Ownership, investor protection, and performance

5.1. Operating performance of privatized Firms

As proxies for the operating performance of NPFs, we use the return on sales (ROS), the return on assets (ROA), and the return on equity (ROE) ratios. Table 6 reports the mean and median levels of performance from one year before to three years after privatization, and the mean and median changes in performance from the preprivatization (years –3 to -1) to the posprivatization(years 1 to 3) periods.

The performance measures tend to increase following privatization. For example, the mean (median) ROS increases from 9.9 (6.4) percent for year –1 to 12.8 (9.6) percent for year 0. Three years after privatization, the mean (median) ROS is 6.2 (9.2) percent. Furthermore, the changes in the performance measures over the window [-3, -1; +1, +3] are significant and positive. For example, the median changes in ROS and ROE are 3.9 percent and 3.7 percent, respectively, but the median change in ROA is 1.1 percent.[6]

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[6] To account for contemporaneous economy-wide factors that might affect the performance indicators, we compute market-adjusted measures using a control sample of firms that are privately

< Table 6 >

5.2. The Relation between ownership concentration, investor protection, and performance

Ownership concentration, by establishing a strong relation between ownership and control, helps mitigate the extent of agency problems in a firm and should yield a superior performance (Shleifer and Vishny, 1997). A standard approach is to conduct a regression analysis of the firm performance on ownership structure variables. However, this method can be misspecified if some of the unobserved determinants of firm performance (unobserved heterogeneity) also explain the ownership concentration variables, leading to a spurious relation between ownership concentration and firm performance. Several recent studies (e.g., Himmelberg et al., 1999; Palia, 2001) document the endogeneity nature of the ownership structure (predominantly managerial ownership) and stress the need to control for it by using instrumental variables for ownership. Accordingly, we estimate the following system of equations

$$PERF_{it} = \delta + \theta_1 LCONC_{it} + \theta_2 LCONC_{it} * PROTEC + \beta_1 FLV_{1it} + \vartheta_1 CLV_{1it} + \gamma_t + \varepsilon_{1it}, \qquad (2a)$$

$$LCONC_{it} = \alpha + \beta_2 FLV_{2it} + \vartheta_2 CLV_{2it} + \varepsilon_{2it}, \qquad (2b)$$

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owned over the analysis period. The results, not reported but available from the authors, show that the mean (median) market-adjusted performance before privatization is negative for all indicators, suggesting that previously state-owned enterprises underperform with respect to other firms in the market. However, the mean (median) market-adjusted performance following divestiture becomes positive and significant at the 1 percent level for all three indicators, which confirms the positive impact of privatization on performance.

where $PERF_{it}$ stands for the performance of firm i (ROS, ROA, ROE) at time t, $LCONC_{it}$ is the ownership concentration of firm i at time t as measured by $LL3$, FLV_{1it} (firm size $SIZE$ and industry dummies) and CLV_{1it} (economic freedom $FREEDOM$ and GDP growth $GDPG$) represent firm- and country-level control variables included in the performance equation. Including the GDP growth in the performance equation allows us to indirectly control for the possible impact of economic reforms on firm performance (Bekaert et al., 2001). Including economic freedom allows capturing the cross-country differences in the institutional environment. γ_t are year dummies introduced to control for year specific effects. FLV_{2it} and CLV_{2it} represent firm- and country-level instrumental variables (Z_{it}) included in the ownership concentration equation, and ε_{1it} and ε_{2it} are the error terms.

The choice of the instruments is a crucial task since they must be highly correlated with ownership concentration but must not determine firm performance. We use the set of instruments from specification (1) in Table 5 ($RISK$, $SALESGR$, $SIZE$, $LATE$, LAW, $GINI$, GS, ET). These instruments must satisfy $E[\varepsilon_{1it}, Z_{it}] = 0$. Since firm size explains both ownership concentration and firm performance, we use the (logarithm of) total GNP on the ground that larger economies have larger firms and therefore, lower ownership concentration (La Porta et al., 1998).

