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## Complex Ownership Structures and Corporate Valuations

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Research Department

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**Abstract**

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The bulk of corporate governance theory examines the agency problems that arise from two extreme ownership structures: 100 percent small shareholders or one large, controlling owner combined with small shareholders. In this paper, we question the empirical validity of this dichotomy. In fact, one-third of publicly listed firms in Europe have multiple large owners, and the market value of firms with multiple blockholders differs from firms with a single large owner and from widely-held firms. Moreover, the relationship between corporate valuations and the distribution of cash-flow rights across multiple large owners is consistent with the predictions of recent theoretical models.

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## I. INTRODUCTION

The bulk of corporate governance theory examines the agency problems that arise from two extreme ownership structures: (1) 100 percent small shareholders or (2) one large, controlling owner combined with many small shareholders (see Shleifer and Vishny (1997) for a review). In the first case, each small shareholder lacks the incentives or contractual mechanisms to align the interests of managers with those of shareholders. Consequently, managers may exert substantial discretion over firm decisions and divert corporate resources for private gain (Jensen and Meckling, 1976; Grossman and Hart, 1980). At the other extreme, the large shareholder either directly manages the firm or internalizes the benefits from monitoring managers, which aligns managerial interests with those of the large shareholder. This, however, creates a different agency problem. The controlling owner may expropriate private benefits at the expense of other shareholders (e.g., Shleifer and Vishny, 1986; Stulz, 1988; and Burkart and others, 1997, 1998).

In this paper, we question the empirical validity of this dichotomy and assess theories of more complex ownership structures involving multiple large owners. We first compute the prevalence of complex ownership structures in a sample of 1,657 publicly traded firms in Europe. We then examine whether investors value firms with multiple blockholders differently from widely-held firms or those with a single large owner. Finally, we evaluate the predictions from theoretical models regarding the valuation of firms with multiple blockholders.

In particular, a handful of theoretical models investigate the association between corporate valuations and the distribution of cash-flow rights across large owners. In Bennedsen and Wolfenzon (2000) large owners compete to form controlling coalitions because there are private benefits from control. If the winning coalition has small cash-flow rights, then expropriation of corporate resources involves only a small reduction in the controlling coalition's cash-flows (Jensen and Meckling, 1976; Shleifer and Wolfenzon, 2002). Thus, controlling coalitions with small cash-flow rights have the incentives (small cash-flow rights) and ability (sufficient voting rights) to divert corporate resources for private gain. The model further demonstrates that when cash-flow rights are distributed unevenly across shareholders, this increases the likelihood of a winning coalition with small cash-flow rights. Therefore, the model predicts a negative relationship between the dispersion of cash-flow rights across large shareholders and corporate valuations.<sup>2</sup> Rather than focusing on coalition formation, Pagano and Roell (1998) specify conditions under which multiple large shareholders cross-monitor each other, reducing expropriation and boosting valuations. Bloch and Hege (2001) further show that enhanced monitoring is less likely when ownership is unevenly distributed, which again implies a negative relationship between cash-flow rights dispersion and valuations.

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<sup>2</sup> Zwiebel (1995) presents a model in which the dispersion of ownership across large shareholders is negatively associated with the number of blockholders sharing the benefits of control. Gomes and Novaes (2001) study the ex-post bargaining among large shareholders and how this affects small shareholders. Winton (1993) emphasizes the free-rider problem in monitoring with multiple blockholders.

To assess the relationship between ownership structure and corporate valuations, we compile data on voting and cash-flow rights for a cross-section of firms in Western Europe. Following La Porta and others (2002), a large owner is a legal entity that directly or indirectly controls at least 10% of the voting rights. For each large owner, we also compute the cash-flow rights, which may differ substantively from control rights when there are indirect chains of control. Large owners frequently structure their shareholding so that they have large control rights, but comparatively small cash-flow rights. We find the type of each large owner, i.e., whether each large owner is a family, a widely-held financial institution, a widely-held corporation, or the state. This allows us to test whether the formation and operation of coalitions depends on the types of large shareholders.

As a preliminary step, we document that many firms have multiple large owners.<sup>3</sup> Of the 1,657 firms in our sample, 34 percent have at least two large owners. Faccio and Lang (2002), who do not restrict their analyses to publicly traded firms, find that 39 percent of the 5,232 firms in their sample have at least two large owners. When examining 600 of the largest publicly-traded firms across 27 countries, La Porta and others (1999) find that one-quarter have more than one large owner. Hence, multiple blockholders are a common component of the corporate landscape.

We then show the limitations of maintaining an almost exclusive focus on either widely-held firms or firms with a single large owner. The market value of firms with multiple large owners differs substantially from other firms. Moreover, even within the class of firms with multiple large owners, the market value of firms with high dispersion of cash-flow rights differs from firms with small dispersion. Firms with multiple blockholders do not fit neatly into a single category.

Next, we find that the empirical relationship between corporate valuations and the distribution of cash-flow rights across large owners is consistent with some recent theoretical models. There is a strong negative relationship between cash-flow rights dispersion and future valuations as measured by Tobin's  $q$ . These results hold when conditioning on country and industry fixed effects, as well as on firm size, growth opportunities, capital expenditures, asset tangibility, leverage, the type of each large owner, and whether the firm's founder is still on the board. Moreover, the results are robust to controlling for characteristics of the largest owner that have recently received considerable empirical attention. In particular, La Porta and others (2002), Joh (2003), Lemmon and Lins (2003), and Lins (2003) find a positive relationship between corporate valuations and the cash-flow rights of the biggest owner, suggesting that concentrated cash-flow rights discourages expropriation of corporate assets. Claessens and others (2002) also find a negative relationship between corporate valuations and the difference between voting and cash-flow rights of the largest owner, suggesting

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<sup>3</sup> Substantial work documents the predominance of firms with at least one large owner around the world (La Porta and others, 1999). Claessens and others (2000) show that only 3% of the Asian firms in their sample lack a controlling owner. Faccio and Lang (2002) show that 86% of companies in Europe have a large owner. Even in the United States, research demonstrates the importance of concentrated ownership (Eisenberg, 1976; Demsetz, 1983; Morck, Shleifer, and Vishny, 1988; Holderness and Sheehan, 1988; and Holderness, Kroszner, and Sheehan, 1999).

that entrenched owners with few cash-flow rights have the power and incentives to divert corporate resources. Even when controlling for these traits of the largest owner, however, there is a negative relationship between the dispersion of cash-flow rights across large owners and corporate valuations.

Finally, we move beyond the explicit predictions of individual models. Models that focus on private benefits of control assume that legal systems are unable to prevent insiders from expropriating corporate resources. Thus, La Porta and others (2002) argue that as the legal system improves, the cash-flow rights of the controlling owner will become a less important governance mechanism. With multiple blockholders, this suggests that the negative relationship between corporate valuations and the dispersion of cash-flow rights will become less pronounced in economies with stronger shareholder protection laws. This is exactly what we find. Furthermore, we find that the negative association between valuations and the dispersion of cash-flow rights becomes more pronounced when the holders of the largest cash-flow rights are of different types (family, financial institution, widely-held firm, or the state). This suggests that large shareholders are less likely to cooperate and form ruling coalitions when they are of different types. These extensions advertise the need for further theoretical and empirical analyses of corporate governance in firms with multiple blockholders.

It is important to emphasize this paper's limitations. One concern is that our results are driven by an omitted variable. For example, in an optimizing model of the firm, ownership structure and valuation might be jointly determined by the contracting environment, so that any empirical relationship between ownership structure and valuation might simply reflect differences in the contracting regime. Given the absence of time-series data on firm ownership across Europe and hence the inability to use firm-fixed effects or dynamic panel procedures, we attempt to reduce concerns regarding potential omitted variable bias by (i) including country-fixed effects to control for international differences in legal systems and other national traits, (ii) including industry fixed effects since contracting costs may differ across industries, and (iii) conditioning on a wide array of firm specific traits. While not eliminating the possibility of omitted variable bias, we find an independent, negative association between corporate valuations and the dispersion of cash-flow rights when controlling for these country, industry, and firms traits. A second concern focuses on causality. Coles, Lemmon, and Meschke (2006) present a pessimistic critique of the ability of instrumental variables to identify the impact of ownership on valuations. Although they do not consider multiple blockholders, this complexity is likely to make identification more difficult, not less. Our objectives are more modest than demonstrating that exogenous fluctuations in ownership structure cause alterations in corporate valuations. Rather, we show that the relationship between corporate valuations and the dispersion of cash-flow rights is consistent with new theoretical models that emphasize the distinct corporate governance characteristics of firms with multiple blockholders. The results are inconsistent with the view that complex ownership structures involving more than one large shareholder are an unimportant feature of corporate governance. The findings advertise the need for additional theoretical and empirical research on complex ownership structures.

