Financial Management

Family Control of Firms and Industries

Belén Villalonga and Raphael Amit*

We test what explains family control of firms and industries and find that the explanation is largely contingent on the identity of families and individual blockholders. Founders and their families are more likely to retain control when doing so gives the firm a competitive advantage, thereby benefiting all shareholders. In contrast, nonfounding families and individual blockholders are more likely to retain control when they can appropriate private benefits of control. Families are more likely to maintain control when the efficient scale is small, the need to monitor employees is high, investment horizons are long, and the firm has dual-class stock.

Family-controlled firms dominate the corporate landscape around the world (La Porta, López de Silanes, and Shleifer, 1999; Claessens, Djankov, and Lang, 2000; Faccio and Lang, 2002). In fact, entire industries are dominated by family firms. The global beer industry is one example of this phenomenon. 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 (Gilson and Villalonga, 2007). Eleven of the 12 largest publicly traded newspaper companies are also family controlled (Villalonga and Hartman, 2007). These facts elicit 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 nonfamily shareholders (Bertrand and Schoar, 2006). Under the private benefits of control hypothesis, value is maximized only for the family, who expropriates nonfamily investors (Burkart, Panunzi, and Shleifer, 2003). Those investors may still be better off as minority shareholders than they would be in a nonfamily firm, but they are worse off than they would have been if the family sought to maximize value for all shareholders of the firm instead of just for itself. In other words, both explanations are consistent

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**Belén Villalonga is a Professor of Finance at Harvard Business School in Boston, MA. Raphael Amit is a Professor of Management at the Wharton School of Business at the University of Pennsylvania in Philadelphia, PA.*

with economic efficiency, but firm value or profits only reflect the full benefits to all shareholders under the competitive advantage hypothesis.[1]

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 US newspapers and cable television suggest that family firms came to have a competitive advantage in both industries as a result of two factors: 1) the amenity potential these businesses offered to their founding families and 2) 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 potentially 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 regarding 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 and Reeb (2003) and Villalonga and Amit (2006), as well as the founder-CEO premium found by Fahlenbrach (2009) and others, are consistent with a competitive advantage explanation. Several other findings seem consistent with a private benefits of control explanation including the relationship between the prevalence of family firms and minority investor protection across countries (La Porta, López de Silanes, and Shleifer, 1999), the premium of super voting shares in firms with dual-class stock, which are largely family controlled (Lease, McConnell, and Mikkelson, 1983; Zingales, 1995; Nenova, 2003), the tunneling practices of family business groups in emerging markets (Bertrand, Mehta, and Mullainathan, 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 nonfamily counterparts. Our empirical focus on a single legal regime ensures that legal investor protection will not swamp other candidate explanations, thus biasing our results in favor of the private benefits of control view. In contrast, interindustry 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.[2]

Our focus on US data brings about an additional advantage. It allows us to look into the identity of families as it relates to the firms they own and control. Namely, we are able to distinguish between founding families and other controlling families, which no prior study of family firms

[1]Bertrand and Schoar (2006) 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" (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).

[2]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% when family firms are defined as founder or founding family owned, or 24% when they are defined as individual or family controlled (founding or nonfounding). By way of comparison, the standard deviations of the same variable (using a similar definition to the latter) across the 27 countries in the La Porta, López de Silanes, and Shleifer (1999) large-firm and small-firm samples are 23% and 25%, respectively. The standard deviations in Claessens, Djankov, and Lang (2000) East Asian sample range between 18% and 23% (depending on the measure of family control), and those in Faccio and Lang's (2002) Western European sample range between 10% and 18%.

has done.[3] The distinction is particularly relevant for the central research question in this paper, since the reasons for acquiring control may differ from the reasons for retaining control, and the reasons for retaining control, or at least ownership, of companies may differ across founding and nonfounding families. For instance, because founding families are likely to experience considerable emotional attachment to their companies, their commitment to the company may be greater, and their investment horizons longer, than those of nonfounding families—two potential sources of competitive advantage. On the other hand, founding families may be more inclined to appoint their descendants as company CEOs, potentially a form of private benefits appropriation.

We construct two different tests of the two broad explanations. First, we analyze the relative sensitivity of family and nonfamily firms to industry profit shocks, building on the methodology proposed by Bertrand, Mehta, and Mullainathan (2002) to test for the presence of "tunneling." Tunneling is defined by Johnson et al. (2000) as "the transfer of assets and profits out of firms for the benefit of their controlling shareholders." We generalize their methodology by allowing for firms' responses 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. Conversely, a lower sensitivity to negative shocks would be consistent with a competitive advantage explanation. As Friedman, Johnson, and Mitton (2003) argue, controlling shareholders, such as families, may use their private funds to "prop up" (i.e., provide temporary support) to financially troubled firms, thereby benefiting minority shareholders in those companies. Propping is thus the opposite of tunneling. In other words, families may not always act in their own interest but instead seek to maximize value for the firm as a whole. By doing so when there is an industry downturn, families can make their firms more resilient, thereby putting them in a stronger competitive position relative to nonfamily firms in the industry.

As a second test, we measure, for each industry, the premium or discount at which family firms trade relative to nonfamily firms in the industry, and estimate the average and median "family premium or discount" across all industries in our sample. The finding of an average premium would be consistent with a competitive advantage explanation, whereas a discount would be consistent with a private benefit of control explanation.

