

Family Control of Firms and Industries

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Abstract

Using a large sample of U.S. corporations, we test what explains family control of firms and industries. We find that family firms are less sensitive to both positive and negative profit shocks, suggesting that founding families retain control when doing so gives the firm a competitive advantage, not just when they can appropriate private benefits of control at the expense of non-family shareholders. We also find that families are more likely to maintain control when the efficient scale is small, the need to monitor managers and other employees is high, the firm's amenity potential is high, profit horizons are long, and there is dual-class stock.

Founder or family-controlled firms dominate the corporate landscape around the world (La Porta et al. (1999); Faccio and Lang, 2002; Claessens et al. (2000)). In fact, these firms dominate entire industries. The global beer industry is one example: InBev, Anheuser-Busch, SABMiller, Heineken, FEMSA, Carlsberg, and many smaller companies are still controlled by their founding families or related foundations. In the United States, six of the seven largest cable system operators, including Comcast, Cox, Cablevision, and Charter Communications, are controlled and actively managed by their founders or the founder's heirs.¹ Eleven out of the 12 largest publicly traded newspaper companies are also family-controlled.²

These facts raise the question that is the subject of this paper: What explains family control of firms and industries?

Theories of family control can be classified into two broad explanations, which we refer to as “competitive advantage” and “private benefits of control.” The key difference between the two is the group of shareholders for whom value is maximized. Under the competitive advantage hypothesis, value is maximized for both family and non-family shareholders (Bertrand and Schoar, 2006). Under the private benefits of control hypothesis, value is maximized only for the family, who expropriates non-family investors (Burkart et al., 2003). Those investors may still be better off as minority shareholders than they would be in a non-family firm, but they are worse off than they would be if the family sought to maximize value for the firm as a whole instead of just for itself. In other words, both explanations are consistent with economic efficiency, but firm

¹ The exception is Time Warner, where Ted Turner owns 0.8% of its equity since the acquisition of Turner Broadcasting, and has a seat on the board, but does not manage the company. In Comcast, CEO Brian Roberts and his father Ralph, who founded the company, own over a third of the votes. The Cox family took Cox Communications private in 2004, and the Dolan family is in the process of doing the same at Cablevision. The founding families in the remaining companies all control a majority of the votes and 100% of the board through dual-class stock. See Gilson and Villalonga (2007) for details.

² The exception is Gannett (see Villalonga and Hartman, 2007). Three of the other 11 companies have experienced changes in control in the past year after being run by their founding families for over a century, but remain family-controlled: Knight-Ridder (now owned by rival McClatchy), Tribune (now owned by Samuel Zell), and Dow Jones (now owned by Rupert Murdoch's NewsCorp).

value or profits only reflect the full benefits to all shareholders under the competitive advantage hypothesis.³

Theoretical predictors of family control under the competitive advantage umbrella include firms and industries' value-maximizing size, control potential, and "amenity potential" (Demsetz and Lehn, 1985), as well as investor horizons. Predictors based on a private benefits of control explanation include the use of control-enhancing mechanisms, minority shareholder protection, information asymmetries, and the free cash flow available to family shareholders.

The two broad explanations are not mutually exclusive, however. Both could be true, not just across a wide cross-section of firms but even within a given firm or industry. For instance, Botticelli and Barnes (1997) and Eisenmann's (2000) chronicles of the history of U.S. newspapers and cable television suggest that family firms came to have a competitive advantage in both industries as a result of two factors: the amenity potential these businesses offered to their founding families, and the longer horizons families had relative to other investors. Nevertheless, almost all of these families set up dual-class structures early in their firms' financing histories, which helped them retain control over the years and appropriate private benefits at the expense of public shareholders (Gilson and Villalonga; 2007; Villalonga and Hartman, 2007).

While the question of what explains family control of firms and industries has not been directly addressed from an empirical standpoint, the evidence about the prevalence of family control across countries and its effects on corporate performance seems consistent with both explanations. The positive effect of family ownership on firm value documented by Anderson

³ Bertrand and Schoar use a similar classification into "efficiency-based theories for family firms, under which family control is a source of comparative advantage for firms, allowing them to achieve superior economic outcomes over their nonfamily counterparts... [and] the cultural view, under which strong family values may inefficiently push business organizations towards family control" (2006, p. 75). They argue that, under the cultural explanation, "family ownership and management are no longer value-maximizing but rather utility maximizing for founding families" (pp. 74–75)

and Reeb (2003) and Villalonga and Amit (2006), as well as the founder-CEO premium found by Fahlenbrach (2005) and others, are consistent with a competitive advantage explanation. Several other findings seem consistent with a private benefits of control explanation, including the relation between the prevalence of family firms and minority investor protection across countries (La Porta et al, 1999); the premium of super-voting shares in firms with dual-class stock, which are largely family-controlled (Zingales, 1995; Nenova, 2003); the tunneling practices of family business groups in emerging markets (Bertrand et al., 2002); and the negative effects on firm value of families' excess control over ownership (Claessens et al., 2002; Villalonga and Amit, 2006), and of descendant-CEOs (Pérez-González, 2006).

In this paper we take a different approach to answer this question more directly. We use the variation in the prevalence of family control within and across industries in the United States to test the two broad explanations and identify which characteristics distinguish family-controlled firms and industries from their non-family counterparts. Our empirical focus on a single legal regime ensures that legal investor protection will not swamp other candidate explanations and thus bias our results in favor of the private benefits of control view. In contrast, inter-industry variation in family control within a given country is unlikely to create a similar bias, and is comparable in magnitude to the variation across countries. The standard deviation of the percentage of family firms in an industry across the 254 three-digit industries in our 8,104-firm sample is 23%, or 17% across 66 two-digit industries. By way of comparison, the standard deviation of the same variable across the 27 countries in La Porta et al.'s (1999) large-firms and small-firms samples is 23% and 25%, respectively. The standard deviation in Claessens et al.'s (2000) East Asian sample ranges between 18% and 23% (depending on the measure of family control), and that in Faccio and Lang's (2002) Western European sample ranges between 10%

and 18%. Figure 1 shows histograms of the distribution of family control across industries for both two and three-digit level industries in our sample.

We construct two different tests of the two broad explanations. First, we analyze the relative sensitivity of family and non-family firms to industry profit shocks, building on the methodology proposed by Bertrand et al. (2002) to test for the presence of tunneling.⁴ We generalize their methodology by allowing for firms' response to be asymmetric across positive and negative shocks. A lower sensitivity of family control to positive shocks would be consistent with a tunneling (i.e., private benefits appropriation) explanation. On the other hand, a lower sensitivity to negative shocks would be consistent with a "propping" explanation, suggesting that families do not always act in their own self-interest but instead, seek to maximize value for the firm as a whole, as implied by the competitive advantage explanation.

As a second test, we estimate a propensity-score matching model of the effect of family control on the family premium, defined as the excess value of family firms relative to non-family firms in each industry. We use this model to test whether family firms dominate where they are valued the most (as a competitive advantage explanation would suggest) or the least (as a private benefits explanation would suggest).

We find that, just like in the cable and newspaper industries, the combination of competitive advantage and private benefits explanations to family control is the norm across our sample. We then analyze which factors, specifically, are driving our results. Consistent with the competitive advantage hypothesis, firms and industries are more likely to remain under family control when their efficient scale and capital intensity are smaller (the value-maximizing size

⁴ Johnson et al (2000) coin the term "tunneling" to refer to "the transfer of assets and profits out of firms for the benefit of their controlling shareholders." Friedman et al. (2003) coin the term "propping" to describe the use by controlling shareholders of their private funds to provide temporary support to financially troubled firms, thereby benefiting minority shareholders in those companies. Propping is thus the opposite of tunneling.

argument), when the environment is more noisy (the control potential argument), and when the difference between long and short-term profitability is larger (the investment horizon argument). Consistent with the private benefits of control hypothesis, families are more likely to stay in control when there is dual-class stock in their firms. Overall, our findings suggest that family control results in net value creation for all of the firm's shareholders, and not in a sheer transfer of value from outside investors to the founding family.

The paper is structured as follows. Section 1 describes our data and sample. In Section 2 we present the various theories of family control. Section 3 describes our results. Section 4 concludes.

1. Data and Sample

We examine the question of family control of firms and industries using a sample of publicly traded U.S. firms and the industries in which they operate. Because industry variation is central to the analyses in this paper and, on average, firms operate in more than one industry, we use Compustat's business segment data to reduce classification errors in determining which industries are family-controlled and compute more accurate industry averages of our firm-level measures. We begin by selecting as broad a sample of industries as possible, by extracting from Compustat all companies that were active in year 2000 and reported data for one or more business segments. There were 8,148 such firms, excluding 528 foreign firms that only trade in the U.S. in the form of American Depositary Receipts (ADRs). We then aggregate all segment data within firms at the three-digit SIC level, whenever possible. The 8,148 firms are present in 12,069 "three-digit segments" from 289 different industries, from which we eliminate two that are in fact at the one-digit level, and one that corresponds to "non-classifiable establishments" (SIC code 9990). We also eliminate all industries with less than five firms operating in them.

This leaves us with 8,104 firms with 11,930 segments in 259 industries, of which 11,854 segments from 254 industries (and 8,093 firms) are at the three-digit level and 76 segments from 5 different industries (and 11 firms) are at the two-digit level. Aggregating all segments within firms at the two-digit level, there are 11,008 segments spanning 66 two-digit industries.

We use the 8,104-firm sample to compute industry averages of firm and segment characteristics, which we use in some of our analyses. We also use other data sources to construct additional independent variables. The sources include the Occupational Employment Survey of the Bureau of Labor Statistics, Political Action Committees (PAC) data from the Center for Responsive Politics, corporate governance data from the Investor Responsibility Research Center, and stock returns data from the Center for Research in Security Prices (CRSP).

We initially follow Anderson and Reeb (2003) in defining 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. However, Villalonga and Amit (2006, 2008) show that results can be very sensitive to family firm definition, particularly to whether first-generation (founder-controlled) firms are included among family firms or not, and whether family management by a founder-CEO or descendant-CEO is required in addition to family ownership and control. Accordingly, in this paper we examine the sensitivity of our results to four alternative definitions. The first one, which henceforth we label as “founder- or family-controlled firms,” is the one given above. The second definition, “founder- or family-managed firms,” refers to the subset of the first-definition firms that have a family CEO (founder or descendant). The third definition, “family-controlled firms,” restricts the first definition in a different way, by including second- or later-generation firms only. (A firm’s generation refers to the latest generation of family members that are active in the firm as officers, directors, or

blockholders, relative to the founder's generation, which would be the first). The fourth definition, "family-managed firms," is the intersection of the second and third definitions, namely family controlled-firms with a family CEO. This family CEO is typically a descendant, although it can also be the founder if a descendant is an officer, director, or blockholder, such that the firm is in its second or later generation. We find all of our results to be very similar between the first and second definitions, and between the third and the fourth, but somewhat different across the two pairs. Hence, we report all of our results for the first and fourth definitions only (the two extremes), and make other results available to readers upon request.