Our work contributes to recent empirical research examining multiple blockholders. Lehmann and Weigand (2000) show that the existence of a second large owner is positively associated with the profitability of German firms. Faccio, Lang, and Young (2001) find that the existence of multiple large shareholders increases dividend payouts in Europe, but lowers them in Asia. In an examination of Finnish firms, Maury and Pajuste (2005) show that the relationship between corporate valuations and the presence of multiple large shareholders depends on the comparative sizes of the large shareholders. We instead examine the relationship between valuations and ownership structure in publicly listed firms across Europe. Moreover, since theory stresses that (i) cash-flow rights are central in determining the incentives of owners to expropriate corporate resources and (ii) the dispersion of cash-flow rights affects the composition and operation of ruling coalitions, we examine the relationship between each of these factors and corporate valuations. Furthermore, distinct from past research, we test whether the types of large shareholders and national investor protection laws affect the relationship between valuations and the dispersion of cash-flow rights in ways suggested by the broader corporate governance literature.<sup>4</sup>

The paper is organized as follows. After defining key variables in Section 1, Section 2 advertises the value of explicitly analyzing firms with multiple blockholders. Section 3 tests whether the relationship between corporate valuations and ownership structure is consistent with recent theoretical models of multiple blockholders. Section 4 concludes.

## II. DATA

To examine the relationship between ownership structure and valuations, we use data on 1657 firms across 13 countries in Western Europe (Austria, Belgium, Finland, France, Germany, Ireland, Italy, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom). The ownership data are from Faccio and Lang (2002). Ownership for each firm is computed at some point during the period 1996–1999. Faccio and Lang (2002) and La Porta and others (1999) note that ownership structure changes very little over time. In terms of our analyses, this suggests that annual fluctuations in corporate valuations are unlikely to affect ownership structure. Moreover, we examine valuations at the end of 2000, which is at least one year after the ownership data. We augment the Faccio and Lang (2002) data and discuss this below.

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<sup>4</sup> Our work also relates to recent findings that nepotism within family-controlled firms hurts firm performance (Perez-Gonzalez, 2006, and Bennedsen and others, 2006). In firms where the largest shareholder is a family, we find that the presence and type of other large shareholders is closely associated with the dispersion of cash-flow rights, which suggests that all family firms are not the same and advertises the potential value of controlling for the types of other large owners when assessing the performance of family firms.

### A. Control Rights and Types of Large Owners

A shareholder is defined as “large” if direct and indirect voting rights sum to 10 percent or more (La Porta and others 1999). If no shareholder holds 10 percent of the voting rights, the firm is classified as widely-held. When using a 20 percent criterion, the same conclusions hold.

While direct ownership involves shares registered in the shareholder’s name, indirect ownership involves shares held by entities that the ultimate shareholder controls. Since the large shareholders of corporations are sometimes corporations themselves, we identify the large shareholders in these corporations. This indirect ownership chain is traced backwards through numerous corporations to identify the ultimate vote holders. For example, a shareholder has  $x$  percent indirect control over firm A if she controls directly firm C that, in turn, controls directly firm B, which directly controls  $x$  percent of the votes of firm A. The control chain from firm A to firm C can be a long sequence of firms, each of which has control (greater than 10 percent voting rights) over the next one.

Control-1 equals the control rights of the largest shareholder with control of ten percent or more of the voting rights and zero if the corporation is widely held.

Control-2 equals the control rights of the second largest shareholder with control of ten percent or more of the voting rights and zero if the corporation is widely held, or if there is only one shareholder with control of ten percent or more of the voting rights.

We create similar variables for the third largest shareholder and so forth.

There are five types of large owners. By far the most common type of large owner is a “family,” which consists of legal persons and unlisted firms (typically owned and managed by a person). For example, a family is one of the large owners in about 86% of the firms with multiple blockholders. Another category of large owners is widely-held financial institutions (banks and other financial intermediaries for which there are no large owners). Widely-held financial institutions are large owners in almost 30% of firms with multiple blockholders. In addition, the state (i.e., national government, local government, or government agency), widely-held nonfinancial corporations, and a category of miscellaneous entities (foundations, trusts, charities, employees, cooperatives, cross-holdings, etc.) represent a small fraction of the large owners.

### B. Cash-Flow Rights

We also compute the direct and indirect cash-flow rights of each of the large shareholders. To compute indirect cash-flow rights, we use the products of the cash-flow rights along the ownership chain. For example, if a large shareholder of firm A holds the fraction  $y$  of cash-flow rights in firm B and firm B in turn holds the fraction  $x$  of the cash-flow rights in firm C, then the large shareholder’s indirect cash-flow rights in firm C equal the product of  $x$  and  $y$ . To compute a shareholder’s total cash-flow rights we sum direct and all indirect cash-flow rights.

Cash-flow-1 equals the cash-flow rights of the largest shareholder that has control of ten percent or more of the voting rights and zero if the corporation is widely held.

Cash-flow-2 equals the cash-flow rights of the second largest shareholder that has control of ten percent or more of the voting rights and zero if the corporation is widely held, or if there is only one shareholder with control of ten percent or more of the voting rights.

We create similar variables for the third largest shareholder and so forth.

There are important differences between cash-flow rights and control rights when there are indirect chains of control. As a simple example, consider a shareholder who owns 10 percent of the voting rights and cash-flow rights of firm A, and firm A in turn holds 20 percent of the voting rights and cash-flow rights of firm B. Assume that this shareholder (i) does not own direct shares in firm B and does not have control or cash-flow rights of firm B through other indirect chains of control and (ii) is the largest equity holder of firm A. In our calculations, this shareholder has 20 percent control rights of firm B because the shareholder controls firm A and firm A has 20 percent of the voting rights of the firm B. This shareholder's cash-flow rights, however, equals 2 percent because the shareholder only receives 2 percent of the firm's dividends ( $20\% * 10\%$ ). This may provide perverse incentives. The large owner maybe able to use her controlling position to expropriate 1\$, while only losing \$0.02 in lower dividends.

Consequently, we also measure the difference between control rights and cash-flow rights as in Claessens and others (2002). If an owner has substantial control rights, this increases the ability of the owner to divert corporate resource for private gain. But, this diversion reduces dividends (and may entail other costs as well). If this owner has small cash-flow rights, however, then the costs of diversion are lower. Thus, the difference between control and cash-flow rights provides information on the ability and incentives to expropriate firm resources. We obtain similar results when using the ratio of cash-flow to control rights instead.

**Control-1 minus Cash-flow-1** equals the control rights of the largest shareholder minus the cash-flow rights of the largest shareholder and is sometimes referred to as the "wedge." The wedge equals zero when no shareholder controls at least ten percent of the voting rights. Higher values signal a greater inclination to divert corporate resources.

To evaluate theories of the governance of firms with multiple blockholders, we also compute the dispersion of cash-flow rights. They argue that ruling coalitions with large total cash-flow rights are less likely when cash-flow rights are widely dispersed across large shareholders.

**Cash-flow-1 minus Cash-flow-2** equals the difference between the cash-flow rights of the two largest shareholders. This variable equals zero when the firm does not have two shareholders with at least ten percent of the voting rights. Furthermore, there are a small number of firms (59 out of about 1,700) where Cash-flow-1 minus Cash-flow-2 is negative. Thus, there are a few firms in which the largest owner in terms of voting rights has fewer cash-flow rights than the second largest owner. For the bulk of the paper, we simply eliminate these firms from the analysis because there

are few of them, because theory provides little guidance concerning these cases, and because the paper's findings are robust to incorporating them into the analysis as we discuss below.