We find that the dominance of one of the two broad explanations over the other is contingent upon who the controlling families are. When founders and their families are in control, the competitive advantage explanation dominates. However, when nonfounding families and individual blockholders are in control, the private benefits explanation governs. In other words, while all types of controlling families and individuals seek to maximize value for themselves, only founding families are willing and able to maximize value for all shareholders.

We then analyze which factors, specifically, are driving these 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 argument), when the environment is more noisy (and monitoring needs are therefore greater), and when there is less stock turnover (reflecting longer investor horizons). Consistent with the private benefits of control hypothesis, families are more likely to stay in control when there is value-reducing dual-class stock in their firms. However, the latter result only holds for family managed firms in their second or later generation.

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 family. However, the

[3] Most non-US studies consider all individual- or family-controlled firms as family firms regardless of whether the families are founding families or not, since data on whether a given individual is or was a company's founder are rarely available. In contrast, some US-based studies have collected such data and defined family firms as those owned or controlled by founders or their families (Anderson and Reeb, 2003; Villalonga and Amit, 2006, 2009).

net benefits of family control for minority shareholders are only positive when founding families are the ones in control.

The paper is structured as follows. Section I describes our data and sample. In Section II, we present the various theories of family control. Section III describes our results. Section IV provides our conclusions.

I. Data and Sample

We examine the question of family control of firms and industries using a sample of publicly traded US firms and the industries in which they operate.[4] 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. We extract from Compustat all companies that were active in 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 United States 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 "nonclassifiable 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 five 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. Those sources include the Occupational Employment Survey of the Bureau of Labor Statistics, Political Action Committees (PAC) data from the Center for Responsive Politics, and stock returns data from the Center for Research in Security Prices (CRSP).

While family firms can be defined in a variety of ways, the choice of definition is not a semantic matter. Villalonga and Amit (2006) demonstrate that key empirical findings, such as the prevalence of family firms or the impact of family ownership, control, and management on firm value, are entirely contingent upon what definition is used. Accordingly, throughout this paper, we use several alternative definitions of a family firm. For reasons of parsimony, we report our results for four alternative definitions only. However, results based on other possible definitions are available to readers upon request.

Our first definition follows Anderson and Reeb (2003), and Villalonga and Amit's (2006, 2009) primary definition of a family firm as one 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. As in Villalonga and Amit (2006, 2009), 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

[4]Studies of the going-public decision find that firms' listing choices are often clustered by industry (Corwin and Harris, 2001; Poulsen and Stegemoller, 2008). To the extent that this clustering may result in a large fraction of participants in certain industries not being publicly traded, the results in this paper may be sensitive to the exclusion of those firms. Unfortunately, there is no data source that we are aware of that would allow us to determine whether US private firms are family owned or not.

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 label firms that meet this definition as "founder or founding family owned firms," to also reflect the fact that no minimum threshold of control is required, only founding family ownership.

Our second definition, "founding-family-owned and managed firms," restricts the first one in two ways by including only those firms that are: 1) in their second or later generation and 2) family managed (i.e., those whose CEO is the founder or a member of the founding family). 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. Thus, a firm can be on its second or later generation but still have the founder as its CEO. One example is Berkshire Hathaway, whose founder, Warren Buffet, is the CEO, but his son is on the board of directors. Thus, the company is a second-generation family firm. We consider this definition because Villalonga and Amit (2006, 2009) show that results can be particularly sensitive to whether first-generation firms are included among family firms or not and to whether the family firm is managed by its founder, by a descendant, or by a nonfamily CEO. Our third definition modifies the first one in two different ways. We extend our definition of "family" to include not only founding families but also individual investors or families that are not (related to) the founder. Alternatively, we restrict our first definition by requiring that the family is a blockholder (i.e., a beneficial owner of 5% or more of any class of stock). Excluded from our definition of individual or family blockholders are: 1) owners of investment management companies listed as blockholders because of their funds' collective share ownership in our sample firms (e.g., the Johnson family in Fidelity) and 2) general partners in private equity firms or hedge funds that are listed as blockholders (e.g., Henry Kravis in KKR). We consider these firms or funds as institutional investors, not as individual or family investors.

This definition is more consistent with those used in international studies of corporate ownership, which are unable to distinguish between founding and nonfounding families, and which typically establish some minimum control threshold such as 5%, 10%, or 20% (La Porta, López de Silanes, and Shleifer, 1999; Claessens, Djankov, and Lang, 2000; Faccio and Lang, 2002). We refer to the firms that meet this third definition as "individual- or family-controlled firms" ("individual" as opposed to "founder" and "controlled" as opposed to just "owned") to reflect the two differences with the first definition.

Our fourth definition, "family controlled and managed firms," is the intersection of the second and third definitions, namely, second- or later-generation firms whose CEO is an individual blockholder or a member of a blockholding family (founding or nonfounding).

In order to establish whether a US company is a family firm or not by any of these definitions, ownership data had 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 to verify family relationships among shareholders. Because the process is very time consuming, 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 I 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

Table I. Sample Representativeness within Industries

The full sample comprises the 8,104 publicly traded US firms that had segment data in 2000. These firms have 11,854 segments in 254 three-digit industries, or 11,008 unique two-digit segments. 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	*SD*	Min.	Max.
Panel A. Three-Digit Industries					
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%
Panel B. Two-Digit Industries					
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%

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.

