

Benefits and Costs of Control-Enhancing Mechanisms in U.S. Family Firms

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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.

The desire of founders and their families to maintain control of their firms when their equity position declines leads to the creation of a range of control-enhancing mechanisms designed to give the family control rights in excess of their cash-flow rights. In the U.S. in particular, there are many instances of families who, with a relatively small equity stake, are able to exercise substantial control over corporate affairs through their voting control. For example, in Comcast, founder Ralph Roberts and his son Brian owned 3% of the firm's equity in 2000, yet through dual-class stock, they controlled 86% of the votes. In the same year, the Ford family owned 6% of all shares outstanding in Ford Motor Company, but controlled 40% of the votes.

The wedge between families' control rights and cash-flow rights illustrated by these examples is indeed rather prevalent among large family firms in the U.S., as shown by Villalonga and Amit (2006), but is certainly not unique to the U.S. In their study of 27 wealthy economies, La Porta et al. (1999) show that controlling shareholders, many of which are families or individuals, often have substantial power in excess of their cash-flow rights, which they are able to achieve through dual-class stock, pyramidal ownership structures, and cross-holdings. Similar evidence is presented by Claessens et al. (2000) for a sample of 2,980 East Asian firms spread across 9 countries, and by Faccio and Lang (2002) for a sample of 5,332 firms in 13 Western European countries.

While concentrated corporate ownership is less prevalent in the U.S. than in most other countries, the separation between control and cash-flow rights is not. 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 shareholder protection, only one (Norway) exhibits greater deviations. This contrast is problematic, since share ownership concentration can mitigate the agency problem between

owners and managers described by Berle and Means (1932), but the separation of control and cash-flow rights can create substantial agency costs between large and small shareholders, as large shareholders can appropriate private benefits of control without incurring their fair share of the cost (Shleifer and Vishny, 1986). This second type of agency problem can be particularly acute when the large shareholder is an individual or family, since the incentives for both monitoring the affairs of the company and expropriating private benefits are not as diffuse as they are in most institutions. The wedge between control and cash-flow rights can manifest itself in a wide range of corporate decisions—choice of investment projects, firm’s size and scope, transferring control of the firm—and ultimately affect value. Villalonga and Amit (2006) show that, in descendant-led firms, the agency problem between family and non-family shareholders is more detrimental to shareholder value than the classic agency problem between owners and managers. They also show that, in founder-led firms, families who use control-enhancing mechanisms to increase their vote ownership over and above their share ownership pay a price for control, in the form of a value discount.

In this paper we explore the trade-offs between the benefits and costs faced by families in their quest to maintain or enhance control of their firms. We do so using a carefully constructed data set extracted from proxy filings of all Fortune 500 firms between 1994 and 2000. We begin by asking: Who owns large U.S. corporations? And, how are they owned by their largest shareholders, in particular founders and their families? We then examine the mechanisms that families use in U.S. firms to enhance control, and ask: How do these mechanisms work? How much leverage (in control) is gained through the use of each such mechanism? What is their impact on firm value? And lastly, what determines the choice of each mechanism?

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 equity, and 18.8% of the votes. Non-family blockholders own a higher percentage of family firms' equity than families themselves (16.2%), but a lower fraction of the votes (13.2%). This negative control wedge for non-family blockholders also appears in non-family firms, particularly for institutional blockholders, which suggests that, when there are deviations from the one-share one-vote norm in non-family firms, insiders are the ones who benefit from it.

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 (66% incidence, 20% of total family holdings), foundations (37% incidence, 4% to 5% of total holdings); corporations (26% incidence, 8% of total holdings); and limited partnerships (19% incidence, 6% of total holdings).

Despite the prevalence of indirect ownership, we find that only in 11 firms does it create a wedge between the family's cash-flow and control rights. This finding supports Morck's (2005) premise that, in the U.S., pyramids are more the exception than the norm. The primary source of this wedge in the U.S. are dual-class shares, followed in importance by voting agreements among shareholders. We explain how each of these mechanisms contributes to enhance control by decomposing our wedge measures into three components: share ownership (or cash-flow rights), vote ownership (voting rights), and voting control (control rights). We also find that families' board representation is often disproportional to the family's ownership stake and even to their voting stake, and thus provides an additional form of control enhancement.

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, but the impact of pyramids and voting agreements is positive. Finally, we also investigate the determinants of the choice of each mechanism by family firm owners.

The paper is structured as follows. In the following section, we describe our data. Section II documents the identity of large blockholders in U.S. corporations, and how family firms are owned. Section III shows how family shareholders maintain and enhance their control. Section IV presents our results about how the different control-enhancing mechanisms affect value, and Section V reports on why each mechanism is chosen. Section VI concludes.

I. Data

A. 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, and obtaining data on various firm characteristics 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 aggregation results in 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 family share- and voteholdings 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.

B. 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 Villalonga and Amit (2006), 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-run) 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. Typically, the person who is publicly recognized as the founder is 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. Excluded from our definition of founders are: (1) 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;¹ (2) families behind investment management companies such as Fidelity (controlled by Edward Johnson and his daughter, Abigail), or Franklin Resources (controlled by brothers Charles and Rupert Johnson); and (3) general partners in venture capital funds or leveraged buyout funds such as KKR (controlled by Henry Kravis and George Roberts, who are first cousins). 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.

C. Descriptive statistics

Table I 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

¹ 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.

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. 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.

While some of these differences may seem counter-intuitive, the last three columns in Table I 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.

D. Dual-class stock statistics

Table II describes 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. 773 firm-years from 171 firms (a third of the sample) have two or more classes of stock, including common, preferred, and tracking stock. Of these, 304 firm-years from 64 firms have two or more classes of common stock, i.e. dual-class stock

proper. In 214 of these 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).

Panel B shows that the differences in voting rights across share classes are also more pronounced in family firms, especially those in their second or later generation. For instance, the ratio of votes per share between the inferior and superior voting classes averages 0.46 for family firms (0.31 considering only dual-class stock proper), but 0.64 (0.58) for non-family firms. (The closer the ratio is to zero, the larger the deviation from the one-share one-vote norm; a ratio of one would be indicative of no deviation at all). We report the frequency and voting ratios of multiple classes of stock including both common, preferred, and tracking stock because tracking and preferred stock, particularly convertible preferred, often entitle their holders to different voting rights from those of common stockholders, and not just different cash flow rights (dividends and liquidation). However, because preferred stock frequently has no voting rights at all, we exclude nonvoting preferred stock from the computation of voting ratios.

Panel B of Table II also provides further detail on the distribution of voting arrangements among the dual-class firms in our sample (those with at least two classes of common stock). Consistent with the evidence in Zingales (1995) and Gompers et al. (2004), the most common voting ratio among these firms is 1:10. Zingales (1995) attributes this phenomenon 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. In our sample, 68 out of 304 dual-class firm-years have a 1:10 voting ratio, and 63 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 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 only report dividend information for firms with two or more classes of common stock since preferred stock typically has different dividend rights by definition. We collect dividend data for all share classes, including non-traded classes, from 10-K reports. Similar to the voting ratio, we measure dividend inequality across common stock 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 benefits 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.