### C. Valuations

To measure corporate valuations, we calculate Tobin's  $q$  at the end of 2000. The data are taken from the Worldscope database maintained by Bureau Van Dijk and matched with the ownership data. Thus, we relate observations on ownership during the period 1996-1999 to valuations measured at the end of 2000.

**Tobin's  $q$**  is the traditional measure of valuation and is calculated as the ratio of the book value of assets minus the book value of common equity and deferred taxes plus the market value of common equity to the book value of assets. Table 1 presents summary statistics by country of Tobin's  $q$ . The average Tobin's  $q$  across the 1,657 firms in the sample is 1.78, and varies from 1.06 on average in Austria to 2.11 in Ireland.

## III. ARE COMPLEX OWNERSHIP STRUCTURES RELEVANT?

### A. Importance and Classification of Ownership Structures

A prerequisite for a study of complex ownership structures is the existence of complex ownership structures. If publicly-traded firms are overwhelmingly characterized by either completely dispersed ownership or the existence of a single large owner, then this reduces the importance of examining firms with multiple large owners.

Table 2 indicates that complex ownership structures are common: 34% of the firms have more than one shareholder with greater than ten percent of the voting rights. Furthermore, firms with multiple large shareholders account for 18% of market capitalization. This suggests that multiple large shareholders are less common in the largest corporations. Since La Porta and others (1999) use a sample of the largest firms in each country, this helps explain their comparative skepticism of the importance of firms with multiple blockholders. Also, more than 40% of firms with at least one large shareholder have multiple large owners.

Given the substantial body of corporate governance theory on either widely-held firms or those with a controlling owner, the mere presence of many firms with multiple blockholders is a necessary but insufficient condition for embracing models of complex ownership structures. We need to further demonstrate that firms with multiple blockholders cannot be simply classified as either widely-held or as having a controlling owner for analytical convenience.

Table 3 shows that firms with multiple blockholders have significantly different values of Tobin's  $q$  from other firms. In the table, we compare medians to reduce the effect of outliers, but obtain qualitatively similar findings when using averages. In light of the theories discussed earlier, we distinguish blockholder firms with small cash-flow rights dispersion (firms with below the median

cash-flow dispersion) from those with large dispersion (firms with above the median cash-flow rights dispersion).

As shown in Panel B of Table 3, firms with multiple blockholders and small dispersion of cash-flow rights have significantly higher valuations than firms with a single (non-majority) large shareholder. Furthermore, multiple blockholder firms with large dispersion of cash-flows have significantly smaller valuations than multiple blockholder firms with small dispersion. Thus, it is inappropriate to categorize firms with multiple blockholders as either widely-held or as having a single controlling owner. The data also indicate that widely-held firms have the highest valuations. As argued by La Porta and others (2002), the unconditionally high valuations of widely-held firms could reflect country-specific factors. If strong shareholder protection laws both boost valuations and increase the percentage of widely-held firms, then simple correlations will reveal a positive correlation between Tobin's  $q$  and a dummy variable of whether the firm is widely-held or not. Below, we explore whether the strength of shareholder protection laws influences the relationship between corporate valuations and ownership structure. Panel C shows that the existence of multiple blockholders is less likely in large firms, but is not highly correlated with sales growth, the ratio of tangible to total assets, the ratio of capital expenditures to total assets, debt relative to total assets, or whether the founder of the company is on the board of directors.

### **B. Complex Ownership Patterns: Types and Firm Size**

To further illustrate the patterns of complex ownership structures across firms, Table 4 presents information on the types of the two largest owners in firms with more than one large owner but with no owner holding more than 50% of the voting rights. We focus on the two largest owners since only 12% of the firms in our sample have three or more large shareholders and this makes simple comparisons easier. Panel A reports the number and percentage of firms for each combination of large shareholders. Thus, the column headings provide information on the type of the largest shareholder, while the row headings indicate the identities of the second largest shareholder.

Families compose the bulk of large shareholders. In 405 out of the 553 firms with complex ownership structures (ownership structures involving two or more large shareholders with none holding a majority of the voting rights), a family is the largest shareholder. A family is also the second largest shareholder in 70 of these firms. Furthermore, in 86% of the firms with complex ownership structures, a family is either the largest or second largest shareholder.

Families, however, are not the only large owners in firms with complex ownership structures. Widely-held financial institutions are the largest owner in 12% of such firms. Furthermore, in almost 16% of the firms where the family is the largest owner, the second largest owner is a widely-held financial institution. We also find that the type of the second largest shareholder is not systematically different in firms where the largest shareholder is a family from firms where the largest shareholder is not a family. Specifically, the pattern of ownership of the second largest shareholder in the first column of Panel A where the largest owner is a family is not significantly different from the pattern of ownership in the second column of Panel A where the largest owner is

not a family. Logit regressions confirm this finding: The type of the largest shareholder has no predictive content over the type of the second largest shareholder.

In seeking to examine the relationship between the dispersion of cash-flow rights and corporate valuations, we were concerned that the prevalence of family ownership might lead to spurious conclusions. Specifically, if family ownership is closely associated with the dispersion of cash-flow rights and corporate valuations, then any relationship between dispersion of cash-flow rights and valuations might simply reflect the role of ownership.<sup>5</sup>

As shown in Panel B of Table 4, there is not a simple relationship between family ownership and cash-flow rights dispersion; indeed, the results emphasize the importance of looking beyond the largest shareholder. For the sample of firms with complex ownership structures, Panel B presents the regression coefficients from a series of regressions of cash-flow dispersion (Cash-flow-1 minus Cash-flow-2) on dummy variables that identify particular ownership structures. Each entry in Panel B represents a separate regression where we only condition on country and industry fixed effects. The first entry simply includes a dummy variable of whether the largest shareholder is a family or not. The results indicate that cash-flow dispersion is larger in firms where a family is the largest owner. However, the remainder of Panel B indicates that the relationship between cash-flow dispersion and family ownership depends on the types of other large shareholders. For example, if both the first and second largest shareholders are families, then the cash-flow rights are not larger than other firms with complex ownership structures. It is only in firms where the largest shareholder is a family and the second largest owner is not a family that cash-flow dispersion is significantly greater than other firms. In sum, all family owned firms are not the same in terms of cash-flow dispersion; it depends on the identities of the other large shareholders. Below, we examine whether the relationship between ownership structure and corporate valuations depends on the identities of large owners.

Before examining the relationship between corporate valuations and complex ownership structures, we present evidence on the relationship between firm size and ownership structure. Bennedsen and Wolfenzon (2000) predict that firms will tend to have either a single large owner that holds a majority of the voting rights, or multiple owners with small dispersion. If it is also easier for small firms to have a majority owner than for large firms due to wealth constraints of the owner (see Jensen and Meckling, 1976; Bitler and others 2005), then (a) small firms should have a higher probability of having a majority owner than large firms and (b) large firms should have a higher probability of having complex ownership structures with low dispersion. This is what we find. Again, we present the coefficients from a series of simple regressions of ownership structure on firm size, as measured by the logarithm of firm assets, while conditioning only on country and

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<sup>5</sup> In terms of corporate valuations, there is strong evidence that family-owned firms under-perform after ownership is handed over to the second generation of the family – the so-called succession problem (see, for example, Bennedsen and others 2006; and Pérez-González, 2006), but there is mixed evidence on the performance of family-owned firms in general (see, for example, Morck and others 1988; and Anderson and Reeb, 2003).

industry fixed effects. For the first entry in Panel C, the dependent variable is a dummy variable that equals one if there is an owner with more than 50% of the voting rights and zero otherwise, so we use a logit regression. In the other columns of Panel C, the dependent variable is cash-flow dispersion and we use the same method as in Panel B to compute the reported statistics. Consistent with theory, small firms are more likely to have a majority owner, and large firms are more likely to have small cash-flow dispersion. In the regression analyses below, we control for firm size to assess the independent relationship between corporate valuations and cash-flow dispersion.