Table II reports the extent of family ownership and control in our sample, depending on the identity of the family (founding vs. nonfounding). Out of the 2,110 firms, 1,496 or 71% are family owned or controlled including 1,169 firms (55% of the sample) that are controlled (906 firms) or at least owned (another 263) by their founding families and thus meet our first definition. Using the same definition, Anderson and Reeb (2003) document that founding families are present in one-third of the S&P 500; Villalonga and Amit (2006, 2009) find that among Fortune 500 firms,

Table II. Identity of Controlling Families

Founding families are identified as such when the founder or a member of the founding family, by either blood or marriage, is an officer, director, or blockholder either individually or as a group. Founders are individuals who are identified as such in at least two public data sources. Individual or family blockholders are beneficial owners of 5% or more of the firm's common stock outstanding excluding: 1) owners of investment management companies listed as blockholders because of their funds' collective share ownership in our sample firms and 2) general partners in private equity firms or hedge funds that are listed as blockholders. The sample includes 2,110 firms selected randomly from among the 8,104 publicly traded US firms that had segment data in 2000.

Presence of an Individual or Family among the Firm's Blockholders	Presence of Founding Family Members among the Firm's Blockholders, Officers, or Directors		Total
	Founding Family	No Founding Family	
Individual or family blockholder	906	327	1,233
No individual or family blockholder	263	614	877
Total	1,169	941	2,110

Table III. Distribution of Family Ownership, Control, and Management across Generations

Family firm CEOs are classified as founders, descendants, or nonfamily members. A firm's generation refers to the latest generation of family members who are active in the firm as officers, directors, or blockholders relative to the generation of the founder or a nonfounding individual blockholder. Family firms are defined in one of four ways. In Panel A, family firms are defined as: 1) founder- or founding-family-owned firms in which the founder or a member of the founding family, by either blood or marriage, is an officer, director, or blockholder either individually or as a group or 2) founding-family-owned and managed subset of firms included in 1) that are in their second or later generation and whose CEO is the founder or a family member. In Panel B, family firms are defined as: 1) individual- or family-controlled firms in which an individual or family (founding or nonfounding) is a blockholder or 2) family-controlled and managed subset of firms included in 1) that are in their second or later generation and whose CEO is an individual blockholder or a member of a blockholding family. The sample comprises the 8,104 publicly traded US firms that had segment data in 2000. This table is based on a random subsample of 2,110 firms for which we collected ownership data.

Family Management	Family Firm's Generation						Definition
	First	Second	Third	Fourth	Fifth	Total	
Panel A. Founder- or Founding-Family-Owned Firms							
Founder-CEO	539	58	0	0	0	597	
Descendant-CEO	0	74	41	10	4	129	
Nonfamily CEO	306	90	34	11	2	443	Def. 2
Total	845	222	75	21	6	1,169	Def. 1
Panel B. Individual- or Family-Controlled (Founding or Nonfounding) Firms							
Founder-CEO	572	68	0	0	0	640	
Descendant-CEO	0	73	33	7	2	115	
Nonfamily CEO	353	96	24	5	0	478	Def. 4
Total	925	237	57	12	2	1,233	Def. 3

the percentage is as high as 40%. Anderson, Duru, and Reeb (2009) document an even higher percentage (48%) among the largest 2,000 US firms. Our finding of a 55% fraction of family firms in a more random sample of US corporations confirms the conventional wisdom that family ownership and control is significantly more prevalent among smaller firms, and suggests that it would be even higher if the entire population of US firms, public and private, were considered.

We also find that 327 firms are controlled by an individual or family that is not related to the founder. These firms represent 15% of the entire sample of 2,110 firms, or 27% of the 1,233 firms that have individual or family blockholders meeting our third definition. In other words, three out of every four controlling families are founding families.

Table III reports on the extent of family management among the family-owned and/or controlled firms in our sample firms, broken down by family firm generation. As shown in Panel A, 726

or 62% of the 1,169 firms that meet our first definition are family managed. Five hundred and ninety-seven of those firms have a founder CEO, while 129 have a descendant CEO. With respect to these firms' generation, 845 firms or 72% are still in their first generation (the founder's) including 539 where the founder is the CEO and 306 where he or she exercises a nonexecutive 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 CEO, and 90 family firms that are not family managed for a total of 222 second generation firms, or 19% of all founder and founding-family-owned firms. As can be expected, there is considerable attrition in the number of family firms in subsequent generations. Only 75 firms or 5% of all family firms are in their third generation, 21 firms (2%) are in their fourth generation, and six firms (0.5%) are in their fifth generation. Altogether, there are 324 second- or later-generation firms, of which 187 are family managed meeting our second definition.

Panel B of Table III provides a similar breakdown for individual- or family-controlled firms (1,233 that meet our third definition). Seven hundred and fifty-five or 61% of those firms are family managed, of which 183 are in their second or later generation, thus meeting our fourth definition. Although not reported, all except two of the third- and later-generation families are founding families, and the two nonfounding family firms are not family managed. Also unreported is the fact that 57 of the second-generation firms in Panel B are nonfounding family firms, including 15 that are founder managed and another 15 that are descendant managed. These figures suggest that individual investors who are not founders are almost as likely as founders to transfer ownership and control in their firms to their children ($57/327 = 17\%$ vs. $180/906 = 19\%$), although those children are much less likely to be appointed CEO. Moreover, nonfounding family control and management is rarely, if ever, transferred beyond the second generation.