II. Ultimate ownership of U.S. corporations

A. Who owns U.S. corporations?

In this section we describe the ownership of shares and votes in our sample firms by founding families and other significant blockholders reported in proxy statements as beneficial owners of 5% or more of each company’s equity. In addition to the number of shares of each class that are held by each officer, director, or blockholder, proxies provide detailed information in footnotes about how these shares are owned. Shares can be owned with investment and voting power, or with only one of the two powers. Share ownership with only one of the two powers results from voting agreements among shareholders, whereby a shareholder cedes the voting power over his or her shares to another. For instance, in 2000, Katharine Graham and her four adult children hold investment and voting power over 44.9% of all shares outstanding in the Washington Post. Berkshire Hathaway, of which Warren Buffett and his wife own approximately 33.6%, holds investment power over 18.3% shares of the Washington Post. Pursuant to an

agreement dated 1977 and extended in 1996, Warren Buffett, Berkshire, and its subsidiaries have granted Katharine Graham's son Donald Graham a proxy to vote such shares at his discretion. As a result, the Graham family actually has 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%).

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. Each of the two powers can in turn be held by the officer, director, or blockholder alone (sole ownership), or be shared with other shareholders whose name may or may not appear in the proxy (shared ownership). We are thus able to distinguish between six different forms of share ownership in U.S. corporations, as summarized in Figure 1.

Table III reports the percentage ownership of shares and votes by founding families and non-family blockholders. Share ownership refers to shares held by the family or blockholder with investment power (with or without voting power), in sole form or shared within the family or with family representatives such as cotrustees.² It provides a measure of shareholders' cash-flow rights. Vote ownership refers to the votes associated to the shares held by the family or blockholder with voting power (with or without investment power), in sole or shared form. It provides a measure of shareholders' voting rights, similar to those used in earlier studies of dual-class shares and the voting premium (e.g. Zingales, 1995; Gompers et al., 2004). If there are

² 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.

multiple share classes with differential voting rights, the total number of votes outstanding in the company will differ from the total number of shares outstanding, and the family or blockholder's vote ownership may differ from the percentage of shares they hold with voting power. As explained above and summarized in Figure 1, however, vote and share ownership may differ even in the absence of dual-class shares.

Later in the paper we show that the voting power conferred upon shareholders by means of their share ownership and dual-class structures can be further enhanced by pyramidal control, so that the percentage of votes *controlled* may in fact exceed the percentage of votes *owned*. The percentage of votes controlled provides a measure of control rights that is similar to those used in corporate ownership studies such as La Porta et al. (1999), Claessens et al. (2000), or Faccio and Lang (2002).

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. Gompers et al. (2004) show that insiders (officers and directors) generally do. We complement their findings by showing that, among large shareholders (who include some

of those insiders), only founding families benefit. All other blockholders are in fact harmed by it. 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.

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

To understand how families control U.S. corporations, we begin by analyzing how these corporations are owned. Table IV summarizes the results of this analysis. The most prevalent form of family ownership in the U.S. 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 Microsoft, Oracle, Reebok, Seagate, Southwest Airlines, Sysco, or Worldcom. 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 IV 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 IV 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 2. In contrast, Estée Lauder, depicted in Figure 3, 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. 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 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. 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. 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 vote ownership.

Corporations are the third most commonly used investment vehicle, yet they are the second in size; corporations in pure form hold 8.2% of families' total shareholdings and 8.5% of their total voteholdings. Including hybrid forms, these figures amount to 10.3% and 10.6%, respectively. Corporations include both Limited Liability Corporations and C-Corporations, and range from pure holdings to companies with business activities. Limited partnerships in which the family or another family-controlled entity is the general partner hold another 4.7% (6% including hybrids) of family share- and voteholdings.

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 IV 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.

III. 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 over and above what their sheer ownership stake would entitle them to. Earlier studies of the separation of ownership and control have focused on three such mechanisms: Dual-class shares, pyramids, and cross-holdings (La Porta et al (1999); Bebchuk et al. (2000); Claessens et al. (2000); Faccio and Lang (2002)). We find no instances of cross-holdings in our sample, so we focus on dual-class shares and pyramids.³ In addition, our detailed data set enables us to analyze two more control-enhancing mechanisms that have not been considered in those studies: voting agreements, and disproportional board representation.

A. Dual-class stock, voting agreements, and pyramids

Dual-class stock, voting agreements, and pyramids all provide families with the benefit of increased voting control relative to their share ownership. However, each mechanism impacts control in a different way. As described in the previous section, voting agreements in this paper refer to pacts among shareholders that result in the family holding voting power over a larger

³ We do not find any cross-holdings as defined by La Porta et al. (1999), who say “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.

number of shares than what it owns with investment power. The presence of these agreements thus creates a discrepancy between cash-flow and voting rights even in companies where there are no dual-class shares with differential voting rights. In the Washington Post / Berkshire Hathaway example, the Post has two classes of common stock, yet both are entitled to one vote per share. Thus, the difference between the Graham family's percentage ownership of shares and votes is entirely attributable to their voting agreement with Warren Buffet.

Like voting agreements, dual-class shares enhance control by creating a wedge between the percentage of votes owned by the family and the percentage of shares they own. In the case of dual-class shares, 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 the number of shares held with voting power is equal to the number of shares held with investment power. Examples of dual-class companies in our sample where the founding family's voting rights greatly exceed its cash-flow rights include Comcast, where, in 2000, the Roberts family owned 3.14% of the shares but 85.64% of the votes; Viacom, where, in 2000, the Redstone family 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.

In contrast, pyramids enhance control by creating a wedge between the percentage of votes owned and the percentage of votes controlled. 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% but more than 20%.⁴ Unlike prior studies in this literature, we do not require the family's investment vehicles to

⁴ 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,

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.

