

How are U.S. Family Firms Controlled?

Belén Villalonga
Harvard Business School
Soldiers Field
Boston, MA 02163
Telephone: (617) 495-5061
Fax: (617) 496-8443
E-Mail: bvillalonga@hbs.edu

Raphael Amit
The Wharton School
University of Pennsylvania
3620 Locust walk
Philadelphia, PA 19104
Telephone: (215) 898-7731
Fax: (215) 573-7189
E-Mail: amit@wharton.upenn.edu

January 2007

An earlier version of this paper was circulated under the title “Benefits and costs of control-enhancing mechanisms in U.S. family firms.” We would like to thank José Manuel Campa, Gary Dushnitsky, Mara Faccio, Stuart Gilson, Josh Lerner, Asís Martínez-Jerez, Randall Morck, Stewart Myers, Lynn Paine, Gordon Phillips, David Scharfstein, Andrei Shleifer, Jordan Siegel, Eric Van den Steen, Daniel Wolfenzon, Bernard Yeung, Luigi Zingales, and seminar participants at the Conference on Corporate Governance in Family / Unlisted Firms in Thun (Switzerland), Drexel University, Harvard Business School, Harvard University, IESE, MIT, New York University, the Real Colegio Complutense at Harvard, the University of Maryland, and the University of Wisconsin for their comments. We thank Mary Margaret Spence, Ameer Kamdar, and Anna Wroblewska for their assistance with the development of the data set. Belén Villalonga gratefully acknowledges the financial support of the Division of Research at the Harvard Business School. Raphael Amit is grateful for the financial support of the Robert B. Goergen Chair at the Wharton School, the Wharton Global Family Alliance, and the Rodney L. White Center for Financial Research. All errors are our own.

How are U.S. Family Firms Controlled?

Abstract

We analyze how founding families maintain control of large U.S. corporations, and at what cost. We find that indirect ownership through trusts, foundations, limited partnerships, and other corporations is prevalent but rarely creates a wedge between the family's cash-flow and control rights. The primary sources of this wedge are dual-class shares and voting agreements among shareholders. Additional family control is frequently obtained through board representation in excess of voting control, and through the presence of a family member as CEO or Chairman of the Board. We also find that the impact of control-enhancing mechanisms on firm value depends on the specific mechanism used: the effect is negative for dual-class stock and disproportional board representation, but positive for pyramids and voting agreements.

1. Introduction

Corporate governance scholars and U.S. regulators have traditionally been concerned about protecting investors from managerial entrenchment and expropriation—the classic agency problem described by Berle and Means (1932) and Jensen and Meckling (1976). Yet, a growing body of literature stemming from Shleifer and Vishny (1986) has shifted attention toward a different agency problem: the expropriation of small investors by large controlling shareholders.

Several important findings have emerged from this literature. First, most firms around the world are controlled by a large shareholder, typically founders or their families (La Porta et al., 1999; Claessens et al., 2000; Faccio and Lang, 2002). Even in the U.S., where corporate ownership dispersion is at its highest, founding families exercise a significant degree of control over a third of the 500 largest corporations (Anderson and Reeb, 2003; Villalonga and Amit, 2006), and over more than half of all public corporations (Villalonga and Amit, 2007).

Second, founding families are often able to leverage their control over and above their sheer equity stake through mechanisms such as dual-class stock, pyramidal ownership, and cross-holdings (La Porta et al., 1999; Claessens et al., 2000; Faccio and Lang, 2002). Here again, the U.S. is no exception. La Porta et al. (1999) show that, in 17 of the 27 countries in their sample, the deviations from the one-share one-vote norm are lower than they are in the U.S.; in fact, among the 12 countries they classify as having high investor protection, only Norway exhibits greater deviations.

It is important to note that the most widely researched of these mechanisms, dual-class stock, has traditionally been studied in the context of insider holdings, and interpreted as a manifestation of the agency problem between owners and managers (e.g. Partch, 1987; Jarrell and Poulsen, 1988). However, DeAngelo and DeAngelo (1985) and Nenova (2001), who look at the identity of those insiders, show that the primary beneficiaries among them are also founding

families: Nenova (2001) reports that this is the case for 79% of dual-class firms in her comprehensive international sample, and for 95% of US dual-class firms. Relatedly, Gompers et al. (2006) find that the single most important determinant of dual-class status is having a person's name in the firm's name (e.g. Wrigley, or Ford), an obvious proxy for family control. These results suggest that the separation of ownership and control enabled by dual-class stock is in fact a manifestation of the second agency problem, the one between large (family) shareholders and small (non-family) shareholders.

Third, when families use control-enhancing mechanisms to create a wedge between their cash flow and control rights, firm value is reduced (La Porta et al., 2002; Claessens et al., 2002; Villalonga and Amit, 2006; Barontini and Caprio, 2006).

This paper builds on these findings to develop and empirically test a unifying framework that shows how different mechanisms contribute to the wedge between families' cash-flow and control rights. The framework reconciles the discrepancies in the way the wedge has been measured in earlier studies.

In addition to dual-class stock and pyramidal ownership (the two primary mechanisms considered in earlier studies), we analyze the wedge between families' cash flow and control rights created by voting agreements, whereby voting power is transferred from one shareholder to another, and disproportional board representation—families' control of the board of directors in excess of their voting control.

Further, we argue that, because some mechanisms can serve purposes other than pure control enhancement, different mechanisms should have a different impact on value. In fact, the value effect of some mechanisms may be non-negative, even when those mechanisms enhance families' control over and above their cash flow rights.

We apply our wedge decomposition framework and test our hypotheses using a uniquely detailed dataset about the ultimate ownership and control of large U.S. corporations. The sample comprises 3,006 firm-year observations from 515 firms between 1994 and 2000. Our data enable us to observe six different forms of share ownership—by one sole person (or family group) or shared with another investor; and with investment and voting power, or with only one of the two powers. Through voting agreements among shareholders, this multiplicity of share ownership forms creates a divergence between cash-flow and control rights, independent of that created via dual-class stock and pyramids, that has not been captured by earlier studies.

We find founding family ownership among blockholders, officers, or directors, in about 40% of our sample firms. Families in these companies own an average of 15.3% of the shares, and 18.8% of the votes. Non-family blockholders own a higher percentage of family firms' shares than families themselves (16.2%), but a lower fraction of the votes (13.2%).

Direct ownership is the most common form of family ownership in the U.S., and accounts for 62% of total family holdings of both shares and votes. Nevertheless, 80% of firms also use some form of indirect ownership, through trusts, foundations, corporations, and limited partnerships.

We also find that the primary source of the wedge between family ownership and control in the U.S. is disproportional board representation, followed in importance by dual-class stock, then by voting agreements, and then by pyramids. We explain how each of these mechanisms contributes to enhance corporate control by decomposing our wedge measures into three components: the difference (or ratio) between share ownership (or cash-flow rights) and vote ownership (voting rights), the difference between vote ownership and voting control (control rights), and the difference between voting control and board control.

Finally, and consistent with our predictions, we find that the impact of control-enhancing mechanisms on firm value depends on the mechanism used: dual-class stock and disproportional board representation have a negative impact, while pyramids and voting agreements have the opposite effect.

The paper is structured as follows. In the following section, we develop our framework for understanding how different mechanisms contribute to the separation between cash-flow and control rights. Section 3 describes our data. In section 4 we document who owns these corporations and how they are owned—what investment vehicles are used by controlling shareholders, in particular by founders and their descendants. In section 5 we document families usage of different control-enhancing mechanisms. We also show how much control families gain through the use of each mechanism, by apportioning the wedge between families' cash flow and control rights among its different sources. Section 6 presents our results about how the different control-enhancing mechanisms affect value. Section 7 concludes.

2. Decomposing the wedge between cash-flow and control rights: A unifying framework

Prior studies about the mechanisms used by families to leverage their control rights over their cash-flow rights suggests that all of these mechanisms reduce firm value. However, because some mechanisms can serve purposes other than pure control enhancement, their net effect on value may not always be negative.

Pyramidal ownership is one such mechanism. Almeida and Wolfenzon (2006) provide a rationale for the use of pyramids that differs from the agency argument in Bebchuk et al. (2000) and others. In their model, pyramidal structures emerge as families use a firm they already control to set up a new firm, which allows them to access the entire stock of retained earnings of the firm they control and to share the security benefits of the new firm with other existing shareholders of the original firm—a valuable feature when internal funds are important and when

the security benefits of the new firm are low, as is often the case in settings with poor investor protection. Consistent with their theory, Khanna and Palepu (2000) provide evidence of internal capital markets advantages to pyramidal business groups in emerging markets.

In high-investor protection economies like the U.S., pyramids can also appear as a result of left-over blockholdings from unsuccessful takeover bids, equity carve-outs where the spun-off firm is not yet fully divested from its parent, and equity cross-holdings between joint venture partners (Morck, 2005). Allen and Phillips (2000) show that such inter-corporate equity holdings are often long-lasting and value-adding, particularly when they support strategic alliances and other product-market relationships among partner firms.

Voting agreements among shareholders can also serve multiple purposes. On the one hand, they can contribute to exacerbate the controlling family's entrenchment if, as argued by Zwiebel (1995), the blockholders in the coalition extract partial benefits of control from smaller, minority shareholders. On the other hand, several papers have pointed out the benefits of shared control among large shareholders for firm value as a whole. Bennedsen and Wolfenzon (2000) show that founders can optimally choose an ownership structure with multiple large shareholders to force them to form coalitions to obtain control. In their model, by grouping member cash-flows, coalitions internalize to a larger extent the value consequences of their actions and hence take more efficient actions than would any of their individual members. Thus, coalitions serve as a commitment device. In Gomes and Novaes (2001), the governance role of shared control stems not only from reduced ex-ante incentives to appropriate private benefits at a high efficiency cost, but also from ex-post bargaining problems among controlling shareholders that raise the cost of such behaviors.

Dual-class stock and disproportional board representation, on the other hand, serve as pure control-enhancing mechanisms. Therefore, and to the extent that markets understand the

rationale behind some of these mechanisms, stock prices should reflect a different effect on firm value for different mechanisms. We specifically expect dual-class stock and disproportional board representation to have a negative impact on firm value, whereas pyramids and voting agreements can have a neutral or even positive impact.

Because of this differential impact, it is important to understand how the various mechanisms contribute to the separation between corporate ownership and control. Two strands of research have empirically measured the wedge between a controlling shareholder's cash-flow and control rights: dual-class stock studies (e.g. DeAngelo and DeAngelo, 1985; Partch, 1987; Doidge, 2004; Gompers et al., 2006), and ultimate ownership studies (e.g. La Porta et al., 1999; Claessens et al., 2000; Faccio and Lang; 2002).

Both sets of studies use fractional equity ownership (the percentage of all shares outstanding of all classes held by the shareholder) as a measure of cash-flow rights, and voting rights as a measure of control rights. However, voting rights are computed differently in the two set of studies. Dual-class stock studies measure voting rights as the ratio of the number of votes associated to the shares held by the shareholder to the total number of votes outstanding in the company. In companies with multiple classes of shares, different classes may entitle their holders to a different number of votes per share, and holding relatively more shares of the superior voting class is what creates the wedge between controlling owners' cash flow and control rights.

In the literature about ultimate ownership of corporations that starts with La Porta et al. (1999), a controlling shareholder's cash flow and control rights may differ not just because of dual-class stock, but also due to indirect ownership through one or more intermediate corporations that the shareholder also controls (a control chain). In that case, cash flow rights are measured as the product of the ownership stakes along the control chain, and voting rights are measured as the "weakest link" (the lowest percentage) in the control chain.

A simple example can help illustrate the different measures. Figure 1 depicts a company, Firm B, that is controlled by a family through their ownership stake in Firm A. Firm A has one class of shares, but Firm B has two classes of shares with different voting rights. The family owns 80% of all shares and votes outstanding in Firm A, which, in turn, owns 40% of all shares outstanding in Firm B. Because Firm B has dual-class stock, Firm A is actually entitled to 60% of all votes outstanding in Firm B. The family's cash flow rights would be measured (in both sets of studies) as the product of the family's share ownership in Firm A (80%), and Firm A's share ownership in Firm B (40%), or 32%. The family's control (or voting) rights in the dual-class stock literature would be measured as the product of the family's share (and vote) ownership in Firm A (80%), and Firm A's vote ownership in Firm B (60%), or 48%. In the ultimate ownership literature, however, the family's control rights would be measured by the "weakest link" in the control chain, i.e. the minimum of the two voting stakes, which is 60%.

We note that the two measures of control rights only differ in the presence of indirect ownership, and provided that all the links are lower than 100%. Moreover, the rationale for using the weakest link to measure control rights requires the adoption of some minimum threshold for a shareholder to be considered in control, which in prior studies is arbitrarily set at either 10% or 20%. That is, under the approach followed in the ultimate ownership literature we can only say that the family controls 80% of Firm A because 80% is greater than any of those thresholds. If the family owned only 5% of all shares outstanding in Firm A, and we were using a control threshold of 10% (or 20%), we would not classify the family as an ultimate owner. Instead, we would say that Firm B is controlled directly by its owner Firm A.

These thresholds, combined with data limitations such as the difficulty of tracing indirect ownership when intermediate corporations are privately held, drive the definition of pyramid used in the various studies of ultimate ownership. La Porta et al. (1999), for instance, define a

pyramid as an ownership structure where the firm has an ultimate owner (at either the 10% or 20% level) and there is at least one publicly traded company between the firm and the ultimate owner in the chain of voting rights. Faccio and Lang posit that “firm Y is said to be controlled through pyramiding if it has an ultimate owner, who controls Y indirectly through another corporation that it does not wholly control” and note that “pyramiding implies a discrepancy between the ultimate owner’s ownership and control rights” (2002: 372).

There are two other potential sources of divergence between cash-flow and control rights that have not been considered by prior studies. The first is the variety of ways in which a share can be owned. In the U.S. in particular, shares can be owned in one of six ways, as shown in Figure 2. First, shares can be held with investment and voting power, or with only one of the two powers. Investment power, also called dispositive power, refers to the right to buy and sell the shares. Holders of shares with investment power are also typically entitled to the cash-flow rights associated to those shares, unless they disclaim beneficial ownership of the shares (and hence any pecuniary interest in them). Voting power refers to the right to exercise the voting rights associated to the shares. Shareowners have the right to cede this power to others, as they often do, on a short-term basis, to corporate managers who “proxy” for them at shareholders’ meetings, or, on a longer-term basis, to other shareholders via voting agreements. In addition, a share’s investment and voting power can be held solely by a single person or shared among two or more individuals or institutions. As a result, controlling shareholders’ cash flow and control rights may differ, even in the absence of dual-class stock and pyramidal ownership, simply because the number of shares over which they hold investment power differs from the number of shares over they hold or share voting power.