## IV. REGRESSION RESULTS

### A. Theoretical Framework and Econometric Specification

Bennedsen and Wolfenzon (2000) predict that in equilibrium there will be a negative relationship between corporate valuations and the dispersion of cash-flow rights across large shareholders.<sup>6</sup> This prediction emerges from two characteristics of their model: (1) ruling coalitions with high cash-flow rights have lower incentives to expropriate corporate resources for private gain and (2) ruling coalitions with high cash-flow rights are less likely to form when the dispersion of cash-flow rights is high. More specifically, an initial owner chooses an ownership structure with multiple blockholders to maximize firm value subject to a wealth constraint. Blockholders fight to form ruling coalitions so that they can extract private benefits. The benefits of control to the ruling coalition are negatively associated with its cash-flow rights. Consequently, the winning coalition is that combination of blockholders with more than 50% of the votes and the minimum cash-flow rights. Bennedsen and Wolfenzon (2000) show that greater dispersion of cash-flow rights makes it easier to form ruling coalitions with small cash-flow rights, which reduces the value of the firm.

In terms of our empirical examination, this class of models of the corporate governance of firms with multiple large shareholders has a potentially serious limitation. It does not allow for the trading of equity shares in a liquid secondary market. Thus, it is unclear whether the number and size of the initial blockholders selected by the original owner will remain an equilibrium ownership structure with a liquid equity market.

Nevertheless, the initial models by Bennedsen and Wolfenzon (2000) and Bloch and Hege (2001) help motivate and guide our empirical examination. They motivate the research by emphasizing the potential importance of large owners beyond the biggest. They guide the work by making specific predictions that we evaluate. Thus, although there are relevant limitations to these models, we use their insights to examine the relationship between the dispersion of cash-flow rights and future values of Tobin's  $q$ . In turn, our empirical findings emphasize the value of extending the theory of complex ownership structures.

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<sup>6</sup> Similarly, in Bloch and Hege (2001), the dispersion of cash-flow rights reduces corporate performance because other large shareholders will monitor the largest shareholder more intensively when the dispersion of cash-flow rights is small.

We build our basic regression specification on the foundations of a well-established corporate governance literature and then add variables to proxy for predictions from theoretical models of complex ownership structures. Considerable theoretical research predicts a negative relationship between the cash-flow rights of a large, controlling owner and her incentives to expropriate corporate resources (Jensen and Meckling, 1976; and Shleifer and Wolfenzon, 2002). Empirical research confirms this prediction by finding a positive relationship between the cash-flow rights of the largest owners and firm value (La Porta and others, 2002; Lemmon and Lins, 2003). Thus, we include Cash-flow-1 (the cash-flow rights of the largest shareholder). We also include Control-1 minus Cash-flow-1 (the difference between the control and cash-flow rights of the largest shareholder). As discussed in the Introduction, theory predicts, and empirical evidence confirms, that as the gap between voting and cash-flow rights widens, the ability and incentives to expropriate corporate resources grow with negative ramifications on Tobin's  $q$  (Claessens and others, 2002). Finally, since Tobin's  $q$  will reflect the market's assessment of the firm's future profitability, empirical examinations of Tobin's  $q$  include proxies for the firm's future growth opportunities. Thus, we include the variable **Growth**, which equals the firm's average sales growth rate over the past three years (1997-2000) as a proxy for growth opportunities.

Thus, for the cross-section of firms, we use the following regression specification and estimation procedure.

$$(1) \quad \text{Tobin's } q = \alpha * X_1 + \beta * [\text{Cash-flow-1}] + \gamma * [\text{Control-1 minus Cash-flow-1}] + \delta * [\text{Growth}] + \theta * [\text{Cash-flow-1 minus Cash-flow-2}] + u,$$

where  $u$  is the error term.  $X_1$  is a matrix that includes a constant term and a wide assortment of firm-specific traits discussed below. We control for country and industry fixed effects.<sup>7</sup>

We primarily focus on the dispersion of cash-flow rights across the largest two owners, Cash-flow-1 minus Cash-flow-2, because the bulk of firms with more than one large owner have two large owners. In terms of the theory, we test whether the dispersion of cash-flow rights is negatively associated with future values of Tobin's  $q$  after controlling for many other features of the firm's ownership structure and its growth opportunities.

## **B. Estimation and Inference**

The estimation errors in equation (1) may be correlated across firms within the same country. This would bias the estimated coefficient standard errors downwards. Consequently, we allow for clustering at the country level and correct standard errors accordingly.

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<sup>7</sup> We were concerned that the slope coefficients might vary across industries. So, we also included the interactions between Cash-flow-1 minus Cash-flow-2 and a dummy variable for each industry. The results hold across the different industries, though the link with valuations is less pronounced in the financial and general services industries.

Estimation of equation (1) provides information on the relationship between valuations and dispersion, but there may be concerns about simultaneity and omitted variable bias. Let  $X$  represent the matrix of all regressors in equation (1) (i.e.,  $X_1$  and all the ownership variables). OLS estimation of the coefficients in model (1) is consistent only if  $\text{Cov}\{u, X_i\} = 0$  for each regressor  $i$  in  $X$ . Since we are including country and industry fixed effects, consistency requires that there are no unobservable firm characteristics that affect both ownership and Tobin's  $q$ . If  $\text{Cov}\{u, X_i\} \neq 0$ , then the estimated OLS coefficients will be biased and the model no longer describes the conditional expectation of Tobin's  $q$  given  $X$ .<sup>8</sup>

To reduce this possibility, we (a) "saturate" the regression with a large number of firm characteristics to capture as much of the error term  $u$  as possible (see also Demsetz and Lehn, 1985, and Bitler and others, 2005) and (b) use ownership data computed at least one year before Tobin's  $q$  to reduce the possibilities that short-run disturbances to valuations drive ownership structure and our findings. Along these lines, La Porta et al (1999, 2002) and Faccio and Lang (2002) argue that ownership changes very slowly over time.<sup>9</sup>

Consequently, we interpret our analyses as assessing whether there is an independent, negative relationship between the dispersion of cash-flow rights across large shareholders and subsequent valuations. As in much of the corporate governance literature, we do not have a sufficient number of valid instrumental variables to resolve questions about the direction of causality (see Coles, Lemmon, and Meschke, 2006, for an insightful discussion of the endogeneity concerns in this literature). That is, we do not have instrumental variables that both (i) explain the dispersion of cash-flow rights and (ii) only account for corporation valuations through their impact on the dispersion of cash-flow rights.<sup>10</sup> Our contribution is to assess whether the empirical relationship between ownership and valuations is robust and consistent with recent theoretical models.

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<sup>8</sup> Another reason why  $X$  and  $u$  may be correlated is the existence of measurement error in  $X$ .

<sup>9</sup> Another approach would be to use firm-fixed effects estimation to difference out the unobservable characteristics (see, for example, Himmelberg and others, 1999). However, this approach assumes that unobservable characteristics are time-invariant and requires time-series data on firm ownership, which we do not have. Also, see Palia (2001).

<sup>10</sup> In unreported regressions, we use the dummy variable *Founder*, which equals one if the company's founder is on the board of directors and zero otherwise, as an instrument for the cash-flow rights of the largest owner. Bitler and others (2005) find that *Founder* explains the largest shareholders ownership stake. Endogeneity of one regressor may influence the estimated coefficients on the other regressors. When using *Founder* as an instrument for cash-flow rights of the largest owner, our findings on dispersion do not change.

### C. Valuations and Complex Ownership Structures

#### Basic results

The regression results in Table 5 indicate a large negative relationship between Tobin's  $q$  and the dispersion of cash-flow rights across large shareholders. We focus on the two largest owners because the sample of firms with three or more shareholders is very limited (about 10 percent of the firms), making it difficult to isolate the incremental effect of having more than two blockholders. In the basic equation provided in column (1), Cash-flow-1 minus Cash-flow-2 enters negatively and significantly at the five percent level. Consistent with earlier work on the valuation of firms with a large shareholder, we find that Cash-flow-1 enters positively and significantly, while Control-1 minus Cash-flow-1 enters negatively and significantly. Thus, our findings on the valuation of firms with complex ownership structures augment, rather than replace, earlier work on the valuation of firms with large shareholders.