We use the example of Amerada Hess, depicted in Figure 4, to show how pyramids enhance family control. In 1999, for instance, founder Leon Hess and his son John Hess own 15.13% of the firm's equity through a combination of direct and indirect ownership through multiple investment vehicles; they hold 11.39% directly (10.65% + 0.73%), 0.1% in two trusts (0.03% + 0.07%), 2.04% through the Hess Foundation, and 1.6% through nine corporations. Because there are no dual-class shares or voting agreements, the percentage of votes owned also equals 15.13%. However, the percentage of votes *controlled* is slightly higher because the 1.6% owned through corporations constitute a pyramid. Leon Hess owns 11.5%, and owns a 50% equity interest in another corporation that owns 34%, of the capital stock of Galaxie Corporation, of which Capitol Street Corporation is a wholly owned subsidiary. Capitol Street Corp. in turn owns 0.12% of Amerada Hess's equity. Thus, Leon Hess owns 0.034% of Amerada Hess through this control chain ($28.5\% \times 0.12\%$), and controls 0.12%, which is the minimum of 28.5% and 0.12%. He also owns 80% in five other corporations that own 0.19% of Amerada Hess, thus owning an additional 0.16% ($80\% \times 0.19\%$) and controlling an additional 0.19% in the company. John Hess also owns slightly less than 100% (99.33%) in a corporation that owns 1.42% of Amerada Hess, which entitles him to 1.41% of cash-flow rights but 1.42% of control rights in the company. Altogether, father and son control a total of 15.26% of the votes in Amerada Hess, or 0.13% more than what they own.

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. The 20% threshold is arbitrary, but is generally considered enough to have effective control of a firm (La Porta et al., 1999).

When families use more than one of these mechanisms, the benefits they reap in terms of increased control are compounded. For instance, in 1996, Ted Turner and his wife (Jane Fonda) own 37.5% of Turner Broadcasting's shares with investment and voting power. By virtue of a voting agreement, Mr. Turner also holds an additional 1.36% of shares with voting power but no investment power. Moreover, the company has two classes of common stock and a third class of preferred stock, all with different voting rights, which entitle the Turners to a total of 67.44% of all votes outstanding. In 2000, the Cox family owns 65.69% of all shares in the company. Through dual-class shares, they own 75.17% of all votes. Through their pyramidal ownership via Cox Enterprises, of which they own 98.4% (263 other people own the remaining 1.6%), they control an additional 1.19% of votes in Cox Communications, for a total voting control stake of 76.36%. Figure 5 shows Cox Communications' ownership structure.

In our empirical analysis of the benefits of the different control-enhancing mechanisms, we measure the wedge between share ownership and voting control in two separate ways: as a difference and as a ratio. We decompose this wedge into the difference (or ratio) between share and vote ownership—what voting agreements and dual-class stock enhance—, and the difference (or ratio) between vote ownership and control—what pyramids enhance—, as follows. If O denotes the percentage of shares owned (cash-flow rights), V denotes the percentage of votes owned (voting rights), and C denotes the percentage of votes controlled (control rights),

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

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

In the Cox Communications example, the different wedge measures are coded in as: $(C - O) = 10.67\%$; $(V - O) = 9.48\%$; $(C - V) = 1.19\%$; $C/O = 1.16$; $V/O = 1.14$; $C/V = 1.02$.

Table V shows the results of this analysis. 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, a ratio of cash-flow rights to what we call control rights of 0.746, which is equivalent to a ratio of control rights to cash-flow rights of 1.34. Faccio and Lang's (2002) equivalent ratio for their sample of Western European companies is 1.15. This international comparison suggests that the potential agency conflict between large family shareholders and minority shareholder in the U.S. is at least as relevant as in the rest of the world.

Table V 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 and/or voting agreements, but not pyramids, 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 III (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, which is consistent with the notion that families implement these mechanisms to reduce the adverse effect on family control that naturally arises from firm and family growth. 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 in the sample. These results raise the question of whether these firms use pyramids 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 and voting agreements 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 V reports the frequency of use and the 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 family control, in terms of both incidence and impact on control; 21% of all sample firms (44 firms) have dual-class stock at some point during the sample period, which yields an average wedge between cash-flow and voting rights of 20.5%, or 2.55 times. Voting agreements and pyramids are comparable in their relevance, but voting

agreements are both more prevalent (15 firms vs. 11), and more effective as a means of enhancing family control (6.5% difference vs. 6.2%, or 1.5 ratio vs. 1.31). These numbers show that, however common indirect ownership is among U.S. family firms, it seldom serves to create a wedge between families' cash-flow and control rights like it does in other countries.

These results are consistent with the findings 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 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.

B. 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 VI 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 VI 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 in 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 VI 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 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; of the 643 second and later generation firm-years, 277 (43%) have a family-CEO and 322 (50%) have a family-chairman. 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 officer or director.

Of special relevance for the purpose of our study is the fact 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. Disproportional board representation is sometimes warranted by shareholders' agreements, or, as shown in Table II, is 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. For instance, in the New York Times in 1998, there are two classes of common stock, A and B, which represent 99.56% and 0.44% of the total shares outstanding, respectively. Each share is entitled to one vote, but class A shareholders can only elect five of the 15 directors, while Class B stockholders are entitled to elect the other 10, or two thirds of the entire board. The Ochs-Sulzberger family own 17.9% of the company's total shares outstanding, but 88.7% of all Class B shares. Using the letter B to denote the percentage of all board seats controlled by the family, we can extend our earlier definition of the wedge between the family's ownership and control rights, and its components, 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 the New York Times example, the wedge obtained by the Ochs-Sulzberger family is $(B - O) = (B - C) = 48.8\%$; $B/O = B/C = 3.73$. Panel A of Table VI 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, however, that in 60% of the sample (705 firm-year observations), the fraction of board seats controlled by the family does exceed the

percentage of votes controlled, the average difference for those firms being 10%. In the rest of our analysis, we consider board representation in excess of voting control (measured by either $(B - C)$, B/C , or a dummy that equals one when $B > C$) as a fourth control-enhancing mechanism along with dual-class shares, voting agreements, and pyramids.

IV. Impact of Control-Enhancing Mechanisms on Firm Value

In this section we use multivariate OLS regressions (with clustered standard errors) to 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 (2005) 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 decomposition of each firm's total control-ownership wedge into the parts of that wedge created by different mechanisms 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, and interpret it as a measure of corporate value (scaled by assets). 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 liquidity 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. We also include, as measures of additional family control, dummies indicating the presence of a family-CEO or chairman, the governance index, 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).

Tables VII and VIII 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 VII, the wedge measures are computed as differences, while in Table VIII 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, 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 show that the impact of control-enhancing mechanisms on firm value differs across mechanisms: 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 V, the results in Table VII 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. (2004), 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) and Zingales (1995) 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.

Perhaps more surprising, or at least 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 are pyramids, which are generally pooled with dual-class shares among the mechanisms that can enable the appropriation of private benefits of control (e.g. Bebchuk et al., 2000). One plausible explanation for this result is that, unlike dual-class stock and disproportional board representation, pyramids can exist for reasons other than maintaining or increasing family control. 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. For instance, Almeida and Wolfenzon (2006) argue that pyramids may be desirable when internal funds are important and when the security benefits of a new firm added to a pyramid are low, conditions that typically hold in low investor protection environments. Khanna and Palepu (2000) provide evidence of internal capital markets advantages to pyramidal business groups in emerging markets. Morck (2005) argues that the few pyramids found in the U.S. tend to be temporary arrangements such as toeholds in preparation for complete takeovers, blockholdings left over 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. Allen and Phillips (2000) show that such intercorporate equity holdings are often long-lasting and value-adding, particularly when they support strategic alliances and other product-market relationships among partner firms.