We consider as "the founder" the largest shareholder among those individuals who are identified as founders in at least two public sources. Such an individual is typically the one responsible for the early growth and development of the company or a predecessor firm into the business that it later became known for, but it need not be the one who incorporated the firm or took it public. We exclude from all our definitions individual investors who are not founders (e.g. activists like Carl Icahn), because their objective functions and investment horizons can be very different from those of founding families.

In order to establish whether a U.S. company is founder- or family-controlled or not, ownership data needed to be collected manually from proxy statements filed with the Securities and Exchange Commission (SEC). These data were complemented with corporate histories extracted from Hoover's, company websites, and/or internet searches, to determine who the founder was and verify family relationships among shareholders. Because this is a very time-consuming process, we only collected these data for a subsample of 2,110 firms, or about 26% of the 8,104-firm sample. Altogether, the 2,110 firms have 3,968 segments or about 33% of the

11,854 segments in the sample, and span the whole spectrum of 254 three-digit industries and 66 two-digit industries in the full sample.

Table 1 depicts the representativeness of the sample. To ensure a minimum degree of representation for each industry, we randomize within industries by selecting a minimum of two segments or 20% of all segments in the industry, whichever is higher. This threshold results in the minimum percentage of all segments in an industry represented by our sample being 20% for three-digit level industries, and 25% for two-digit level industries. Because of these thresholds and the fact that each firm typically operates in more than one industry, the average percentage of all segments in an industry represented by our sample is actually higher—39% (15.5 firms) for three-digit level industries, and 40% (60 firms) for two-digit level industries. The maximum percentage at both industry levels is 83%. Sample firms account for 58% of industry aggregate sales at the three-digit level, and 56% at the two-digit level.

Figure 2 shows the extent of founder and family control and management among our sample firms, and traces the boundaries of our four definitions. Fifty-five percent of the 2,110 firms (1,158 firms) are founder or family-controlled (our first definition), and they cover 51% of all segments. Anderson and Reeb (2003) find that founding families are present in one third of the S&P 500; Villalonga and Amit (2006, 2008) find that, among Fortune-500 firms, the percentage is as high as 40%. Anderson et al. (2007) document an even higher percentage (48%) among the largest 2,000 U.S. firms. Our finding of a 55% fraction of family firms in a more random sample of U.S. corporations thus confirms the conventional wisdom that family control is significantly more prevalent among smaller firms, and suggests that it would be even higher if the entire population of U.S. firms—public and private—were considered. We also find that 719 or 63% of all founder and family-controlled firms (or 34% of all firms) are not just family-owned

but also family-managed (our second definition of a family firm): 591 firms have a founder-CEO, while 128 have a descendant-CEO.

Figure 2 also shows the distribution of family ownership and management across generations. 838 firms or 73% of all founder and family-controlled firms are still in their first generation, including 533 where the founder is the CEO and 305 where he or she exercises a non-executive role (including that of chairman of the board). The remaining 58 firms with a founder-CEO are all in their second generation, as are 74 of the firms with a descendant (and hence second-generation) CEO, and 90 family firms that are not family-managed, for a total of 222 second-generation firms, or 19% of all founder- and family-controlled firms. As can be expected, there is considerable attrition in the number of family firms in subsequent generations. Only 74 firms or 6% of all family firms are in their third generation, 19 firms (1.6%) are in their fourth generation, and five firms (0.4%) are in their fifth generation. Altogether, there are 320 second- or later-generation firms or “family-controlled firms” proper (our third definition). Of these firms, 186 are family-managed (our fourth definition).

Table 2 shows the distribution of family firms across industries under the four alternative definitions. Panel A shows that the mean (median) degree of family control among three-digit SIC industries is 50% (50%) when family firms are defined as founder or family-controlled, 31% (30%) when they are defined as founder- or family-managed, 22% (20%) when family-controlled firms are restricted to second- or later-generation only, and 13 (9%) when the latter are further restricted to family-managed only. These figures are identical when industries are defined at the two-digit level (except for the very last one, which is 11% instead of 9%). There is high variation in these figures across industries, however: the standard deviation of family

control ranges between 10% and 23% depending on the definition of a family firm used and on the granularity of the industry classification.

Panel B illustrates this variation by reporting the degree of family control for each of the 66 two-digit industries in the sample. Family control ranges between zero (e.g., in Railroad Transportation, SIC 4000, for all four definitions), and 100% (in Livestock Production, SIC 200, for the first two definitions; for the other two definitions it is 50%). Leaving out these two extreme examples, the minimum degree of family control under the broadest (first) definition is 14% in “Mining, Quarry, Nonmetallic Minerals” (SIC 1400) and the maximum under the most restrictive (fourth) definition is 50% in Forestry (SIC 800). The variation across definitions can be substantial: for instance, 86% of Automotive Dealers and Service Stations (SIC 5500) are controlled by founders or their families, but none of them are actively managed by the family.

2. Theories of Family Control

Theories of family control of firms and industries can be grouped into two broad sets: those in which family control is the optimal structure for both family and non-family shareholders, and those in which family control is optimal for family shareholders only (see Morck et al. (2005) and Bertrand and Schoar (2006) for reviews). Both groups of theories are consistent with economic efficiency, but only under the first one does firm performance (value or profitability) reflect the full benefits to all shareholders. We label the first group “competitive advantage,” and the second “private benefits of control.” In addition to summarizing the main theories in each group, we propose measures for each of them. We later use these measures in our empirical analyses to test which theories have greater explanatory power.

2.1. Competitive advantage

In their seminal paper about ownership concentration and firm performance, Demsetz and Lehn (1985) propose four determinants of ownership concentration that fall under the “competitive advantage” category: value-maximizing size, control potential, “amenity potential” of a firm’s output, and regulation. In this paper we focus on the first three, which are particularly relevant for individual and family shareholders.

2.1.1. Value-maximizing size

One fundamental predictor of family control is a firm’s value-maximizing size or efficient scale—the size a firm needs to reach to compete successfully in any given industry. The larger this size, the more costly it is to own any given fraction of the firm and concentrate ownership in the hands of a few shareholders—what Demsetz and Lehn refer to as the risk-neutral effect of size. Moreover, as they also argue, risk aversion will reinforce this effect, since in order to control a larger firm, investors need to commit a larger fraction of their wealth and forgo the benefits of diversification or demand compensation for them. Both arguments are of special relevance to individual and family owners who, unlike corporate and institutional shareholders, are the ultimate capital providers and are typically less diversified.

We use the log of segment sales—the firm’s sales in any given industry—to measure the efficient scale in that industry. This measure allows for the fact that a firm may be diversified across industries in which the efficient scale is different. In addition, we use the firm’s capital intensity, measured by the ratio of property, plant and equipment (PPE) to total assets, to proxy for the external financing needs that dilute family ownership as the firm grows to achieve its value-maximizing size.

2.1.2. Control potential

The second explanation builds on the conflict of interest between owners and managers—the classic agency theory of Berle and Means (1932) and Jensen and Meckling (1976). Ownership concentration mitigates this conflict by bringing about greater alignment of incentives (if ownership is concentrated in the hands of managers themselves) or improved monitoring (if it is concentrated in the hands of outside shareholders). The monitoring argument particularly applies to individuals and families who, unlike institutional shareholders such as banks or mutual funds, have their personal fortunes at stake and no additional layers of agency between the monitor and its ultimate owners. Thus, the greater the need for large-shareholder monitoring in any firm or industry—what Demsetz and Lehn refer to as “control potential”—, the more likely it is to be family-controlled.

Demsetz and Lehn focus on one element of a firm’s environment that is positively associated to its control potential: uncertainty, or noisiness, which they measure in three different ways—profit variability, market risk (beta), and firm-specific risk in stock returns. We use the latter two measures, which they find to be the most significant, to test for this explanation. Table 3 provides details on how these and other measures are constructed in this paper.

Another factor affecting the need for large-shareholder monitoring is competition. Product-market competition disciplines managers and other employees, thus reducing the control potential—and the likelihood of family control—of firms and industries. We use two different measures of an industry’s degree of competition: a Herfindahl index of market concentration, and the number of firms in the industry.

Independently of competition, employees are likely to require less monitoring the more skilled they are, partly because they face higher costs if they are caught shirking, and partly because of their greater intrinsic motivation, as argued by Becker and Stigler (1974) and by

Rebitzer (1995). In our empirical analyses, we measure skilled employment by the percentage of total industry employment represented by the following categories in the Bureau of Labor Statistics' Occupational Employment Survey (from which we obtain these data): managers, computer and mathematical, architecture and engineering, and scientific.

2.1.3. Amenity potential

Demsetz (1983) points to some individuals' preference for "on-the-job consumption" as a candidate explanation to ownership concentration. The concept includes both known consumption by owner-managers, which reflects personal tastes, and unknown consumption by managers, which reflects a positive monitoring cost. Building on the former, Demsetz and Lehn coin the term "amenity potential" to describe "the utility consequences of being able to influence the type of goods produced by the firm, not the utility derived from providing general leadership to the firm" (1985, p. 1161).

Like the other two explanations discussed above, these non-pecuniary benefits of control seem particularly relevant for individual and family owners. Indeed, the two industries that Demsetz and Lehn use to proxy for this theory, professional sports clubs and mass media, are among the most family-dominated ones.

In their theoretical model of family control, Burkart et al. (2003) formalize the notion of "amenity potential" and contrast it with private benefits of control—the key difference being that the latter come at the expense of profits accruing to non-family investors. They also mention, but do not explicitly incorporate in their model, a third broad theory of the benefits to a family of preserving control: the reputational benefits associated with a traditional family name and/or with political or economic connections. We view this latter theory as a specific form of amenity potential, and thus as part of our "competitive advantage" group of explanations.

To measure amenity potential across firms and industries, we use the dollar contributions to Political Action Committees (PACs) made by our sample firms in year 2000. PACs are groups that seek to promote their members' interests by raising funds that are contributed to the campaign of political candidates who support the group's interests. PACs can be independent or affiliated with corporations, labor unions, or trade associations. Corporate PACs can solicit contributions from their shareholders and employees, and their families, and can seek support for a variety of causes such as ideological, ethnic, religious, environmental, or industrial. Thus, firms' total dollar contributions to PACs proxy for multiple forms of amenity potential.

PAC contributions provide a useful measure of amenity potential because both family and non-family shareholders can voluntarily contribute to these PACs and derive utility (even corporate profits) from it. Hence, the measure is available for both family and non-family firms. In contrast, other candidate measures such as the presence of the family name in the firm's name (e.g. Ford, or Wrigley) or the employment of family members in the firm, are only meaningful and available for family firms, and thus cannot be used as predictors of family control, as they perfectly predetermine the outcome.