The parameter θ_1 in Equation (2a) measures the impact of ownership concentration on the performance of privatized firms. We also introduce an interaction term between ownership concentration and investor protection. If the effect of ownership concentration on performance is more pronounced in countries with poor investor protection, then the coefficient of the interaction term (θ_2) should be negative and significant. We measure investor protection using the $PROTEC$ variable, which refers to a country's law and order score from ICRG.

Within a two-stage least squares (2SLS) framework, we estimate equations *(2a)* and *(2b)*. In the first stage, we estimate the equation of the determinants of ownership concentration, *LCONC*$_{it}$, and obtain the fitted (estimated) values (with industry- and region-fixed effects). In the second stage, we use these fitted values of ownership concentration as instruments for *LCONC*$_{it}$ (Equation *2a*) to estimate the impact of ownership concentration on firm performance.

We estimate three specifications of Equation (2a) and report the estimation results in Table 7. The results of the regression that restrains the parameter θ_2 to zero (specification (i)) suggest that after we control for firm size and industry, cross-country differences in the institutional environment and economic growth, ownership concentration is significantly related to firm performance.[7] This result supports Shleifer and Vishny's (1997) contention that postprivatization diffused ownership structure (and thus an increase in agency costs of managerial control) may lead to disappointing performance. Further, *FREEDOM* is positive and significantly related to performance, while GDP growth is positively but less significantly correlated with performance. The positive effect of *FREEDOM* suggests that firms achieve higher performance improvements when they are privatized in an institutionally healthier environment. The negative and significant coefficient estimate for *SIZE* suggests that small SOEs are more likely to adapt to a change in the environment.

We also control for industry characteristics and year-specific effects. An *F*-test for testing the null hypothesis of equal effects through industries shows a strong rejection for all specifications. An examination of industry effects indicates a superior performance for

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[7] We use ROS as our measure of firm performance. The results with ROA or ROE, which are available from the authors, are qualitatively similar.

noncompetitive firms (i.e., utilities and telecommunications) and for firms from the financial sector. None of the year effects is significant in the three specifications.

We estimate an alternative specification (ii) of equation (2a) that does not restrain to zero the parameter θ_2 to allow for an interaction between ownership concentration and investor protection. We note that performance and ownership concentration continue to be positively and significantly correlated.

More important, we find that the interaction variable *LCONC*PROTEC* has also a negative and significant impact on performance. This finding suggests that even though concentration has a positive impact on performance, the effect is stronger wherever investor protection is weaker. The result also supports the belief that in emerging markets, ownership concentration can substitute for investor protection and provide the functions of corporate governance.

We also show that *PROTEC* has a negative and significant effect on performance, suggesting that firms in countries with low investor protection perform better. This result should be interpreted together with the previous findings on the impact of ownership concentration and its interaction with investor protection on firm performance. To compensate for the lack of an efficient legal system, investors in countries with poor investor protection rely on governance structures that are basically dominated by highly concentrated ownership. *SIZE* has a significant and negative effect on performance. The country-level control variables indicate that *FREEDOM* remains positive and significant, but *GDPG* is insignificant.

Several authors provide evidence of nonlinearities in the ownership-performance relation (Morck et al., 1988; McConnell and Servaes, 1990; Claessens and Djankov, 1999;

Himmelberg et al., 1999). To check for this possibility, we extend specification (ii) to include the instrumented *LCONC* and its squared variable $(LCONC)^2$ in specification (iii). We find that the estimated coefficient of the squared term $(LCONC)^2$ is positive and significant at the 1 percent level.

Throughout the three specifications, we check whether the error term is uncorrelated with the instrumental variables $\mathbf{Z}_{it}$, that is, $E[\varepsilon_{1it}\,\mathbf{Z}_{it}] = 0$. The *F*-statistics reported in the last column of Table 7 imply that we cannot reject the null hypothesis of no correlation between the error terms and instruments, suggesting that our system of equations is properly identified.