Two of the 11 firms with pyramidal structures (56 firm-year observations) in our sample seem to fit with the latter type of explanation. 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 remaining firms with pyramidal 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. This is the case, for instance, of Amerada Hess (Figure 4).

Voting agreements also have a positive effect on value, although this is likely due to very different reasons. Several theoretical 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 its individual members. Thus, coalitions serve as a commitment device. In Gomes and Novaes (2001), the governance role of shared control stems not only from 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.

On the other hand, the literature on blockholders has often highlighted the dark side of coalitions. The presence of a second large shareholder in a firm brings the benefit of monitoring or contesting the power of the largest shareholder (Pagano and Röell, 1998; Bloch and Hege, 2003). Yet the cost is that is that the multiple blockholders can form a coalition and extract partial benefits of control, still at the expense of smaller, minority shareholders (Zwiebel, 1995;

Maury and Pajuste, 2005). The evidence on which of these two effects—monitoring or collusion— 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 VII) and first-generation firms (in Table VIII). 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.

V. What determines the choice of control-enhancing mechanisms?

In light of the different benefits (increased control) and costs (impact on firm value) that dual-class stock, voting agreements, pyramids, and disproportional board representation seem to afford families, we now examine what determines the choice of those mechanisms in U.S family firms. Using probit models, we estimate the probability of having each of those mechanisms in a firm as a function of the following variables: other control-enhancing mechanisms used; investment vehicles used; presence of a family-CEO or chairman; firm generation; governance

index; blockholder ownership; Tobin's q ; and the same regression control variables included in our OLS regressions of Tables VII and VIII.

Table IX shows the results of this analysis. We find that the probability of using a specific mechanism to some extent depends of what other mechanisms are used. Dual-class stock is more likely to be used in the absence of voting agreements and disproportional board representation. In contrast, pyramids are more likely to appear when there are also voting agreements. Disproportional board representation is less likely when there are dual share classes with differential voting rights; we note, however, that our indicator of dual-class stock only equals one when the two (or more) classes generate a difference between the family's cash-flow and voting rights, but not when classes only differ in their rights to elect directors. These relationships are not always reciprocal: the choice of voting agreements is independent of what other mechanisms are used.

We also find that the way in which firms are owned affects the way in which they are controlled. Dual-class shares are significantly less likely the greater is the percentage of family holdings held in foundations (recall from Table IV that foundations are the only investment vehicle in which the percentage of shares owned exceeds the percentage of votes owned). Pyramids and disproportional board representation are positively related to the fraction of total family holdings that is placed in different investment vehicles; while voting agreements are negatively related to all. Yet the probabilities differ across investment vehicles. For instance, voting agreements are particularly less likely when there are more holdings in trusts, which suggests that most of the trusts in our sample do not serve a control purpose. Disproportional board representation is particularly more likely when there is greater direct ownership.

The result reported in Table V about second and later generation firms being more frequent users of dual-class stock, voting agreements, and pyramids, is confirmed in Table IX after controlling for other determinants of the choice of these mechanisms, and supports our premise that families implement these mechanisms to counter the dilution of their equity stake that comes with firm and family growth. The decision to use these mechanisms, however, is independent of whether the family CEO or chairman is a family member or not. It is worth noting that the percentage of shares owned by non-family blockholders has no influence on the choice of any of the control-enhancing mechanisms. Given the evidence in Table III that these blockholders' voting stake is in fact reduced by these mechanisms, it is not surprising that they do not foster their use. The finding that they do not prevent it either provides additional evidence of the limited monitoring role that these blockholders play for large family shareholders and insiders.

Tobin's q negatively affects the likelihood of using any of the mechanisms, although not significantly in the case of voting agreements. Other firm characteristics like size, risk, capital expenditures, dividend policy and capital structure, affect the choice of some mechanisms but not of others.

VI. Conclusion

In this paper we analyze how founding families own and control large U.S. corporations, why they choose to control them in the way they do, and what the consequences of this choice are for the value of the firm as a whole. We find that indirect ownership through trusts, foundations, limited partnerships, and other corporations is prevalent. Yet, unlike in other countries where pyramidal control is common, indirect ownership in the U.S. seldom creates a wedge between the family's cash-flow and control rights. 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.

Our results show that 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. A compensating advantage that we cannot measure with our data 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.

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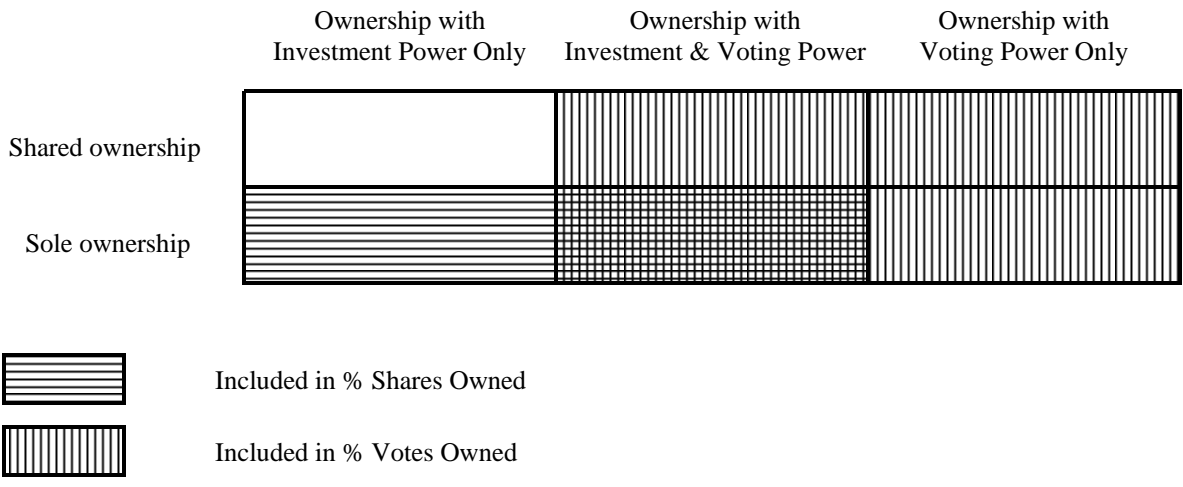