2.1.4. Long-term profit maximization

A fourth explanation to family control is the differential profit horizon that families have relative to other shareholders. Founding families often see themselves as stewards of the family business for future generations (see, e.g. Villalonga and Amit, 2005). As a result, these firms have long-term horizons, often spanning multiple decades, sometimes even centuries. For instance, Tuttle Farm in New Hampshire has been under the same family's control since it was founded in 1635;⁵ Corning since 1851; Anheuser Busch since 1860. Even family firms that are at

⁵ "America's oldest family companies," <http://www.familybusinessmagazine.com/oldestcos.html>

the founder stage tend to stay invested for several years; the founders in our sample have retained ownership in their companies for an average period of nine years after going public.

In contrast, public investors and managers have much shorter horizons, for which they are often criticized. In the New York Stock Exchange, for instance, the average shareholding period has been declining steadily over the past few decades, and is less than one year since 2002. Because the payback period of positive-NPV investments in many industries is far longer than that, firms with patient capital such as that provided by families will be more inclined to sacrifice short-term profits in order to pursue such value-creating projects, and thus may enjoy a competitive advantage over firms that cater to more myopic investors or that are run by myopic managers as in Stein (1989).

To proxy for the long-vs.-short profit horizon of each industry, we measure the difference between the compound average industry Return on Assets (ROA) over the last ten years and the current ROA. ROA is measured as the ratio of Earnings Before Interest, Taxes, Depreciation and Amortization (EBITDA) to total assets.

2.2. Private benefits of control

The term “private benefits of control” was coined by Grossman and Hart (1980) to refer to the benefits that can be appropriated by controlling shareholders or managers at the expense of minority shareholders. Depending on who appropriates those private benefits, they can be considered, respectively, the centerpiece of the agency problem between large and small shareholders, or of that between owners and managers. In this paper we restrict the term to what has become its more frequent use in the literature, namely the benefits appropriated by large (in our case, family) shareholders at the expense of public (non-family) shareholders. Accordingly, we include under this label all theoretical determinants of family control that share the prediction

that family control will only be optimal for family shareholders. As shown by Burkart et al. (2003), the potential appropriation by managers of private benefits of control is also a fundamental determinant of family control. This is exactly what we refer to, following Demsetz and Lehn (1985), as “control potential” but to avoid confusion, we restrict the term “private benefits of control” to those appropriated by family shareholders.

2.2.1. Use of control-enhancing mechanisms

Empirical studies of ultimate ownership and control have shown that families and other controlling shareholders from all parts of the world frequently use mechanisms like dual-class stock and pyramidal ownership to enhance their control rights relative to their cash flow rights (La Porta et al., 1999; Claessens et al., 2000; Faccio and Lang, 2002; Villalonga and Amit, 2008). The use of such mechanisms has been found to reduce profits or market value, which is taken as evidence of private benefits appropriation by controlling shareholders (La Porta et al., 2002; Bertrand et al., 2002; Claessens et al., 2002; Gompers et al., 2006; Villalonga and Amit, 2006).

Moreover, some researchers have come up with specific measures of the size of these private benefits, such as the premium at which superior-voting shares trade relative to the inferior-voting shares in companies with at least two publicly traded classes of common stock (Zingales, 1995, Nenova, 2003), or the differential sensitivity to profit shocks of firms in pyramidal business groups (Bertrand et al., 2002).

Villalonga and Amit (2008) find that, in the United States, the main control-enhancing mechanisms used in publicly traded family firms are dual-class stock and disproportional board representation, but not pyramids. Moreover, only dual-class stock has a significantly negative association with market value; the use of pyramids is in fact positively related to value, as is the use of voting agreements—another mechanism used by U.S. families.

We therefore focus on dual-class stock and use a dummy variable to indicate whether a firm has two or more classes of common stock (regardless of whether more than one class is traded). Nenova (2001) and Villalonga and Amit (2008) show that the primary beneficiaries of dual-class stock are founding families. As with all other predictors considered in this paper, we cannot and do not make any causality claims; all we are saying is that we expect the presence of dual-class stock to be associated with the probability of a firm being under family control. But dual-class stock is endogenously chosen by families just as much as the presence of dual-class stock, once established, helps perpetuate family control across subsequent generations.

2.2.2. Minority shareholder protection

Burkart et al. (2003) propose a model of succession in a firm owned and managed by its founder where the founder's decision is critically shaped by the degree of legal protection of outside shareholders from expropriation (or tunneling) by the insiders—the founder and his family or a successor manager. In their model, the founder maximizes his welfare, which is equal to the sum of the value of the shares he retains in the firm, the revenues from selling shares to investors, and any amenity potential associated to retaining control. Their model thus belongs in our second group of theories, as the objective function is to maximize the founding family's welfare, regardless of whether the outcome maximizes other shareholders' welfare as well or not.

Burkart et al. (2003) show that, when legal protection of outside investors is good, the best arrangement is a widely held, professionally-managed firm. Conversely, when investor protection is weak, family control becomes optimal, at least for the founder and his family. The model therefore predicts a positive association between investor protection and family control, which is consistent with the evidence observed across countries (La Porta et al, 1999). In this

paper we use Gompers et al.'s (2003) governance index to measure investor protection within a single country.

2.2.3. Information asymmetries

If founders or their families seek to appropriate private benefits of control, they will prefer to own firms or operate in industries with relatively large information asymmetries between them and non-family shareholders. Indeed, Anderson et al. (2007) document that, in the United States, family firms are significantly more opaque than non-family firms.

Following Durnev et al. (2003, 2004), we use firm-specific stock return variation to proxy for firm transparency, and a similarly constructed measure at the industry level to proxy for industry transparency (see Table 3 for details). Durnev et al. (2003) provide evidence to support Roll's (1988) conjecture that high firm-specific variation relative to total stock return variation (i.e., low R^2 statistics from a market model that includes an industry factor in addition to the market factor), signals private information, as opposed to just noise. Consistent with the interpretation of firm-specific relative stock return variation as a measure of corporate transparency, Durnev et al. (2004) find this variable to be associated with more efficient corporate investment in the United States. The evidence across countries provides further support for this interpretation: Morck et al. (2000) find an association between firm-specific relative stock return variation and legal investor protection, Wurgler (2000) finds it to be positively related to the quality of capital allocation, and Bushman et al. (2002) find it to be associated with more developed financial analysis industries and with a freer press.

2.2.4. Free cash flow

The presence of debt in the firm's capital structure limits the ability of founders and their families to expropriate public shareholders. As argued by Jensen (1986) with respect to

managers, the obligation to make fixed debt payments reduces the cash flow available to undertake projects that are only NPV-positive for the family, but not for other shareholders. Hence, to the extent that families seek to appropriate private benefits of control, we would expect family firms to have a lower leverage than non-family firms.

Table 4 summarizes the theoretical predictions associated with each determinant of family control.

3. Empirical Results

Our empirical strategy includes four distinct sets of analyses. We begin by testing the two broad sets of theories in two different ways: first, we analyze the differential sensitivity of family and non-family firms to profit shocks in their industries; second, we examine the effect of family control on the “family premium” or discount existing in each industry. The two broad groups of theories offer different predictions with respect to these two effects, as we explain below. Then, in order to understand what is driving the results of the first two analyses, we conduct univariate as well as multivariate tests of the individual theories described above.

3.1. Sensitivity of family control to profitability shocks

To test whether founding families maintain control of firms and industries because of competitive advantages and/or private benefits of control, we analyze the differential response of family and non-family firms to positive and negative earnings shocks. Specifically, positive earnings shocks provide a good research laboratory to test whether families maintain control of their firms to appropriate private benefits; if this is the case, we would expect family firms to be less sensitive to unpredicted increases in profitability, because part of the profit windfall would be tunneled away by the family. Negative earnings shocks, in turn, can be used to test whether family firms enjoy a competitive advantage over non-family firms; if this is the case, we would

expect family firms to be more resilient, i.e., less affected by the downturn than non-family firms in the same industries. If both explanations hold true, or if the evidence against one of them is not significant enough to offset the other in the aggregate, we would expect family firms (in general, and in particular within family-controlled industries) to be less sensitive to earnings shocks as a whole.

Our test builds on the methodology proposed by Bertrand et al. (2002) to measure the extent of tunneling activities in business groups. Following their approach, we rely on within-firm, over-time variation in predicted EBITDA to isolate earnings shocks, and construct predicted EBITDA for each firm as the product of its assets by its predicted Return on Assets (ROA). Each firm's predicted ROA is the asset-weighted average ROA of all firms in its industry excluding the firm itself, and ROA is the ratio of EBITDA to total assets.

We then estimate the following fixed-effects regression, similar to the one used by Bertrand et al. to estimate the sensitivity of group-affiliated firms to industry shocks:

$$EBITDA_{it} = \alpha + \beta(predEBITDA_{it}) + \gamma(family_i \times predEBITDA_{it}) + \delta_x(X_{it}) + \varepsilon_{it}, \quad (3)$$

where X_{it} is a vector of control variables, including the log of firm assets, book leverage (debt-to-equity), and the ratio of capital expenditures to sales.⁶

⁶ The regression above corresponds to Bertrand et al's test of their first prediction: that group-affiliated firms should on average under-respond to shocks in their own profits. As they note, this prediction is consistent not just with tunneling but also with a dissipation of resources due to inefficient operations. Their subsequent tests allow them to distinguish between the two explanations. However, those tests require the presence of a pyramidal structure: two or more firms in which the controlling shareholder has different cash-flow rights. Since pyramidal structures are uncommon in the United States (Villalonga and Amit, 2008), we cannot apply those other tests in our context. Instead, we take Bertrand et al's first test in a different direction, to distinguish between tunneling and propping. Our extension of their test also allows us to rule out the alternative explanation of operational inefficiencies that result in profit dissipation.

The coefficient of interest to us is that of the interaction between the family firm dummy and predicted EBITDA, γ , which measures the differential response of family firms to industry shocks. If family firms are less sensitive to these shocks, γ should be negative.⁷

Implicit in Bertrand et al.'s methodology is the assumption that the differential response of the two groups of firms is symmetric across positive and negative shocks, i.e., that the propensity to tunnel is correlated with the propensity to "prop," as in Friedman et al.'s (2003) model. This need not be the case, however. Suppose, for instance, that the main channel through which the family appropriates rents is the salary paid to its member-employees, such as the CEO. Suppose also that when there is a boom in the industry, family-CEOs raise their salaries by more than their counterparts at non-family firms, and hence their EBITDA is less sensitive to positive shocks. If family-CEOs' greed were such that when there is a bust they cut their salaries *less* than non-family CEOs, family firms' EBITDA would be *more* sensitive to negative shocks, thus creating an asymmetry in family firms' aggregate response to shocks.