The economic size of the relationship is non-negligible. The estimated coefficient implies that a one standard deviation (24) increase in Cash-flow-1 minus Cash-flow-2 is associated with a decrease in Tobin's  $q$  of 0.22 ( $-0.22 = -0.009 * 24$ ), which is about 18% of the median value of Tobin's  $q$  in the sample.

#### Robustness: Sub-samples of firms

The results hold when examining sub-samples of firms. In particular, the theories we are evaluating do not apply to firms with a single large owner, firms where one blockholder holds a majority of the shares, or firms that are widely-held. As a preliminary robustness test, column (2) of Table 5 simply includes a dummy variable for whether the firm has an owner with more than 50% of the voting rights (Majority) and a dummy variable for whether the firm has no large shareholders (Widely-held). The dispersion index continues to enter negatively and significantly. Then, we estimate different subsamples.

Cash-flow-1 minus Cash-flow-2 continues to enter the valuation equation negatively and significantly when excluding the 405 firms with a majority shareholder (column 4). Then, we exclude widely-held firms (column 5) and again confirm the results. Finally, we conduct the analyses only on the firms with multiple blockholders where none of the large owners holds a majority of the voting rights (column 6). The results hold.

Furthermore, the estimated coefficient on the dispersion indicator changes in a predictable manner across the different subsamples. We expect the estimated coefficient on the dispersion indicator to increase in absolute value terms when restricting the sample to only those firms where dispersion might vary with valuations. Specifically, when using firms with multiple blockholders and no majority owner, the estimated coefficient on the dispersion of cash-flow rights jumps from -0.01 to -0.04. Economically, a one standard deviation (24) increase in Cash-flow-1 minus Cash-flow-2 is

associated with a decrease in Tobin's  $q$  of 0.96 ( $-0.96 = -0.04 \times 24$ ), which is about 72% of the median value of Tobin's  $q$  in the sample.

Finally, since firms from the United Kingdom account for more than one-third of the sample, we test whether they drive the results. Since we are already including country fixed-effects, we test whether U.K. firms enter with a different slope coefficient on cash-flow dispersion. Specifically, we include an interaction term between cash-flow dispersion and a dummy variable that equals one if the firm is from the U.K. and zero otherwise. As shown in column 8, the coefficient on cash-flow dispersion does not change and the interaction term does not enter significantly.<sup>11</sup> There is no evidence that U.K. firms are driving the findings.

### **Robustness: Controlling for firm traits**

The results are also robust to including a wide array of firm specific characteristics that may be associated with both firm performance and ownership structure (see Demsetz and Lehn, 1985). Besides sales growth over the previous three years to proxy for growth opportunities, we control for the size of the firm (Log of total assets), the ratio of fixed assets to total assets (Asset tangibility), the ratio of capital expenditures to total assets (Investment ratio), and the ratio of total debt to total assets (Leverage). Israel (1992), among others, shows that firm values depend on both ownership structure and financial leverage. Furthermore, we include a dummy variable that equals one if the founder of the company is on the management or supervisory board (Founder). Founders may have unobserved entrepreneurial skills that affect firm performance, and founding firms are more likely to have concentrated ownership as founders retain ownership claims to the firm (Andersen and Reeb, 2003; Burkart and others, 2003, and Bitler and others, 2005). When considering the full sample of firms and after controlling for these additional firm characteristics, the dispersion of cash-flow rights among the large shareholders enters negatively and significantly with a p-value of 0.06 (Table 5 column 3).

The results are even stronger when examining the sub-sample of firms with multiple blockholders and no majority owner (Table 5 column 7). Cash-flow-1 minus Cash-flow-2 enters negatively and significantly at the five percent level and the economic size of the estimated coefficient doubles as discussed above. Thus, even when controlling for many firm-level characteristics, as well as country and industry fixed effects, there is a negative association between valuations and the dispersion of cash-flow rights.

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<sup>11</sup> Including this interaction term in all the other regressions in Table 5 has no appreciable effect on the cash-flow dispersion coefficient.

### Alternative dispersion measures and extending the sample

The results also hold when using alternative measures of dispersion. Table 6 reports results using two alternative dispersion measures based on ratios rather than differences. First, instead of examining the difference in cash-flow rights of the largest owners, we examine this difference relative to the total cash-flow rights of the largest owners, i.e.,  $[\text{cash-flow-1} - \text{cash-flow-2}] / [\text{cash-flow-1} + \text{cash-flow-2}]$ . Second, we compute the “Cash-flow ratio” as  $1 - [\text{cash-flow-2}/\text{cash-flow-1}]$ . We compute the cash-flow ratio in this form so that larger values correspond to greater dispersion. These two dispersion ratio can only be computed for firms with at least one large owner.<sup>12</sup> The correlation between these two ratios and Cash-flow-1 minus Cash-flow-2 are 0.55 and 0.57 respectively. As reported in Table 6, the results are robust to using these alternative measures of the dispersion of cash flow rights among the largest shareholders.

In unreported regressions, we also obtain very similar results when (1) using the simple standard deviation of cash-flow-1 and cash-flow-2 to measure dispersion, (2) using the Herfindahl index of the cash-flow rights across large owners to measure dispersion, (3) expanding the analyses to include other large owners, or (4) using a Shapley-type index of the comparative power of the large shareholders. Specifically, we examined the difference between the Shapley values (in terms of cash flow rights) for the principal shareholder and the second largest shareholder as an alternative measure of dispersion. The Shapley value is the Milnor and Shapley (1978) power index for oceanic games of a given shareholder. The oceanic voting game has a finite number of atomic players (i.e., all large shareholders) and an “ocean” of players with infinitesimal weight (small shareholders). The Shapley value measures the extent to which each large owner is pivotal to the voted decision (see also Zingales, 1994, and Nenova, 2003). When using the Shapley value to measure the dispersion of power across large shareholders, we obtain qualitatively similar and statistically significant results.

As discussed above, this paper excludes 59 firms where  $\text{cash-flow-1} - \text{cash-flow-2} < 0$ . This paper’s findings, however, hold when including these additional firms in the analyses. When including these firms, we no longer use  $\text{cash-flow-1} - \text{cash-flow-2}$  (which now can take on negative values) as a measure of dispersion but instead use the absolute value of the dispersion of cash flow rights,  $|\text{cash-flow-1} - \text{cash-flow-2}|$ . Since this small group of additional firms does not conform to the typical framework in which the largest owner holds more cash-flow rights than any other owner, we assess whether the relation between valuations and the dispersion of cash-flow rights differs for this group. Thus, we include an interaction term that equals  $|\text{cash-flow-1} - \text{cash-flow-2}|$  times a dummy variable that identifies these 59 firms where  $\text{cash-flow-2} > \text{cash-flow-1}$ . With this specification, we confirm all of the results presented in the paper.<sup>13</sup> We also find that the

<sup>12</sup> We also exclude firms with a majority owner from the Table 6 regressions to focus only on firms with complex ownership structures, but obtain similar results when these firms are included.

<sup>13</sup> These results are available at the following website: [http://www.econ.brown.edu/fac/Ross\\_Levine/IndexLevine.htm](http://www.econ.brown.edu/fac/Ross_Levine/IndexLevine.htm).

association between Tobin's  $q$  and dispersion is different for firms in which cash-flow-2 > cash-flow-1. For these firms, we find that dispersion is associated with an increase in valuations. This is consistent with arguments from Pagano and Roell (1998) that other large owners with sufficient cash-flow rights will have the incentives to monitor the largest owner.

### **Extensions: Ownership types and shareholder rights**

Finally, we assess whether the relationship between valuations and the dispersion of cash-flow rights varies in predictable ways. Strong shareholder rights might mitigate the problem associated with dispersed cash-flow rights. In particular, Bennedsen and Wolfenzon (2000) predict that ruling coalitions with large cash-flow rights are less likely to form when dispersion is high. In turn, theory suggests that ruling coalitions with low cash-flow rights have the ability (sufficient voting rights) and incentives (low cash-flow rights) to expropriate corporate resources for private benefit at the expense of small shareholders. One implication is that strong shareholder protection laws will mitigate the ability of the ruling coalition to expropriate corporate resources. This implies that the relationship between valuation and dispersion will be less pronounced in countries with strong shareholder protection laws.