The second source of divergence between cash-flow and control rights that is not fully captured by prior studies is the fact that families’ rights to the election of directors often entitle

them to a fraction of the board that exceeds their fractional share ownership, and even their voting control—what we refer to as disproportional board representation. This can be an important form of corporate control because by having the right to elect a large fraction of the board, families can control the firm’s management, strategic direction, and the voting agenda. Indeed, earlier studies of dual-class stock like DeAngelo and DeAngelo (1985), Zingales (1995) and Gompers et al. (2006) recognize the existence of dual-class stock where the only difference in rights between classes pertain to the election of directors. We explicitly incorporate this form of control into our wedge decomposition framework by measuring the percentage of all board seats controlled by the family, independently of whether firms have dual-class stock or not.

To help understand the relation between the different measures of voting control used in earlier studies and incorporate the additional sources of separation between cash-flow and control rights, we provide a unifying framework where we label and define the different concepts as follows (see Figure 2):

$O = \text{Shares owned}$ (Cash-flow rights): Shares held by the family or blockholder with investment power (with or without voting power), in sole form, as a percentage of total shares outstanding.^{1, 2}

$V = \text{Votes owned}$ (Voting rights): Votes associated to the shares held by the family or blockholder *with voting power* (with or without investment power), in sole form, as a percentage of total votes outstanding.

¹ If family shareholders are aggregated into one unit, as we do in this study, “sole form” also includes those shares or votes that are shared within the family or with family representatives such as co-trustees.

² We exclude shared investment power from the definition of share ownership because there are only two companies where we find shared investment power between family and non-family shareholders: Ralston Purina, and Anixter. In both cases we attribute 50% of the investment power to the family shareholder(s). In Ralston Purina, brothers Donald Jr. and William Danforth share investment and voting power over a fraction of their shares with an institution that changes over the years (first Boatmen’s Bancshares, then Nation’s Bank, and later Bank of America). In Anixter, a large fraction of the shares attributed to founder Samuel Zell in the proxy are held by three limited partnerships. The general partners are the Samuel Zell Revocable Trust and the Robert H. and B. Ann Lurie Trust, of which Ann Lurie, the widow of cofounder Robert Lurie, is a trustee. A change in the company’s ownership structure in 1998 reveals that Zell and Lurie were indeed 50/50 partners.

$C = \text{Votes controlled}$ (Control rights): Votes associated to the shares held by the family or blockholder with voting power, in sole *or shared* form, as a percentage of total votes outstanding, plus any additional voting control resulting from pyramidal ownership (measured by the weakest link in the chain of control).

$B = \text{Board seats controlled}$ (Director election rights): Percentage of all board seats controlled by the family or blockholder.

Using this notation, we can now define the wedge between cash-flow and voting control rights more precisely as the difference (or ratio) between C and O , which is the wedge measure used in the ultimate ownership literature, and decompose it into two additive parts: the difference (or ratio) between V and O (which is the wedge measure used in the dual-class stock literature), and the difference (or ratio) between C and V :

$$\text{Wedge measured as difference: } (C - O) = (V - O) + (C - V) \quad (1)$$

$$\text{Wedge measured as ratio: } C/O = V/O \times C/V \quad (2)$$

Furthermore, we include director election rights as an additional form of corporate control over and above voting control, by measuring the wedge between B and C . Thus, the total wedge can be defined as the gap between B and O , and decomposed as follows:

$$\text{Wedge measured as difference: } (B - O) = (V - O) + (C - V) + (B - C) \quad (3)$$

$$\text{Wedge measured as ratio: } B/O = V/O \times C/V \times B/C \quad (4)$$

In this framework, different control-enhancing mechanisms contribute to different components of the total wedge: dual-class stock is responsible for the $(V - O)$ wedge, pyramids and voting agreements are responsible for the $(C - V)$ wedge, and disproportional board representation is responsible for the $(B - C)$ wedge. In the example of Figure 1, the total wedge (measured as a difference) is $(C - O) = 60\% - 32\% = 28\%$, which is the sum of $(V - O) = 48\% -$

32% = 16% wedge attributable to dual-class stock, and $(C - V) = 60\% - 48\% = 12\%$ wedge attributable to the pyramid.

Figure 3 shows how a similar effect can be attained by combining dual-class stock with a voting agreement. As in the previous example, $O = 32\%$, $V = 48\%$, $C = 60\%$, and the wedges are the same as before, but in this case there is no pyramid. Instead, the 12% $(C - V)$ wedge is now attributable to the fact that a non-family shareholder has ceded to the family the voting power over the 12% of Firm C's shares that he owns.

In either case, the family's overall control of Firm B (in the first example) or Firm C (in the second example) will be further enhanced if the family is allowed to elect, for instance, three-fourths of the board, instead of the 32% that their share ownership would entitle them to, or the 60% that their voting control would entitle them to. In that case, the total wedge would be $(B - O) = 75\% - 32\% = 43\%$, and the additional wedge created by the family's disproportional board representation would be $(B - C) = 75\% - 60\% = 15\%$.

We note that the wedge decomposition framework we propose is additive by construction. An alternative would be to measure the effect of each mechanism in isolation from all others and allow for interaction effects among the different mechanisms, which could then be apportioned between the interacting mechanisms in proportion to their independent contributions. We call this alternative the multiplicative approach. For instance, going back to Figure 1, one could compute the pure effect of the pyramid had there not been any dual class shares, which would be the difference between: (a) the weakest link between 80% and 40%, or 40%, and (b) the cash-flow rights of 32%, which is 8%, half the size of the $(V - O)$ wedge attributable to dual-class stock (16%). The 12% difference between C and V could be considered as an interaction effect, or apportioned between the isolated effects of dual-class stock and pyramids on a pro-rata basis ($2/3$ and $1/3$, respectively), which would increase the portion of the

wedge attributable to dual-class stock to 24% (= 16% + 8%), and decrease the portion of the wedge attributable to dual-class stock to 4%.

As this example illustrates, relative to the multiplicative approach, the additive approach underestimates the contribution of those mechanisms that appear earlier in our framework (dual-class stock is the first to appear), and overestimates the contribution of mechanisms that appear later (disproportional board representation is the last). The advantage of the additive approach is that it is more intuitive to comprehend and apply. Therefore, in the empirical analysis that follows we use the additive version of our framework to measure the separation between cash-flow and control (and director election) rights in U.S. family firms, apportion it among its components, and examine the impact of each mechanism on firm value. However, the results reported below are not sensitive to the use of one approach or another.

3. Data

3.1. Database construction

Our data set is a panel of 62,431 shareholder-firm-year observations, aggregated into 3,006 firm-year observations of 515 Fortune 500 firms during the period 1994 to 2000. The sample includes all the firms that were in the Fortune 500 in any of these years, have Compustat data on sales, assets, and market value during that period, and whose primary industry is not financial services, utilities, or government. The sample firms' primary industries span 61 two-digit SIC codes. For those firms that meet these criteria, we include all years with data available between 1994 and 2000, even if the firm is not in the Fortune 500 list in a particular year.

Our data collection process involves three distinct phases. In the first phase, we build a database at the individual shareholder level that covers, for each firm-year in the sample, all of its insiders (officers and/or directors), all of its blockholders (owners of 5% or more of the firm's equity), and the five largest institutional shareholders. We compile our Phase I data set from four

sources: (1) Proxy statements for detailed information about blockholder and insider ownership and about the firm's voting and board structures, which we obtain from either the U.S. Securities and Exchange Commission (SEC) Edgar database, or from Thomson Research; (2) Spectrum data on institutional holdings; (3) Hoover's, corporate websites, and web searches about company histories and family relationships; and, (4) various SEC filings, to clarify the identity of ultimate owners whenever their shares in the firm are held indirectly. This data set comprises 62,431 shareholder-firm-year observations.

The second phase of our data collection process consists on aggregating our shareholder-level database from Phase I into firm-years. As part of this phase, we aggregate individual family members' shareholdings at the family level. This step requires manual coding of all the information on family shareholdings that appears in the footnotes to the blockholder and insider ownership tables of proxy statements, since the information in those tables (and in any U.S. corporate ownership database that is available electronically) entails a large amount of duplication across members of the same family. We then merge our firm-level ownership data with data on various firm characteristics that we assemble from four other sources: Compustat; the Center for Research on Securities Prices (CRSP); the Investor Responsibility Research Center (IRRC), which provides data on governance provisions in charters, bylaws, and SEC filings; and 10-Ks, from which we manually collect data on dividends paid to shares of various classes, including non-publicly traded classes. This phase results in a database with 3,006 firm-year observations from 515 different firms.

In the third phase, we produce a graphical representation and a detailed quantitative analysis of each family firm's ownership and control structure. This analysis enables us to allocate families' holdings of shares and votes to the different investment vehicles (trusts,

foundations, limited partnerships or corporations) and control-enhancing mechanisms (dual-class shares, voting agreements, and pyramids) used by families to control firms in the U.S.

3.2. Definition of family firms and founders

In this paper, we define family firms as those in which the founder or a member of his or her family by either blood or marriage is an officer, director, or blockholder, either individually or as a group. The definition follows Anderson and Reeb (2003), and is the broadest one we can use with our data, as it does not require a minimum threshold for family ownership or control above those imposed by SEC reporting requirements. We purposely choose this definition so as to include as many family firms as possible in our analysis of ownership and control mechanisms. As shown in Villalonga and Amit (2006), however, definition matters, particularly the distinction between first-generation (founder-led) firms, and second or later generation firms. In our analyses, we show how the results differ for these two groups of family firms.

We consider as founders those individuals who are identified as such in at least two public sources and no other data source that we are aware of mentions a different person as the founder.³ The person who is publicly recognized as the founder is typically the one responsible for the early growth and development of the company or a predecessor firm into the business that it later became known for. This need not be the same individual who started and incorporated the company, nor the one who took it public. The extension of our definition of founders to predecessor firms implies that we also classify as family firms those companies in our sample that are the result of an earlier acquisition or merger with a family firm.

On the other hand, we exclude the following individuals and groups from our definition of founders: (1) Families behind investment management companies such as Fidelity (controlled

³ When there is more than one founder, either because there were two or more cofounders of the firm or because our sample firm is the outcome of a merger of family firms, we consider as the founding family the one with the largest voting stake.

by Edward Johnson and his daughter, Abigail), or Franklin Resources (controlled by brothers Charles and Rupert Johnson), whose funds are large institutional investors in our sample firms; (2) general partners in venture capital funds or leveraged buyout funds such as KKR (controlled by Henry Kravis and George Roberts, who are first cousins). We exclude (1) and (2) because the ultimate shareholders in these funds are a widely dispersed base of diversified investors. We also exclude (3) executives who became the largest non-institutional shareholder in their company through the accumulation of stock-based compensation, through a spin-off, or through a management or leveraged buyout.⁴ While these individuals may also set up control-enhancing mechanisms and have conflicting objectives from those of minority shareholders, we believe their incentives for corporate control differ intrinsically from those of founding families, who are typically concerned about preserving wealth and the family business for successive generations, and tend to have a much longer-term orientation.

3.3. Examples of control-enhancing mechanisms

In this section we provide detailed examples from our database of the main mechanisms used by families to enhance their control of U.S. firms.

3.3.1. Dual class stock

As described in the previous section, dual-class stock enhances family control by creating a wedge between the percentage of votes owned by the family (V) and the percentage of shares they own (O). The wedge is due to the superior voting rights associated to the shares held by the family with voting power, and will exist even when all shares are held with both investment and voting power. Examples of dual-class companies in our sample where the founding families' voting rights greatly exceed their cash-flow rights include Comcast, where, in 2000, founder

⁴ The one exception is Cardinal Health, whose predecessor firm Cardinal Foods was acquired through an LBO by Robert Walter, yet he is generally perceived as Cardinal's founder after he shifted the company's core business to health services.

Ralph Roberts and his son Brian owned 3.14% of the shares but 85.64% of the votes; Viacom, where, in 2000, Sumner Redstone and his children owned 13.3% of the shares but 67.55% of the votes; Tyson Foods, where, in 1998, the Tyson family owned 45.41% of the shares but 89.05% of the votes; and Ford Motor Co., where, in 1998, the Ford family owned 6% of the shares but 40% of the votes.

3.3.2. Voting agreements

Voting agreements enhance family control by creating a wedge between the percentage of votes owned (V) and the percentage of votes controlled (C). Voting agreements whereby one shareholder cedes the voting power over his or her shares to another are common among members of the same family. Proxy statements sometimes describe or at least mention these shareholder agreements, but more often, we just observe the outcome of the agreements in the form of a discrepancy between the number of shares held with investment power and the number of shares held with voting power by any officer, director, or blockholder listed in the proxy. Because, in our database construction, we aggregate the holdings of all founding family members into one shareholder group, most differences between families' investment and voting power are washed out, and we only record as voting agreements those that take place between the founding family and other large shareholders.

One such agreement takes place in the Washington Post, during all the years in our sample. In 2000, for instance, Katharine Graham and her four adult children held investment and voting power over 44.9% of all shares outstanding in the Post. Berkshire Hathaway, of which Warren Buffett and his wife owned approximately 33.6%, held investment power over 18.3% shares of the Post. (Buffett served on the Post's board of directors between 1974 and 1986, and then again since 1996). Pursuant to an agreement dated 1977 and amended and extended in 1996, Warren Buffett, Berkshire, and its subsidiaries had granted Katharine Graham's son Donald

Graham a proxy to vote such shares at his discretion. As a result, the Graham family actually had voting power over 63.2% of the Post's shares, but investment power over 44.9% (all of which are included in the 63.2%).

3.3.3. Pyramids

Like voting agreements, pyramids enhance family control by creating a wedge between the percentage of votes owned (V) and the percentage of votes controlled (C). Following La Porta et al. (1999), we define a firm's ownership structure as a pyramid if the family holds its shares of the firm indirectly, through one or more investment vehicles in which the family owns less than 100%.⁵ Unlike prior studies in this literature, we do not require the family's investment vehicles to be publicly traded for an indirect ownership structure to be considered as a pyramid, because we are not constrained by our data to do this, and families can and do enhance their control of firms via privately held investment vehicles.

An example of a pyramid in our sample is CBS Inc., depicted in Figure 4. In 1995, CBS was controlled by the Tisch brothers, Laurence ("Larry") and Preston Robert ("Bob"), through their 32% ownership stake in Loews Corp. Loews owned 100% in LT Holding, which in turn owned 17.63% of all shares and votes in CBS. Therefore, the Tisch brothers' indirect ownership of shares and votes in CBS was $O = V = 32\% \times 17.63\% = 5.64\%$, and their indirect voting control was $C = \min(32\%, 17.63\%) = 17.63\%$. Adding to these figures Laurence Tisch's direct ownership stake in CBS of 0.32%, we obtain the brothers' total ownership and control stakes in CBS, which were: $O = V = 5.96\%$, and $C = 17.95\%$. This gave the Tisch family a wedge of ($C -$

⁵ Recall that less than 100% ownership is required for indirect ownership to create a wedge between votes owned and controlled. For instance, Sumner Redstone owns almost all of his stock in Viacom through National Amusements, Inc., a company founded by his father that owns between 61% and 85% of the votes in Viacom during our sample period. While Sumner Redstone controls only two thirds of National Amusements, his two children each control a sixth. Thus the Redstone family controls 100% of National Amusements, and there is no additional wedge created by the indirect ownership structure over and above the wedge created by dual-class shares. Hence we do not classify Viacom as a pyramid.