Table IV presents the distribution of family firms across industries under the four alternative definitions. Panel A confirms that the mean (median) degree of family control among three-digit SIC industries is 50% (50%) when family firms are defined as founder or founding family owned, 13% (9%) when they are defined as founding family owned and managed, 53% (51%) when they are defined as individual or family controlled, and 11 (6%) when they are defined as family controlled and managed. These figures are very similar when industries are defined at the two-digit level (except for the very last one, which is 10% instead of 6%). There is great variation in these figures across industries, however. The standard deviation of family control ranges between 9% 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 0 (e.g., in railroad transportation, SIC 4000, for all except the third definition, and in various mining industries) and 100% (in livestock production, SIC 200, for the first and third definitions; and educational services, SIC 8200, for the third definition). The variation across definitions can be substantial. For instance, 86% of automotive dealers and service stations (SIC 5500) are family owned, but none are actively managed by the family. Similar contrasts are found in social services (SIC 8300), building materials and garden supplies (SIC 5200), and depository institutions (SIC 6000).

II. Theories of Family Control

Theories of family control of firms and industries can be grouped into two broad sets: 1) those in which family control is the optimal structure for both family and nonfamily shareholders, and 2) those in which family control is optimal for family shareholders only (Morck, Wolfenzon, and Yeung, 2005; Bertrand and Schoar, 2006). Both groups of theories are consistent with economic

Table IV. Family Control of Industries

Family control is measured by the percentage of family firms in the industry. Family firms are defined in one of four ways (see Table III): 1) founder- or founding-family-owned firms in which the founder or a member of the founding family by either blood or marriage is an officer, director, or blockholder either individually or as a group; 2) founding-family-owned and managed subset of firms included in 1) that are in their second or later generation and whose CEO is the founder or a family member; 3) individual- or family-controlled firms in which an individual or family (founding or nonfounding) is a blockholder; and 4) family-controlled and managed subset of firms included in 3) that are in their second or later generation and whose CEO is an individual blockholder or a member of a blockholding family. The sample comprises the 8,104 publicly traded US firms that had segment data in 2000. 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.

Panel A. Summary Statistics

	Percentage of Firms in the Industry that Are:			
	1. Founder or Founding Family Owned	2. Founding Family Owned and Managed (2nd/Later Generation)	3. Individual or Family Controlled	4. Family Controlled and Managed (2nd/Later Generation)
3-Digit SIC Industries				
Mean	50%	13%	53%	11%
Median	50%	9%	51%	6%
SD	23%	15%	24%	14%
2-Digit SIC Industries				
Mean	50%	13%	54%	11%
Median	50%	11%	53%	10%
SD	17%	10%	19%	9%

(*Continued*)

Table IV. Family Control of Industries (*Continued*)

Panel B. Two-Digit SIC Industries Detail

SIC Code	Industry Description	Percentage of Firms in the Industry that Are:			
		1. Founder or Founding Family Owned	2. Founding Family Owned and Managed (2nd/Later Generation)	3. Individual or Family Controlled	4. Family Controlled and Managed (2nd/Later Generation)
100	Agricultural production–crops	33%	17%	50%	17%
200	Agricultural production–livestock	100%	50%	100%	50%
800	Forestry	50%	50%	0%	0%
1000	Metal mining	23%	0%	15%	0%
1200	Coal mining	22%	22%	22%	22%
1300	Oil and gas extraction	40%	10%	46%	7%
1400	Mining, quarry, nonmetallic minerals	14%	0%	57%	0%
1500	General building contractors	54%	21%	64%	25%
1600	Heavy construction, not building constr.	43%	7%	50%	7%
1700	Construction, special trade	38%	13%	50%	6%
2000	Food and kindred products	50%	22%	57%	21%
2100	Tobacco products	40%	0%	60%	0%
2200	Textile mill products	46%	23%	46%	15%
2300	Apparel and other textile products	65%	12%	77%	12%
2400	Lumber and wood products	52%	21%	38%	17%
2500	Furniture and fixtures	67%	28%	56%	28%
2600	Paper and allied products	33%	14%	19%	11%
2700	Printing and publishing	76%	22%	70%	20%
2800	Chemicals and allied products	46%	4%	41%	3%
2900	Petroleum refining and related industries	23%	9%	32%	9%
3000	Rubber and misc. plastics products	35%	6%	46%	7%
3100	Leather and leather products	50%	10%	50%	10%
3200	Stone, clay, and glass products	48%	24%	48%	24%
3300	Primary metal industries	52%	16%	55%	14%

(*Continued*)

Table IV. Family Control of Industries (*Continued*)

Panel B. Two-Digit SIC Industries Detail (Continued)