We extend Bertrand et al.'s methodology to allow for this kind of asymmetry. To break down our analysis into positive and negative industry shocks, we subtract firm-specific means from each variable in (1) and re-estimate two separate OLS regressions on the de-meaned variables: one on the subsample of firm-years for which the de-meaned predicted EBITDA is positive, and another one on the subsample for which it is negative. (Note that estimating the OLS regression on the de-meaned variables for the full sample of shocks yields the same coefficients as the fixed effects estimation of (1), except for the constant's). We use clustered standard errors on all three regressions to account for intertemporal correlation in the error term.

⁷ Sraer and Thesmar (2007) use a similar specification to test for the employment sensitivity of French family firms to shocks in industry sales.

Table 5 shows the results of estimating the model on our 2,110-firm sample, for which we collect additional financial data going back to 1998. This time extension yields an enlarged sample of 5,629 firm-years from 2,003 firms with non-missing data on the variables required for the analysis. The results confirm that family firms are indeed less sensitive to industry profit shocks. As shown in the first column, a one-dollar change in predicted EBITDA leads to an 86c. change in the same direction in the actual EBITDA of non-family firms, but only to a 30c. change (86 minus 56) for family firms.

The second and third columns in the table provide more insight about what is driving these results. Family firms are less sensitive than non-family firms to *both* positive and negative shocks. The response is hence symmetrical directionally, although not quantitatively. For each one-dollar *increase* in predicted EBITDA, actual EBITDA increases by 89c. in non-family firms, but only by 27c. (= 89 – 62) in family firms. This difference suggests that capital providers to family firms (including non-family shareholders as well as family shareholders and creditors) are somehow losing 62c., or over two thirds, of the predicted profit increase. While this profit dissipation per se does not constitute evidence of tunneling by family shareholders (it could also be attributed to organizational inefficiencies), it is consistent with a private benefits story.

On the flip side, the results in the third column show that, a one-dollar *decrease* in predicted EBITDA leads to an 83c. decrease in actual EBITDA for non-family firms, but only a 35c. decrease (83 minus 48) for family firms. This result is consistent with the view that family firms enjoy a competitive advantage relative to non-family firms. Indirectly, this finding also provides support for the interpretation of the “missing 62c.” in positive shocks as evidence of tunneling. Columns four through six show that these results are robust to the definition of family firm; family-managed firms are also significantly less sensitive to shocks of either sign.

In the analyses reported in Table 5, each firm is ascribed to a single industry, that of its largest segment as measured by sales. To verify the robustness of our results to this assumption, we ascribe each firm to all the industries in which it operates and re-run the analyses at the segment level. We use segment EBITDA (which is generally available from Compustat) and measure all other characteristics at the firm level. There are 10,417 segment-year observations from 4,147 different segments in this sample. Table 6 shows that our findings are also robust to this variation.

Our results provide direct support for Friedman et al.'s (2003) theory and evidence for Asian economies that the same individuals or families who tunnel resources out of firms when profits and legal systems permit it also prop up their firms (or at least tunnel less than others) at times of economic downturn. They are also consistent with Sraer and Thesmar's (2007) findings that family firms smooth out employment in response to industry shocks in sales, which they interpret as evidence that the long horizons of family firms allow them to commit to long-term labor contracts.

From the point of view of public shareholders and debtholders, family firms are thus a low-risk, low-return proposition: non-family investors are protected from downside risk by virtue of these firms' competitive advantage, but their potential upside is also limited, by the family's ability to appropriate more than their pro-rata share of windfall profits. This finding suggests that neither of the two candidate explanations to family control, competitive advantage or private benefits, can be ruled out.

3.2. Effect of family control on industries' family premium or discount

Another way to test the two broad explanations is by examining whether industries where family firms dominate are also where these firms are valued the most. If they are, it would be

consistent with the competitive advantage explanation. If they are not, it would be consistent with a private benefits story, where the appropriation of such benefits by the controlling family is reflected in a discounted market value for these firms relative to their non-family counterparts.

To implement this test, we construct a measure of the excess value (Tobin's q) of family firms relative to non-family firms in each industry, $(q_F - q_{NF}) / q_{NF}$, which we refer to as the "family premium or discount." Prior to averaging Tobin's q across firms, however, we winsorize the variable by making it equal to 10 for all observations for which it is greater than 10. This adjustments controls for the fact that our sample year, 2000, was at the height of the technology bubble, and so a disproportionate number of firms had very high q 's as a result of having very high market values with very few assets. For those three-digit industries where either all or none of the firms are family-controlled (which are 17 and 10, respectively), and hence for which our measure cannot be computed, we use the family premium of the corresponding two-digit industry (which is available for all except two three-digit industries, one family-controlled (Animal Specialties, SIC 270) and another non-family-controlled (Railroads, SIC 4010)).

We note that, on average across the entire sample of 254 three-digit industries, founder- and family-controlled firms trade at an 18% premium relative to non-family firms. In contrast, when the family premium or discount in an industry is computed using our fourth and most restrictive definition of a family firm (as one that is second- or later-generation and family-managed), the premium across the entire sample turns into a discount of 10%. We henceforth refer to this discount the "family management discount" to distinguish it from the "founder-or family-control premium" that is computed using the first definition. It is also worth noting that the second definition (founder- or family-managed firms) yields a premium of 12%, while the third definition (second- or later-generation family-controlled firms) yields neither a premium

nor a discount. These results confirm the findings of Villalonga and Amit (2006) for Fortune 500 firms on our larger sample. Namely, founding family ownership and family management by founder-CEOs are positively associated to value, but family management by descendant-CEOs has the opposite effect.

To test whether family-controlled industries are where family firms are valued the most or the least, we regress the founder-or family-control premium on a dummy indicating whether industries are founder- or family-controlled or not. Likewise, we regress the family management discount on a dummy indicating whether industries are family-managed or not. In both cases, industries are ascribed to either group depending on whether they are above or below the median percentage of family firms in the industry.⁸

The first row of Table 7 shows OLS regression results. The average premium in founder- and family-controlled industries is 1.44% lower than that in non-family controlled industries, suggesting that families are in fact more prevalent where they are valued the least, yet the difference is not statistically significant. In contrast, the family management discount is 3.5% lower (i.e., less negative) in family-managed industries than in non-family managed industries, suggesting that second- and later-generation families hold on to the management of their companies in those industries where the penalty for doing so is relatively lower. But again, the coefficient is not statistically significant.

Moreover, these OLS estimates cannot be interpreted in any causal sense because family control of firms and industries does not happen at random. To control for self-selection in industries' family-controlled status, we estimate a propensity-score-matched regression of industries' family premium on family control (see Rosenbaum and Rubin (1983) and Dehejia

⁸ Industries whose degree of family control is at the median are included in the non-family-controlled group in all the analyses whose results are reported in this paper. However, the results are robust to including them in the family-controlled group instead, and to excluding them altogether.

and Wahba (1999) for details on the methodology). We specify a two-stage model where the first stage is a probit model of an industry’s propensity to be family-controlled:

$$\Pr(FCI_i = 1) = \alpha + \beta_X(X_i) + \varepsilon_i, \quad (1)$$

where X_i is a vector of explanatory variables, such as those described in Section 2.

The second stage is an OLS regression of each industry’s family premium or discount on a dummy indicating whether the industry is family-controlled or not and, as additional independent variables, the same variables included in the first stage:

$$FamPremium_i = \alpha + \beta(FCI_i) + \gamma_X(X_i) + \varepsilon_i, \quad (2)$$

We use the propensity scores (the predicted values from the probit analysis) as a summary measure on which we match family-controlled and non-family controlled industries (the “treated” and “control” groups, respectively) to correct for self-selection in family control at the second-stage. Following Dehejia and Wahba (1999), the matching is done by blocks (i.e., the stratification algorithm). The region of common support includes 238 industries: the 110 founder- or family-controlled industries plus 108 non-family controlled industries whose propensity scores are above the minimum propensity score of the treated group (0.09). The final number of blocks that satisfies the balancing property—that there are no significant differences within blocks between the treated and control groups in any of the variables included in the analysis—is five. For family-managed industries, the region of common support includes 243 industries with a minimum propensity score of 0.15, and the final number of blocks is six.

The results from both stages of the estimation of the propensity-score models are also shown in Table 7 for both definitions of a family firm. We defer the discussion of the first-stage probit results (in Panel B) until the next subsection, where we also discuss other tests of the specific theories of family control, and focus now on the second-stage results shown in the

second row of Panel A. The estimated effect of family control on the premium of founder- or family-controlled industries (the so-called “treatment effect on the treated” that is the outcome of propensity-score matching estimators) is much larger than the univariate estimate (-14% instead of -1.4%), but remains statistically non-significant. The effect on the discount of family-managed industries is 2%, and is also non-significant.

3.3. Tests of specific theories of family control

The evidence we provide in the previous two sections suggests that firms and industries are family-controlled due to a combination of factors consistent with both the competitive advantage and private benefits of control explanations. We now proceed to test which factors specifically contribute to explain family control, using the individual theories summarized in Section 2 to guide our choice of variables.

Tables 8 through 11 show the results of this exercise. Tables 8 and 9 display univariate tests at the firm and industry levels, respectively, while Tables 10 and 11 show the results of multivariate probit models estimated at the segment level (and Table 7 shows probit models at the industry level as the first stage in the propensity score matching model). In addition to the theoretical predictors discussed above, we include three control variables in all of our analyses: ROA, log of firm age, and sales growth. Because the distribution of ROA exhibits some extreme values in its left tail, we winsorize that tail by making equal to -100% all observations that are lower than -100%. The compound annual ten-year average we use to proxy for families’ long term horizon is also computed after this winsorization of the annual ROAs.

3.3.1. Univariate tests

Table 8 shows means, standard deviations, and tests of differences in means between founder- or family-controlled industries and other industries, and between family-managed

industries and other industries. Industries are ascribed to either group depending on whether they are above or below the median percentage of family firms in the industry. Industries whose degree of family control is at the median are included in the non-family-controlled group in all the analyses whose results are reported in this paper. However, the results are robust to including them in the family-controlled group instead, and to excluding them altogether. We show the results of the analysis on the 254 three-digit industries, but note that the results are similar for the 66 two-digit industries.

The industry-level tests are performed not only on industry characteristics but also on unweighted industry averages of firm characteristics. These averages are estimated using the larger sample of 11,854 segments from 8,104 firms. We measure the long-short term differential profit horizon as the difference between the compound average ROA over the last ten years and the current ROA. Because many firms in our sample have been public for less than ten years, we do not compound firms' ROA directly; instead, we compute an industry average ROA for each year, and then compound over time within each industry.

Of the actual industry characteristics, only the number of firms is statistically significant, but has the opposite sign to that predicted by the theory when family firms are defined broadly as founder- or family-controlled. On the other hand, when they are defined as family-managed, the sign reverses to negative, consistent with a control potential theory. Under the latter definition, skilled employment is also significant and provides further support for this theory. We also find statistical validity to the notion that founding families are present in industries with long-term profit horizons.