The use of the instrumental variable approach might also suggest that we are measuring the effect of one or more particular instruments on firm performance rather than the effect of ownership concentration on firm performance (Palia, 2001). We check for this possibility by regressing firm performance on the instruments $\mathbf{Z}_{it}$. The results, not reported here but available from the authors, show that only the instrument *RISK* is statistically significant at the 5 percent level. The adjusted R^2 of 2.1 percent is very low compared to 26.3 percent obtained in the regression of ownership concentration on these instruments. When we conduct an *F*-test for the joint insignificance of the instruments, we find a rejection at the 5 percent level for the performance regression (*F*-statistic = 2.58, *p*-value = 0.0129) and 1 percent level for the ownership concentration regression (*F*-statistic = 22.44, *p*-value = <.0001). These results suggest that our instrumental variable approach mainly captures the effect of ownership concentration on firm performance.

< Table 7 >

5.3. *The relation between ownership identity and performance*

So far, we have examined only the relation between ownership structure and firm performance along the ownership concentration dimension. However, the identity of owners could also be relevant in analyzing the postprivatization ownership-performance relation (Boycko et al., 1996; Dyck, 2001).   Different types of owners may have distinct incentives and abilities to control the postprivatization managers. Therefore, it is ultimately the extent of this control that determines the firm's performance. Thus, we assess the impact of the different types of owner, as identified in Section 4 on the performance of NPFs.

To do so, we perform a multivariate regression analysis in which we use the shares held by various stakeholders while controlling for the firm's size, and the country's institutional environment and economic growth. We formulate the following set of equations

$$PERF_{it} = \delta + \sum_{j} \theta_j OWNER_{ijt} + \beta_1 \boldsymbol{FLV_{it}} + \vartheta_1 \boldsymbol{CLV_{it}} + \gamma_t + \varepsilon_{1it} , \qquad (3a)$$

$$OWNER_{ijt} = \alpha_2 + \boldsymbol{\beta_2} \boldsymbol{FLV_{it}} + \vartheta_2 \boldsymbol{CLV_{it}} + \varepsilon_{2it} , \qquad (3b)$$

where $OWNER_{ijt}$ is the percentage of shares held by the owner of type j (j = 1,2, 3, 4) of firm i at time t.

To estimate the system of equations (3a and 3b), we instrument each type of owner *OWNER* using the same set of instruments as in equation (2b). Our idea is that the percentage held by certain types of owners could be endogenously determined by public information released from the privatization process.

Panel B of Table 7 reports the results from the estimation of equations (*3a and 3b*). First, local institutions' ownership has a significant, positive impact on the firm's performance, suggesting that local institutions are an effective mechanism of the postprivatization corporate governance. We also show that ownership by individuals has a significant, positive influence on performance. Taken together, our results suggest that local outsiders provide beneficial restructuring.

Surprisingly, our results suggest no significant association between firm performance and foreign ownership. At first sight, this result is puzzling, because it contradicts the theoretical contentions of Boycko et al. (1996) and Dyck (2001) that foreign investors are a source of better governance and higher performance. Yet, Frydman et al. (1999) find a similar result in that domestic outsiders do better than foreign investors in newly privatized firms in the Czech Republic. The authors argue that perhaps foreign owners are not initially at ease in an environment that is relatively unknown to them, and that the transfer of know-how may require more time than their sample period allows.

We find no significant relation between the firm's performance and employee ownership. To some extent, this result does not disagree with Boycko et al's (1996) prediction that employees make poor stockholders/monitors. For the control variables, we find that the levels of institutional and economic development are positively related to firm performance. None of the time effects is significant. The *F*-statistics reported in the last column of Panel B indicate that we cannot reject the null hypothesis of no correlation between the error terms and the instruments.

6. Conclusion

In this paper, we investigate the relation between investor protection, ownership structure, and firm performance. Our sample comprises 170 firms from 26 emerging markets that were privatized during the 1980-97 period.

First, our results show a significant decrease in the government ownership in the year of privatization; the postprivatization government share continues to decrease in the following three years. Much of the decrease in the government ownership is absorbed by local institutions , foreign investors and individuals.

Second, we find that firm-level variables, i.e., size, sales growth, and industry affiliation, and country-level variables, i.e., investor protection, and political and social stability, are key variables in explaining the cross-firm differences in ownership concentration.