$O) = 17.95\% - 5.96\% = 12\%$, which was entirely attributable to the pyramid created by Loews (LT Holding by itself did not create any pyramidal effect since it was 100% owned by Loews).

3.3.4. *Disproportional board representation*

Disproportional board representation enhances family control by allowing the family to elect a fraction of the board of directors (B) that exceeds not just their share and vote ownership (O and V) but even their voting control (C). Disproportional board representation is sometimes warranted by shareholder agreements, and sometimes associated to dual-class stock, whereby the class held uniquely by the family grants them superior rights in the election of directors, even when it does not entitle them to superior voting rights. In most cases, however, the election of family members or representatives to the board in excess of the family's voting control takes place *de facto* rather than contractually.

An example of disproportional board representation and the way we measure it in this paper is the case of the New York Times. In 1998, for instance, there were two classes of common stock, A and B, which represented 99.56% and 0.44% of the total shares outstanding, respectively. Each share was entitled to one vote, but class A shareholders could only elect five of the 15 directors, while Class B stockholders were entitled to elect the other 10, or two thirds of the entire board. The Ochs-Sulzberger family owned 17.9% of the company's total shares outstanding, but 88.7% of all Class B shares, which effectively enabled them to elect the two thirds of the board reserved for Class B stockholders. Therefore, the wedge between the family's director election rights (66.7%) and their voting rights (17.9%) was 48.8%.

3.3.5. *Combinations of mechanisms*

When families use more than one mechanism, the benefits they reap in terms of increased control are compounded. Figure 5 shows the example of Cox Communications. In 2000, the Cox family owned 65.69% of all shares in the company (O). Through dual-class shares, they owned

75.17% of all votes (V). Through their pyramidal ownership via Cox Enterprises, of which they owned 98.4% (263 other people owned the remaining 1.6%), they controlled an additional 1.19% of votes in Cox Communications, for a total control stake (C) of 76.36%. The total wedge between the Cox family's cash-flow and control rights was therefore $(C - O) = 10.67\%$, which can be decomposed into the dual-class stock contribution of $(V - O) = 9.48\%$, and the pyramid contribution of $(C - V) = 1.19\%$.

3.4. Descriptive statistics

Table 1 provides descriptive statistics for the full sample, broken down by family and non-family firms, and by family firm generation. Family firms represent about 40% of our sample; 1,183 family firm-years from 210 different firms. Of these, 540 firm-years (from 101 firms) are in their first generation, and 643 firm-years (from 117 firms) are in their second or later generation. The remaining 1,823 firm-years come from 333 non-family firms. As implied by these numbers, there are 8 family firms ($101 + 117 - 210$) that experience a succession from first to second or later generation during our sample period, and 28 firms ($210 + 333 - 515$) that experience a transition from the family to the non-family category (or vice versa).

On average, family firms have a significantly higher Tobin's q (with or without industry adjustments) and are smaller than non-family firms, but not significantly so.⁶ They are also significantly younger (62 versus 76 years old) and exhibit higher growth and market risk than non-family firms. Relative to non-family firms, family firms make significantly higher capital expenditures and have lower leverage. However, there are no significant differences in ROA between the two groups.

⁶ Industry-adjusted q is negative for the entire sample because it has been computed using all firms in Compustat and our sample firms are the largest among them.

While some of these differences may seem counter-intuitive, the last three columns in Table 1 show that they are largely driven by the first-generation (founder-led) firms in the sample. In fact, second and later generation family firms, while still smaller than non-family firms, are older and have a lower average q than them (and than founder-led firms), lower risk and capital expenditures, and identical sales growth to non-family firms.

Table 2 provides further descriptive statistics about the dual share class structures used by our sample firms, including non-traded as well as publicly traded stock. Panel A reports the frequency of use of these structures by family and non-family firms. About 12% of the sample firms (304 firm-years from 64 firms) have two or more classes of common stock. In two thirds of these (214 of 304 firm-years), at least one class of common stock is not publicly traded, typically the one with superior voting rights (in 120 firm-years).

Dual-class stock is more common among family firms, particularly second and later generation firms, than among non-family firms: 188 or 62% of all dual-class firm-years are from family firms, despite the fact that family firms are only about 40% of the entire sample. Families are also more likely to keep private at least one of the classes (148 or 70% of the 214 firm-years), especially the superior voting class (96 or 80% of the 120 firm-years).

The finding that most dual-class firms are family firms is consistent with earlier evidence in DeAngelo and DeAngelo (1985) and Nenova (2001). What is perhaps more surprising, in light of Nenova's finding that 95% of all U.S. dual-class firms in her sample are family-controlled, is that 38% of the dual-class firms in our sample are not family firms. (Our samples differ in that Nenova's sample includes all U.S. firms with at least two classes of publicly traded stock; ours includes only Fortune 500 firms, but we also consider dual-class firms where only one of the classes trades publicly).

To understand why this is the case, we look into the early histories of the dual-class firms in our sample to determine when the dual-class structures we observe were put in place, and by whom. We find that, in 13 or about half of the 25 non-family firms, the dual-class structures were in fact put in place by the founding families, who later sold out to other owners or died heirless and left the firm in control of a charitable foundation, like Milton Hershey did with the Hershey Trust and the Milton Hershey School. This finding suggests that the reason why relatively less of the dual-class firms in our sample are family-controlled is because they are generally older, which reduces the chances of survival of family control.

Panel B of Table 2 reports the differences in voting rights across share classes, which are also larger in family firms, especially those in their second or later generation. The ratio of votes per share between the inferior and superior voting classes averages 0.31 for family firms, but 0.58 for non-family firms. (The closer the ratio is to zero, the wider the deviation from the one-share one-vote norm; a ratio of one would be indicative of no deviation at all). The difference in medians is even more pronounced: 0.10 for family firms vs. 0.60 for non-family firms.

Panel B of Table 2 also provides further detail on the distribution of voting arrangements among the dual-class firms in our sample. Consistent with the evidence in Zingales (1995) and Gompers et al. (2006), the most common voting ratio among these firms is 1:10.⁷ In our sample, 68 out of 304 dual-class firm-years have a 1:10 voting ratio, and another 63 firm-years have ratios higher (i.e. more equitable) than that, but still lower than 1:1. On the other hand, 55 firm-years have at least one class of nonvoting common stock (which effectively creates a ratio of zero), and an additional 21 firms have voting ratios greater than zero but lower than 1:10. Also, 97 dual-class firm-years have a voting ratio of 1:1, but in half of them (49) one class holds

⁷ Zingales (1995) attributes this clustering to the American Stock Exchange listing requirement, dating back to the admission of Wang Labs in 1976, that dual-class stock firms have voting ratios greater or equal to 1:10.

superior voting rights with respect to the election of directors. (Some of the less equitable voting arrangements that we have included in other categories also include different rights with respect to the election of directors).

The distribution of voting arrangements across firms also provides more detail into the finding that less equitable voting arrangements are more prevalent among family firms than among non-family firms. Of the 68 firm-years with a 1:10 voting ratio, 67 are from family firms, as are 18 of the 21 firm-years with lower ratios, and 35 of the 49 firm-years where the only difference in voting rights across share classes relates to the election of directors. In contrast, non-family firms represent 45 of the 63 firm-years with voting ratios more equitable than 1:10, and 37 of the 48 firm-years where there is no difference in voting rights across classes. The legal minimum voting ratio of 1:10 thus appears to be a binding constraint for family firms, but not for non-family firms.

Panel C reports on the dividend characteristics of dual-class stock firms. We collect dividend data for all common stock classes, including non-traded classes, from 10-K reports. Similar to the voting ratio, we measure dividend inequality across classes through a ratio of the lowest-to-highest dividend per share. The average dividend ratio is 0.89, while the median is one.

Panel C also shows that, while family shareholders benefit from superior voting rights to a greater extent than controlling shareholders in non-family firms, these gains typically come at the expense of receiving lower dividends. Family firms have a more equitable dividend ratio than non-family firms (0.91 vs. 0.85), and when they hold stock of a superior voting class, such class tends to have lower dividends than others (25 out of the 28 firm-years where this happens are from family firms). In contrast, in 26 firm-years, the holders of the superior voting class also enjoy superior dividend rights relative to other classes. This form of “double-dipping” is relatively more prevalent among non-family firms: 10 of the 26 firm-years are from family firms

and 16 from non-family firms, which represent, respectively, 5% of all family firm-years and 14% of all non-family firm-years among dual-class firms. These findings suggest that, when it comes to private benefits appropriation, families have different preferences from those of insiders in non-family firms: families are not as interested in cash benefits as they are in the preservation of family control.

4. Ultimate ownership of U.S. corporations

4.1. Who owns U.S. corporations?

Table 3 reports the percentage ownership of shares and votes by founding families and non-family blockholders. On average, families own 15.3% of their firms' equity, and 18.8% of the votes. These percentages are in fact larger for second-generation firms (16.1% and 20.3%) than they are for first-generation firms (14.4% and 17.1%). Non-family blockholders on average own a slightly higher percentage of family firms' equity than families themselves (16.2%), yet the voting rights associated to those shares are substantially lower (13.2%). Share ownership by large blockholders is larger in non-family firms (22.1%), as one might expect. Perhaps more unexpectedly, the voting rights of those blocks are also lower (18.8%) than their cash-flow rights. The result is entirely attributable to institutional shareholders; for individual (non-founder) owners of non-family firms, share and vote ownership are identical, yet small (0.8%). This bears the question of who benefits from the separation between cash-flow and voting rights in non-family firms. Since it is not really the blockholders, it has to be the insiders, who either set up those mechanisms or inherit them from an earlier owner. In either case, the implication for non-family firms is that dual-class stock reduces the ability of outside blockholders to effectively monitor insiders.

These differences between share and vote ownership and between family and non-family blockholders motivate our study of control-enhancing mechanisms and justify our focus on family firms. All subsequent analysis are therefore conducted on the subsample of family firms.

4.2. How are U.S. family firms owned?

To understand how families control U.S. corporations, we begin by analyzing how these corporations are owned, i.e., directly or indirectly, and in the latter case, through which investment vehicles: trusts, foundations, corporations, or limited partnerships. Besides corporate control, these investment vehicles can be set up for a variety of reasons, such as tax and estate planning, philanthropy, or liability protection, the study of which is beyond the scope of this paper. We therefore limit ourselves to documenting their usage by U.S. family firms, and separate the analysis of investment vehicles, which are ownership mechanisms, from that of control-enhancing mechanisms which, by definition, serve a clear control purpose (even when they may also serve other purposes).

Table 4 summarizes the results of our analysis of how U.S. family firms are owned. The most prevalent form is direct ownership: 96% of all family firms in the sample (1,137 out of 1,183 firm-years, or 201 out of 210 firms) have at least some direct ownership by their controlling families. Yet the average percentage of total family holdings that is held directly is considerably lower (62%). Fully or almost fully direct ownership seldom occurs, but it does in a few of the younger firms in our sample, like Oracle, Reebok, Seagate, Southwest Airlines, or Sysco. At the other extreme are companies where the only shares held directly by the family are those that arise from management compensation—either shares that have been awarded in the year and not yet been contributed to the family trust or other investment vehicle, or stock options that are exercisable but not yet exercised, which are typically included in the share ownership count in proxy statements.

As Table 4 shows, indirect ownership is also very prevalent: In 80% of the sample firms (168 firms), families use one or more investment vehicles, such as trusts, foundations, limited partnerships, or corporations, to hold their shares. Indirect ownership accounts for the remaining 38% of families' total average holdings of shares and votes. Following La Porta et al. (1999), when there is indirect ownership we compute the family's share ownership or cash-flow rights as the product of its ownership stakes along the chain of control, but the votes controlled are measured by the weakest link in the control chain. Of the total average holdings, 3.4% cannot be apportioned among different investment vehicles, for instance because the shares are held in a limited partnership whose general partner is a trust. Such investment vehicle chains, which we refer to in Table 4 as hybrids, are rare, however. For the most part, family holdings in U.S. corporations take the form of radial ownership structures, where total ownership of shares and votes can be cleanly separated into investment vehicles, even when the family uses a combination of different vehicles. An example of a radial ownership structure is Murphy Oil's, shown in Figure 6. In contrast, Estée Lauder, depicted in Figure 7, has two hybrid components: a trust-plus-limited partnership, and a corporation-plus-limited partnership.

The most commonly used vehicles are trusts of various natures: charitable and non-charitable, revocable and irrevocable, voting trusts, and others. 66% of firms (139 firms) use trusts, which average 17% of total family holdings only in pure form, or almost 20% including hybrid forms.⁸ While trusts are typically formed for tax and estate planning reasons, some of them have a clear control purpose, serving either as a vehicle for a coalition of shareholders or as a separate entity that holds the family's superior voting shares. For instance, in Carnival, the

⁸ The 139 family firms controlled at least partially via trusts represent 27% of the entire sample of 515 firms. Gadhoom et al. (2005), who examine family trusts as a separate category of ultimate owners, report that 13.55% of US corporations are controlled through family trusts at the 10% threshold, or 7.01% at the 20% threshold. They note that their estimate "must be regarded as conservative [since] we counted shares as belonging to one family block only if the registered owners carried the family name."

Arison family (of four) uses 13 trusts of different types to hold their 66% ownership and 81% voting stake in the company, including a “B” trust where all outstanding B-class (super-voting) shares are held. In the following section we examine the empirical relation between specific investment vehicles and specific control-enhancing mechanisms.

The second most commonly used investment vehicles are foundations, which are used by 37% of all sample firms. We include in this category charitable funds and endowments as well as actual foundations, but the latter constitute the majority.⁹ Altogether, the foundations category in pure form represents 4.6% of total family shareholdings and 4.3% of total voteholdings, or 5.3% and 5.0% including hybrid forms. They are the only investment vehicle where families’ share ownership exceeds their voting control, which suggests that tax and philanthropic motives are more important reasons for the creation of family foundations than corporate control.

Corporations are the third most commonly used investment vehicle, yet they are the second in size. They include both Limited Liability Corporations and C-Corporations, and range from pure holdings to companies with business activities. Corporations in pure form hold 8.2% of families’ total shareholdings and 8.5% of the total votes they control. Including hybrid forms, these figures amount to 10.3% and 10.6%, respectively. This wedge between ownership and voting control suggests that corporate control plays a larger role in the creation of these corporations than in the creation of other investment vehicles.

Limited partnerships in which the family or another family-controlled entity is the general partner hold another 4.7% (6% including hybrids) of families’ average holdings of shares and votes. As with trusts and foundations, the equality between shareholdings and voteholdings

⁹ The only funds in the sample are the Alden and Vada Dow Fund in Dow Chemical, the Conrad N. Hilton Fund in Hilton Hotels and Park Place Entertainment (a spinoff of Hilton Hotels), the Ingram Charitable Fund in Ingram Micro, and the Golden Family Charitable Fund in the New York Times (Michael Golden is a member of the founding family Ochs-Sulzberger). The only endowment is the Howard Heinz Endowment in H.J. Heinz Co. Most of these companies also have family foundations.

indicates that the control motive in the creation of these partnerships is outweighed by other factors like taxes or liability protection.