The industry averages of firm characteristics provide further support for some of the theoretical arguments described in Section 2. Consistent with the value-maximizing size

argument, founder- and family-controlled industries have significantly lower PPE/assets than others (as have family-managed industries, but the difference there is not significant). They also have higher risk, both systematic and idiosyncratic, in support of Demsetz and Lehn's (1985) arguments and findings about the relation between the noisiness of the environment, control potential, and ownership concentration—which we show applies to family shareholders in particular. When family control is restricted to that by family-managed firms, however, we find family-controlled industries to have lower risk, which is not surprising since all the young, founder-stage firms are now reclassified as non-family. Indeed, the three control variables show that founder and family-controlled industries are significantly less profitable, younger, and with higher sales growth than the rest, yet the significance disappears (and some of the signs are reversed) when looking at second- or later- generation family-managed firms only.

PAC contributions in founder- and family-controlled industries are significantly higher than those of non-family firms, which is consistent with the notion that families hang on to businesses with higher amenity potential. Altogether, these results provide strong support for the view that families choose to remain in control of the firms that they or their ancestors founded whenever such control gives the firm a competitive advantage over their peers.

We also find support for the private benefits explanation in the positive and significant association between dual-class stock and family control, however defined. The support is only partial, however, since family firms have a significantly lower governance index, which is indicative of better investor protection in those firms, rather than worse as a private benefits story would suggest.

Table 9 shows a similar univariate analysis, but of firm and segment characteristics. The tests are of differences in means between family firms and non-family firms. The reported

segment sales and EBITDA are unweighted averages across all segments within a firm, i.e. they are not added up to construct firm characteristics; hence they should be interpreted as what they are—segment characteristics. The lower segment size of founder- and family-controlled firms is consistent with the value-maximizing size argument.

The sign and significance of the test statistics for founder- or family-controlled firms match those of the corresponding industry averages, except for PAC contributions and sales growth, which are only significant at the industry level. This suggests that part of the explanatory power of these variables is attributable to the nature of the business itself, rather than to firm-specific factors. For instance, risk and amenity potential, while measured at the firm level, are likely to be correlated among firms in the same industry. On the other hand, the measures of leverage and transparency at the firm level are statistically significant; yet while the negative sign on leverage is consistent with the free cash flow argument, we find that family firms have higher, not lower, transparency, which is contrary to the theoretical prediction.

The tests of differences between family-managed and non-family-managed firms also yield greater statistical significance than the corresponding industry averages. All indicators of size, profitability, age and risk have the reverse sign to those in the analysis of founder- and family-controlled firms, which is again to be expected given the inclusion of founder-stage firms therein. However, dual-class status, the governance index, and firm transparency all have the same sign as before.

It is worth noting that the finding that founder- or family-controlled firms have high betas and idiosyncratic risk, while consistent with a control potential argument, may seem difficult to reconcile with the results of our shocks analyses. Since family firms (regardless of how they are defined) are less sensitive to both positive and negative profit shocks, they should exhibit a lower

volatility in their profits. Indeed, we find this to be the case. Table 9 shows that the standard deviation of firm EBITDA over the past three years is lower for all family firms, and significantly so for founder- and family-controlled firms in particular. Yet the standard deviation of firm ROA is higher, suggesting that the discrepancy is not due to differences in performance measures (stock prices vs. accounting profits). Rather, the explanation is simply that founder- and family-controlled firms have a significantly smaller asset base (as we also show in Table 9), which makes their volatility higher when scaling EBITDA by assets as in the ROA ratio.

3.3.2. Multivariate tests

Panel B of Table 7 shows the results of a probit model of industries' propensity to be founder- or family-controlled and/or managed, from which the propensity scores used in Section 3.2. are estimated. The results reinforce the findings of the univariate analyses in Table 8, although some of the coefficients lose statistical significance and others gain it. In particular, founder- and family-controlled industries have significantly less skilled employment, which is consistent with a control potential explanation to family control.

Table 10 shows the results of probit models of the probability of a segment belonging to a founder- or family-controlled and/or managed firm on the firm, industry, and segment characteristics analyzed in the previous section. In this analysis, we treat as industry characteristics only those for which we do not have firm-level measures; otherwise we include the variable as a firm characteristic. The only exception is the governance index, for which we only use the industry average because it is missing for a large number of firms in our sample.

The results broadly confirm and complement those of the univariate analyses. Segments that are larger in size or that belong to capital-intensive firms are less likely to remain under family control, which is consistent with the value-maximizing size argument. The control

potential argument is supported by the finding that founders and their families are more likely to be present in firms with a higher beta, and in industries where employees are generally less skilled and thus in greater need of large-shareholder monitoring. Families are also significantly more prevalent in industries where the compound annual average ROA over the past ten years exceeds current profits, which suggests a greater concern for maximizing long-term profits regardless of short-term profitability (although, in the multivariate analysis, family firms are also associated with higher short-term profits). Unlike in the univariate analyses, the latter two coefficients are now statistically significant in several of the regressions, adding to the overall support for the competitive advantage theory of family control.

Dual-class stock, the governance index, firm transparency, and leverage are still significantly associated with the likelihood of family control. As before, however, the negative sign of the governance index and the positive sign of the transparency coefficient are indicative of better corporate governance at family firms, suggesting that families are not using either of those channels to appropriate private benefits of control. One possible explanation for this finding is that family firms wish to send a positive signal to the market to partially offset the adverse effect on value of a control-enhancing mechanism.

Table 11 shows the results of a second set of probit models where, to gauge the extent to which our findings are driven by firm or industry factors, we split each firm characteristic into an industry component and a firm-specific (or industry-adjusted) component. The industry component is the average of the firm characteristic across the industry of the segment that constitutes an observation in this analysis. We use the full sample of 8,104 firms and their 11,854 three-digit segments to compute these industry averages. Similar results are obtained if we use two-digit level averages instead. The firm-specific component is the difference between the firm

characteristic and the industry component. We do the same for the only segment characteristic in the model, the log of segment sales, which is likewise split into an industry component and a segment-specific component.

The decomposition of firm and segment characteristics provides further evidence that the explanatory power of these variables and their underlying theories is partly attributable to the nature of the business itself, rather than to firm-specific factors. Our findings thus support the central tenet of this paper that, in order to understand what explains family control, it is important to look across industries, and not just countries or firms.

4. Conclusion

In this paper we test two broad groups of theories that explain family control of firms and industries. The first group, which we label “competitive advantage,” encompasses value-maximizing size, control potential, “amenity potential,” and investment horizons, which share the testable implication that firm value will be maximized for all of the firm’s shareholders. The second group, “private benefits of control,” includes the use of control-enhancing mechanisms, minority shareholder protection, information asymmetries, and the free cash flow available to family shareholders, which share the implication that value will be maximized only for the family, but not for non-family investors.

Using a range of univariate and multivariate tests on a large sample of publicly traded U.S. firms, we find that both the competitive advantage and the private benefits of control theories explain the propensity of firms and industries to be family-controlled. This finding implies that while some of the value created by family-firms is being appropriated by families at the expense of non-family shareholders, non-family shareholders in those firms are still better off than they would have been had the same firms not been family-controlled.

We also find that family firms are less sensitive than non-family firms to industry profit shocks, a result that applies to both positive and negative shocks. The implication is that founding families retain control when doing so gives the firm a competitive advantage, not just when they can appropriate private benefits of control at the expense of non-family shareholders.

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Figure 1. Distribution of Family Control across Industries

Founder or family-controlled firms are defined as those in which the founder or a member of the founder's family by either blood or marriage is an officer, director, or blockholder, either individually or as a group. The sample comprises the 8,104 publicly traded U.S. firms in year 2000 that have segment data. These firms have 11,854 segments in 254 three-digit industries, or 11,008 unique two-digit segments in the 66 two-digit industries listed in the table. Family control of industries is measured using a random subsample of 2,110 firms for which we collect ownership data. These firms have 3,968 segments representing an average of 39% of all firms (and a minimum of 20%) in each of the 254 three-digit industries, and 3,511 unique two-digit segments representing an average of 40% (and a minimum of 25%) of all firms in each of the 66 two-digit industries in the full sample.

Family Management	Family Firm's Generation					Total	
	First	Second	Third	Fourth	Fifth		
Founder-CEO	533	58	0	0	0	591	Defi. 4
Descendant-CEO	0	74	41	10	3	128	Defi. 2
Non-Family CEO	305	90	33	9	2	439	Defi. 3
Total	838	222	74	19	5	1,158	Defi. 1

Figure 2. Distribution of Family Ownership and Management Across Generations.

Family firms are defined in one of four ways; (1) Founder- or family-controlled firms: those in which the founder or a member of the founder's family by either blood or marriage is an officer, director, or blockholder, either individually or as a group; (2) Founder or family-managed firms: firms included in (1) whose CEO is the founder or a family member; (3) Family-controlled firms: firms included in (1) that are in their second or later generation; (4) Family-managed firms: firms included in (3) whose CEO is the founder or a family member. Each firm's CEO is classified as founder, descendant, or non-family member. A firm's generation refers to the latest generation of family members that are active in the firm as officers, directors or blockholders, relative to the founder's generation, which is the first. The sample comprises the 8,104 publicly traded U.S. firms in year 2000 that have segment data at the four- three-, or two-digit SIC level. Family control of industries is measured using a random subsample of 2,110 firms for which we collect ownership data, and includes the 1,158 family firms on which this table is based.

Table 1
Sample Representativeness Within Industries

The full sample comprises the 8,104 publicly traded U.S. firms in year 2000 that have segment data at the four-three-, or two-digit SIC level. These firms have 11,854 segments in 254 three-digit industries, or 11,008 unique two-digit segments in the 66 two-digit industries shown in the table. The subsample refers to the 2,110 firms for which we collect ownership data. These firms have 3,968 segments representing an average of 39% of all firms (and a minimum of 20%) in each of the 254 three-digit industries, and 3,511 unique two-digit segments representing an average of 40% (and a minimum of 25%) of all firms in each of the 66 two-digit industries in the full sample.

	Mean	Median	Std. Dev.	Min.	Max.
<i>Three-Digit Industries</i>					
No. of Firms in Subsample	15.5	8.0	26.8	2.0	345
Subsample Firms as Percentage of All Firms	39%	37%	12%	20%	83%
Subsample Sales as Percentage of All Sales	58%	59%	24%	3%	100%
<i>Two-Digit Industries</i>					
No. of Firms in Subsample	60.1	28.0	77.8	2.0	480
Subsample Firms as Percentage of All Firms	40%	38%	10%	25%	83%
Subsample Sales as Percentage of All Sales	56%	64%	19%	8%	100%

Table 2
Family Control of Industries

Family control is measured by the percentage of firms in the industry that are founder- or family-controlled and/or managed. Founder- or family-controlled firms are those in which the founder or a member of the founder's family by either blood or marriage is an officer, director, or blockholder, either individually or as a group. Founder or family-managed firms are those whose CEO is the founder or a family member. The sample comprises the 8,104 publicly traded U.S. firms in year 2000 that have segment data. These firms have 11,008 two-digit segments in the 66 two-digit industries listed in the table. Family control is measured on a random subsample of 2,110 firms for which we collect ownership data. These firms have 3,968 segments representing an average of 39% of all firms (and a minimum of 20%) in each of the 254 three-digit industries, and 3,511 unique two-digit segments representing an average of 40% (and a minimum of 25%) of all firms in each of the 66 two-digit industries in the full sample.