Finally, using a methodology that controls for the endogeneity of ownership, we show that firm ownership concentration is positively related to firm performance. We find that the effect of ownership concentration on firm performance is stronger in those countries where investor protection is weaker. These results suggest that ownership concentration is a key mechanism of corporate governance in such countries. Further, the identity of owners seems to matter for firm performance, as performance is higher when local institutions and domestic investors are involved.

Taken together, our results, obtained in the context of privatization, shed light on the functioning of corporate governance in emerging markets, particularly the role of ownership concentration and investor protection. Our results should also provide a new perspective for the ongoing debate on corporate governance reforms. Although

ownership concentration is an effective internal mechanism of corporate governance, it marginalizes (as suggested by several researchers, e.g., Holmström and Tirole, 1993) other external mechanisms of corporate governance (e.g., development of financial markets). Ownership concentration also impedes any effort to improve the efficiency of other institutions for corporate governance (e.g., legal institutions).

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Table 1
Description of the sample of newly privatized firms from emerging markets

This table provides some descriptive statistics for the sample of 170 privatized firms used in this study. We report the distribution of privatizations in the countries included in the sample by year, industry, legal origin, and region.

			Distribution of privatizations		
By year			By industry		
Year	Number	Percentage	Industry	Number	Percentage
1980	1	0.59	Financial	57	33.53
1981	1	0.59	Utilities	19	11.18
1985	4	2.35	Telecommunication	13	7.65
1986	4	2.35	Energy	48	28.24
1987	3	1.76	Other industries	33	19.41
1988	3	1.76	Total	170	100
1989	23	13.53	By Legal Origin		
1990	14	8.24	Category (countries)	Number	Percentage
1991	26	15.29	Common law countries (11)	64	37.65
1992	20	11.76	Civil law countries (15)	106	62.35
1993	12	7.06	Total (26)	170	100
1994	17	10.00	By Region *		
1995	7	4.12	Region (countries)	Number	Percentage
1996	16	9.41	Africa and the Middle East (8)	47	27.65
1997	19	11.18	East and South Asia and the Pacific (8)	46	27.06
			Latin America and the Caribbean (8)	55	32.35
			Europe and Central Asia (2)	22	12.94
Total	170	100	Total (26)	170	100

* World Bank country group classifications.

Table 2
The evolution of ownership structure in newly privatized firms from emerging countries

This table presents summary statistics on the evolution of the ownership structure for a sample of 170 firms from 26 emerging countries privatized between 1980 and 1997. Panel A describes the ownership concentration measured by the percentage of shares held by the three largest investors (*L3*) and the Herfindahl index (*H3*). Panel B describes the evolution of ownership by type of investor. We consider five types of investors: the government, local institutions, foreign investors, employees, and individuals. The preprivatization ownership data (one year before privatization) come mainly from the offering prospectus, while the postprivatization data (year 0 to year 3) come from the annual reports and other additional sources such as *Asian, Brazil* and *Mexico Company Handbooks*, *Worldscope Disclosure* and *The Guide to Asian Companies*. All statistics are presented in percent. N refers to the number of observations.

Type of investor	Ownership share one year before privatization	Ownership share after privatization (year relative to privatization)			
		0	+1	+2	+3
Panel A. Private ownership concentration					
Cumulative share of the three largest investors (L3)					
Mean	10.64	38.57	42.85	45.55	45.96
Median	0.00	36.00	40.00	42.91	45.00
N	148	131	141	137	110
Herfindahl index (H3)					
Mean	3.36	20.58	21.87	23.12	23.42
Median	0.00	9.61	11.50	14.47	15.48
N	150	130	141	137	110
Panel B. Type of investor					
Government					
Mean	78.16	35.23	30.22	25.02	21.41
Median	88.60	30.00	20.00	12.60	0.00
N	169	169	161	150	137
Local Institutions					
Mean	4.68	19.17	22.83	23.84	26.59
Median	0.00	1.25	8.83	10.00	8.61
N	120	109	124	123	98
Foreign Investors					
Mean	6.89	14.43	15.93	17.70	16.26
Median	0.00	0.00	2.20	4.96	3.90
N	137	136	142	136	117
Employees					
Mean	0.87	3.61	3.51	3.08	2.55
Median	0.00	0.00	0.00	0.00	0.00
N	131	126	120	109	95
Individuals					
Mean	3.17	14.50	16.14	16.17	15.78
Median	0.00	8.60	10.00	9.50	8.47
N	118	111	118	112	90