SIC Code	Industry Description	Percentage of Firms in the Industry that Are:			
		1. Founder or Founding Family Owned	2. Founding Family Owned and Managed (2nd/Later Generation)	3. Individual or Family Controlled	4. Family Controlled and Managed (2nd/Later Generation)
3400	Fabricated metal products	41%	9%	48%	7%
3500	Industrial machinery and equipment	45%	9%	51%	8%
3600	Electronic and other electric equipment	56%	7%	54%	7%
3700	Transportation equipment	37%	8%	39%	7%
3800	Instruments and related products	54%	6%	47%	4%
3900	Miscellaneous manufacturing industries	62%	14%	76%	16%
4000	Railroad transportation	0%	0%	29%	0%
4200	Trucking and warehousing	58%	13%	71%	13%
4400	Water transportation	50%	10%	30%	10%
4500	Transportation by air	24%	5%	48%	10%
4600	Pipelines, except natural gas	43%	0%	43%	0%
4700	Transportation services	43%	13%	57%	9%
4800	Communication	61%	11%	52%	11%
4900	Electric, gas, and sanitary services	25%	4%	28%	4%
5000	Wholesale trade–durable goods	60%	14%	69%	13%
5100	Wholesale trade–nondurable goods	41%	7%	44%	6%
5200	Building materials and garden supplies	57%	0%	29%	0%
5300	General merchandise stores	36%	14%	41%	18%
5400	Food stores	42%	16%	37%	11%
5500	Automotive dealers and service stations	86%	0%	64%	0%
5600	Apparel and accessory stores	59%	22%	63%	25%
5700	Furniture and homefurnishings stores	59%	12%	53%	12%
5800	Eating and Drinking Places	57%	13%	77%	17%

(*Continued*)

Table IV. Family Control of Industries (*Continued*)

Panel B. Two-Digit SIC Industries Detail (Continued)

SIC Code	Industry Description	Percentage of Firms in the Industry that Are:			
		1. Founder or Founding Family Owned	2. Founding Family Owned and Managed (2nd/Later Generation)	3. Individual or Family Controlled	4. Family Controlled and Managed (2nd/Later Generation)
5900	Miscellaneous retail	61%	7%	69%	8%
6000	Depository institutions	27%	0%	55%	0%
6100	Nondepository institutions	49%	13%	49%	13%
6200	Security and commodity brokers	49%	11%	47%	9%
6300	Insurance carriers	42%	12%	53%	15%
6400	Insurance agents, brokers, and service	59%	11%	70%	11%
6500	Real estate	52%	13%	63%	10%
6700	Holding and other investment offices	59%	9%	61%	9%
7000	Hotels and other lodging places	77%	23%	91%	27%
7200	Personal services	58%	33%	58%	25%
7300	Business services	65%	5%	65%	5%
7500	Auto repair, services, parking	50%	8%	58%	8%
7600	Miscellaneous repair services	50%	25%	50%	0%
7800	Motion pictures	75%	21%	79%	21%
7900	Amusement and recreation services	74%	18%	79%	16%
8000	Health services	68%	6%	77%	2%
8200	Educational services	65%	12%	100%	18%
8300	Social services	63%	0%	75%	0%
8700	Engineering and management services	67%	4%	66%	5%

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.

A. Competitive Advantage

In their seminal paper regarding ownership concentration and firm performance, Demsetz and Lehn (1985) propose four determinants of ownership concentration that fall under the competitive advantage category: 1) value-maximizing size, 2) monitoring needs, 3) "amenity potential" of a firm's output, and 4) regulation. In this paper, we focus on the first three, which are particularly relevant for individual and family shareholders.

1. Value-Maximizing Size

One fundamental predictor of family control is a firm's value-maximizing size or efficient scale. This is 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. This is what Demsetz and Lehn (1985) 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. In support of this argument, Meulbroek (2001) finds that the deadweight cost of awarding stock and options to corporate managers whose entire wealth is invested in the firm can empirically be quite large. 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. Monitoring Needs

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 (1985) refer to as "control potential," the more likely it is to be family controlled.

Demsetz and Lehn (1985) focus on one element of a firm's environment that is positively associated to its monitoring needs, uncertainty, or noisiness, which they measure in three different ways: 1) profit variability, 2) market risk (beta), and 3) 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 V provides details about 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 monitoring needs, and the likelihood of family control, of firms and industries. We use two different measures of an industry's degree of competition: 1) a Herfindahl index of market concentration and 2) the number of firms in the industry.

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

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 (1985) 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."

Like the other two explanations discussed above, these nonpecuniary benefits of control seem particularly relevant for individual and family owners. Indeed, the two industries that Demsetz and Lehn (1985) 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, Panunzi, and Shleifer (2003) formalize the notion of "amenity potential" and contrast it with private benefits of control. The key difference is that the latter come at the expense of profits accruing to nonfamily 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, as such, 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 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 including ideological, ethnic, religious, environmental, or industrial ones. Therefore, firms' total dollar contributions to PACs can proxy for multiple forms of amenity potential.

PAC contributions provide a useful measure of amenity potential as both family and nonfamily shareholders can voluntarily contribute to these PACs and derive utility (even corporate profits) from it. Hence, the measure is available for both family and nonfamily 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

Table V. Variable Definitions

Table V provides definitions of all variables used in the empirical analyses in this paper. The data source for all variables is Compustat unless otherwise indicated in this table.