The numbers discussed above inform us about the distribution of family holdings across different investment vehicles, but are silent about the size of these holdings. To fill this gap, the last two columns of Table 4 report, for the different ownership categories, the annual dollar value of family holdings for the entire sample, averaged over the sample period. The total value of family holdings is \$240 billion, which is split almost evenly between the direct and indirect ownership categories. Within the latter, limited partnerships, despite being the least frequently used investment vehicle, are where the most family money is invested (\$51.8 billion, or \$56.5 billion including hybrid forms). At the other extreme are family foundations, which house \$4.6 billion (\$5.6 including hybrids) of families' total investment in their firms. The magnitude of these investments helps us understand why the wealth management industry and family offices in particular are flourishing. It also highlights the importance of studying family firms, especially among large public firms like the Fortune 500, where family ownership is less prevalent than among smaller firms and foreign firms, yet is highly relevant on a value-weighted basis.

5. How are family firms controlled in the U.S.?

In this section we analyze the primary mechanisms used by families to enhance their control of U.S. firms, including dual-class shares, pyramids, voting agreements, and disproportional board representation. We find no instances of cross-holdings in our sample, at least as they are defined by La Porta et al. (1999): “there is cross-shareholding by sample firm A in its control chain if A owns any shares in its controlling shareholder or in the companies along that chain of control.” As suggested by our discussion of hybrid investment vehicles and the Estée Lauder example, however, we do find multiple chains of control as defined by Faccio and Lang (“each of which includes at least 5% of the voting rights at each link”), which Claessens et

al. (2000) include among cross-holdings. We classify those multiple chains of control or hybrid investment vehicles as pyramids whenever they create a wedge between control rights and ownership rights; otherwise we do not consider them as control-enhancing mechanisms.

Table 5 reports on the frequency with which the four mechanisms are used, either alone or in combination with one another. As the table shows, the most commonly used mechanism, by far, is disproportional board representation, which occurs in 705 firm-years from 139 firms, or 60% of the sample. Dual-class shares with differential voting rights are next: 21% of all sample firms (44 firms) have dual-class stock at some point during the sample period. Fifteen firms have voting agreements, and 11 firms exhibit pyramidal ownership.

The most frequent combination of mechanisms is disproportional board representation with dual-class stock; roughly a third of dual-class firms (15 out of 44) also entitle their controlling families to superior board control. Yet most instances of disproportional board representation (129 out of 139 firms) occur in the absence of any other mechanism. Three-mechanism combinations are very rare, and there is no single firm that uses all four mechanisms.

The results in Table 5 show that, however common indirect ownership is among U.S. family firms, pyramids are rare. This finding is consistent with those of La Porta et al. (1999), who report a complete absence of pyramids and cross-shareholdings among the 20 largest U.S. firms, but an average ownership stake required to control 20% of the votes of only 19.65%, the second lowest among the 12 countries they classify as having high shareholder protection. The 21% incidence of dual-class firms that we find in our sample is considerably higher than the average of 17.61% reported by Faccio and Lang (2002) for family-controlled firms in Western Europe. It is also higher than the U.K. mean of 18.84%, which is also the median across all 13 countries in their sample. Yet European family firms have a much higher incidence of pyramids (13.81%, plus 3.22% of firms with holdings through multiple chains). The scarcity of pyramids

we find in the U.S. is also consistent with Morck's (2005) arguments and historical evidence that pyramidal business groups largely disappeared from the U.S. in the 1930s as a result of inter-corporate dividend taxation and other tax reforms that rendered them prohibitively costly.¹⁰

5.1. Contribution of dual-class stock, voting agreements, and pyramids to the separation of ownership and voting control

We now proceed to analyze the wedge created by the different mechanisms. We first focus on the wedge between cash-flow and voting control rights ($C - O$), and leave the wedge between director election rights and voting control rights ($B - C$) for the next subsection, where we analyze board control in the context of other related governance mechanisms.

Table 6 reports empirical estimates of the wedge between ownership and voting control ($C - O$) and the contribution dual-class stock, voting agreements, and pyramids to that wedge. Panel A reports sample-wide average wedges, broken down into first-generation and second or later generation firms. On average, families' control rights exceed their cash-flow rights by a difference of 3.9% or a ratio of 1.28 times. By way of comparison, Claessens et al. (2000) report, for their sample of East Asian corporations, the equivalent to a ratio of control rights to cash-flow rights of 1.34. Faccio and Lang's (2002) same ratio for their sample of Western European companies is 1.15. This international comparison suggests that the potential agency conflict

¹⁰ In contrast, Gadhoun et al. (2005) report that 8.46% of US corporations in 1996 were controlled through pyramids by their controlling shareholders at the 10% control threshold, which not only include families. (A 10% control threshold would eliminate 13 of the 56 firm-years controlled via pyramids in our sample, including all 7 years for one firm, so the fraction of our sample that is comparable to Gadhoun et al.'s is 1.4% of all firm-years or 1.9% of all firms). While their sample includes smaller firms than ours and their definition of family firms is broader (e.g. it includes non-founding families as well as unlisted companies whose ultimate owners they cannot identify), their reported percentage of family firms is similar to ours (36.6% at the 10% threshold), which rules out sample differences as a major explanation for this discrepancy. Two other explanations are plausible; one, the bulk of the pyramids in their sample are perhaps attributable to the 23% of controlling shareholders in their sample that they do not classify as families. Two, our careful database construction enables us to (a) eliminate any double- and multiple-counting of family shareholdings, which can only be done by coding manually the information in proxy footnotes; and (b) distinguish "true" pyramids from instances of indirect ownership that do not create any leverage in control, which is difficult to do without drawing the picture of every indirect ownership structure in the sample. To our knowledge, the data collection process in Gadhoun et al.'s (2005) study involves neither of these two steps.

between large family shareholders and minority shareholder in the U.S. is at least as relevant as in the rest of the world.

Table 6 also shows that most of the separation between cash-flow and control rights in the U.S. comes from the excess of voting rights over cash-flow rights, which suggests that dual-class stock, but not pyramids or voting agreements, are the dominant control-enhancing mechanism: the difference is 3.6%, which comes from the 18.8% votes owned minus 15.3% shares owned reported in Table 3 (with some rounding error). The ratio is 1.27 times.

The breakdown by generation shows that the overall separation between ownership and control is higher in second and later generation firms than in first-generation firms. This is also the case for the separation between vote and share ownership, but not for the separation between vote ownership and control, which is substantially higher for first-generation firms (0.6% as compared to 0.1% for second or later generation firms). The implication is that first-generation firms are the primary beneficiaries of the effect of pyramids and voting agreements in the sample. These results raise the question of whether first-generation firms use these mechanisms with relatively greater frequency, and/or with a relatively greater impact on control enhancement. Likewise, there is a question as to whether second or later generation firms use dual-class stock with higher frequency or with a higher impact than first-generation firms.

The answer is given in Panel B, which reports the average wedges attained by companies that use one or more control-enhancing mechanisms. 62 firms (30% of the sample) use one or more control-enhancing mechanisms at some point during our sample period. Families' control rights in these firms are twice as large as their cash-flow rights; the difference is 13.7%. The 62 firms include 21 first-generation firms, or 21% of all such firms, and 42 second or later generation firms, or 36% of all such firms (one firm is included in both groups). Therefore, second and later generation firms use control-enhancing mechanisms with relatively higher

frequency. However, the wedge between ownership and control, and both of its components, is larger in first-generation firms. Conditional on using some form of control-enhancing mechanism, founders' voting control exceeds their equity stake by an average of 16.2%, or 2.37 times. Descendants' voting control exceeds their equity stake by 12.4%, or 1.82 times. The contrast is particularly striking for the separation between vote ownership and control that is achieved through the use of pyramids. Here the wedge attained by founders (9.8% measured as a difference) is one order of magnitude larger than what is attained by descendants (0.9%).

Panel C of Table 6 reports the average wedge created by each of the three mechanisms in the companies that use them. Dual-class shares with differential voting rights are the dominant way of increasing families' voting control, not just in their incidence but also in their impact on control: the average wedge between cash-flow and voting rights for the 184 dual-class firm-years where the wedge is positive is 20.5%, or 2.55 times. Voting agreements and pyramids are significantly less powerful contributors to the wedge between cash-flow and control rights: the average wedges they create for the families that use them are, respectively 6.5% and 6.2% when measured as differences, or 1.5 and 1.31 when measured as ratios.

The finding that second and later generation firms are more frequent users of control-enhancing mechanisms, particularly of dual-class stock, is consistent with the notion that later-generation families implement these mechanisms to reduce the adverse effect on family control that naturally arises from firm growth and family succession. The fact that first-generation firms with control-enhancing mechanisms are able to extract a greater wedge suggests an alternative explanation, however: Founders may be the ones who set up these mechanisms, and doing so helps perpetuate family control over subsequent generations.

To see which of these two explanations seems more plausible, we look again into the histories of the dual-class structures in our sample. Of the 52 companies where the dual-class

structure was set up by the founding family, in 32 it was set up by the founders, in 14 it was set up by the second generation, and in 6 it was set up by the third or later generation. Among those, 21, 11, and 6, respectively, or 38 firms in total, remained under family control in 2000. In the absence of sufficient information to perform more formal tests, we interpret these figures as being more supportive of the second explanation.

5.2. Governance mechanisms that enhance family control

In addition to the use of dual-class stock, voting agreements, and pyramids, families can enhance control of their companies through their presence in the board and top management positions, and through governance provisions that limit the rights of minority shareholders. Table 7 reports on the usage of these governance mechanisms in family firms, broken down into first-generation and second or later generation firms.

Panel A of Table 7 shows that the fraction of family members or family representatives on the board averages 17.3% for the full sample of family firms; 16% for first-generation firms and 18.3% for second or later generation firms. Family representation among outside directors (i.e. directors who are not also managers) is lower (10%), yet is much higher among inside directors (41%), particularly in first-generation firms (44.9%). When there is a nominating committee, family representation in it averages 19.1%, and is particularly high for second-generation firms. The governance index, which is a count of the number of governance provisions in the firm's charter, bylaws, or SEC filings that reduce shareholder rights (Gompers et al., 2003), averages 9.38 and is higher in second and later generation firms than in first-generation firms. A higher index implies weaker corporate governance, at least in an antitakeover and insider entrenchment sense, which is what most of the provisions in the index are about. The difference across family firms in different generations in their corporate governance practices therefore contrasts with our finding that first-generation firms have a

greater wedge between ownership and control created by dual-class stock, voting agreements, and pyramids, despite their relatively less frequent use of these mechanisms.

Table 7 also shows that a family member serves as the CEO in 600 out of 1,183 family firm-years (51% of the sample), and as Chairman of the Board and/or CEO in 703 (59%). Both counts are higher in first-generation than in second and later generation firms, in absolute and in relative terms: Of the 540 first-generation firm-years, 323 (60%) have a founder-CEO and 381 (71%) have a founder-chairman or CEO; of the 643 second and later generation firm-years, 277 (43%) have a family-CEO and 322 (50%) have a family-chairman or CEO. We note that a family firm's generation refers to the latest one found among its officers or directors. Hence, some of the family-CEOs or chairmen in those firms may be the firm's founder, if a descendant serves as an officer or director.

Of special relevance for the purpose of our study is the fact, already observed in Table 5, that the fraction of family members or family representatives on the board is often greater than the percentage of shares owned by the family, and can be even greater than the percentage of votes controlled by the family, thus contributing to enhance family control over and above their voting control. Panel A of Table 7 shows that, on average across the entire sample of family firms, the fraction of board seats controlled by the family exceeds the percentage of shares owned by the family by 2%, yet is smaller than the percentage of votes controlled by -1.9%. Panel B of the same table shows that, however, that in most cases where the fraction of board seats controlled by the family exceeds the percentage of shares they own, that fraction also exceeds the percentage of votes controlled (705 out of 755 cases), what we refer to as disproportional board representation. The average wedge of director election rights over voting control rights for those firms ($B - C$) is 10%.

6. Impact of control-enhancing mechanisms on firm value

In this section we explore whether and how the impact of control-enhancing mechanisms on firm value differs across mechanisms. The negative value impact of family control in excess of their share ownership has been first documented by Claessens et al. (2002) for East Asia, by Villalonga and Amit (2006) for the U.S., and by Barontini and Caprio (2006) for Continental Europe, and can be interpreted as evidence that stock markets place a discount on large shareholders' potential appropriation of private benefits of control.

There is little evidence, however, about which of these mechanisms may be driving the results. Claessens et al. (2002) test for the differential impact of dual-class shares, pyramids, and cross-holdings by regressing q on dummy indicators for each mechanism, but find no significant impact on value of any of the three dummies. Bennedsen and Nielsen (2005), using Faccio and Lang's (2002) European sample, test for the impact on q of interactions between dummies for each mechanism and the total control-ownership wedge achieved by controlling owners of firms. They find the effect to be more negative and significant for dual-class shares than for pyramids and cross-ownership. Both of these approaches are problematic, though, as our earlier example of Cox Communications illustrates. In Cox, a large fraction of the total ($C - O$) wedge of 10.67% is due to the use of dual-class shares, which are responsible for the 9.48% ($V - O$) wedge. Only the remaining 1.19% ($C - V$) wedge is due to pyramids. Using either dummies or interactions of dummies with the total wedge would give equal weight to both mechanisms; the interaction approach would attribute the total wedge of 10.67% to dual-class shares and the same amount to pyramids, thus overstating the benefits (in terms of enhanced control) that families achieve through these mechanisms (particularly pyramids, in the case of Cox), and distorting the estimates of the mean effect of each mechanism on firm value.

We solve this problem by using our wedge decomposition framework to estimate the effect of each mechanism on firm value. Following earlier studies of ownership and performance since Morck et al. (1988), we use Tobin's q , proxied by the firm's market-to-book ratio, as our dependent variable in multivariate OLS regressions, and interpret it as a measure of corporate value. We use the market value of common equity plus the book value of preferred stock and debt as a proxy for the firm's market value. For firms with multiple share classes, including at least one class that is not publicly traded, we compute the market value of common equity as the product of the total number of shares outstanding of all classes, by the share price of the traded shares. The approach amounts to valuing a firm's nontradable stock at the same price per share as its tradable stock; equivalently, it assumes that the control premium and illiquidity discount that nontradable shares with superior voting rights deserve cancel each other.

To control for industry and time effects, we adjust our dependent variable by constructing it as the difference between the firm's q and the asset-weighted average of the imputed qs of its segments, where a segment's imputed q is the industry average q , and q is measured as before. We compute industry averages at the most precise SIC level for which there is a minimum of five single-segment firms in the industry-year. Similar results are obtained if we control for industry in a more crude way such as using 2-digit industry or sector (1-digit) dummies.

Our key independent variables are the measures of additional control obtained through dual-class stock, voting agreements, pyramids, and disproportional board representation. Because these variables exhibit very little time-series variation, we abstain from using firm fixed effects. However, we use clustered standard errors to control for intra-firm correlation.