		Percentage of Firms in the Industry that are:			
		Founder- or Family- Controlled	Founder- or Family- Managed	Family- Controlled (2 nd /Later Generation)	Family- Managed (2 nd /Later Generation)
<i>A. Sample Statistics</i>					
All 2-digit	Mean	50%	31%	22%	13%
All 2-digit	Median	50%	30%	20%	11%
All 2-digit	Std. Dev.	17%	15%	12%	10%
All 3-digit	Mean	50%	31%	22%	13%
All 3-digit	Median	50%	30%	20%	9%
All 3-digit	Std. Dev.	23%	22%	18%	15%
<i>B. Two-Digit SIC Codes</i>					
100	Agricultural Production--Crops	29%	14%	29%	14%
200	Agricultural Production--Livestock	100%	100%	50%	50%
800	Forestry	50%	50%	50%	50%
1000	Metal Mining	21%	14%	0%	0%
1200	Coal Mining	22%	22%	22%	22%
1300	Oil And Gas Extraction	43%	30%	16%	10%
1400	Mining, Quarry, Nonmetallic Minerals	14%	0%	14%	0%
1500	General Building Contractors	52%	34%	28%	21%
1600	Heavy Construction, not Building Constr.	43%	21%	21%	7%
1700	Construction, Special Trade	45%	25%	25%	10%
2000	Food And Kindred Products	49%	28%	34%	22%
2100	Tobacco Products	40%	20%	20%	0%
2200	Textile Mill Products	50%	31%	25%	25%
2300	Apparel And Other Textile Products	61%	39%	19%	10%
2400	Lumber And Wood Products	50%	26%	38%	18%
2500	Furniture and Fixtures	68%	47%	42%	26%
2600	Paper And Allied Products	30%	17%	24%	13%
2700	Printing And Publishing	72%	45%	40%	21%
2800	Chemicals And Allied Products	43%	20%	12%	3%
2900	Petroleum Refining and Related	26%	13%	17%	9%
3000	Rubber And Misc. Plastics Products	32%	17%	12%	5%
3100	Leather And Leather Products	50%	30%	10%	10%
3200	Stone, Clay, And Glass Products	47%	28%	36%	25%
3300	Primary Metal Industries	49%	22%	25%	13%

Table 2
Family Control of Industries—Continued

SIC Code	Description	Percentage of Firms in the Industry that are:			
		Founder- or Family- Controlled	Founder- or Family- Managed	Family- Controlled (2 nd /Later Generation)	Family- Managed (2 nd /Later Generation)
3400	Fabricated Metal Products	44%	20%	16%	9%
3500	Industrial Machinery And Equipment	45%	23%	19%	10%
3600	Electronic & Other Electric Equipment	53%	29%	11%	7%
3700	Transportation Equipment	37%	14%	22%	8%
3800	Instruments And Related Products	55%	26%	12%	6%
3900	Miscellaneous Manufacturing Industries	59%	41%	22%	14%
4000	Railroad Transportation	0%	0%	0%	0%
4200	Trucking And Warehousing	58%	50%	17%	13%
4400	Water Transportation	62%	31%	38%	23%
4500	Transportation By Air	25%	21%	4%	4%
4600	Pipelines, Except Natural Gas	43%	14%	14%	0%
4700	Transportation Services	43%	35%	17%	13%
4800	Communication	61%	39%	19%	11%
4900	Electric, Gas, And Sanitary Services	17%	12%	2%	2%
5000	Wholesale Trade--Durable Goods	58%	43%	20%	14%
5100	Wholesale Trade--Nondurable Goods	40%	26%	15%	7%
5200	Building Materials & Garden Supplies	57%	29%	0%	0%
5300	General Merchandise Stores	38%	25%	21%	13%
5400	Food Stores	42%	21%	37%	16%
5500	Automotive Dealers & Service Stations	86%	43%	21%	0%
5600	Apparel And Accessory Stores	59%	41%	24%	21%
5700	Furniture And Homefurnishings Stores	59%	29%	29%	12%
5800	Eating And Drinking Places	58%	38%	20%	13%
5900	Miscellaneous Retail	60%	45%	16%	8%
6000	Depository Institutions	27%	18%	9%	0%
6100	Nondepository Institutions	45%	31%	16%	13%
6200	Security And Commodity Brokers	51%	37%	9%	9%
6300	Insurance Carriers	39%	26%	23%	16%
6400	Insurance Agents, Brokers, & Service	59%	41%	19%	11%
6500	Real Estate	52%	36%	25%	13%
6700	Holding And Other Investment Offices	58%	36%	14%	9%
7000	Hotels And Other Lodging Places	77%	45%	45%	23%
7200	Personal Services	58%	33%	42%	33%
7300	Business Services	64%	42%	9%	5%
7500	Auto Repair, Services, Parking	50%	17%	25%	8%
7600	Miscellaneous Repair Services	50%	25%	50%	25%
7800	Motion Pictures	70%	52%	33%	22%
7900	Amusement & Recreation Services	74%	57%	33%	21%
8000	Health Services	65%	41%	7%	6%
8200	Educational Services	61%	44%	17%	11%
8300	Social Services	63%	38%	25%	0%
8700	Engineering & Management Services	68%	39%	10%	4%

Table 3
Variable Definitions

The analyses reported in Tables 7 through 10 include, as industry characteristics, averages of the firm or segment characteristics defined in this table, calculated as unweighted averages at the three-digit or two-digit SIC industry level. The analyses reported in Table 11 include, in addition to industry characteristics or averages, firm-specific (industry-adjusted) characteristics. These are measured as the difference between the firm's characteristic and the industry average, except for Firm Transparency, which is industry-adjusted by construction. The source for all variables is Compustat unless otherwise indicated in this table.

Variable	Description
<i>Firm Characteristics</i>	
1 PPE/Assets	Ratio of property, plant and equipment to total assets.
2 Market Risk (Beta)	Slope from a market model in which the firm's monthly returns over the past five years are regressed on the CRSP value-weighted index monthly returns. Source: CRSP.
3 Idiosyncratic Risk	Standard error of estimate from market model in which the firm's monthly returns over the past five years are regressed on the CRSP value-weighted index monthly returns. Source: CRSP.
4 PAC Contributions	Firm's total annual donations to Political Action Committees. Source: Center for Responsive Politics
5 Dual-Class Firm	Dummy, =1 if the firm has dual-class stock. Source: Gompers, Ishii, and Metrick (2007)
6 Governance index	Number of shareholder rights-reducing governance provisions in the firm's charter, bylaws, or SEC filings. Source: Investor Responsibility Research Center.
7 Firm Transparency	Firm-specific relative stock return variation, measured as the residual sum of squares relative to total sum of squares (i.e., $1 - R^2$) from regressions of firms' daily stock returns on market (CRSP value-weighted) returns and 3 or 2-digit industry value-weighted portfolio returns. Each firm is excluded from its own industry portfolio. Source: CRSP and Compustat.
8 Debt/MV Equity	Ratio of the book value of total debt to the market value of equity.
9 ROA	Ratio of operating income before depreciation and amortization (EBITDA) to total assets.
10 Age	Number of years that the firm has been trading for on a U.S. stock market. Source: CRSP.
11 Sales Growth	Simple average of the firm's annual growth rate in sales over the past three years.
<i>Industry Characteristics</i>	
12 Industry Concentration	Herfindahl index (i.e., sum of squared market shares), estimated using segment sales at the two-digit or three-digit SIC level.
13 Number of firms	Number of segments from different firms in the industry.
14 Skilled Employment	Percentage of all industry employment represented by the following occupational categories during 1999 and 2000: Management; architecture and engineering; computer and mathematical; life, physical, and social science. Source: Bureau of Labor Statistics.
15 Compound ROA, Last 10 Years	Compound Average Industry ROA over the period 1991–2000, where each year's industry ROA is the unweighted average ROA of all firms for which the industry is their principal one.
16 Industry Transparency	Industry-specific relative stock return variation, measured as the value-weighted average of the difference, for each firm in the industry, between (a) the residual sum of squares relative to total sum of squares (i.e., $1 - R^2$) from regressions of the firm's daily stock returns on market (CRSP value-weighted) returns, and (b) its firm-specific relative stock return variation (defined above). Source: CRSP and Compustat.
<i>Segment Characteristics</i>	
17 Segment Sales	Firm's sales in a specific industry, defined at the 3 or 2-digit level.
18 EBITDA	Segment's operating income before depreciation and amortization.

Table 4
Theoretical Predictors of Family Control

Theoretical Explanation	Variable	Predicted Sign
<i>A. Competitive Advantage</i>		
A.1. Value-maximizing size		
A.1.1. Efficient scale	Log of Segment Sales	–
A.1.2. External financing needs	Firm’s PPE/Assets	–
A.2. Control potential		
A.2.1. Risk	Firm’s Market Risk (Beta)	+
	Firm’s Idiosyncratic Risk	+
A.2.2. Competition	Industry Concentration	+
	Industry’s Number of Firms	–
A.2.3. Employees’ intrinsic motivation	Industry Skilled Employment	–
A.3. Amenity potential	Firm’s PAC Contributions	+
A.4. Long-term profit maximization	Industry’s 10-Year Minus Current ROA	+
<i>B. Private Benefits of Control</i>		
B.1. Use of control-enhancing mechanisms	Firm’s Dual-Class Status	+
B.2. Minority shareholder protection	Firm’s Governance Index	+
B.3. Information asymmetries	Firm and Industry Transparency	–
B.4. Free cash flow	Firm’s Debt/Assets	–

Table 5
Sensitivity of Family and Non-Family Firms to Profitability Shocks

Fixed-effects regression of firms' Earnings Before Interest, Taxes, Depreciation, and Amortization (EBITDA) on predicted EBITDA and several control variables. The positive and negative shocks regressions are OLS regressions where firm-specific means (over the full "all shocks" sample) have been subtracted from each variable's. These regressions are then estimated on the subsamples of observations for which the de-measured predicted EBITDA is positive or negative, respectively. A firm's predicted EBITDA is the sum of the predicted EBITDAs of its segments. A segment's predicted EBITDA is the product of its assets by the asset-weighted average return on assets of all segments in the industry excluding the segment itself. Founder or family-controlled firms are those in which the founder or a member of the founder's family by either blood or marriage is an officer, director, or blockholder, either individually or as a group. Family-managed firms are those second- or later-generation firms whose CEO is a family member. The model is estimated on the 5,629 firm-years from 2,003 firms that have no missing data on any of the variables included, out of a total of 6,330 firm-years from 2,110 firms for which we collect ownership data. The 2,110 firms were selected randomly within industries out of a larger sample of 8,104 publicly traded U.S. firms in year 2000 that have segment data at the four- three-, or two-digit SIC level. The industry average profitability measures are estimated on the 11,854 segments belonging to the full sample of 8,104 firms. *t*-statistics from clustered standard errors (by firm) are in parentheses. Asterisks denote statistical significance at the 1% (***) , 5% (**), or 10% (*) level, respectively.