The results in Table 7 support the prediction that the association between valuations and cash-flow rights dispersion will weaken with stronger shareholder protection laws. We include an interaction term, the product of Cash-flow-1 minus Cash-flow-2 times Shareholder rights. As shown in Table 7, the interaction term, [Cash-flow-1 minus Cash-flow-2] \* [Shareholder rights], enters positively and significantly for different conditioning information sets. The dispersion variable, Cash-flow-1 minus Cash-flow-2, continues to enter negatively and significantly. Thus, the relationship between valuations and ownership dispersion weakens as shareholder protection laws strengthen.

Next, we assess whether the types of the largest owners influence the association between corporate valuations and cash-flow dispersion. Coalition formation models stress that owners with very different cash-flow rights find it difficult to cooperate and form ruling coalitions. If these difficulties are exacerbated when the owners are of different types (families, financial institutions, widely-held corporations, or the state), then the negative association between valuations and cash-flow rights dispersion will increase when the holders of the largest cash-flow rights are of different types.

The Table 7 results support this view. We first compute a dummy variable, Different type, which equals one if the largest owners are of different types and zero otherwise. Then, we include the following interaction term in the basic regression specification: [Cash-flow-1 minus Cash-flow-2] \* [Different types]. Following La Porta and others (1999), we distinguish between five categories of ultimate ownership: families, state, widely-held financial institution, widely-held corporation, and other (which includes foundations and cross-holdings). As shown, the interaction term, [Cash-flow-1 minus Cash-flow-2] \* [Different types], enters negatively and significantly. The results confirm that the relationship between valuations and ownership dispersion intensifies when the large shareholders are of different types.

## V. CONCLUSIONS

The empirical evidence in this paper challenges the conventional dichotomy of either examining widely-held firms or firms with a single controlling owner. We find that (1) over one-third of the publicly listed firms in Europe have more than one large owner, (2) the market value of firms with multiple large owners differs from other firms, and (3) the relationship between corporate valuations and the distribution of cash-flow rights across multiple large owners is consistent with predictions from recent theoretical models.

There is a strong negative relationship between corporate valuations and the dispersion of cash-flow rights across multiple large shareholders. These findings advertise the value of devoting considerably more research to examining the special corporate governance features of publicly-traded firms with multiple large owners.

Table 1. Summary Statistics of Tobin's Q

Country	Number of firms	Mean	Median	Minimum	Maximum	Standard deviation
Austria	38	1.18	1.06	0.72	2.44	0.35
Belgium	39	1.19	1.10	0.80	2.41	0.33
Finland	70	2.01	1.16	0.68	13.29	2.34
France	191	1.51	1.14	0.59	7.58	1.05
Germany	165	1.48	1.14	0.68	16.99	1.49
Ireland	44	2.11	1.24	0.46	18.39	2.92
Italy	72	1.47	1.18	0.66	4.97	0.86
Norway	58	1.61	1.11	0.56	12.21	1.88
Portugal	34	1.33	1.09	0.44	7.32	1.11
Spain	79	1.29	1.09	0.53	6.40	0.81
Sweden	76	1.75	1.27	0.62	9.11	1.47
Switzerland	102	1.91	1.24	0.56	11.82	2.03
United Kingdom	689	2.05	1.26	0.49	37.62	2.97
Total	1657	1.78	1.19	0.44	37.62	2.26

Note: This table presents summary statistics by country of firms' Tobin's Q, which is calculated as the ratio of the book value of assets minus the book value of common equity and deferred taxes plus the market value of common equity to the book value of assets. The Tobin's Q of each firm in the sample is calculated using firm-level data obtained from Bureau Van Dijk's Worldscope database. The sample of firms includes all firms for which we have ownership data.

Table 2. Importance of Firms with Multiple Blockholders

Group of firms	Panel A: All firms	
	Number of firms (% of total)	Total market capitalization in billions of US dollars (% of total)
Firms with no controlling owner	263 (15.9)	1540 (36.0)
Firms with one controlling owner	830 (50.1)	1984 (46.4)
Firms with multiple large shareholders	564 (34.0)	756 (17.7)
Total	1657 (100)	4280 (100)

  

Group of firms	Panel B: Firms with controlling shareholder only	
	Number of firms (% of total)	Total market capitalization in billions of US dollars (% of total)
Firms with one controlling owner	830 (59.5)	1984 (72.4)
Firms with multiple large shareholders	564 (40.5)	756 (27.6)
Total	1394 (100)	2740 (100)

Table 2. Importance of Firms with Multiple Blockholders (continued)

Country	Panel C: Number of firms by country and ownership type				Total
	Firms with no controlling owner	Firms with one controlling owner	Firms with multiple large shareholders	Total	
Austria	1 (2.6)	29 (76.3)	8 (21.1)	38	
Belgium	2 (5.1)	26 (66.7)	11 (28.2)	39	
Finland	12 (17.1)	26 (37.1)	32 (45.7)	70	
France	8 (4.2)	113 (59.2)	70 (36.6)	191	
Germany	9 (5.5)	96 (58.2)	60 (36.4)	165	
Ireland	9 (20.5)	22 (50.0)	13 (29.5)	44	
Italy	1 (1.4)	50 (69.4)	21 (29.2)	72	
Norway	7 (12.1)	22 (37.9)	29 (50.0)	58	
Portugal	1 (2.9)	23 (67.6)	10 (29.4)	34	
Spain	8 (10.1)	36 (45.6)	35 (44.3)	79	
Sweden	7 (9.2)	37 (48.7)	32 (42.1)	76	
Switzerland	14 (13.7)	55 (53.9)	33 (32.4)	102	
United Kingdom	184 (26.7)	295 (42.8)	210 (30.5)	689	
Total	263 (15.9)	829 (50.2)	561 (33.9)	1653	

Note: This table reports the total number and total market capitalization of firms in the sample with (i) no controlling owner, (ii) one controlling owner, and (iii) multiple large shareholders. Control is defined as 10% of the voting rights or more. Panel A reports summary statistics by ownership structure for all firms in the sample, panel B reports summary statistics by ownership structure for firms with controlling shareholders only, and panel C reports the number of firms (with percentage of country-totals between brackets) for each ownership structure by country.

Table 3. Tobin's Q by Ownership Category

Panel A: Group means, group medians, and nonparametric test of the equality of medians

	# of firms	Average Q	Median Q	Majority Ownership	Test of difference in medians with ownership category		
					Single non-majority blockholder	Multiple blockholders with small dispersion	Multiple blockholders with large dispersion
1. Majority ownership	406	1.78	1.14				
2. Single non-majority blockholder	519	1.61	1.16	0.444			
3. Multiple blockholders with small dispersion in CF rights	257	1.94	1.25	0.029**	0.057*		
4. Multiple blockholders with large dispersion in CF rights	212	1.67	1.15	0.611	0.642	0.029**	
5. Widely held	263	2.03	1.31	0.000***	0.000***	0.430	0.001***
Total	1657	1.78	1.19				

Table 3. Tobin's Q by Ownership Category (continued)

Panel B: Correlations Matrix of Ownership Categories and Other Firm Characteristics		Log of total assets		Tangibility		Investment ratio		Leverage		Founder	
	Sales growth										
1. Majority ownership	-0.057** (0.010)	-0.012 (0.594)	-0.061*** (0.006)	-0.012 (0.593)	-0.006 (0.794)	0.096*** (0.000)					
2. Single non-majority blockholder	0.015 (0.511)	-0.019 (0.390)	0.033 (0.136)	0.034 (0.126)	0.009 (0.698)	-0.046* (0.077)					
3. Multiple blockholders with small dispersion in CF rights	0.016 (0.465)	-0.078*** (0.000)	-0.027 (0.224)	-0.010 (0.671)	-0.011 (0.623)	-0.008 (0.753)					
4. Multiple blockholders with large dispersion in CF rights	0.015 (0.505)	-0.002 (0.940)	0.002 (0.915)	-0.010 (0.644)	-0.000 (0.989)	0.032 (0.215)					
5. Widely held	0.026 (0.250)	0.122*** (0.000)	0.062*** (0.005)	-0.010 (0.651)	0.008 (0.728)	-0.072*** (0.006)					

Note: We distinguish firms between 5 distinct ownership categories: 1. Majority ownership; 2. Single non-majority blockholder; 3. Multiple blockholders, each with minority ownership, and small dispersion in CF rights between the two largest blockholders ("CF-1 minus CF-2" less than or equal to 25%); 4. Multiple blockholders, each with minority ownership, and large dispersion in CF rights between the two largest blockholders ("CF-1 minus CF-2" more than 25%); and 5. Widely held (no shareholder owns more than 10% of control rights). Panel A reports the average and median Tobin's Q across ownership groups and the p-values of a nonparametric test of equality of medians between the indicated ownership categories. Panel B shows the correlation between ownership groups and other firm characteristics, with p-values between brackets. Sales growth is the 3-year average lagged sales growth. Tangibility is fixed assets to total assets. Investment ratio is CAPEX to total assets. Leverage is total debt to total assets. Founder indicates whether the founder of the company is on the (management or supervisory) board of the company.