We also include, as measures of additional family control, dummies indicating the presence of a family-CEO or chairman, the governance index of Gompers et al. (2003), the percentage of shares owned by non-family blockholders, and the excess (or deficit) of vote

ownership by non-family blockholders relative to their share ownership. In addition, our regression controls include measures of the firm's stock market risk (systematic and idiosyncratic), which we estimate using CRSP data; corporate diversification (a dummy indicating if the firm has more than one segment); capital expenditures relative to fixed assets; dividends as a fraction of book equity; debt relative to the market value of equity, and the logarithm of assets as a measure of firm size (all from Compustat).

As a caveat to the interpretation of our results, we acknowledge that the choice of one mechanism or another by founding families is endogenous. Yet, with only one exception, the control-enhancing mechanisms we observe are already in place at the beginning of our sample period.¹¹ For instance, many dual-class structures date back to the 1980s dual-class recapitalization wave, and some, like Navistar or General Motors, go as far back as 1907 or 1908. This distance in time precludes any meaningful econometric analysis of the actual decision, and hence any endogeneity correction in the estimation of its impact on market value.

Tables 8 and 9 report the regression results for the full sample and for family firms only, as well as for the first- and second or later generation subsamples. The only difference between the analyses reported in both tables is in the measurement of the wedge obtained through the four control-enhancing mechanisms. In Table 8, the wedge measures are computed as differences, while in Table 9 they are computed as ratios. The disproportional board representation ratio has some extreme values at the top of its distribution, arising from the greater indivisibility of board seats relative to equity. For instance, the first year that Steve Jobs returns to Apple as the CEO (1998), he has only one share of common stock out of a total of 132,761,530 shares outstanding,

¹¹ The exception is Micron Technology, which issued a new class of non-voting common stock in 1999 that disappeared in 2000. There are also three instances of control-enhancing mechanisms that existed at the beginning of our sample period and were later eliminated: CHS Electronics and Cardinal Health had voting agreements that disappeared in 1997 and 1999, respectively; In Carnival, super-voting share class B, which was 100% held by Micky Arison, disappeared in 1997 through the conversion of his entire B-shares holding into A-shares.

and is one of the six directors on the board, which gives him a disproportional board representation ratio of 22,126,922. To normalize the variable, we winsorize the ratio at the top 5% by making all values that are greater than 10 equal to 10.

The results in both tables support our hypotheses about the differential impact of the various control-enhancing mechanisms on firm value. As predicted, dual-class stock has a negative impact on value, whereas voting agreements and pyramids have a positive effect. Disproportional board representation has a negative impact on value, but it is not statistically significant. The sign of the coefficients is robust to the measure of the wedge used, but the significance changes for some variables, including the control-enhancing mechanisms. In particular, dual-class stock is only statistically significant when the wedge it creates is measured as a difference, while voting agreements is only significant when the wedge they create is measured as a ratio. The effect of pyramids is significant regardless of the measure used.

The negative impact of dual-class shares on value sheds further light on Villalonga and Amit's (2006) finding of a negative impact on value of the wedge between cash-flow and voting rights. As can be expected from the prevalence of dual-class stock over other mechanisms reported in Table 6, the results in Table 8 confirm that dual-class stock is the main driver of the negative impact documented by Villalonga and Amit (2006). The result is also consistent with Gompers et al. (2006), who find a positive value impact of insider share ownership in U.S. dual-class firms, but a negative impact of their fractional vote ownership, and with earlier evidence by Lease et al. (1983), Zingales (1995), and Nenova (2003) of a premium to supervoting shares in the U.S., which is usually interpreted as a proxy for the private benefits of control that large shareholders or insiders can extract from the firm. We find that the negative effect of dual-class stock on value is not significant among second and later generation firms, however. One possible explanation for this finding is that, in these firms, the presence of control-enhancing mechanisms

may not convey such a strong signal of the family's desire to expropriate minority shareholders as it does of family resistance to the dilution of their controlling stake when the firm grows.

More unique to this paper is the finding that two control-enhancing mechanisms have a positive effect on value despite the wedge they introduce between the family's cash-flow and control rights. One of them is pyramidal ownership, which is generally pooled with dual-class shares among the mechanisms that can enable the appropriation of private benefits of control. As argued above, however, while pyramids can and sometimes do lend themselves to the expropriation of minority shareholders through tunneling practices (Johnson et al, 2000; Bertrand et al., 2002) they can also exist for more legitimate purposes such as those suggested by Morck (2005) and Almeida and Wolfenzon (2006).

Two of the 11 firms with pyramidal ownership structures in our sample have a clear business explanation different from the enhancement of family control. In Mascotech (later renamed Metaldyne), Richard Manoogian controls between 9% and 15% over our sample period, through a combination of dual-class shares and a pyramid with one intermediate public corporation, Masco, which Manoogian's father founded in 1929. Mascotech was spun-off from Masco in 1984. Cox Communications, whose structure is depicted in Figure 5, is the cable business of the Cox family's private media conglomerate, Cox Enterprises. Cox Communications became public in 1995 as part of a takeover of the old Times Mirror, but was taken private again by the Cox family in 2004 (after our sample period ends).

In the example of CBS discussed earlier, family control appears to be the primary explanation, however. Larry and Bob Tisch used their family conglomerate Loews to acquire a controlling stake in CBS in 1986, ending a takeover battle for the company's control. Larry assumed the CEO role (and later, those of president and chairman as well), until the brothers exited their investment when CBS was acquired by Westinghouse Electric in 1995. In the

remaining firms with pyramidal ownership structures, the pyramid is facilitated by either a holding corporation which does not seem to fit with any of the more legitimate business explanations, or by a corporation whose name and nature cannot be identified from the proxy.

Voting agreements also have a positive effect on value, although this is likely due to very different reasons. As noted earlier, the literature on blockholders has often highlighted the dark side of coalitions—the potential appropriation of partial benefits of control (Zwiebel, 1995) —, but some models suggest that these coalitions may be beneficial for firm value due to positive ex-ante incentives (Bennedsen and Wolfenzon, 2000) and to ex-post bargaining problems among controlling shareholders that make costly the appropriation or private benefits of control (Gomes and Novaes, 2001). The evidence on which of these two effects prevails remains mixed. For instance, Faccio et al. (2001) find that the presence of multiple large shareholders dampens expropriation in Europe, but exacerbates it in Asia.

We are able to throw light onto this question by distinguishing between actual coalitions (the voting agreements in our sample), and potential but unrealized coalitions with other large blockholders. We find that, while the effect of voting agreements on firm value is positive, the percentage of shares owned (and independently controlled) by non-family blockholders has a negative effect, which is significant for all firms except second and later generation family firms. Moreover, the wedge between votes and shares owned by these blockholders also has a negative effect on value, particularly significant for family firms (in Table 8) and first-generation firms (in Table 9). Our results therefore support the theoretical arguments in favor of coalitions. In our sample, the coalition members are the founding families and the shareholders that cede them or share with them voting power over their shares. Even when the voting power is ceded completely, as is Warren Buffett's case in the Washington Post, the non-family shareholder

retains full dispositive power over his or her shares, so the family remains committed not to undertake unilateral actions.

7. Conclusion

In this paper we analyze how founding families own and control large U.S. corporations, and how this affects firm value. The contribution of this paper to the corporate governance literature is threefold.

First, we bridge the two strands of research that have analyzed control-enhancing mechanisms before us—studies of dual-class stock and studies of ultimate ownership—by providing a framework that unifies and reconciles the different measures used in the two strands. Our wedge decomposition framework accommodates dual-class stock and pyramids as well as two other mechanisms that have been largely overlooked in prior literature, yet which we find to be of comparable or even greater relevance to the others, at least in the U.S.: Voting agreements, and disproportional board representation.

Second, we uncover significant new evidence about ownership and control. We document the prevalence of indirect ownership through trusts, foundations, limited partnerships, and other corporations. Yet, unlike in other countries where pyramidal control is common, we find that indirect ownership in the U.S. seldom creates a wedge between the family's cash-flow and control rights, i.e., a pyramid. Dual-class shares and voting agreements among shareholders are the primary sources of this wedge in U.S. family firms. Family control is also frequently enhanced through board representation in excess of voting control, and through the presence of a family member as CEO or Chairman of the Board.

Third, we show that not all mechanisms have a similarly negative impact on value, as earlier research assumes. Our results indicate that only the excess control that families are able to

obtain over and above their equity stake through dual-class stock and disproportional board representation comes at the cost of reduced firm value.

There are, however, several compensating advantages that we cannot measure with our data. One is the non-pecuniary benefits that often come with control, such as power, political influence, or social status. Another are the personal diversification benefits that families gain by not being invested in their companies' equity to the full extent of their controlling stake. Because of the difficulty of measuring this advantage (which would require knowledge of the family's investments outside the firm), as well as private benefits of control, the net effect for families of using these mechanisms remains unknown.

On the other hand, there seems to be no cost for families, but rather, an additional benefit in terms of increased firm value, from using voting agreements or pyramids to enhance family control. Our findings therefore suggest that controlling families in U.S. firms can reduce the costs of control-enhancing mechanisms for both themselves and minority shareholders through their choice of mechanisms.

REFERENCES

- Allen, Jeffrey W., and Gordon M. Phillips, 2000, Corporate equity ownership, strategic alliances, and product market relationships, *Journal of Finance* 55, 2791–2815.
- Anderson, Ronald and David M. Reeb, 2003, Founding family ownership and firm performance: Evidence from the S&P 500, *Journal of Finance* 58, 1301–1329.
- Almeida, Heitor, and Daniel Wolfenzon, 2006, A theory of pyramidal ownership and family business groups, *Journal of Finance* 61, 2637–2681.
- Barontini, Roberto, and Lorenzo Caprio, 2006, The effect of family control on firm value and performance: Evidence from continental Europe, *European Financial Management* 12, 689–723.
- Bebchuk, Lucien, Reinier Kraakman and George Triantis, 2000, Stock pyramids, cross-ownership, and dual class equity. In Randall K. Morck, ed.: *Concentrated Corporate Ownership*, University of Chicago Press, Chicago, IL, 295–315.
- Bennedsen, Morten, and Kasper Nielsen, 2005, The principle of proportionality: Separating the impact of dual class shares, pyramids, and cross-ownership on firm value across legal regimes in Western Europe, working paper, Copenhagen Business School.
- Bennedsen, Morten, and Daniel Wolfenzon, 2000, The balance of power in closely held corporations, *Journal of Financial Economics* 58, 113–139.
- Berle, Adolph, and Gardiner Means, 1932, *The Modern Corporation and Private Property*. Harcourt, Brace, & World, New York, NY.
- Bertrand, Marianne, Paras Mehta, and Sendhil Mullainathan, 2002, Ferreting out tunnelling: An application to Indian business groups, *Quarterly Journal of Economics* 117, 1047–1073.
- Claessens, Stijn, Simeon Djankov, and Larry H.P. Lang, 2000, Separation of ownership from control of East Asian firms, *Journal of Financial Economics* 58, 81–112.
- Claessens, Stijn, Simeon Djankov, Joseph P.H. Fan, and Larry H.P. Lang, 2002, Disentangling the incentive and entrenchment effects of large shareholdings, *Journal of Finance* 57, 2741–2772.
- DeAngelo, Harry, and Linda DeAngelo, 1985, Managerial ownership of voting rights. A study of public corporations with dual classes of common stock, *Journal of Financial Economics* 14, 33–69.
- Doidge, Craig, 2004, U.S. cross-listings and the private benefits of control: Evidence from dual-class firms, *Journal of Financial Economics* 72, 519–553.
- Faccio, Mara, and Larry H.P. Lang, 2002, The ultimate ownership of Western European corporations, *Journal of Financial Economics* 65, 365–395.
- Faccio, Mara, Larry H.P. Lang, and Leslie Young, 2001, Dividends and expropriation, *American Economic Review* 91, 54–78.
- Gadhoun, Yoser, Larry H.P. Lang, and Leslie Young (2005), Who controls US, *European Financial Management* 11, 339–363.
- Gomes, Armando, and Walter Novaes, 2001, Sharing of control as a corporate governance mechanism, working paper, Wharton School.

- Gompers, Paul A., Joy Ishii, and Andrew Metrick, 2003. Corporate governance and equity prices, *Quarterly Journal of Economics* 118, 107–155.
- Gompers, Paul A., Joy Ishii, and Andrew Metrick, 2006, Extreme governance: An Analysis of dual-class firms in the United States, working paper, Harvard Business School, Stanford Graduate School of Business, and Wharton School.
- Jarrell, Gregg A., and Annette B. Poulsen, 1988, Dual-class recapitalizations as antitakeover mechanisms, *Journal of Financial Economics* 20, 129–152.
- Jensen, Michael C., and William Meckling, 1976, Theory of the firm: Managerial behavior, agency costs and ownership structure, *Journal of Financial Economics* 3, 305–360.
- Johnson, Simon, Rafael La Porta, Florencio López De Silanes, and Andrei Shleifer, 2000, Tunneling, *American Economic Review* 90, 22–27.
- Khanna, Tarun, and Krishna Palepu, 2000, Is group affiliation profitable in emerging markets? An analysis of diversified Indian business groups, *Journal of Finance* 55, 867–891.
- La Porta, Rafael, Florencio López De Silanes, and Andrei Shleifer, 1999, Corporate ownership around the world, *Journal of Finance* 54, 471–517.
- La Porta, Rafael, Florencio López De Silanes, Andrei Shleifer, , and Robert W. Vishny, 2002, Investor protection and corporate valuation, *Journal of Finance* 57, 1147–1170.
- Lease, Ronald C., John J. McConnell, and Wayne H. Mikkelson, 1983, The market value of control in publicly-traded corporations, *Journal of Financial Economics* 11, 439–471.
- Morck, Randall, 2005, How to eliminate pyramidal business groups—The double taxation of inter-corporate dividends and other incisive uses of tax policy. In James Poterba, ed.: *National Bureau of Economic Research Tax Policy Annual*. University of Chicago Press.
- Nenova, Tatiana, 2001, How to dominate a firm with valuable control: Regulation, security-voting structure, and ownership patterns of dual-class firms, working paper, Harvard University.
- Nenova, Tatiana, 2003, The value of corporate voting rights and control: A cross-country analysis, *Journal of Financial Economics* 68, 325–351.
- Partch, M. Megan, 1987, The creation of a class of limited voting common stock and shareholder wealth, *Journal of Financial Economics* 18, 313–339.
- Shleifer, Andrei, and Robert W. Vishny, 1986, Large shareholders and corporate control, *Journal of Political Economy* 94, 461–488.
- Villalonga, Belén, and Raphael Amit, 2006, How do family ownership, control, and management affect firm value, *Journal of Financial Economics* 80, 385–417.
- Villalonga, Belén, and Raphael Amit, 2007, Family-controlled industries, working paper, Harvard Business School and Wharton School.
- Zingales, Luigi, 1995, What determines the value of corporate votes?, *Quarterly Journal of Economics*, November, 1047–1073.
- Zwiebel, Jeffrey, 1995, Block investment and partial benefits of corporate control, *Review of Economic Studies* 62, 161–185.