Table 3
The evolution of the ownership structure in newly privatized firms from emerging markets classified by law origin

This table presents the evolution of the ownership structure for a sample of 170 firms from 26 emerging countries privatized between 1980 and 1997 according to the law origin. In Panel A, we focus on the ownership concentration measured by the percentage of shares held by the largest three investors (*L3*) and the Herfindahl index (*H3*). Panel B describes the evolution of ownership by type of investor: the government, local institutions, foreign investors, employees and individuals. We split the sample in two groups of firms, those from common law countries; and those from civil law countries. The preprivatization ownership data (one year before privatization) come mainly from the offering prospectus, while the postprivatization data (year 0 to year 3) come from the annual reports and other additional sources such as *Asian, Brazil* and *Mexico Company Handbooks*, *Worldscope Disclosure* and *The guide to Asian Companies*. The table also reports the *p*-value of the *t*-statistic for differences in means (*p*-value$_1$) and medians (*p*-value$_2$) between common law and civil law countries. All statistics are presented in percent. All tests have been conducted with at least 30 observations.

Type of investor	Ownership share one year before privatization	Ownership share after privatization (year relative to privatization)			
		0	+1	+2	+3
Panel A. Private ownership concentration					
Cumulative share of the three largest investors (L3)					
Common law countries					
Mean	13.97	22.67	26.07	28.09	28.64
Median	0.00	23.75	31.19	32.00	31.69
Civil law countries					
Mean	8.29	49.03	54.57	56.57	58.42
Median	0.00	52.00	55.43	59.00	60.20
Means difference	5.68	-26.36	-28.49	-28.48	-29.78
P-value $_1$	0.072	0.000	0.000	0.000	0.000
P-value $_2$	0.114	0.000	0.000	0.000	0.000
Herfindahl index (H3)					
Common law countries					
Mean	4.55	6.95	7.64	8.49	8.39
Median	0.00	3.02	5.23	6.27	6.11
Civil law countries					
Mean	2.54	29.37	31.81	32.36	34.22
Median	0.00	17.21	26.00	25.50	26.96
Means difference	2.02	-22.43	-24.17	-23.86	-25.83
P-value $_1$	0.085	0.000	0.000	0.000	0.000
P-value $_2$	0.095	0.000	0.000	0.000	0.000
Panel B. Type of investor					
Government					
Common law countries					
Mean	77.00	37.91	37.42	33.09	30.82
Median	79.50	35.47	38.91	30.25	30.00
Civil law countries					
Mean	78.86	33.60	25.72	19.94	15.65
Median	89.10	28.60	12.96	0.00	0.00
Means difference	-1.86	4.31	11.70	13.15	15.17
P-value $_1$	0.632	0.393	0.020	0.008	0.002
P-value $_2$	0.749	0.345	0.019	0.003	0.001

Table 3 (*continued*)