Table 4. Complex Ownership Structures, Family Ownership, and Firm Size

Panel A: Complex Ownership Structures: The Types of the Largest and Second Largest Owners

	Largest shareholder is a family	Largest shareholder is <i>not</i> a family	All firms	Largest shareholder is a family	Largest shareholder is <i>not</i> a family	All firms
	Number of firms			% of total		
Second largest shareholder is:						
Family	284	70	354	70.1	47.3	64.0
State	17	9	26	4.2	6.1	4.7
Widely-held corporation	6	3	9	1.5	2.0	1.6
Widely-held financial	64	41	105	15.8	27.7	19.0
Other type	34	25	59	8.4	16.9	10.7
Total	405	148	553	100	100	100

Panel B: Complex Ownership Structures and Family Ownership

	Largest shareholder is a family	Second largest shareholder is a family	First& second largest shareholders are families	Largest is not a family but the second largest is	Largest is a family but not second largest	First & second largest shareholders not families
Cash-flow-1 minus Cash-flow-2	3.479* (0.051)	-2.024** (0.046)	-0.654 (0.403)	-2.703 (0.102)	4.676* (0.053)	-2.952* (0.056)

Table 4. Complex Ownership Structures, Family Ownership, and Firm Size (Continued)

Panel C: Complex Ownership Structures and Firm Size			
Majority	Cash-flow-1 minus Cash-flow-2	Cash-flow-1 minus Cash-flow-2	Cash-flow-1 minus Cash-flow-2
(All firms)	(All firms)	(Exclude firms if Majority=1)	(Exclude firms if Majority=1 or Widely held=1)
Log (total assets)	0.124*** (0.000)	-1.501*** (0.000)	-0.881*** (0.000)
			-0.393* (0.067)

Note: Panel A provides information on the types of the largest and second largest shareholders in firms with multiple shareholders and with no majority shareholder. It reports the number and percentage of firms for each combination of large shareholders. Panel B presents partial correlation coefficients (and p-values in parentheses) between cash-flow dispersion (Cash-flow-1 minus Cash-flow-2) and dummy variables that identify particular ownership structures. The partial correlation coefficients are based on regressions that condition only on country and industry fixed effects based on the subset of firms with multiple blockholders and where the largest shareholder does not hold a majority stake. Panel C presents similar partial correlation coefficients between ownership structure and firm size, as measured by the logarithm of total firm assets. Majority is a dummy variable that indicates whether the largest shareholder holds a majority stake in the firm or not. Widely held is a dummy variable that indicates whether the firm has no shareholder with more than 10% of control rights. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

Table 5. Valuation and Complex Ownership Structures

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Basic	Majority and widely-held	Other firm factors	Exclude majority	Exclude majority and widely-held	Multiple blockholders	Multiple blockholders and other firm factors	UK
Cash-flow-1	0.015**	0.019**	0.015*	0.017**	0.023***	0.037**	0.031	0.031
Control-1 minus Cash-flow-1	(0.005) -0.009**	(0.007) -0.008	(0.008) -0.008*	(0.005) -0.014*	(0.006) -0.009	(0.017) -0.001	(0.022) -0.018	(0.022) -0.017
Cash-flow-1 minus Cash-flow-2	(0.003) -0.009***	(0.004) -0.012***	(0.004) -0.011*	(0.007) -0.020**	(0.007) -0.022**	(0.008) -0.040**	(0.014) -0.040**	(0.014) -0.037**
Sales growth	(0.003) 0.381 (0.308)	(0.003) 0.384 (0.308)	(0.005) 0.449** (0.202)	(0.008) 0.619** (0.240)	(0.008) 0.685*** (0.201)	(0.018) 0.957* (0.491)	(0.017) 1.683*** (0.286)	(0.017) 1.663*** (0.299)
Majority		0.105 (0.158)	0.091 (0.118)					
Widely-held		0.273** (0.118)	0.439** (0.169)					
Log of total assets			-0.150 (0.092)				-0.231 (0.143)	-0.228 (0.143)
Asset tangibility			-1.160*** (0.360)				-1.726* (0.843)	-1.715* (0.840)
Investment ratio			2.126*** (0.366)				-0.807 (1.484)	-0.880 (1.536)
Leverage			-0.900 (0.533)				-1.507 (1.350)	-1.531 (1.336)

Table 5. Valuation and Complex Ownership Structures (continued)

Founder		0.949 (0.692)				0.769 (0.711)	0.728 (0.729) -0.015 (0.009)
Cash-flow-1 minus Cash-flow-2 * UK							
Observations	1638	1638	1195	1233	975	464	330
R-squared	0.12	0.12	0.16	0.14	0.16	0.18	0.26

Note: This table presents OLS regressions that control for the presence and incentives of the two largest shareholders. The dependent variable is Tobin's Q. The regressions are of the form:  $Tobin's\ Q = \alpha X + \beta (Cash-flow-1; Control-1\ minus\ Cash-flow-1; Cash-flow-1\ minus\ Cash-flow-2) + \gamma (Other\ firm\ characteristics) + u$ , where  $u$  is the error term. All regressions include the cash flow rights of the largest shareholder (Cash-flow-1), the difference between control rights and cash-flow rights of the largest shareholder (Control-1 minus Cash-flow-1), the difference between cash-flow rights of the largest shareholder and cash-flow rights of the second largest shareholder (Cash-flow-1 minus Cash-flow-2), and real sales growth over the preceding three years (Sales growth). Regression (2) controls for whether the controlling owner holds more than 50% of the voting rights (Majority) and whether no shareholder owns more than 10% of control rights (Widely-held). Regression (3) controls for the ratio of fixed assets to total assets (Asset tangibility), the ratio of capital expenditure to assets (Investment ratio), the ratio of total debt to assets (Leverage), and a dummy variable that takes a value of one if the founder of the company is still on the board of the company (Founder). Regression (4) excludes majority-owned firms. Regression (5) excludes majority-owned and widely-held firms. Regression (6) includes only firms with multiple blockholders. Regression (7) adds the firm-level control variables to regression (6). Regression (8) adds an interaction between the Cash-flow-1 minus Cash-flow-2 variable and a dummy variable that takes a value of one if the firm is located in the United Kingdom (UK) to regression (7). All regressions control for country and industry fixed effects with clustering of standard errors at the country level. Standard errors in parentheses. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

Table 6. Valuation and Complex Ownership Structures: Alternative Measures of Dispersion

	(1)		(2)		(3)		(4)		(5)		(6)	
	Basic		Only multiple blockholders	Dispersion ratio	Multiple blockholders and other firm factors	Basic		Only multiple blockholders	Cash-flow ratio	Multiple blockholders and other firm factors		
Cash-flow-1	0.006 (0.004)		0.015* (0.008)		0.009 (0.012)	0.006 (0.004)		0.016* (0.009)		0.011 (0.013)		
Control-1 minus Cash-flow-1	-0.010 (0.007)		-0.002 (0.008)		-0.018 (0.013)	-0.009 (0.007)		-0.001 (0.009)		-0.017 (0.014)		
Dispersion ratio	-0.340*** (0.102)		-0.799* (0.403)		-0.724** (0.243)							
Cash-flow ratio						-0.387** (0.129)		-0.739 (0.460)		-0.765** (0.300)		
Sales growth	0.681*** (0.202)		0.963* (0.509)		1.698*** (0.299)	0.683*** (0.201)		0.961* (0.512)		1.705*** (0.298)		
Log of total assets					-0.246 (0.147)					-0.241 (0.142)		
Asset tangibility					-1.834* (0.877)					-1.817* (0.857)		
Investment ratio					-0.711 (1.371)					-0.741 (1.409)		
Leverage					-1.480 (1.325)					-1.469 (1.332)		
Founder					0.712					0.731		