	Variable	Description
		Panel A. Firm Characteristics
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	Stock turnover	Ratio of annual trading volume to the average number of shares outstanding. Source: CRSP.
6	Dual-class status	Dummy equal to one if the firm has dual-class stock, and zero otherwise. Source: Gompers, Ishii, and Metrick (2010).
7	Discounted dual-class status	Dummy equal to one if the firm has dual-class stock and the firm trades at a discount relative to single-class firms in the industry, and zero otherwise.
8	Firm transparency	Firm-specific relative stock return variation measured as the residual sum of squares relative to the total sum of squares (i.e., $1 - R^2$) from regressions of firms' daily stock returns on market (CRSP value-weighted) returns and three- or two-digit industry value-weighted portfolio returns. Each firm is excluded from its own industry portfolio. Source: CRSP and Compustat.
9	Debt/MV equity	Ratio of the book value of total debt to the market value of equity.
10	ROA	Ratio of operating income before depreciation and amortization (EBITDA) to total assets.
11	Age	Number of years that the firm has been trading on a US stock market. Source: CRSP.
12	Sales growth	Simple average of the firm's annual growth rate in sales over the past three years.

(*Continued*)

Table V. Variable Definitions (*Continued*)

	Variable	Description
		Panel B. Industry Characteristics
13	Family premium or discount	Percentage excess value (Tobin's q) of family firms relative to nonfamily firms in each industry, $(q_F - q_{NF}) / q_{NF}$.
14	Industry concentration	Herfindahl index (i.e., sum of squared market shares) estimated using segment sales at the two-digit or three-digit SIC level.
15	Number of firms	Number of segments from different firms in the industry.
16	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.
17	Industry transparency	Industry-specific relative stock return variation measured as the value-weighted average of the difference, for each firm in the industry, between: 1) the residual sum of squares relative to the 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 2) its firm-specific relative stock return variation (defined above). Source: CRSP and Compustat.
		Panel C. Segment Characteristics
18	Segment sales	Firm's sales in a specific industry defined at the three- or two-digit level.
19	EBITDA	Segment's operating income before depreciation and amortization.

for family firms. As such, they cannot be used as predictors of family control, as they perfectly predetermine the outcome.

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 (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, Corning since 1851, and Anheuser Busch since 1860.[5] Even family firms that are at 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. Consequently, they may enjoy a competitive advantage over firms that cater to more myopic investors or those that are run by myopic managers as in Stein (1989).

We measure the investment horizon of a firm's shareholders by its stock turnover, calculated as the ratio of the annual trading volume relative to the average number of shares outstanding during the year.

B. Private Benefits of Control

The term "private benefits of control" is 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 upon 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 (nonfamily) 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, Panunzi, and Shleifer (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 as "monitoring needs," but to avoid confusion, we restrict the term "private benefits of control" to those appropriated by family shareholders.

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, López de Silanes, and Shleifer, 1999; Claessens, Djankov, and Lang, 2000; Faccio and

[5] "America's Oldest Family Companies," http://www.familybusinessmagazine.com/oldestcos.html.

Lang, 2002; Villalonga and Amit, 2009). 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 (Bertrand, Mehta, and Mullainathan, 2002; Claessens et al., 2002; La Porta et al., 2002; Villalonga and Amit, 2006; Gompers, Ishii, and Metrick, 2010). There is also evidence that the use of such mechanisms by corporate insiders discourages outside investment, particularly from institutional investors (Li, Ortiz-Molina, and Zhao, 2008).

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 (Lease, McConnell, and Mikkelson, 1983; Zingales, 1995; Nenova, 2003) or the differential sensitivity to profit shocks of firms in pyramidal business groups (Bertrand, Mehta, and Mullainathan, 2002).

Villalonga and Amit (2009) 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 US families. Therefore, we focus on dual-class stock to predict the appropriation of private benefits of control 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). However, studies of the voting premium like Lease, McConnell, and Mikkelson (1983) and Nenova (2003) indicate that the voting premium in the United States is, on average, small and even negative in a number of cases, and call into question whether dual-class structures in those companies are in place for the sole purpose of extracting private benefits of control.

We address this issue in two separate ways. First, we use a similar specification to that of our shocks analysis to test for the differential sensitivity to profit shocks of dual-class firms relative to single-class firms. The results, which are reported in the Appendix, indicate that dual-class firms are relatively less sensitive to profit shocks, which justifies the use of a dual-class indicator as a predictor of private benefits appropriation. Second, we interact our dual-class indicator with a dummy that takes on a value of one when the dual-class firm trades at a discount relative to its industry peers without a dual-class share structure.

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. Yet 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. 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 nonfamily shareholders. Indeed, Anderson, Duru, and Reeb (2009) document that in the United States, family firms are significantly more opaque than nonfamily firms.

Following Durnev et al. (2003) and Durnev, Morck, and Yeung (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 V 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

Table VI. Theoretical Predictors of Family Control

Predicted sign for independent variables in regressions of family control. All variables are defined in Table V.

Theoretical Explanation	Variable	Predicted Sign
Panel A. Competitive Advantage		
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. Monitoring needs		
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	Turnover	−
Panel B. Private Benefits of Control		
B.1. Use of control enhancing mechanisms	Firm's dual-class status	+
	Firm's discounted dual-class status	+
B.2. Information asymmetries	Firm and industry transparency	−

corporate transparency, Durnev, Morck, and Yeung (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, Yeung, and Yu (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, Piotroski, and Smith (2002) find it to be associated with more developed financial analysis industries and with a freer press.