Type of investor	Ownership share one year before privatization	Ownership share after privatization (year relative to privatization)			
		0	+1	+2	+3
Local Institutions					
Common law countries					
Mean	4.18	8.38	10.82	11.84	13.56
Median	0.00	0.00	3.11	3.78	3.11
Civil law countries					
Mean	5.04	26.48	30.94	31.26	35.58
Median	0.00	6.20	17.76	16.00	23.16
Means difference	-0.86	-18.10	-20.12	-19.42	-22.03
P-value $_1$	0.705	0.001	0.000	0.000	0.001
P-value $_2$	0.634	0.007	0.004	0.005	0.015
Foreign investors					
Common law countries					
Mean	13.64	15.08	15.97	16.53	16.05
Median	0.00	1.73	5.95	7.65	9.02
Civil law countries					
Mean	2.37	14.04	15.91	18.38	16.40
Median	0.00	0.00	0.54	0.96	0.54
Means difference	11.27	1.04	0.06	-1.85	-0.35
P-value $_1$	0.000	0.784	0.987	0.656	0.935
P-value $_2$	0.000	0.312	0.330	0.410	0.231
Employees					
Common law countries					
Mean	1.12	3.70	3.61	3.07	3.21
Median	0.00	0.00	0.00	0.00	0.00
Civil law countries					
Mean	0.72	3.55	3.45	3.09	2.23
Median	0.00	0.00	0.00	0.00	0.00
Means difference	0.40	0.15	0.16	-0.02	0.97
P-value $_1$	0.530	0.938	0.939	0.993	0.657
P-value $_2$	0.082	0.074	0.058	0.093	0.269
Individuals					
Common law countries					
Mean	4.39	27.38	28.59	29.56	30.39
Median	0.00	19.30	22.00	22.50	23.91
Civil law countries					
Mean	2.44	7.53	9.01	9.01	8.11
Median	0.00	0.00	4.00	1.74	0.00
Means difference	1.95	19.85	19.59	20.55	22.28
P-value $_1$	0.229	0.000	0.000	0.000	0.000
P-value $_2$	0.575	0.000	0.000	0.000	0.000

Table 4
Summary of the variables

This table describes the variables used in our regression analysis to investigate the determinants of the postprivatization private ownership concentration.

Variables	Definition
Panel A. Firm-level variables	
RISK	The standard deviation of the annual return on equity ratios.
SALESGR	Sales growth.
SIZE	The natural logarithm of total sales.
IND1	A dummy variable equal to unity if the firm is a bank or insurance company.
IND2	A dummy variable equal to unity if the firm is a utility.
IND3	A dummy variable equal to unity if the firm is a telecommunication company.
IND4	A dummy variable equal to unity if the firm belongs to oil and gas, petrol/petrochemical, cement and mining.
IND5	A dummy variable equal to unity if the firm belongs to other industries.
LATE	A dummy variable equal to unity if the sample firm is privatized after the median privatization date in the country and zero otherwise.
Panel B. Country-level variables	
LAW	A dummy variable equal to unity for firms from common law countries.
JUDICIAL	La Porta's (1998) index of the efficiency of the judicial system.
GINI	The United Nation's index of income inequality.
GS	The ICRG assessment of a country's government stability.
ET	The ICRG assessment of a country's ethnic tensions.

Table 5
The determinants of private ownership concentration

The table shows the regression results of private ownership concentration measured by the logistic transformation of the percentage held by the three major shareholders (*LL3*) on the set of explanatory variables indicated below. *REGION1*, *REGION2*, *REGION3* and *REGION4* refer to Africa, Latin America, Asia, and Europe, respectively. *VAR* refers to ONE (unit vector) (Specification (1)), *GINI* (specification (2)), *GS* (specification (3)), and *ET* (specification (4)). All regressions include year-fixed effects (coefficients' estimates not reported). Heteroskedasticity robust *p*-values are in parentheses. A constant term is included in each regression. *, ** and *** Significant at the 10 percent, 5 percent and 1 percent level, respectively. Variable definitions for the acronyms are reported in Table 4.