Table 6. Valuation and Complex Ownership Structures: Alternative Measures of Dispersion (continued)

	(1)	(2)		(3)	(4)		(5)		(6)
	Basic	Dispersion ratio Only multiple blockholders		Multiple blockholders and other firm factors (0.723)	Basic	Only multiple blockholders	Cash-flow ratio Multiple blockholders and other firm factors (0.722)		
Observations	975	464		330	975	464			330
R-squared	0.15	0.18		0.25	0.15	0.18			0.26

Note: This table presents OLS regressions that control for the presence and incentives of the two largest shareholders using alternative measures of the dispersion of cash-flow rights. The dependent variable is Tobin's Q. The regressions are of the form:  $Tobin's\ Q = \alpha X + \beta (Growth) + \gamma (Cash-flow-1; Control-1\ minus\ Cash-Flow-1; Dispersion\ measure) + u$ , where  $u$  is the error term. All regressions include the cash flow rights of the largest shareholder (Cash-flow-1), the difference between the control rights and the cash-flow rights of the largest shareholder (Control-1 minus Cash-Flow-1), and real sales growth over the preceding three years (Sales growth). As a measure of dispersion of cash-flows, we use the difference between cash-flow-1 and cash-flow-2 divided by the sum of cash-flow-1 and cash-flow-2 (Dispersion ratio) in regressions (1) to (3), and 1 minus the ratio of cash-flow-2 to cash-flow-1 (Cash-flow ratio) in regressions (4) to (6). All regressions exclude firms with majority-ownership and widely-held firms. Regressions (2) and (5) include only firms with multiple blockholders. Regressions (3) and (6) add the following firm-level control variables to regression (2): the ratio of fixed assets to total assets (Asset tangibility), the ratio of capital expenditure to assets (Investment ratio), the ratio of total debt to assets (Leverage), and a dummy variable that takes a value of one if the founder of the company is still on the (management or supervisory) board of the company (Founder). All regressions control for country and industry fixed effects with clustering of standard errors at the country level. Standard errors in parentheses. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

Table 7. Ownership Types and Shareholder Rights

	(1)	(2)	(3)	(4)
Cash-flow-1	0.016** (0.007)	0.020** (0.009)	0.013** (0.004)	0.019** (0.007)
Control-1 minus Cash-flow-1	-0.009** (0.003)	-0.007 (0.004)	-0.011** (0.004)	-0.009* (0.005)
Cash-flow-1 minus Cash-flow-2	-0.010** (0.003)	-0.013*** (0.004)	-0.021*** (0.007)	-0.028** (0.011)
Sales growth	0.378 (0.310)	0.381 (0.309)	0.371 (0.308)	0.374 (0.308)
Majority		0.107 (0.155)		0.126 (0.176)
Widely held		0.290** (0.120)		0.395** (0.143)
Different type	0.006 (0.165)	0.079 (0.158)		
Cashflow-1 minus Cash-flow-2 * Different type	-0.007* (0.004)	-0.009* (0.004)		
Cashflow-1 minus Cash-flow-2 * Shareholder rights			0.005** (0.002)	0.005** (0.002)
Observations	1638	1638	1638	1638
R-squared	0.12	0.12	0.13	0.13

Note: This table repeats regressions (2) and (3) of Table 5 but adds an additional interaction term with the Cash-flow-1 minus Cash-flow-2 variable. The dependent variable is Tobin's Q at the firm-level. Regressions (1) and (2) include a variable that indicates whether the first and second largest shareholders are of different ownership types (where we consider the following ownership categories: family, state, widely-held financial institution, widely-held corporation, and miscellaneous, with widely-held the default category if there is no controlling shareholder). Regressions (3) and (4) include an interaction with the LLSV (1998) index of shareholder rights in the country (Shareholder rights). Majority is a dummy variable that takes a value of 1 if the principal shareholder holds more than 50 percent of the voting rights. Widely-held indicates whether the firm's ownership is widely held. Sales growth is average real growth in sales over the past 3 years. All regressions control for country and industry fixed effects with clustering of standard errors at the country level. Standard errors in parentheses. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

Appendix Table 1. Description of Main Variables

Variable	Description
Tobin's Q	Tobin's Q measured as (total assets—book value of equity—deferred taxes + market value of equity) divided by (total assets). Source: Authors' calculations based on data from Worldscope.
Control-1	Control rights of largest controlling shareholder using 10% cutoff for control. Zero if no controlling shareholder. Source: Authors' calculations based on data from Faccio and Lang (2002).
Cash-flow-1	Cash flow rights of largest controlling shareholder using 10% cutoff for control. Zero if no controlling shareholder. Source: Authors' calculations based on data from Faccio and Lang (2002).
Control-1 minus Cash-flow-1	The difference between the control rights and the cash-flow rights of the largest shareholder. Zero if no controlling shareholder. Source: Authors' calculations based on data from Faccio and Lang (2002).
Cash-flow-1 minus Cash-flow-2	The difference between the cash-flow rights of the largest shareholder and the cash-flow rights of the second largest shareholder. Zero if no controlling shareholder. Source: Authors' calculations based on data from Faccio and Lang (2002).
Dispersion ratio	The difference between the cash-flow rights of the largest shareholder and the cash-flow rights of the second largest shareholder divided by the sum of the cash-flow rights of the two largest shareholders. Missing value if no controlling shareholder. Source: Authors' calculations based on data from Faccio and Lang (2002).
Cash-flow ratio	One minus the ratio of the cash-flow rights of the second largest shareholder to the cash-flow rights of the largest shareholder. Missing value if no controlling shareholder. Source: Authors' calculations based on data from Faccio and Lang (2002).
Majority	Dummy variable indicating whether the firm has a majority shareholder. This variable takes value of one if the controlling shareholder has a majority stake, defined as Control-1 greater than 50%, and zero otherwise.
Widely-held	Dummy variable indicating whether the firm's shares are widely-held. This variable takes value of one if no shareholder owns more than 10% of control rights.
Founder	Dummy variable that takes a value of one if the founder of the company is on the (management or supervisory) board of the company. Source: Authors' calculations based on data from company websites, annual reports, and Worldscope.
Sales growth	Average real growth rate in sales over the last 3 years. Source: Authors' calculations based on data from Worldscope.
Asset tangibility	The ratio of fixed assets to total assets. Source: Authors' calculations based on data from Worldscope.
Investment ratio	The ratio of capital expenditure to total assets. Source: Authors' calculations based on data from Worldscope.
Leverage	The ratio of total debt to total assets of the firm. Source: Authors' calculations based on data from Worldscope.

Appendix Table 2. Summary Statistics of Main Regression Variables for Regression Sample

Tobin's  $q$  is the market to book value of the assets of the firm. Cash-flow-1 is the cash-flow rights of largest controlling shareholder. Control-1 minus Cash-flow-1 is the difference between the control rights and the cash-flow rights of the largest shareholder. Cash-flow-1 minus Cash-flow-2 is the difference between the cash-flow rights of the largest shareholder and the cash-flow rights of the second largest shareholder. Sales growth is the average real growth rate in sales over the preceding 3 years

Variable	Number of firms	Mean	Standard deviation	Minimum	Maximum
Tobin's $q$	1638	1.77	2.27	0.44	37.62
Cash-flow-1	1638	27.52	23.33	0.00	100.00
Control-1 minus Cash-flow-1	1638	3.59	8.68	-18.70	68.46
Cash-flow-1 minus Cash-flow-2	1638	22.72	23.73	0.00	100.00
Sales growth	1638	0.13	0.31	-0.50	0.50

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