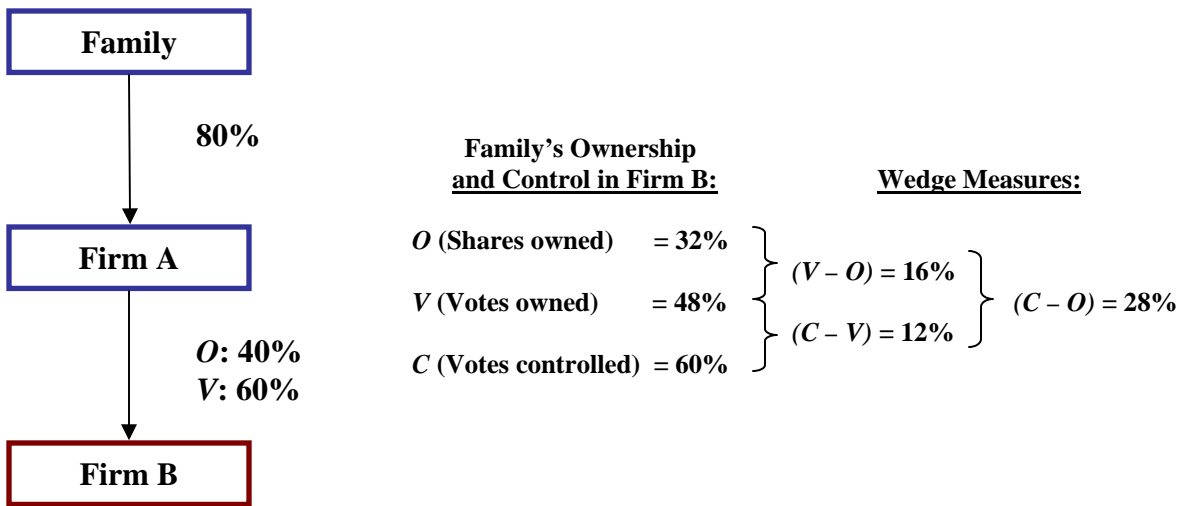
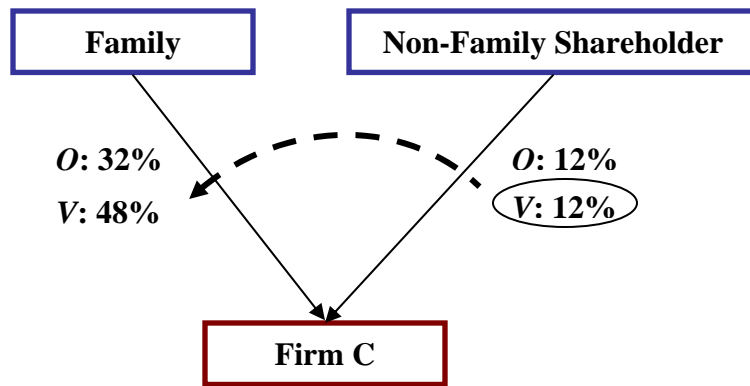


Fig. 1. Example: Wedge between cash-flow and control rights due to dual-class stock and a pyramid. Firm A has one class of shares. Firm B has two classes of shares with different voting rights.

	Ownership with Investment Power Only	Ownership with Investment & Voting Power	Ownership with Voting Power Only
Shared ownership		<i>C</i>	<i>C</i>
Sole ownership	<i>O</i>	<i>O, V, C</i>	<i>V, C</i>

Fig. 2. Share Ownership Forms. The letters *O*, *V*, and *C* indicate which share ownership forms are included in the concepts of shares owned, votes owned, and votes controlled, respectively. *O* (shares owned) refers to shares held with investment power by the family, in sole form, as a percentage of total shares outstanding. *V* (votes owned) refers to the votes associated to the shares held with voting power by the family, in sole form, as a percentage of total votes outstanding. *C* (votes controlled) refers to the votes associated to the shares held by the family or blockholder with voting power, in sole or shared form, as a percentage of total votes outstanding, plus any additional voting control resulting from pyramidal ownership (measured by the weakest link in the chain of control).



<u>Family's Ownership and Control in Firm C:</u>		<u>Wedge Measures:</u>	
O (Shares owned)	= 32%	$\left. \begin{array}{l} (V - O) = 16\% \\ (C - V) = 12\% \end{array} \right\} (C - O) = 28\%$	
V (Votes owned)	= 48%		
C (Votes controlled)	= 60%		

Fig. 3. Example: Wedge between cash-flow and control rights due to dual-class stock and voting agreement.

TISCH FAMILY OWNERSHIP AND CONTROL:
 O (Shares owned) = V (Votes owned) = 5.93%
 C (Votes controlled) = 17.95%

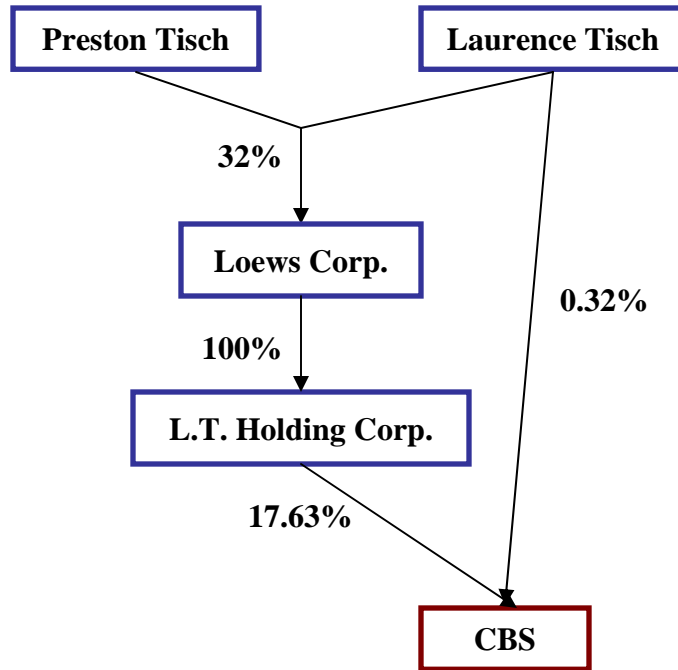


Fig. 4. CBS's ownership structure in 1995. Owners are represented with continuous lines. Laurence Tisch and Preston Tisch are brothers.

COX FAMILY OWNERSHIP AND CONTROL:

O (Shares owned) = 65.69%
V (Votes owned) = 75.17%
C (Votes controlled) = 76.36%

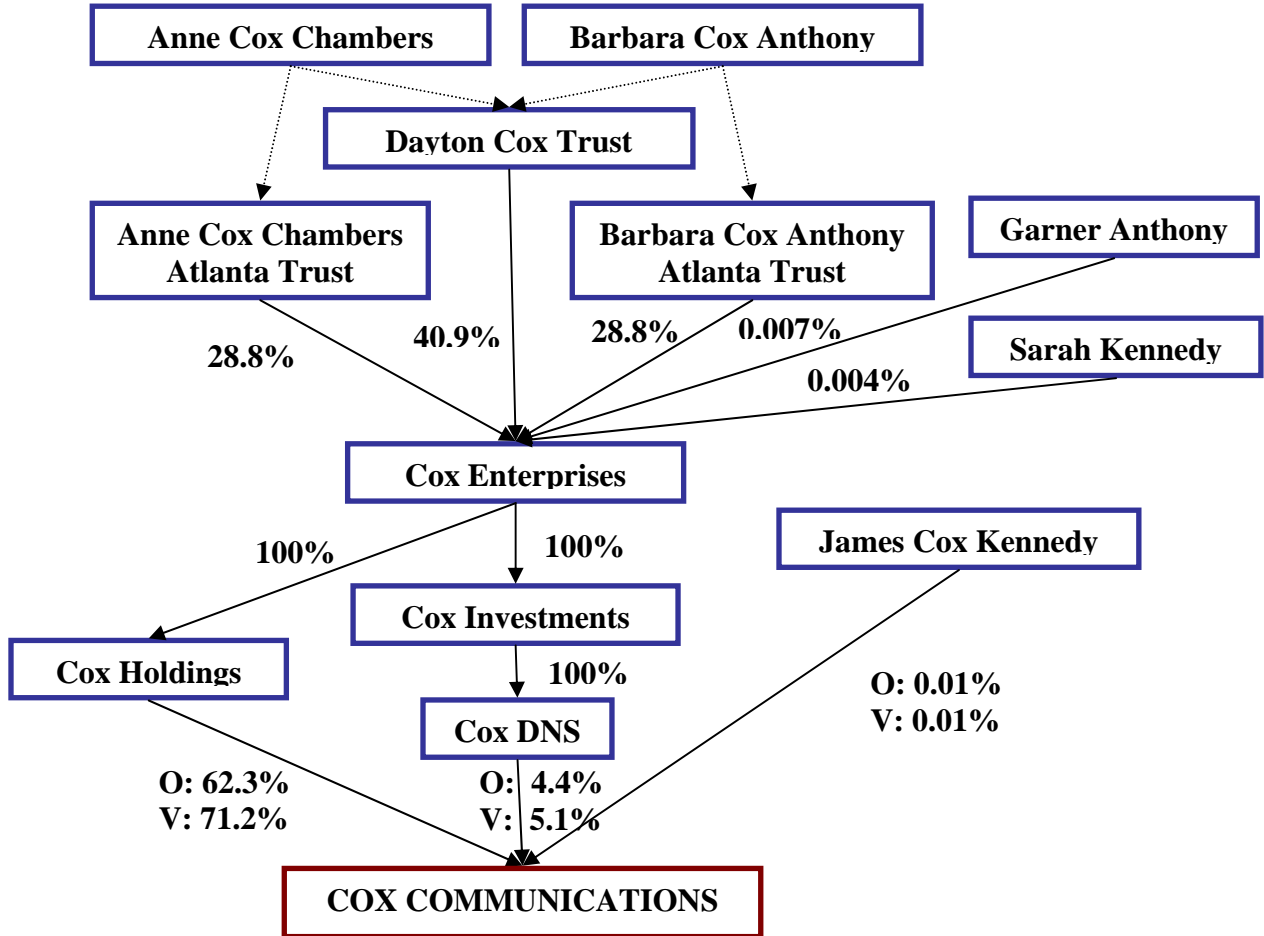


Fig. 5. Cox Communications’s ownership structure in 2000. “O” denotes ownership stakes; “V” denotes voting stakes. Owners are represented with continuous lines; trustees with dotted lines. Anne Cox Chambers and Barbara Cox Anthony are daughters of founder James Middleton Cox. James Cox Kennedy is son of Barbara Cox Anthony. Garner Anthony is husband of Barbara Cox Anthony, and James Cox Kennedy’s stepfather. Sarah Kennedy is James Cox Kennedy’s wife.

MURPHY FAMILY OWNERSHIP AND CONTROL: $O = V = C = 26\%$

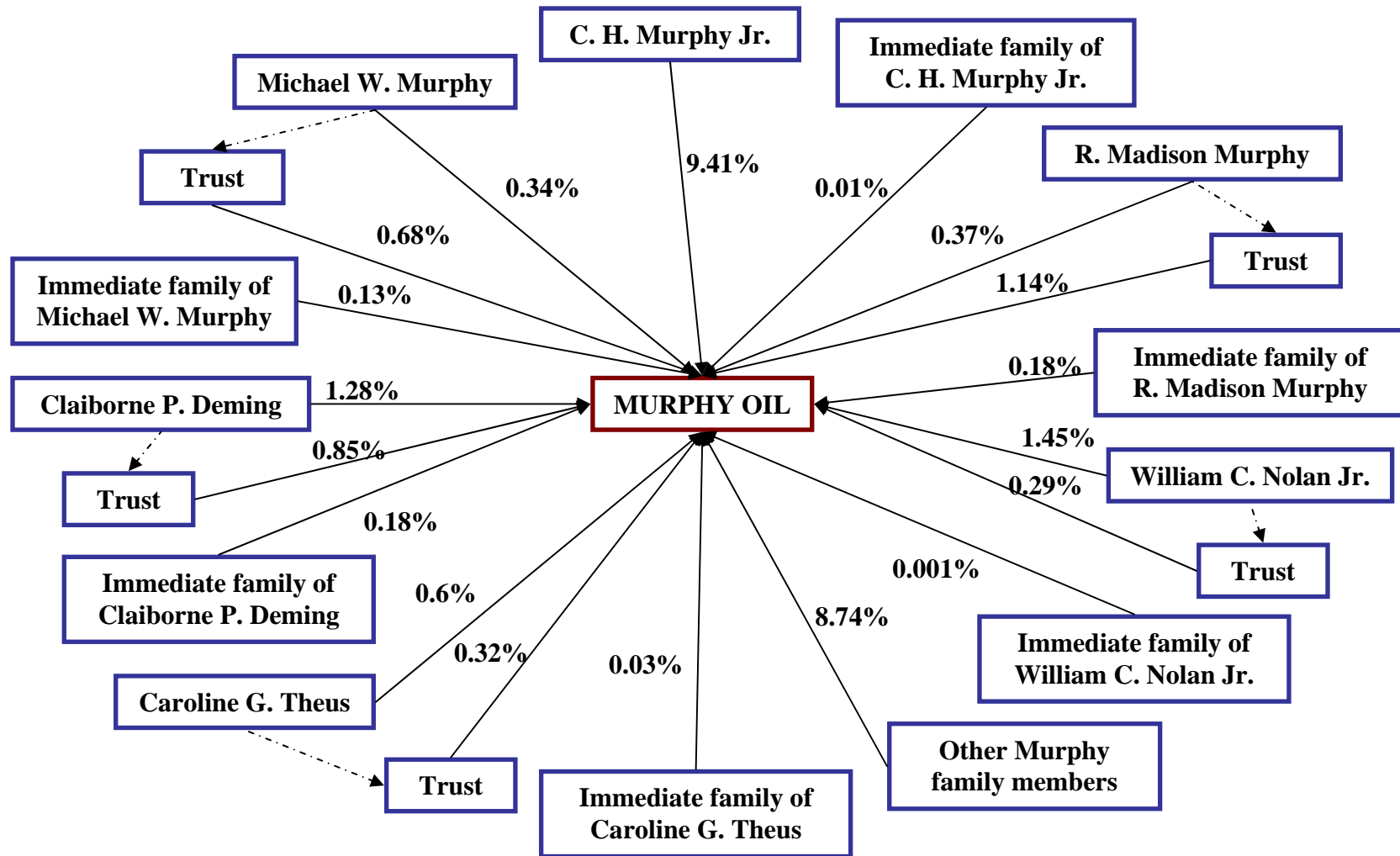


Fig. 6. Murphy Oil's ownership structure in 1994. Owners are represented with continuous lines and trust beneficiaries with discontinues lines. Michael W. Murphy and R. Madison Murphy are sons of founder C. H. Murphy, Jr. Claiborne P. Deming and William C. Nolan, Jr. are nephews of C. H. Murphy, Jr., and Caroline G. Theus is a niece of C. H. Murphy, Jr.