Variable	(1)	(2)	(3)	(4)
RISK	0.183	0.174	0.216	0.172
	(0.148)	(0.176)	(0.076)	(0.175)
SALESGR	0.380***	0.387***	0.406***	0.418***
	(0.000)	(0.000)	(0.000)	(<.0001)
SIZE	-0.457***	-0.478***	-0.444***	-0.424***
	(<.0001)	(<.0001)	(<.0001)	(<.0001)
IND1	1.710***	1.783***	1.730***	1.594***
	(<.0001)	(<.0001)	(<.0001)	(<.0001)
IND2	-1.626***	-1.710***	-1.671***	-1.617***
	(<.0001)	(<.0001)	(<.0001)	(<.0001)
IND3	-0.853**	-0.827*	-0.877**	-0.801*
	(0.056)	(0.062)	(0.044)	(0.082)
IND4	0.271	0.237	0.264	0.271
	(0.317)	(0.376)	(0.330)	(0.316)
IND5	0.498**	0.517**	0.554**	0.553**
	(0.043)	(0.036)	(0.026)	(0.023)
LATE	-0.295	-0.278	-0.546	-0.213
	(0.394)	(0.423)	(0.113)	(0.528)
LAW	-0.969**	-0.963**	-1.697***	-1.048**
	(0.044)	(0.040)	(0.000)	(0.023)
JUDICIAL	0.007	0.017	0.066	-0.021
	(0.942)	(0.851)	(0.481)	(0.813)
GINI	0.024		0.034	0.016
	(0.290)		(0.114)	(0.501)
GS	0.161**	0.152**		0.192**
	(0.031)	(0.040)		(0.011)
ET	0.352***	0.341***	0.436***	
	(0.001)	(0.001)	(<.0001)	
VAR*REGION1	-1.692***	-0.016	-0.093	0.050
	(<.0001)	(0.470)	(0.326)	(0.710)
VAR*REGION2	2.412***	0.071***	0.368***	0.933***
	(<.0001)	(<.0001)	(<.0001)	(<.0001)
VAR*REGION3	-0.716**	0.009	0.054	0.189*
	(0.016)	(0.691)	(0.446)	(0.087)
VAR*REGION4	-0.005	0.027	0.066	0.394***
	(0.988)	(0.226)	(0.505)	(0.001)
Adjusted R^2	0.497	0.496	0.491	0.501
N	402	402	402	402

Table 6
The performance of newly privatized firms

This table presents descriptive statistics on the performance of a sample of 170 firms in 26 countries privatized between 1980 and 1997. The performance measures are return on sales (ROS), return on assets (ROA), and return on equity (ROE). We report the mean and median levels of performance from three years before to three years after privatization, and the mean and median changes in performance from before to after privatization. Panel A and Panel B report the unadjusted and market-adjusted performance measures, respectively. ***Significant at the 1 percent level.

Performance measures	Levels							Changes	
	Before privatization		After privatization						
	Before	One Year before	Year 0	One year	Two years	Three years	After		Wilcoxon Two Sample Test Z-Statistic
	[-1,-3]	-1	0	+1	+2	+3	[+1, + 3]	[-1,-3; +1,+3]	
ROS									
Mean	0.075	0.099	0.128	0.162	0.159	0.062	0.152	0.077	
Median	0.050	0.064	0.096	0.100	0.094	0.092	0.109	0.039	
N	164	170	166	170	170	136	164	164	4.531***
ROA									
Mean	0.043	0.051	0.055	0.063	0.061	0.060	0.067	0.024	
Median	0.024	0.026	0.041	0.044	0.043	0.042	0.047	0.011	
N	165	171	166	171	172	137	165	165	3.759***
ROE									
Mean	0.163	0.224	0.187	0.197	0.220	0.214	0.224	0.061	
Median	0.096	0.109	0.127	0.145	0.131	0.140	0.145	0.037	3.243***
N	165	173	168	171	172	138	165	165	

Table 7
2SLS estimation of the effect of ownership structure on the performance of newly privatized firms (second stage results)

The table reports the 2SLS regression results of the relation between ownership structure and firm performance. Panel A examines the role of private ownership concentration. Panel B examines the role of ownership identity. We measure firm performance by the return on sales (ROS). LCONC is the ownership concentration measured by the logistic transformation of the percentage held by the three major shareholders (LL3). LCONC2 is the squared value of LCONC. SIZE is the natural logarithm of total sales. FREEDOM controls for a country's level of economic and institutional development and GDPG controls for the economic growth. PROTEC is the ICRG's measure of legal protection. LINS, FOREIGN, EMPLOYEE, and INDIVIDUALS are the percentages held by local institutions, foreign investors, employees, and individuals, respectively. All regressions include year-fixed effects (coefficients' estimates not reported). Heteroskedasticity robust p-values appear in parentheses. N refers to the number of firm-year observations. The last column reports the F-statistic and p-value for the test of $E[\varepsilon_{it}\, Z_{it}] = 0$; where ε_{it} is the error term in the performance equation and Z_{it} are the instrumental variables. *, ** and *** Significant at the 10 percent level, 5 percent and 1 percent level, respectively.