Nevertheless, to test our transparency measure's ability to capture the potential appropriation of private benefits of control, we test whether low-transparency firms (those below the median level of transparency for the sample) are less sensitive to earnings shocks, as we do for dual-class stock. As shown in the Appendix, the sign of the interaction is positive, suggesting that this is indeed the case. Accordingly, we proceed to use our transparency measures as proxies for a theory of private benefits of control. Table VI summarizes the theoretical predictions associated with each determinant of family control.

III. 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 nonfamily firms to profit shocks in their industries. Second, we test whether family firms trade at an average premium or discount relative to their nonfamily competitors. 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.

A. Sensitivity of Family Control to Profitability Shocks

To test whether founding families maintain control of firms and industries due to competitive advantages and/or private benefits of control, we analyze the differential response of family and nonfamily 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 as 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 nonfamily firms. If this is the case, we would expect family firms to be more resilient (i.e., less affected by the downturn) than nonfamily 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 to be less sensitive to earnings shocks as a whole.

Our test builds on the methodology proposed by Bertrand, Mehta, and Mullainathan (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, Mehta, and Mullainathan (2002) to estimate the sensitivity of group affiliated firms to industry shocks:

$$EBITDA_{it} = \alpha + \beta(predEBITDA_{it}) + \gamma(family_i \times predEBITDA_{it}) + \delta_x(X_{it}) + \varepsilon_{it}, \qquad (1)$$

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]

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.

Implicit in Bertrand, Mehta, and Mullainathan's (2002) 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, Johnson, and Mitton'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. Also, suppose that when there is a boom in the industry, family CEOs raise their salaries by more than their counterparts at nonfamily firms; thus, their EBITDA

[6]The regression above corresponds to Bertrand, Mehta, and Mullainathan's (2002) test of their first prediction that group-affiliated firms should, on average, underrespond 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, that is, 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, 2009), we cannot apply those other tests in our context. Instead, we take Bertrand, Mehta, and Mullainathan's (2002) 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 the dissipation of profits.

is less sensitive to positive shocks. If family CEOs' greed were such that when there is a bust they cut their salaries less than nonfamily CEOs, family firms' EBITDA would be more sensitive to negative shocks creating an asymmetry in family firms' aggregate response to shocks.

We extend Bertrand, Mehta, and Mullainathan's (2002) 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 Equation (1) and reestimate two separate OLS regressions on the demeaned variables: 1) one on the subsample of firm-years for which the demeaned predicted EBITDA is positive and 2) another one on the subsample for which it is negative. Note that estimating the OLS regression on the demeaned variables for the full sample of shocks yields the same coefficients as the fixed effects estimation of Equation (1), except for the constants. We use clustered standard errors in all three regressions to account for intertemporal correlation in the error term.

Table VII presents the results of the shocks analysis using our four alternative definitions, which are reported in four separate panels. For parsimony, we only report the coefficients of our variables of interest, which are predicted EBITDA and its interaction with the family firm dummy. The models are estimated 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 nonmissing data on the variables required for the analysis.

The results confirm that family firms are indeed less sensitive to industry profit shocks. For instance, the results based on the first definition of a family firm, which are reported in Panel A, indicate that a $1 change in predicted EBITDA leads to an $0.88 change in the same direction in the actual EBITDA of nonfamily firms, but only to a $0.29 change (88 – 59) for family firms. Moreover, family firms are less sensitive than nonfamily firms to both positive and negative shocks. For each $1 increase in predicted EBITDA, actual EBITDA increases by $0.91 in nonfamily firms, but only by $0.26 (91 – 65) in family firms. This difference suggests that capital providers to family firms (including nonfamily shareholders as well as family shareholders and creditors) are somehow losing $0.65, 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, a one dollar decrease in predicted EBITDA leads to a $0.85 decrease in actual EBITDA for nonfamily firms, but only a $0.33 decrease (85 – 52) for family firms, as they are more resilient to negative profit shocks. This result is consistent with the view that family firms enjoy a competitive advantage relative to nonfamily firms. Indirectly, this finding also provides support for the interpretation of the "missing $0.65" in positive shocks as evidence of tunneling. Panels B-D indicate that these results are robust to the definition of family firm; family-managed firms are also significantly less sensitive to shocks of either sign.

These findings imply that neither of the two candidate explanations to family control, competitive advantage or private benefits, can be ruled out. Alternatively, these results can be interpreted as evidence that family firms smooth earnings over time. Note, however, that this earnings "smoothing" takes place at the EBITDA level, so our results cannot be attributed to a conservative payout policy where family firms retain more profits than their peers during good times and are thereby able to pay greater dividends during bad times. Rather, our results are consistent with Friedman, Johnson, and Mitton'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) in times of economic downturn. In the case of the United States, this tunneling and propping seems to take place at the operating profit level (e.g., via salaries or via payment to suppliers). Relatedly, Sraer and Thesmar (2007) find that family firms smooth out employment in response to industry shocks in sales, which they