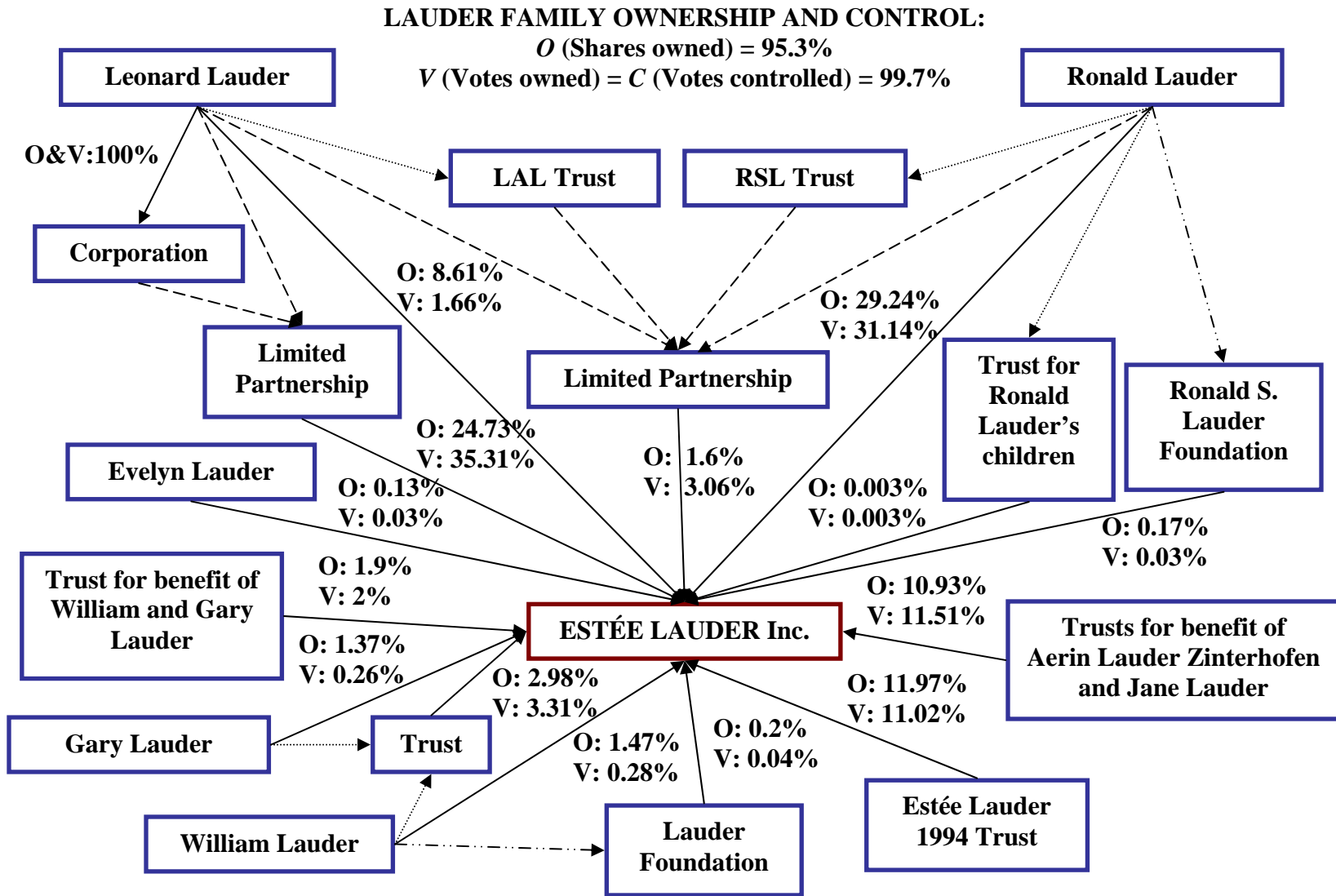


Fig. 7. Estée Lauder's ownership structure in 1996. "O" denotes ownership stakes; "V" denotes voting stakes. Owners are represented with continuous lines; trustees with dotted lines; general partners with dashed lines; and foundation directors with dash-dotted lines. Leonard and Ronald Lauder are sons of founder Estée Lauder. Evelyn Lauder is Leonard Lauder's wife. William and Gary Lauder are Leonard's sons. Aerin and Jane Lauder are Ronald's daughters. Leonard and Ronald Lauder are also directors of the Lauder Foundation and trustees of the Estée Lauder trust.

Table 1

Summary statistics for family and non-family firms. Means, standard deviations (in italics), and tests of differences in means between family and non-family firms characteristics. Family firms are defined as those where one or more family members are officers or directors or own 5% or more of the firm's equity either individually or as a group. Tobin's q is measured as the ratio of the firm's market value to total assets. For firms with non-tradable share classes, the non-tradable shares are valued at the same price as the publicly traded shares. Generation refers to the latest generation of founding family members that are officers, directors, or blockholders; equals one for the founder's generation, two for the founder's children, etc. ROA is measured as the ratio of operating income after depreciation to total assets. The governance index is the number of governance provisions in the firm's charter, bylaws, or SEC filings that reduce shareholder rights (Gompers-Ishii-Metrick (2003) measure). Beta is the estimate from a market model in which the firm's monthly returns over the past five years are regressed on the S&P 500 monthly returns. Idiosyncratic risk is the standard error of the estimate from the market model. Diversification equals one if the firm has two or more segments in Compustat, zero otherwise. The sample comprises 3,006 firm-year observations of 515 Fortune 500 firms listed in U.S. stock markets during 1994-2000. t -statistics are based on clustered (by firm) standard errors from OLS regressions of each variable on a family firm dummy, and appear in parentheses. Asterisks denote statistical significance at the 1% (***), 5% (**), or 10% (*) level.

	[a]	[b]	[c]	Diff. in	[d]	[e]	Diff. in
	All	Family	Non-	Means	1 st	2 nd /Later	Means
	Firms	Firms	Family	[b] - [c]	Generation	Generation	[d] - [e]
			Firms		Family	Family	
					Firms	Firms	
Tobin's q	2.00	2.13	1.91	0.22 *	2.47	1.84	0.63 ***
	<i>1.55</i>	<i>1.75</i>	<i>1.41</i>	(1.69)	<i>2.38</i>	<i>0.82</i>	(2.88)
Industry-Adjusted q	-0.33	-0.12	-0.46	0.34 ***	0.19	-0.38	0.57 ***
	<i>1.39</i>	<i>1.53</i>	<i>1.26</i>	(3.11)	<i>1.98</i>	<i>0.95</i>	(3.08)
Assets (\$ millions)	9,313	7,615	10,415	-2,800	6,287	8,731	-2,444
	<i>21,206</i>	<i>21,563</i>	<i>20,903</i>	(-1.40)	<i>10,400</i>	<i>27,613</i>	(-0.82)
Sales (\$ millions)	9,108	7,816	9,946	-2,130	6,428	8,981	-2,553
	<i>16,296</i>	<i>16,333</i>	<i>16,221</i>	(-1.40)	<i>7,510</i>	<i>20,996</i>	(-1.14)
Firm Age since Founding	70.4	61.7	76.1	-14.4 ***	35.4	83.9	-48.5 ***
	<i>41.7</i>	<i>39.1</i>	<i>42.3</i>	(-3.89)	<i>26.1</i>	<i>34.1</i>	(-11.5)
Sales growth	0.16	0.21	0.13	0.08 ***	0.30	0.13	0.18 ***
	<i>0.61</i>	<i>0.76</i>	<i>0.48</i>	(2.77)	<i>0.80</i>	<i>0.72</i>	(3.46)
ROA	0.11	0.11	0.11	0.01	0.12	0.11	0.01
	<i>0.07</i>	<i>0.07</i>	<i>0.07</i>	(1.45)	<i>0.08</i>	<i>0.05</i>	(1.10)
Debt/Mkt Value of Equity	0.46	0.37	0.52	-0.15 ***	0.36	0.38	-0.02
	<i>0.97</i>	<i>0.76</i>	<i>1.08</i>	(-2.75)	<i>0.92</i>	<i>0.59</i>	(-0.26)
Market Risk (Beta)	1.05	1.08	1.02	0.06 **	1.19	1.00	0.19 ***
	<i>0.43</i>	<i>0.43</i>	<i>0.43</i>	(1.98)	<i>0.48</i>	<i>0.35</i>	(3.73)
CAPX/PPE	0.23	0.26	0.22	0.04 ***	0.31	0.21	0.10 ***
	<i>0.22</i>	<i>0.30</i>	<i>0.14</i>	(3.14)	<i>0.41</i>	<i>0.13</i>	(4.06)
Number of Firm-Years	3006	1,183	1,823		540	643	
Number of Firms	515	210	333		101	117	

Table 2

Dual-class stock statistics for family and non-family firms. Voting and dividend characteristics of dual share class structures used by family and non-family firms. Voting Ratio is the ratio of votes per share between a firm's inferior and superior voting classes. Lower ratios are indicative of higher deviations from the one-share one-vote norm. Nonvoting preferred share classes are excluded from the computation of mean and median voting ratios in the first row of Panel B. All preferred share classes are excluded from the computation of voting ratios in the rest of first row of Panel B, and from the computation of dividend ratios in Panel C. The sample comprises 3,006 firm-year observations of 515 Fortune 500 firms listed in U.S. stock markets during 1994-2000.

	All Firms	Family Firms	Non-Family Firms	1 st Generation Family Firms	2 nd /Later Generation Family Firms
<i>A. Frequency of Use</i>					
Number of Firm-Years (Firms) with Two or More Common Share Classes—Dual-Class Firms	304 (64)	188 (41)	116 (25)	62 (16)	126 (25)
Of Which:					
- At Least One Common Class is Not Publicly Traded	214 (49)	148 (31)	66 (20)	49 (11)	99 (20)
- Superior Voting Class is Not Publicly Traded	120 (26)	96 (20)	24 (8)	20 (5)	76 (15)
<i>B. Voting Arrangements</i>					
1. Mean (<i>Median</i>) Voting Ratio—Inferior-to-Superior In Firms with Two or More Common Share Classes	0.41 <i>0.15</i>	0.31 <i>0.10</i>	0.58 <i>0.60</i>	0.41 <i>0.10</i>	0.26 <i>0.10</i>
2. Number of Dual-Class Firm-Years in Which:					
- One Common Class is Non-Voting	55	39	16	17	22
- Voting Ratio = 1:10	68	67	1	13	54
- Voting Ratio > 1:10	63	18	45	3	15
- Voting Ratio < 1:10	21	18	3	6	12
- Voting Rights Only Differ for Election of Directors	49	35	14	21	14
- No Difference in Voting Rights across Classes	48	11	37	2	9
3. Mean of Min. % Shares Needed to Own 20% of Votes	15.7	13.12	17.53	13.72	12.90
<i>C. Dividend Characteristics</i>					
1. Mean (<i>Median</i>) Common Dividend Ratio—Inferior-to-Superior—in Dual-Class Firms	0.89 <i>1</i>	0.91 <i>1</i>	0.85 <i>1</i>	0.95 <i>1</i>	0.90 <i>1</i>
2. Number of Dual-Class Firm-Years in Which:					
- Superior Voting Class Dividend is Lower	28	25	3	7	18
- Superior Voting Class Dividend is Higher	26	10	16	0	10
- No Difference in Dividends across Classes	250	153	97	55	98

Table 3

Ownership of shares and votes by families, individuals and institutions. Shares owned refers to shares held with investment power by the family or blockholder, in sole form, as a percentage of total shares outstanding. Votes owned refers to the votes associated to the shares held with voting power by the family or blockholder, in sole form, as a percentage of total votes outstanding. Family firms are defined as those where one or more family members are officers or directors or own 5% or more of the firm's equity either individually or as a group. The sample comprises 3,006 firm-year observations of 515 Fortune 500 firms listed in U.S. stock markets during 1994-2000.

	Family Firms				Non-Family Firms			
	% Shares Owned (<i>O</i>)		% Votes Owned (<i>V</i>)		% Shares Owned (<i>O</i>)		% Votes Owned (<i>V</i>)	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Founding Family	15.3%	17.1%	18.8%	22.7%	—	—	—	—
- 1 st Generation	14.4%	15.3%	17.1%	20.1%	—	—	—	—
- 2 nd /Later Generation	16.1%	18.5%	20.3%	24.6%	—	—	—	—
Non-Family Blockholders	16.2%	22.4%	13.2%	16.5%	22.1%	24.9%	18.8%	24.5%
a) Individual Blockholders	2.5%	13.4%	2.1%	7.3%	0.8%	4.2%	0.8%	4.2%
- Cofounders	0.2%	1.4%	0.2%	1.4%	—	—	—	—
- Other Individual Blockholders	2.4%	13.3%	1.9%	7.1%	0.8%	4.2%	0.8%	4.2%
b) Institutional Blockholders	13.7%	14.8%	11.2%	14.7%	21.3%	25.7%	18.0%	24.2%
- Mutual and Pension Funds	6.1%	8.7%	4.1%	8.3%	8.5%	12.5%	5.5%	9.5%
- Other Institutional Blockholders	7.6%	12.3%	7.1%	12.4%	12.8%	23.4%	12.5%	23.1%

Table 4

Investment vehicles in U.S. family firms. Shares owned refers to shares held with investment power by the family, in sole form, as a percentage of total shares outstanding. Votes owned refers to the votes associated to the shares held with voting power by the family, in sole form, as a percentage of total votes outstanding. Votes controlled refers to the votes associated to the shares held by the family or blockholder with voting power, in sole or shared form, as a percentage of total votes outstanding, plus any additional voting control resulting from pyramidal ownership (measured by the weakest link in the chain of control). Trusts include voting trusts, charitable and non-charitable trusts, and any other form of trust. Foundations include charitable funds and endowments as well as foundations. Corporations include both Limited Liability Corporations and C-Corporations, and range from pure holdings to corporations with business activities. Hybrids are ownership structures that include multiple, non-separable, investment vehicles. Total value of family holdings is summed across all companies and averaged over the full sample period. Family firms are defined as those where one or more family members are officers or directors or own 5% or more of the firm's equity either individually or as a group. The sample comprises 3,006 firm-year observations of 515 Fortune 500 firms listed in U.S. stock markets during 1994-2000. The family firms subsample comprises 1,183 firm-year observations of 210 firms.