Figure 1. Share Ownership Forms

MURPHY FAMILY OWNERSHIP AND CONTROL: 26%

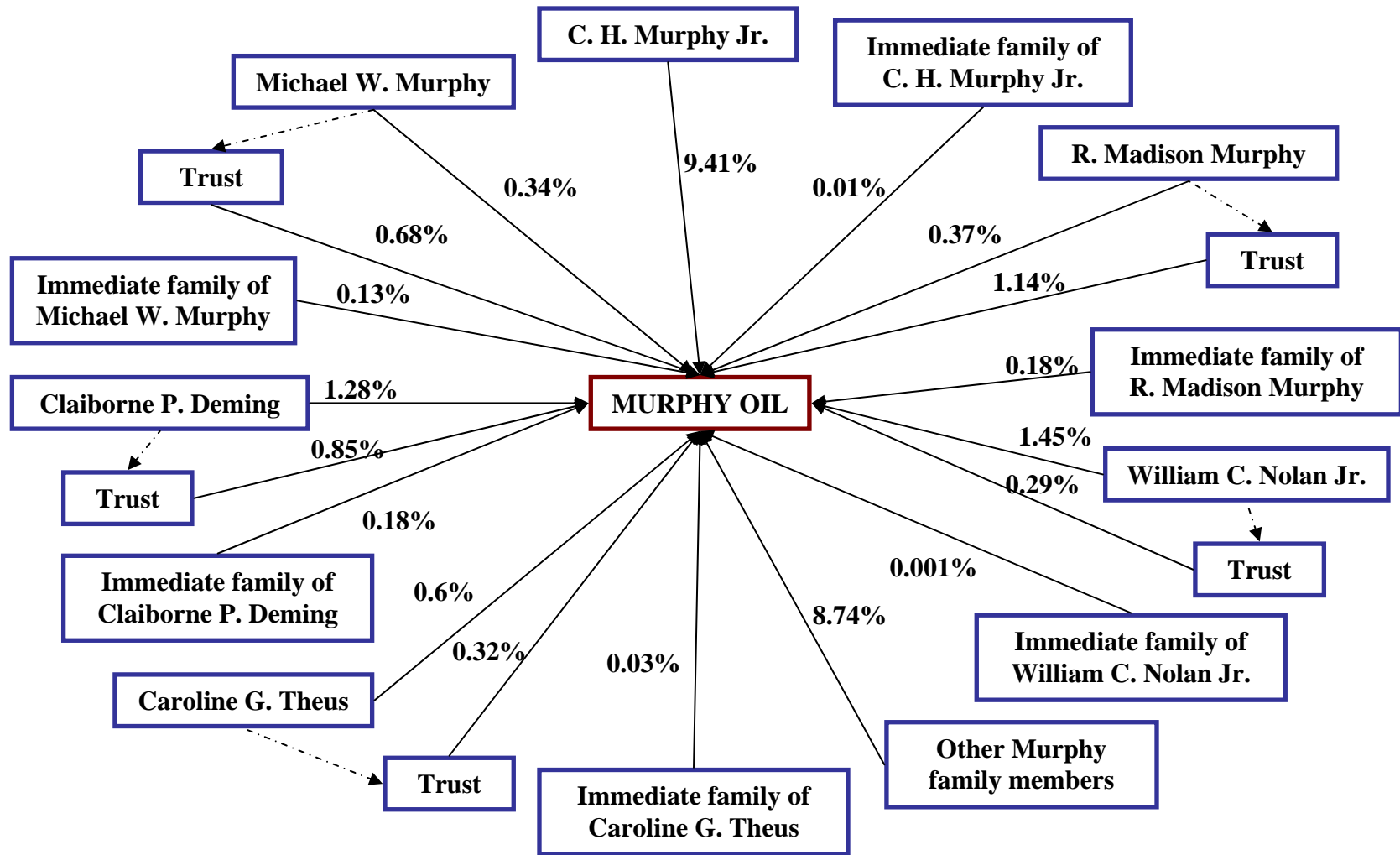


Figure 2. Murphy Oil's ownership structure in 1994. Owners are represented with continuous lines and trust beneficiaries with discontinues lines. Michael W. Murphy and R. Madison Murphy are sons of founder C. H. Murphy, Jr. Claiborne P. Deming and William C. Nolan, Jr. are nephews of C. H. Murphy, Jr., and Caroline G. Theus is a niece of C. H. Murphy, Jr.