Panel A. The role of ownership concentration

	INTERCEPT	LCONC	LCONC*PROTEC	LCONC2	SIZE	FREEDOM	GDPG	PROTEC	Industry	Adjusted R²	N	F-statistic [p-value]
(i)	0.103 (0.242)	0.022** (0.002)			-0.017** (0.013)	0.047*** (<.0001)	0.007* (0.073)		Included	0.098	415	1.39 [0.207]
(ii)	0.208 (0.018)	0.111*** (<.0001)		-0.031*** (<.0001)	-0.012* (0.063)	0.039*** (0.002)	0.004 (0.333)	-0.040*** (0.002)	Included	0.195	415	0.79 [0.599]
(iii)	0.216 (0.011)	0.072*** (0.007)	-0.018** (0.019)	0.009*** (0.001)	-0.017** (0.012)	0.035*** (0.008)	0.002 (0.531)	-0.027** (0.027)	Included	0.222	415	0.80 [0.586]

Panel B. The role of ownership identity

	INTERCEPT	LINS	FOREIGN	EMPLOYEE	INDIVIDUALS	SIZE	FREEDOM	GDPG	Industry	Adjusted R²	N	F-statistic [p-value]
(i)	-0.870 (0.103)	2.003* (0.057)	-1.478 (0.152)	0.986 (0.315)	3.028* (0.051)	0.006 (0.714)	0.053 (0.105)	0.001 (0.882)	Included	0.067	218	0.084* [0.084]

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(l) This paper was presented at the Workshop "Growth, Environmental Policies and Sustainability" organised by the Fondazione Eni Enrico Mattei, Venice, June 1, 2001

(li) This paper was presented at the Fourth Toulouse Conference on Environment and Resource Economics on "Property Rights, Institutions and Management of Environmental and Natural Resources", organised by Fondazione Eni Enrico Mattei, IDEI and INRA and sponsored by MATE, Toulouse, May 3-4, 2001

(lii) This paper was presented at the International Conference on "Economic Valuation of Environmental Goods", organised by Fondazione Eni Enrico Mattei in cooperation with CORILA, Venice, May 11, 2001

(liii) This paper was circulated at the International Conference on "Climate Policy – Do We Need a New Approach?", jointly organised by Fondazione Eni Enrico Mattei, Stanford University and Venice International University, Isola di San Servolo, Venice, September 6-8, 2001

(liv) This paper was presented at the Seventh Meeting of the Coalition Theory Network organised by the Fondazione Eni Enrico Mattei and the CORE, Université Catholique de Louvain, Venice, Italy, January 11-12, 2002

(lv) This paper was presented at the First Workshop of the Concerted Action on Tradable Emission Permits (CATEP) organised by the Fondazione Eni Enrico Mattei, Venice, Italy, December 3-4, 2001

(lvi) This paper was presented at the ESF EURESCO Conference on Environmental Policy in a Global Economy "The International Dimension of Environmental Policy", organised with the collaboration of the Fondazione Eni Enrico Mattei , Acquafredda di Maratea, October 6-11, 2001

(lvii) This paper was presented at the First Workshop of "CFEWE – Carbon Flows between Eastern and Western Europe", organised by the Fondazione Eni Enrico Mattei and Zentrum fur Europaische Integrationsforschung (ZEI), Milan, July 5-6, 2001

(lviii) This paper was presented at the Workshop on "Game Practice and the Environment", jointly organised by Università del Piemonte Orientale and Fondazione Eni Enrico Mattei, Alessandria, April 12-13, 2002

(lvix) This paper was presented at the ENGIME Workshop on "Mapping Diversity", Leuven, May 16-17, 2002

(lvx) This paper was presented at the EuroConference on "Auctions and Market Design: Theory, Evidence and Applications", organised by the Fondazione Eni Enrico Mattei, Milan, September 26-28, 2002

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