	No. of Firms Using Vehicle		Mean % of All Shares Owned by Family (<i>O</i>)		Mean % of Votes Controlled by Family (<i>C</i>)		Total Value of Family Holdings (\$B)	
	Firms	Firm- Years	Pure Form	Pure or Hybrid Form	Pure Form	Pure or Hybrid Form	Pure Form	Pure or Hybrid Form
Direct Ownership	201	1137	62.1%	—	61.8%	—	119	—
Indirect Ownership via:	168	875	37.9%	—	38.2%	—	121	—
- Trust	139	682	17.0%	19.7%	17.1%	19.8%	34.4	39.7
- Foundation	77	340	4.6%	5.3%	4.3%	5.0%	4.56	5.58
- Corporation	55	271	8.2%	10.3%	8.5%	10.6%	23.5	27.8
- Limited Partnership	39	148	4.7%	6.0%	4.7%	6.0%	51.8	56.5
- Hybrid	—	—	3.4%	—	3.6%	—	6.74	—
Total Direct and Indirect	210	1183	100%	—	100%	—	240	—

Table 5

Frequency of control-enhancing mechanisms in U.S. family firms. This table shows the number of firm-years (firms) in which different control-enhancing mechanisms are used. Dual-class stock refers to voting structures in which the firm has issued two or more classes of stock with differential voting rights, excluding nonvoting preferred stock. Voting agreements refer to pacts among shareholders that result in the family holding voting power over a larger number of shares than what it owns with investment power. Pyramids refer to control structures where the family holds its shares of the firm indirectly, through one or more investment vehicles in which the family owns less than 100% but more than 20%. Disproportional Board Representation refers to the fact that the fraction of the board elected by the family exceeds the family's voting control. Family firms are defined as those where one or more family members are officers or directors or own 5% or more of the firm's equity either individually or as a group. The sample comprises 3,006 firm-year observations of 515 Fortune 500 firms listed in U.S. stock markets during 1994-2000. The family firms subsample comprises 1,183 firm-year observations of 210 firms.

	All Family Firms		1 st Generation Family Firms		2 nd /Later Generation Family Firms	
	Alone or Combined	Alone	Alone or Combined	Alone	Alone or Combined	Alone
<i>A. Single Mechanisms</i>						
Dual-Class Stock	184 (44)	91 (23)	56 (15)	26 (7)	128 (29)	65 (16)
Voting Agreements	62 (15)	19 (7)	21 (8)	8 (3)	41 (7)	11 (4)
Pyramids	56 (11)	12 (4)	26 (5)	2 (1)	30 (6)	10 (3)
Disproportional Board Representation	705 (139)	615 (129)	299 (64)	275 (62)	406 (78)	340 (70)
<i>B. Two-Mechanism Combinations</i>						
Dual-Class Stock + Voting Agreements	5 (3)	4 (2)	5 (3)	4 (2)	0 (0)	0 (0)
Dual-Class Stock + Pyramids	12 (3)	8 (2)	6 (2)	2 (1)	6 (1)	6 (1)
Dual-Class Stock + Disproportional Board Rep.	43 (15)	38 (13)	11 (5)	6 (3)	32 (10)	32 (10)
Voting Agreements + Pyramids	8 (2)	2 (1)	2 (1)	2 (1)	6 (1)	0 (0)
Voting Agreements + Disproportional Board Rep.	33 (7)	26 (6)	6 (2)	5 (2)	27 (5)	21 (4)
Pyramids + Disproportional Board Rep.	25 (4)	15 (4)	12 (2)	8 (2)	13 (2)	7 (2)
<i>C. Three-Mechanism Combinations</i>						
Dual-Class + Voting Agreements + Pyramids	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Dual-Class + Voting Agreements + Disp. Board Rep.	1 (1)	1 (1)	1 (1)	1 (1)	0 (0)	0 (0)
Dual-Class + Pyramids + Disp. Board Rep.	4 (1)	4 (1)	4 (1)	4 (1)	0 (0)	0 (0)
Voting Agreements + Pyramids + Disp. Board Rep.	6 (1)	6 (1)	0 (0)	0 (0)	6 (1)	6 (1)

Table 6

Wedge created by different control-enhancing mechanisms in U.S. family firms. This table shows the wedge created by different control-enhancing mechanisms in U.S. family firms. Dual-class stock refers to voting structures in which the firm has issued two or more classes of stock with differential voting rights, excluding nonvoting preferred stock. Voting agreements refer to pacts among shareholders that result in the family holding voting power over a larger number of shares than what it owns with investment power. Pyramids refer to control structures where the family holds its shares of the firm indirectly, through one or more investment vehicles in which the family owns less than 100% but more than 20%. Family firms are defined as those where one or more family members are officers or directors or own 5% or more of the firm's equity either individually or as a group. The sample comprises 3,006 firm-year observations of 515 Fortune 500 firms listed in U.S. stock markets during 1994-2000. The family firms subsample comprises 1,183 firm-year observations of 210 firms.

	Firms	Firm- Years	% Votes Owned Minus % Shares Owned ($V - O$)	% Votes Controlled Minus % Votes Owned ($C - V$)	% Votes Controlled Minus % Shares Owned ($C - O$)	% Votes Owned to % Shares Owned Ratio (V/O)	% Votes Controlled to % Votes Owned Ratio (C/V)	% Votes Controlled to % Shares Owned Ratio (C/O)
<i>A. All Family Firms</i>								
1 st Generation	101	540	2.7%	0.6%	3.2%	1.24	1.03	1.27
2 nd /Later Generation	117	643	4.3%	0.1%	4.4%	1.29	1.00	1.29
Total	210	1183	3.6%	0.3%	3.9%	1.27	1.01	1.28
<i>B. Family Firms Using One or More Control-Enhancing Mechanisms</i>								
1 st Generation	21	87	16.6%	9.8%	16.2%	2.51	1.49	2.37
2 nd /Later Generation	42	190	13.0%	0.9%	12.4%	1.86	1.02	1.82
Total	62	277	14.0%	4.7%	13.7%	2.05	1.22	2.00
<i>C. Usage of Control-Enhancing Mechanisms by Type</i>								
Dual-Class Stock	44	184	20.5%	0.0%	20.5%	2.55	1.00	2.55
Voting Agreements	15	62	0.0%	6.5%	6.5%	1.00	1.50	1.50
Pyramids	11	56	0.0%	6.2%	6.2%	1.00	1.31	1.31

Table 7

Governance mechanisms in U.S. family firms. Family firms are defined as those where one or more family members are officers or directors or own 5% or more of the firm's equity either individually or as a group. The governance index is the number of governance provisions in the firm's charter, bylaws, or SEC filings that reduce shareholder rights (Gompers-Ishii-Metrick (2003) measure). The sample comprises 3,006 firm-year observations of 515 Fortune 500 firms listed in U.S. stock markets during 1994-2000. The family firms subsample comprises 1,183 firm-year observations of 210 firms.

	All Family Firms	1 st Generation Family Firms	2 nd /Later Generation Family Firms
<i>A. All Family Firms</i>			
% of Family Members or Representatives among:			
- All Directors	17.3%	16.0%	18.3%
- Outside Directors	10.0%	5.8%	13.6%
- Inside Directors	41.0%	44.9%	37.7%
- Nominating Committee Members	19.1%	15.0%	21.5%
Governance Index	9.38	8.93	9.76
Firm-Years with a Family CEO	600	323	277
Firm-Years with a Family Chairman of the Board or CEO	703	381	322
% Board Seats Controlled Minus % Shares Owned	2.0%	1.6%	2.2%
% Board Seats Controlled Minus % Votes Controlled	-1.9%	-1.6%	-2.1%
<i>B. Family Firms with Disproportional Board Representation</i>			
% Board Seats Controlled Minus % Shares Owned ($B - O$)	11.1%	10.6%	11.4%
Firm-Years in which % Board Seats > % Shares Owned	755	321	434
% Board Seats Controlled Minus % Votes Controlled ($B - C$)	10.0%	10.0%	10.0%
Firm-Years in which % Board Seats > % Votes Controlled	705	299	406

Table 8

Impact of control-enhancing mechanisms on firm value: Wedge measured as a difference. Coefficients from OLS regressions of industry-adjusted q on additional family control obtained through various mechanisms, and other firm characteristics. Additional control via dual-class stock is the difference between the percentage of votes owned by the family and the percentage of shares they own. Additional control via voting agreements is the difference between the percentage of votes controlled by the family and the percentage of votes they own. Additional control via pyramids is the difference between the percentage of votes controlled by the family and the percentage of votes they control via voting agreements. Additional control via disproportional board representation is the difference between the percentage of family members or representatives in the firm's Board of Directors and the percentage of votes controlled through the other three mechanisms. q is measured as the ratio of the firm's market value to total assets. Industry-adjusted q is the difference between the firm's q and the asset-weighted average of the imputed q s of its segments, where a segment's imputed q is the industry average q . Industry averages are computed at the most precise SIC level with 5 or more single-segment firms in the industry-year. The sample comprises 3,006 firm-year observations of 515 Fortune 500 firms listed in U.S. stock markets during 1994-2000. The family firms subsample comprises 1,183 firm-year observations of 210 firms. t -statistics from clustered (by firm) standard errors appear in parentheses. Asterisks denote statistical significance at the 1% (***) , 5% (**), or 10% (*) level.

	All Firms	All Family Firms	1 st Generation Family Firms	2 nd /Later Gen. Family Firms
% Shares Owned by the Family	0.10 (0.24)	0.28 (0.60)	-0.18 (-0.22)	0.46 (0.99)
Additional Family Control via Dual-Class Stock	-1.30 ** (-2.51)	-1.16 ** (-2.09)	-1.93 ** (-2.46)	-0.54 (-0.70)
Additional Family Control via Voting Agreements	0.22 (0.23)	0.95 (0.82)	1.44 (1.00)	2.60 * (1.78)
Additional Family Control via Pyramids	1.52 (1.58)	2.64 ** (2.16)	3.92 * (1.82)	2.67 * (1.88)
Additional Family Control via Disproportional Board Representation	-1.39 (-1.45)	-1.07 (-0.94)	-1.26 (-0.76)	-0.26 (-0.29)
Family-CEO or Chairman	0.33 ** (2.59)	0.38 *** (3.00)	0.68 *** (2.84)	0.20 * (1.74)
First Generation	0.31 ** (2.12)	0.35 ** (2.40)		
Governance Index	-0.03 (-1.47)	0.02 (0.56)	0.07 (1.37)	-0.03 (-1.17)
% of Shares Owned by Non-Family Blockholders	-0.59 *** (-2.61)	-0.83 * (-1.82)	-2.08 *** (-2.69)	-0.00 (-0.01)
Additional Votes Owned by Non-Family Blockholders	-0.65 (-1.11)	-1.87 ** (-2.56)	-1.94 (-1.19)	-0.70 (-1.11)
Market Risk (Beta)	0.10 (1.15)	0.20 (1.16)	0.34 (1.17)	0.02 (0.13)
Idiosyncratic Risk	-0.18 (-1.04)	-0.08 (-0.33)	0.32 (0.88)	-0.37 (-1.09)
Diversification	-0.32 *** (-3.51)	-0.48 *** (-3.33)	-0.51 ** (-2.19)	-0.37 *** (-2.68)
CAPX/PPE	0.53 (1.47)	0.37 (1.21)	0.41 (1.26)	0.27 (0.29)
Dividends/Book Equity	0.28 (1.52)	0.94 *** (3.45)	-0.34 (-0.31)	1.20 ** (2.44)
Debt/Market Value of Equity	-0.23 *** (-3.50)	-0.32 (-1.62)	-0.21 (-0.90)	-0.43 *** (-2.91)
Log of Assets	0.08 * (1.96)	0.12 (1.50)	0.15 (1.15)	0.08 (1.18)
Intercept	-0.63 (-1.37)	-1.53 * (-1.77)	-2.21 (-1.58)	-0.62 (-0.88)
R-squared	0.12	0.14	0.12	0.22
No. of Observations	3006	1183	540	643

Table 9

Impact of control-enhancing mechanisms on firm value: Wedge measured as a ratio. Coefficients from OLS regressions of industry-adjusted q on additional family control obtained through various mechanisms, and other firm characteristics. Additional control via dual-class stock is the ratio of the percentage of votes owned by the family to the percentage of shares they own. Additional control via voting agreements is the ratio of the percentage of votes controlled by the family to the percentage of votes they own. Additional control via pyramids is the ratio of the percentage of votes controlled by the family to the percentage of votes they control via voting agreements. Additional control via disproportional board representation is the ratio of the percentage of family members or representatives in the firm's Board of Directors to the percentage of votes controlled through the other three mechanisms. q is measured as the ratio of the firm's market value to total assets. Industry-adjusted q is the difference between the firm's q and the asset-weighted average of the imputed qs of its segments, where a segment's imputed q is the industry average q . Industry averages are computed at the most precise SIC level for which there is a minimum of five single-segment firms in the industry-year. The sample comprises 3,006 firm-year observations of 515 Fortune 500 firms listed in U.S. stock markets during 1994-2000. The family firms subsample comprises 1,183 firm-year observations of 210 firms. t -statistics from clustered (by firm) standard errors appear in parentheses. Asterisks denote statistical significance at the 1% (***), 5% (**), or 10% (*) level.

	All Firms	All Family Firms	1 st Generation Family Firms	2 nd /Later Gen. Family Firms
% Shares Owned by the Family	-0.05 (-0.12)	0.24 (0.48)	-0.31 (-0.34)	0.44 (0.97)
Additional Family Control via Dual-Class Stock	-0.04 (-1.47)	-0.02 (-0.61)	-0.04 (-1.48)	0.00 (0.04)
Additional Family Control via Voting Agreements	0.14 ** (2.23)	0.16 ** (2.19)	0.24 *** (3.58)	0.76 (1.52)
Additional Family Control via Pyramids	0.37 * (1.71)	0.49 ** (2.00)	0.89 * (1.91)	0.34 ** (2.03)
Additional Family Control via Disproportional Board Representation	-0.03 (-1.11)	-0.02 (-0.67)	-0.03 (-0.45)	0.00 (-0.12)
Family-CEO or Chairman	0.28 ** (2.35)	0.34 *** (2.79)	0.62 *** (2.70)	0.20 * (1.81)
First Generation	0.32 ** (2.17)	0.37 ** (2.48)		
Governance Index	-0.02 (-1.27)	0.02 (0.67)	0.07 (1.24)	-0.03 (-1.08)
% of Shares Owned by Non-Family Blockholders	-0.46 * (-1.72)	-0.11 (-0.24)	-1.86 *** (-2.74)	0.39 (1.64)
Additional Votes Owned by Non-Family Blockholders	0.00 (0.04)	-0.19 (-1.54)	-0.42 ** (-2.07)	0.12 (1.10)
Market Risk (Beta)	0.12 (1.31)	0.20 (1.13)	0.32 (1.08)	0.02 (0.15)
Idiosyncratic Risk	-0.18 (-1.04)	-0.18 (-0.83)	0.40 (1.29)	-0.38 (-1.14)
Diversification	-0.33 *** (-3.56)	-0.50 *** (-3.46)	-0.55 ** (-2.33)	-0.37 *** (-2.75)
CAPX/PPE	0.52 (1.39)	0.36 (1.11)	0.31 (1.01)	0.36 (0.39)
Dividends/Book Equity	0.28 (1.52)	1.01 *** (3.52)	-0.21 (-0.19)	1.20 ** (2.44)
Debt/Market Value of Equity	-0.24 *** (-3.51)	-0.35 * (-1.70)	-0.22 (-0.92)	-0.46 *** (-3.13)
Log of Assets	0.08 ** (2.05)	0.13 (1.52)	0.15 (1.14)	0.09 (1.30)
Intercept	-1.16 ** (-2.36)	-2.07 ** (-2.10)	-2.85 (-1.57)	-1.98 ** (-2.14)
R-squared	0.11	0.12	0.12	0.22
No. of Observations	3006	1183	540	643