	Founder- or Family-Controlled Firms			Family-Managed Firms (2 nd /Later Generation)		
	All Shocks	Positive Shocks	Negative Shocks	All Shocks	Positive Shocks	Negative Shocks
Firm's Predicted EBITDA	0.86 *** (13.21)	0.89 *** (9.83)	0.83 *** (16.43)	0.81 *** (10.8)	0.83 *** (8.13)	0.78 *** (14.9)
Family Firm × Firm's Predicted EBITDA	-0.56 *** (-6.17)	-0.62 *** (-5.79)	-0.48 *** (-5.41)	-0.59 *** (-5.47)	-0.61 *** (-4.76)	-0.57 *** (-6.13)
Ln(Firm Assets)	9.78 * (1.69)	11.96 * (1.79)	12.01 ** (1.98)	-4.43 (-0.60)	-0.01 (0.00)	6.28 (1.00)
Firm's Debt / Book Value of Equity	-0.23 (-0.68)	0.01 (0.09)	-0.67 (-1.04)	-0.27 (-0.78)	0.00 (0.04)	-0.76 (-1.22)
Firm's Capex / Sales	0.08 *** (8.92)	0.18 *** (4.69)	0.06 *** (10.8)	0.15 *** (14.2)	0.43 *** (4.50)	0.09 *** (23.3)
Constant	116.0 *** (4.11)	-4.02 (-0.98)	1.52 (0.47)	164.7 *** (4.80)	-9.21 (-1.64)	5.43 * (1.78)
Number of Observations (Firm-Years)	5,629	2,634	2,900	5,629	2,634	2,900
Number of Clusters (Firms)	2,003	1,902	1,896	2,003	1,902	1,896
R-Squared (Within)	0.65	0.65	0.63	0.63	0.63	0.62

Table 6
Sensitivity of Family and Non-Family-Controlled Segments to Profitability Shocks

Fixed-effects regression of segments' Earnings Before Interest, Taxes, Depreciation, and Amortization (EBITDA) on predicted EBITDA and several control variables. Segments are business segments, i.e. the operations of a firm in a particular industry. The positive and negative shocks regressions are OLS regressions where segment-specific means (over the full "all shocks" sample) have been subtracted from each variable's. These regressions are then estimated on the subsamples of observations for which the de-measured predicted EBITDA is positive or negative, respectively. A segment's predicted EBITDA is the product of its assets by the asset-weighted average return on assets of all segments in the industry excluding the segment itself. Founder or family-controlled segments are segments of firms in which the founder or a member of the founder's family by either blood or marriage is an officer, director, or blockholder, either individually or as a group. Family-managed segments are segments of second- or later-generation firms whose CEO is a family member. The model is estimated on the 10,437 segment-years from 2,003 firms that have no missing data on any of the variables included, out of the 2,110 firms for which we collect ownership data. The 2,110 firms were selected randomly within industries out of a larger sample of 8,104 publicly traded U.S. firms in year 2000 that have segment data. The industry average profitability measures are estimated on the 11,854 three-digit segments belonging to the full sample of 8,104 firms. *t*-statistics from clustered standard errors (by firm) are in parentheses. Asterisks denote statistical significance at the 1% (***), 5% (**), or 10% (*) level, respectively.

	Founder- or Family-Controlled Segments			Family-Managed Segments (2 nd /Later Generation)		
	All Shocks	Positive Shocks	Negative Shocks	All Shocks	Positive Shocks	Negative Shocks
Segment's Predicted EBITDA	1.06*** (12.4)	1.06*** (11.8)	1.06*** (12.9)	1.06*** (13.0)	1.06*** (12.3)	1.05*** (13.5)
Family Firm × Segment's Predicted EBITDA	-0.35** (-2.32)	-0.36** (-2.20)	-0.33** (-2.32)	-0.58*** (-3.15)	-0.59*** (-3.13)	-0.55*** (-3.15)
Ln(Firm Assets)	-9.34 (-0.79)	-9.08 (-0.56)	4.26 (0.47)	-16.30 (-1.36)	-12.77 (-0.83)	0.29 (0.03)
Firm's Debt / Book Value of Equity	-0.44 (-1.32)	-0.30 (-0.95)	-0.66** (-2.21)	-0.48 (-1.37)	-0.32 (-0.96)	-0.72** (-2.42)
Firm's Capex / Sales	0.14*** (7.78)	0.36*** (3.97)	0.09*** (10.6)	0.19*** (15.3)	0.53*** (4.69)	0.11*** (22.7)
Constant	79.5 (1.57)	-5.54 (-1.07)	9.13** (2.54)	101.17** (2.01)	-8.85 (-1.6)	11.29*** (2.87)
Number of Observations (Segment-Years)	10,437	4,784	5,067	10,437	4,784	5,067
Number of Clusters (Segments)	4,147	3,554	3,499	4,147	3,554	3,499
R-Squared (Within)	0.89	0.90	0.87	0.89	0.91	0.87

Table 7

Propensity-Score-Matched Regressions of Industries' Family Premium on Family Control

Probit model of an industry's propensity to be family-controlled, and propensity-score-matched estimates of the effect of family control on the industry's family premium or discount. The matching is done by blocks (stratification algorithm). Founder or family-controlled and/or managed industries are those above the median percentage of family control in each industry. Family control in an industry is measured by the percentage of firms in the industry that are founder or family-controlled and/or managed. Founder or family-controlled firms are those in which the founder or a member of the founder's family by either blood or marriage is an officer, director, or blockholder, either individually or as a group. Family-managed firms are those second- or later-generation firms whose CEO is a family member. Family premium or discount is the difference between the average Tobin's q of family firms and non-family firms in an industry, relative to the q on non-family firms, under either definition of a family firm. The sample comprises the 254 three-digit industries, or the 66 two-digit industries that are home to the 8,104 publicly traded U.S. firms that have segment data at the four- three-, or two-digit SIC level. Family control of industries is measured using a random subsample of 2,110 firms for which we collect ownership data. These firms have 3,968 three-digit (3,511 two-digit) segments representing an average of 39% (40%) and a minimum of 20% (25%) of all firms in each industry. All variables are described in Table 1. t -statistics are shown in parentheses. Asterisks denote statistical significance at the 1% (***), 5% (**), or 10% (*) level, respectively.

	Founder- or Family- Controlled Industries	Family-Managed Industries (2 nd /Later Generation)		
<i>A. Effect of Family Control on Industries' Family Premium</i>				
OLS Estimate	-0.014	(-0.14)	0.035	(0.48)
Average Treatment Effect on the Treated (2 nd Stage of Propensity-Score Matching Model)	-0.138	(-0.75)	0.021	(0.31)
<i>B. Probit: Industries' Propensity to be Family-Controlled (1st Stage of Propensity-Score Matching Model)</i>				
Ind. Avge. Ln (Segment Sales)	-0.202	(-1.83) *	0.025	(0.24)
Ind. Avge. PPE/Assets	-0.907	(-1.49)	-0.381	(-0.67)
Ind. Avge. Market Risk (Beta)	-0.186	(-0.47)	-0.234	(-0.66)
Ind. Avge. Idiosyncratic Risk	-0.005	(-0.01)	0.208	(0.24)
Industry Concentration (Herfindahl)	-0.059	(-0.07)	-1.233	(-1.67)*
Industry's Number of Firms	0.007	(2.73) ***	-0.003	(-1.55)
Industry Skilled Employment	-0.064	(-2.62) ***	-0.019	(-0.93)
Ind. Avge. PAC Contributions	0.004	(0.43)	-0.015	(-1.62)
Industry's 10-Year Minus Current ROA	0.457	(1.44)	0.710	(2.52)**
Industry's Percent of Dual-Class Firms	2.750	(2.82) ***	3.178	(3.05) ***
Ind. Avge. Governance Index	-0.136	(-2.21) **	-0.151	(-2.52)**
Industry Transparency	0.791	(1.29)	-0.065	(-0.11)
Ind. Avge. Debt/Assets	-0.086	(-0.50)	0.098	(0.56)
Ind. Avge. ROA	1.122	(0.77)	1.799	(1.45)
Ind. Avge. Ln (Age)	-1.337	(-4.19) ***	0.642	(2.19)**
Ind. Avge. Sales Growth	0.091	(1.05)	0.071	(1.13)
Constant	5.927	(4.04) ***	-0.016	(-0.01)
Pseudo- R^2	0.29		0.15	
Number of Observations (Industries)	254		254	

Table 8
Propensity of Industries to be Founder- or Family-Controlled and/or Managed: Univariate Tests

Means, standard deviations, and tests of differences in means between founder- or family-controlled and/or managed industries (those above the median percentage of family control in each industry) and all other industries. Family control in an industry is measured by the percentage of firms in the industry that are founder or family-controlled and/or managed. Founder or family-controlled firms are those in which the founder or a member of the founder's family by either blood or marriage is an officer, director, or blockholder, individually or as a group. Family-managed firms are those second- or later-generation firms whose CEO is a family member. The sample comprises the 8,104 publicly traded U.S. firms in year 2000 that have segment data at the four-, three-, or two-digit SIC level. These firms have 11,854 segments in 254 three-digit industries. Family control of industries is measured using a random subsample of 2,110 firms for which we collect ownership data. These firms have 3,968 segments representing an average of 39% of all firms (and a minimum of 20%) in each of the 254 three-digit industries. All variables are described in Table 4. Asterisks denote statistical significance at the 1% (***), 5% (**), or 10% (*) level, respectively.