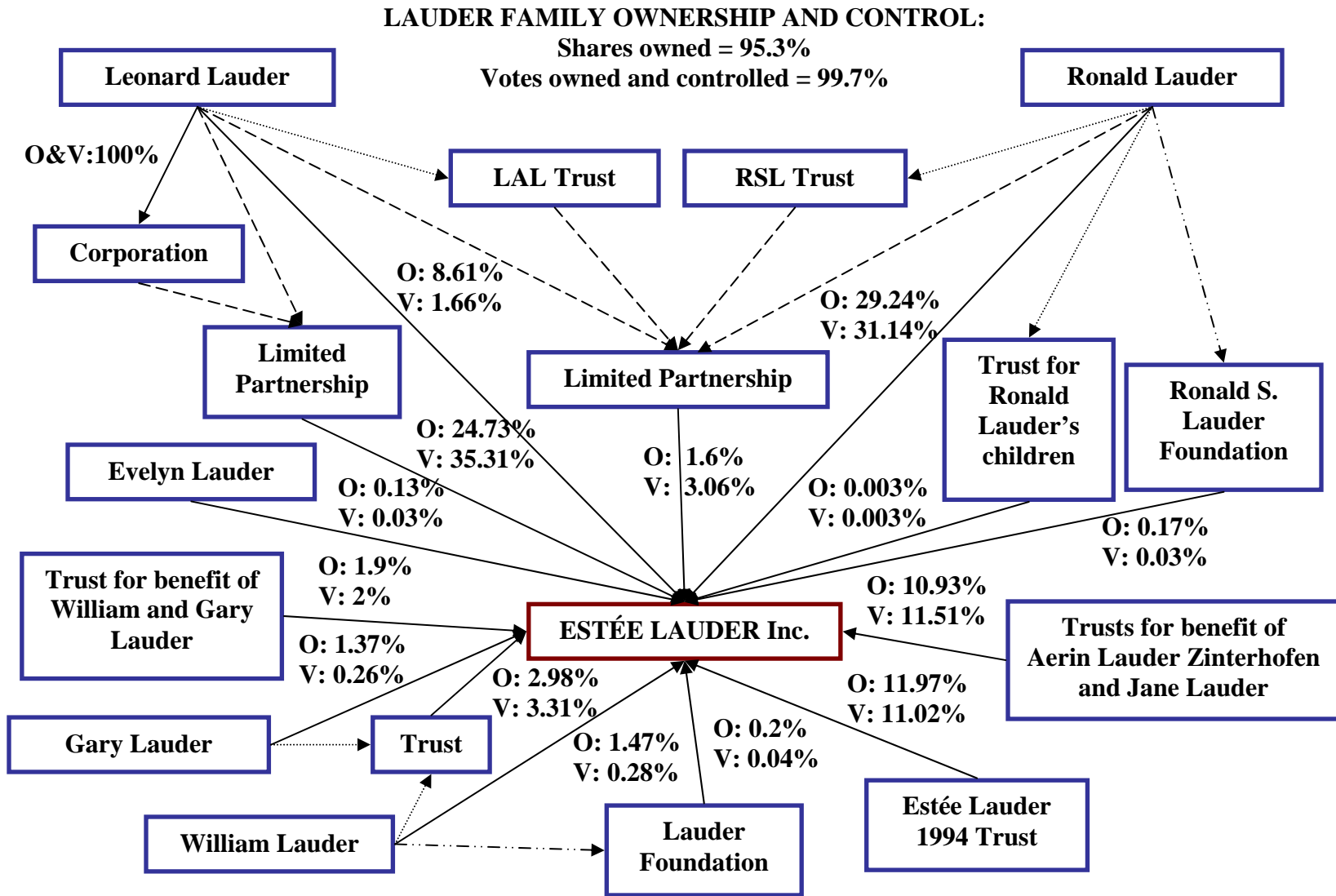


Figure 3. Estée Lauder's ownership structure in 1996. "O" denotes ownership stakes; "V" denotes voting stakes. Owners are represented with continuous lines; trustees with dotted lines; general partners with dashed lines; and foundation directors with dash-dotted lines. Leonard and Ronald Lauder are sons 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.

**HESS FAMILY OWNERSHIP AND CONTROL:
 Shares and votes owned = 15.13%
 Votes controlled = 15.26%**

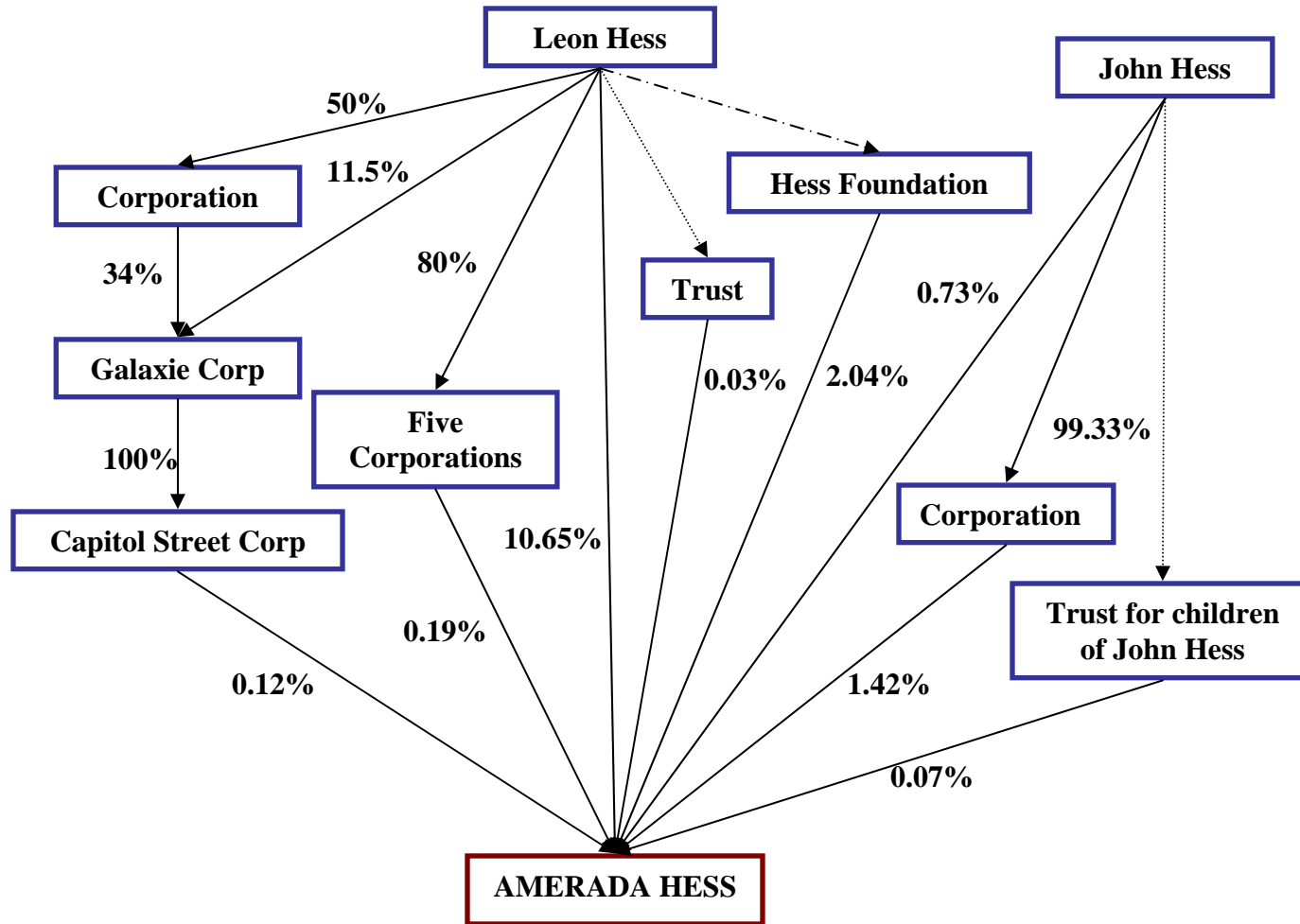


Figure 4. Amerada Hess's ownership structure in 1999. Owners are represented with continuous lines; trustees with dotted lines; and foundation directors with dash-dotted lines. John Hess is the son of founder Leon Hess.

COX FAMILY OWNERSHIP AND CONTROL:

Shares owned = 65.69%
 Votes owned = 75.17%
 Votes controlled = 76.36%

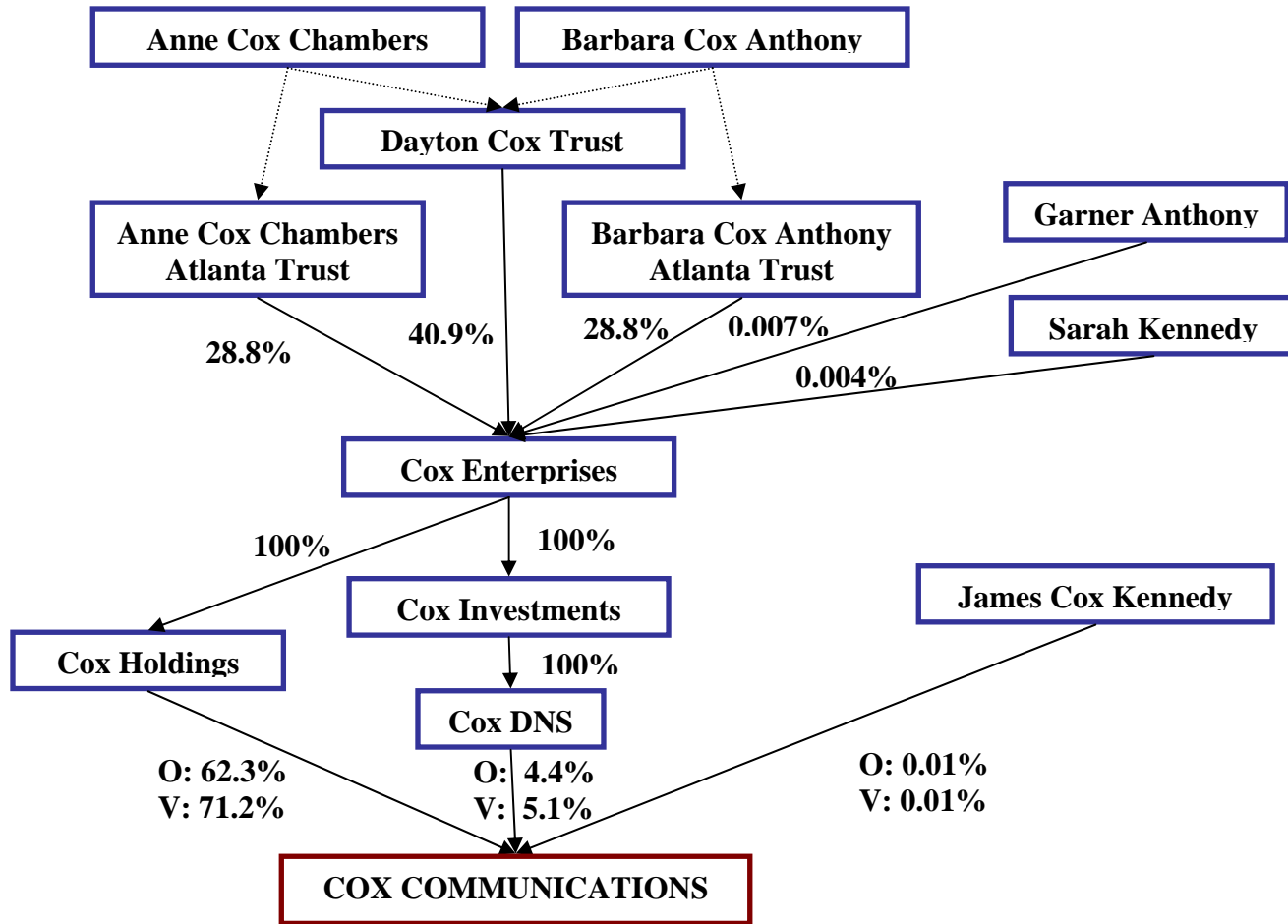


Figure 5. Cox Communications’s ownership structure in 2000. “O” denotes ownership stakes; “V” denotes voting stakes. Owners are represented with continuous lines; trustees with dotted lines. Anne Cox Chambers and Barbara Cox Anthony are daughters of founder James Middleton Cox. James Cox Kennedy is son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

Table I
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 II
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> | | | | | |
| 1. Number of Firm-Years (Firms) with Two or More Share Classes, Common or Preferred | 773 | 320 | 453 | 89 | 231 |
| | 171 | 76 | 101 | 24 | 53 |
| 2. Number of Firm-Years (Firms) with Two or More Common Share Classes (Dual-Class Firms) | 304 | 188 | 116 | 62 | 126 |
| Of Which: | 64 | 41 | 25 | 16 | 25 |
| - At Least One Common Class is Not Publicly Traded | 214 | 148 | 66 | 49 | 99 |
| - Superior Voting Class is Not Publicly Traded | 120 | 96 | 24 | 20 | 76 |
| <i>B. Voting Arrangements</i> | | | | | |
| 1. Mean (<i>Median</i>) Voting Ratio (Inferior-to-Superior) In Firms with Two or More Share Classes | 0.56 | 0.46 | 0.64 | 0.51 | 0.44 |
| | 0.50 | 0.20 | 0.91 | 0.43 | 0.16 |
| 2. Mean (<i>Median</i>) Voting Ratio (Inferior-to-Superior) In Firms with Two or More Common Share Classes | 0.41 | 0.31 | 0.58 | 0.41 | 0.26 |
| | 0.15 | 0.10 | 0.60 | 0.10 | 0.10 |
| 3. 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 the Election of Directors | 49 | 35 | 14 | 21 | 14 |
| - No Difference in Voting Rights across Classes | 48 | 11 | 37 | 2 | 9 |
| 4. 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 | 0.91 | 0.85 | 0.95 | 0.90 |
| | 1 | 1 | 1 | 1 | 1 |
| 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 III
Ownership of Shares and Votes by Families, Individuals and Institutions

Shares owned refers to shares held with investment power by the family or blockholder, 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, 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 | | % Votes Owned | | % Shares Owned | | % Votes Owned | |
| | 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 IV
Investment Vehicles in U.S. Family Firms

Shares owned refers to shares held with investment power by the family, as a percentage of total shares outstanding. Votes owned refers to the votes associated to the shares held with voting power by the family, as a percentage of total votes outstanding. Votes controlled equal votes owned, plus any additional votes resulting from the family owning less than 100% but more than 20% in any of the investment vehicles. 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 | | Mean % of Votes Controlled by Family | | 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 V
Control-Enhancing Mechanisms in U.S. Family Firms

This table reports the frequency of use and 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 | % Votes Controlled Minus % Votes Owned | % Votes Controlled Minus % Shares Owned | % Votes Owned to % Shares Owned Ratio | % Votes Controlled to % Votes Owned Ratio | % Votes Controlled to % Shares Owned Ratio |
|---|-------|----------------|--|--|---|--|--|---|
| <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 | 6.5% | 0.0% | 6.5% | 1.50 | 1.00 | 1.50 |
| Pyramids | 11 | 56 | 0.0% | 6.2% | 6.2% | 1.00 | 1.31 | 1.31 |

Table VI
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 | 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 | 11.1% | 10.6% | 11.4% |
| Firm-Years in which % Board Seats > % Shares Owned | 755 | 321 | 434 |
| % Board Seats Controlled Minus % Votes Controlled | 10.0% | 10.0% | 10.0% |
| Firm-Years in which % Board Seats > % Votes Controlled | 705 | 299 | 406 |

Table VII
Impact of Control-Enhancing Mechanisms on Firm Value

Coefficients from OLS regressions of industry-adjusted Tobin's q on additional family control obtained through various mechanisms, and other firm characteristics. Additional control via dual-class stock and voting agreements is the difference between the percentage of votes owned by the family and the percentage of shares they own. Additional control via pyramids is the difference between the percentage of votes controlled by the family and the percentage of votes they own. Additional control via 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. For firms with non-tradable share classes, the non-tradable shares are valued at the same price as the publicly traded shares. 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 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 | 0.10 (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 VIII