Variable	Mean All Firms	Std. Dev.	Founder or Family-Controlled Industries				Family-Managed Industries (2 nd / Later Gen.)			
			Mean FCI (1)	Mean NFCI (2)	Difference (1) – (2)	<i>t</i> -stat	Mean FMI (3)	Mean NFMI (4)	Difference (3) – (4)	<i>t</i> -stat
<i>Industry Characteristics</i>										
Founder- or Family-Control Premium	0.18	0.83	0.17	0.18	-0.01	-0.14				
Family Management Discount	-0.10						-0.09	-0.12	0.04	0.48
Industry Concentration	0.22	0.15	0.21	0.23	-0.02	-0.97	0.21	0.23	-0.02	-1.32
Number of Firms	47	102	67	31	36	2.79***	35	59	-25	-1.93*
Skilled Employment	3.8	5.3	3.4	4.2	-0.8	-1.17	3.18	4.48	-1.31	-1.96*
Compound Ann ROA, Last 10 Yrs	-0.08	0.32	-0.04	-0.10	0.06	1.51	-0.04	-0.13	0.09	2.17**
Industry Transparency	0.44	0.19	0.42	0.44	-0.02	-0.80	0.44	0.43	0.00	0.12
<i>Average of Firm Characteristics</i>										
PPE/Assets	0.32	0.17	0.28	0.34	-0.06	-2.84***	0.31	0.32	-0.01	-0.46
Market Risk (Beta)	0.82	0.35	0.91	0.76	0.15	3.38***	0.79	0.86	-0.07	-1.61
Idiosyncratic Risk	0.48	0.18	0.55	0.43	0.12	5.48***	0.46	0.50	-0.04	-1.66*
PAC Contributions	5.54	10.34	6.62	4.13	2.49	1.91*	4.54	6.57	-2.02	-1.56
Dual-Class Status	0.09	0.10	0.12	0.07	0.04	3.59***	0.19	0.09	0.10	4.41***
Governance Index	9.3	1.7	8.7	9.7	-1.0	-4.93***	9.05	9.48	-0.43	-2.09**
Debt/Assets	0.37	1.05	0.30	0.42	-0.12	-0.91	0.44	0.31	0.13	0.97
ROA	0.01	0.09	-0.01	0.02	-0.03	-2.87***	-0.13	-0.11	-0.02	-0.2
Age	16.1	5.9	12.8	18.6	-5.8	-8.80***	16.4	15.0	0.50	0.68
Sales Growth	0.52	1.50	0.81	0.30	0.51	2.69***	0.54	0.50	0.04	0.19
Number of Industries	254		110	144			129	125		

Table 9
Propensity of Firms to be Founder- or Family-Controlled and/or Managed: Univariate Tests

Means, standard deviations, and tests of differences in means between family and non-family firms. Founder- or family-controlled firms are those in which the founder or a member of the founder's family by either blood or marriage is an officer, director, or blockholder, either individually or as a group. Family-managed firms are those second- or later-generation firms whose CEO is a family member. The sample for this analysis comprises the 2,110 firms for which we collect ownership data. These firms are a random subsample of the sample of 8,104 firms that have segment data at the four- three-, or two-digit SIC level in 2000. The 2,110 firms have 3,968 segments, representing an average of 39% of all firms (and a minimum of 20%) in each of the 254 three-digit industries in the larger sample. All variables are described in Table 4. Asterisks denote statistical significance at the 1% (***), 5% (**), or 10% (*) level, respectively.

Variable	Mean All Firms	Std. Dev.	Founder- or Family-Controlled Firms				Family-Managed Firms (2 nd / Later Gen.)			
			Mean Fam Firms (1)	Mean Non- Fam Firms (2)	Difference in Means (1) – (2)	<i>t</i> -stat	Mean Fam Firms (3)	Mean Non- Fam Firms (4)	Difference in Means (3) – (4)	<i>t</i> -stat
<i>Firm Characteristics</i>										
PPE/Assets	0.26	0.23	0.24	0.29	-0.04	-4.53 ***	0.30	0.26	0.04	2.16 **
Market Risk (Beta)	1.07	1.10	1.21	0.91	0.30	5.87 ***	0.74	1.10	-0.36	-3.94 ***
Idiosyncratic Risk	0.58	0.57	0.67	0.48	0.19	7.22 ***	0.42	0.60	-0.17	-3.69 ***
PAC Contributions	91.3	145.0	106.2	83.3	22.9	1.02	96.7	90.8	5.90	0.15
Dual-Class Status	0.09	0.28	0.11	0.06	0.06	4.70 ***	0.29	0.07	0.22	10.39 ***
Governance Index	9.38	2.70	8.67	9.88	-1.20	-6.32 ***	8.70	9.46	-0.76	-2.44 **
Firm Transparency	0.75	0.22	0.76	0.74	0.03	2.47 **	0.79	0.75	0.04	2.20 **
Debt/Assets	0.24	0.32	0.22	0.27	-0.05	-3.33 ***	0.27	0.24	0.03	1.19
ROA	-0.03	0.28	-0.05	0.00	-0.05	-4.41 ***	0.04	-0.13	0.17	1.96 *
Age	15.74	13.14	12.52	19.42	-6.90	-11.39 ***	20.3	15.3	5.03	4.70 ***
Sales Growth	2.17	48.67	1.12	3.44	-2.32	-1.08	0.23	2.36	-2.13	-0.57
STD(EBITDA), over last 3 years	109	453	69	157	-88	-4.38 ***	87	111	-24	-0.67
STD(ROA), over last 3 years	0.17	0.85	0.20	0.14	0.05	1.42	0.05	0.19	-0.14	-2.09 **
Assets	4,960	23,596	2,722	7,684	-4,962	-4.83 ***	4,254	5,029	-775	-0.43
<i>Segment Characteristics</i>										
Sales	1,397	4,104	1,009	1,869	-861	-4.82 ***	1,572	2,521	-949	-1.61
EBITDA	305	1,208	165	470	-305	-5.57 ***	207	315	-107	-1.12
Number of Firms	2,110		1,158	952			186	1,924		

Table 10
Propensity of Business Segments to be Founder- or Family-Controlled and/or Managed:
Multivariate Probit Models

Probit regressions of the probability of a segment belonging to a founder- or family-controlled and/or managed firm, on industry, firm, and segment characteristics. Founder- or family-controlled firms are those in which the founder or a member of the founder's family by either blood or marriage is an officer, director, or blockholder, either individually or as a group. Family-managed firms are those second- or later-generation firms whose CEO is a family member. The sample comprises the 3,422 segments that have no missing data on any of the variables included in these models, out of a total of 3,968 three-digit segments from 2,110 firms for which we collect ownership data. All variables are described in Table 1. Asterisks denote statistical significance at the 1% (***), 5% (**), or 10% (*) level, respectively.

	Founder- or Family- Controlled Firms		Family-Managed Firms (2 nd / Later Generation)	
	Coef.	<i>t</i> -stat	Coef.	<i>t</i> -stat
Ln (Segment Sales)	-0.070	-4.62 ***	-0.002	-0.09
Firm's PPE/Assets	-0.132	-1.03	0.236	1.50
Firm's Market Risk (Beta)	0.079	2.31 **	-0.098	-1.49
Firm's Idiosyncratic Risk	0.051	0.62	0.241	1.42
Industry Concentration (Herfindahl)	-0.024	-0.09	0.327	1.14
Industry's Number of Firms	3.E-04	1.43	-3.E-06	-0.01
Industry Skilled Employment	-0.008	-1.67 *	-0.005	-0.78
Firm's PAC Contributions	0.001	1.43	-0.001	-1.37
Industry's 10-Year Minus Current ROA	0.284	3.18 ***	0.168	1.36
Firm's Dual-Class Status	0.651	9.17 ***	1.078	13.95 ***
Ind. Avge. Governance Index	-0.112	-5.44 ***	-0.122	-3.96 ***
Firm Transparency	0.114	0.77	0.474	2.40 **
Industry Transparency	0.217	1.25	0.331	1.63
Firm's Debt/ Assets	-0.412	-3.02 ***	-0.293	-1.88 *
Firm's ROA	0.246	1.76 *	0.706	3.09 ***
Firm's Ln (Age)	-0.196	-6.94 ***	0.272	7.84 ***
Firm's Sales Growth	-0.004	-2.39 **	-0.002	-0.77
Constant	1.789	6.13 ***	-1.549	-3.90 ***
Pseudo- R^2	0.10		0.13	
Number of Observations (Segments)	3,433		3,433	

Table 11
Propensity of Business Segments to be Founder- or Family-Controlled and/or Managed:
Multivariate Probit Models Decomposing Firm Characteristics

Probit regressions of the probability of a segment belonging to a founder- or family-controlled and/or managed firm, on industry, firm, and segment characteristics. The models in this table decompose firm characteristics into industry averages and firm-specific (industry-adjusted) characteristics. Founder- or family-controlled firms are those in which the founder or a member of the founder's family by either blood or marriage is an officer, director, or blockholder, either individually or as a group. Family-managed firms are those second- or later-generation firms whose CEO is a family member. The sample comprises the 3,422 segments that have no missing data on any of the variables included in these models, out of a total of 3,968 three-digit segments from 2,110 firms for which we collect ownership data. All variables are described in Table 1. Asterisks denote statistical significance at the 1% (***), 5% (**), or 10% (*) level, respectively.

	Founder- or Family- Controlled Firms		Family-Managed Firms (2 nd / Later Generation)	
	Coef.	<i>t</i> -stat	Coef.	<i>t</i> -stat
Ln (Segment Sales)	-0.054	-3.39 ***	0.013	0.60
Ind. Avge. Ln (Segment Sales)	-0.131	-4.32 ***	-0.027	-0.65
Firm's PPE/Assets	-0.035	-0.22	0.177	0.99
Ind. Avge. PPE/Assets	0.009	0.05	0.472	1.87 *
Firm's Market Risk (Beta)	0.083	2.46 **	-0.076	-1.18
Firm's Idiosyncratic Risk	0.074	0.90	0.287	1.64 *
Industry Concentration (Herfindahl)	-0.163	-0.71	0.425	1.43
Industry's Number of Firms	3.E-04	1.66 *	2.E-04	0.85
Industry Skilled Employment	-0.008	-1.86 *	-0.003	-0.37
Firm's PAC Contributions	6.E-07	1.53	-6.E-07	-0.88
Ind. Avge. PAC Contributions	-3.E-06	-0.70	-9.E-06	-1.83 *
Industry's 10-Year Minus Current ROA	0.197	2.52 **	0.165	1.28
Firm's Dual-Class Status	0.572	8.09 ***	1.031	12.48 ***
Industry's Percent of Dual-Class Firms	1.781	5.34 ***	1.949	5.50 ***
Ind. Avge. Governance Index	-0.052	-2.14 **	-0.112	-3.12 ***
Firm Transparency	0.159	1.02	0.555	2.70 ***
Industry Transparency	0.400	2.35 **	0.259	1.20
Firm's Debt/ Assets	-0.469	-3.48 ***	-0.383	-2.37 **
Ind. Avge. Debt/ Assets	-0.514	-3.81 ***	-0.390	-2.41 **
Firm's ROA	0.186	1.33	0.588	2.52 **
Ind. Avge. ROA	0.800	2.41 **	2.050	4.33 ***
Firm's Ln (Age)	-0.173	-5.92 ***	0.276	7.45 ***
Ind. Avge. Ln (Age)	-0.580	-5.66 ***	0.216	1.44
Firm's Sales Growth	-0.004	-2.27 **	-0.003	-0.74
Ind. Avge. Sales Growth	-0.022	-2.21 **	-0.013	-1.00
Constant	2.588	7.27 ***	-1.475	-3.00 ***
Pseudo- R^2	0.11		0.14	
Number of Observations (Segments)	3,433		3,433	