Impact of Control-Enhancing Mechanisms on Firm Value: Alternative Measure of Control

Coefficients from OLS regressions of industry-adjusted Tobin's q on additional family control obtained through various mechanisms, and other firm characteristics. Additional control via dual-class stock and voting agreements is the ratio of the percentage of votes owned by the family to the percentage of shares they own. Additional control via pyramids is the ratio of the percentage of votes controlled by the family to the percentage of votes they own. Additional control via 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. For firms with non-tradable share classes, the non-tradable shares are valued at the same price as the publicly traded shares. 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 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 |

Table IX
Determinants of Families' Choice of Control-Enhancing Mechanisms

Probit models of the choice between using or not using each mechanism. Use of each mechanism is measured by a dummy. Dual-class stock equals one when the firm has two or more classes of stock with differential voting rights. Voting agreements are 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 are defined as control structures where the family holds its shares of the firm indirectly through one or more intermediate entities such as trusts, foundations, limited partnerships, or any other form of corporation in which the family owns less than 100% but more than 20%. Additional board control equals one when the percentage of family members or representatives in the firm's Board of Directors exceeds the percentage of votes controlled via dual-class stock, voting agreements, and/or pyramids, and equals zero otherwise. All models include sector and year dummies. 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. z-statistics from clustered (by firm) standard errors appear in parentheses. Asterisks denote statistical significance at the 1% (***), 5% (**), or 10% (*) level.

| | Dual-Class Stock | | Voting Agreements | | Pyramids | | Disproportional Board Representation | |
|--|------------------|------------|-------------------|------------|------------------|-----------|--------------------------------------|------------|
| | Coef. | dF/dx | Coef. | dF/dx | Coef. | dF/dx | Coef. | dF/dx |
| Dual-Class Stock | | | -0.64 (-1.34) | -0.020 | 0.03 (0.08) | 0.000 | -1.11 (-4.51) | -0.414 *** |
| Voting Agreements | -0.96 (-1.98) | -0.079 ** | | | 0.82 (1.97) | 0.020 ** | 0.16 (0.35) | 0.060 |
| Pyramids | 0.14 (0.25) | 0.023 | 0.67 (1.11) | 0.058 | | | 0.29 (0.52) | 0.110 |
| Disproportional Board Representation | -1.03 (-4.41) | -0.183 *** | -0.01 (-0.03) | -0.001 | 0.46 (1.33) | 0.003 | | |
| % of Family Holdings in Trusts | -0.80 (-1.22) | -0.122 | -3.02 (-4.51) | -0.141 *** | 2.86 (2.62) | 0.023 *** | 1.49 (2.91) | 0.583 *** |
| % of Family Holdings in Corporations | -0.06 (-0.09) | -0.009 | -1.41 (-2.19) | -0.066 ** | 6.65 (4.58) | 0.054 *** | 0.28 (0.43) | 0.109 |
| % of Family Holdings in Limited Partnerships | -0.42 (-0.58) | -0.064 | -1.57 (-3.29) | -0.073 *** | 4.07 (3.46) | 0.033 *** | 1.76 (2.85) | 0.687 *** |
| % of Family Holdings in Foundations | -2.55 (-2.66) | -0.386 *** | -0.71 (-0.67) | -0.033 | 4.15 (2.76) | 0.034 *** | 1.81 (2.76) | 0.707 *** |
| % of Family Holdings Owned Directly | -0.94 (-1.59) | -0.143 | -2.18 (-4.38) | -0.102 *** | 3.98 (3.44) | 0.032 *** | 2.51 (5.34) | 0.981 *** |
| Family-CEO or Chairman | 0.31 (1.42) | 0.044 | -0.10 (-0.37) | -0.005 | 0.74 (1.46) | 0.005 | 0.07 (0.37) | 0.027 |
| First Generation | -0.70 (-2.79) | -0.104 *** | -0.70 (-2.2) | -0.032 ** | -1.00 (-2.49) | -0.009 ** | -0.19 (-0.9) | -0.076 |
| Governance Index | -0.01 (-0.29) | -0.002 | -0.05 (-0.97) | -0.002 | 0.07 (1.03) | 0.001 | 0.07 (2.15) | 0.027 ** |
| % of Shares Owned by Non-Family Blockholders | 0.38 (0.97) | 0.058 | 0.47 (1.45) | 0.022 | -0.45 (-0.59) | -0.004 | 0.19 (0.54) | 0.074 |

Table IX
Determinants of Families' Choice of Control-Enhancing Mechanisms (continued)

| | Dual-Class Stock | | Voting Agreements | | Pyramids | | Disproportional Board Representation | |
|--------------------------|------------------|--------------|-------------------|--------------|------------------|--------------|--------------------------------------|--------------|
| | Coef. | <i>dF/dx</i> | Coef. | <i>dF/dx</i> | Coef. | <i>dF/dx</i> | Coef. | <i>dF/dx</i> |
| Tobin's <i>q</i> | -0.16 (-1.75) | -0.025 * | -0.09 (-1.05) | -0.004 | -0.44 (-2.25) | -0.004 ** | -0.09 (-1.91) | -0.035 * |
| Market Risk (Beta) | 0.39 (1.61) | 0.059 | 0.72 (2.04) | 0.034 ** | 0.01 (0.02) | 0.000 | 0.15 (0.77) | 0.058 |
| Idiosyncratic Risk | -0.25 (-0.7) | -0.037 | -0.61 (-1.37) | -0.029 | 0.91 (2.29) | 0.007 ** | -0.33 (-0.82) | -0.129 |
| Diversification | 0.23 (1.11) | 0.034 | 0.16 (0.64) | 0.007 | -0.06 (-0.23) | 0.000 | 0.26 (1.62) | 0.101 |
| CAPX/PPE | 0.30 (1.27) | 0.045 | 0.36 (1.04) | 0.017 | -1.27 (-1.81) | -0.010 * | -0.42 (-0.94) | -0.165 |
| Dividends/Book Equity | -0.18 (-0.46) | -0.027 | 0.33 (0.80) | 0.015 | -3.60 (-0.90) | -0.029 | -0.86 (-1.74) | -0.336 * |
| Debt/Mkt Value of Equity | 0.19 (1.3) | 0.029 | -0.87 (-1.97) | -0.040 ** | 0.14 (0.70) | 0.001 | -0.23 (-1.67) | -0.089 * |
| Log of Assets | 0.04 (0.38) | 0.006 | -0.22 (-1.87) | -0.010 * | 0.25 (1.42) | 0.002 | 0.12 (1.26) | 0.048 |
| Log-Likelihood | -374.27 | | -172.72 | | -113.79 | | -575.7 | |
| Pseudo R-Squared | 0.27 | | 0.28 | | 0.48 | | 0.28 | |
| No. of Observations | 1183 | | 1183 | | 1183 | | 1183 | |