Table VII. Sensitivity of Family and NonFamily Firms to Profitability Shocks

Table VII presents fixed-effects regressions of firms' EBITDA on predicted EBITDA, the interaction of predicted EBITDA with a family firm indicator, and several control variables (coefficients not reported). 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. 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. These regressions are then estimated on the subsamples of observations for which the demeaned predicted EBITDA is positive or negative, respectively. Family firms are defined in one of four ways (see Table III): 1) founder- or founding-family-owned firms in which the founder or a member of the founding family by either blood or marriage is an officer, director, or blockholder, either individually or as a group; 2) founding-family-owned and managed subset of firms included in 1) that are in their second or later generation and whose CEO is the founder or a family member; 3) individual- or family-controlled firms in which an individual or family (founding or nonfounding) is a blockholder; and 4) family-controlled and managed subset of firms included in 3) that are in their second or later generation and whose CEO is an individual blockholder or a member of a blockholding family. 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 that were randomly selected from among the 8,104 publicly traded US firms that had segment data in 2000. The industry average profitability measures are estimated on the 11,854 segments belonging to the full sample of 8,104 firms. All regressions include a constant and the following control variables: Ln(assets), ratio of debt to book value of equity, and capex-to-sales ratio. The *t*-statistics from clustered standard errors (by firm) are in parentheses.

	All Shocks	Positive Shocks	Negative Shocks
Panel A. Founder- or Founding-Family-Owned Firms			
Firm's predicted EBITDA	0.88***	0.91***	0.85***
	(14.87)	(10.67)	(18.03)
Family firm × firm's predicted EBITDA	−0.59***	−0.65***	−0.52***
	(−7.16)	(−6.46)	(−6.39)
R^2 (within)	0.66	0.67	0.64
Panel B. Founding-Family-Owned and Managed Firms			
Firm's predicted EBITDA	0.81***	0.83***	0.78***
	(10.80)	(8.13)	(14.85)
Family firm × firm's predicted EBITDA	−0.59***	−0.61***	−0.57***
	(−5.47)	(−4.76)	(−6.13)
R^2 (within)	0.63	0.63	0.61
Panel C. Individual- or Family-Controlled Firms			
Firm's predicted EBITDA	0.83***	0.85***	0.81***
	(9.97)	(7.45)	(13.90)
Family firm × firm's predicted EBITDA	−0.48***	−0.53***	−0.42***
	(−4.64)	(−4.27)	(−4.34)
R^2 (within)	0.63	0.63	0.62
Panel D. Family-Controlled and Managed Firms			
Firm's predicted EBITDA	0.77***	0.79***	0.76***
	(8.55)	(6.52)	(12.06)
Family firm × firm's predicted EBITDA	−0.42***	−0.44***	−0.38***
	(−3.19)	(−3.09)	(−2.77)
R^2 (within)	0.60	0.60	0.59
Number of observations (firm-years)	5,629	2,634	2,900

***Significant at the 0.01 level.

interpret as evidence that the long horizons of family firms allow them to commit to long-term labor contracts. By the same token, family firms' ability to commit to longer term contracts with their suppliers may afford them greater flexibility in payments when they need it.

Table VII also confirms that the lower sensitivity of family firms to positive and negative profit shocks holds regardless of the definition of family firm used. The differential sensitivity of family firms to a $1 change in predicted EBITDA (the $0.29 reported above for the first definition) is $0.22 (81 – 59), $0.35 (83 – 48), and $0.35 (77 – 42) for the second, third, and fourth definitions, respectively. Similar differences across definitions are observed for both positive and negative shocks suggesting one common pattern, the differential sensitivity of family firms to profit shocks is greater when family firms are defined as individual or family controlled (Definitions 3 and 4) as opposed to founder or founding family owned (Definitions 1 and 2), regardless of whether they are in their second and later generations and are family managed (Definitions 2 and 4) or not (Definitions 1 and 3). In fact, the effect of family generation and management seems to be contingent on the identity of the family. The sensitivity observed under Definition 2 is lower than that under Definition 1, whereas the sensitivity observed under Definition 4 is no lower than that under Definition 3 (and is, in fact, higher for positive shocks).

In order to better understand what is driving these results, we break down our sample of family firms into two subsamples based on the identity of the family (see Table II). The first subsample includes only the 1,169 firms that are owned or controlled by their founders or founding families, as well as the 614 firms that have no form of family ownership as a control group. The second subsample includes only the firms controlled by nonfounding families and individual blockholders (the 327 firms shown in Table II), and again the 614 nonfamily firms as a control group. Similar results to those reported here are obtained if the 263 firms that are founding family owned, but not controlled (i.e., that have no individual or family blockholder) are considered as nonfamily firms in both subsamples and included in the control group together with the 614 firms that have no family ownership of any sort. We then rerun the shocks analyses of Table VII on the two subsamples using two different family firm definitions for each, so that we match the four definitions used earlier except for the exclusion of certain observations from the subsample.

Table VIII reports the results of the analyses on the subsamples and sheds new light on our earlier findings. When only founding families are included, the results are similar to those in Table VII. Family firms are significantly less sensitive to both positive and negative profit shocks. However, when only nonfounding families and individual blockholders are considered, family firms are no less sensitive to negative shocks, only to positive ones. This asymmetric response suggests that nonfounding families and individual shareholders seek to maximize value for themselves only and not for other capital providers. From the point of view of public share and debtholders in family firms, the identity of the family is therefore critical. When founders or their families are in control, family firms are a low-risk, low-return proposition. The potential upside for outside investors is limited by the family's ability to appropriate more than their pro rata share of windfall profits, but investors are protected from downside risk by virtue of these firms' competitive advantage. When the controlling family or individual is not related to the founder, however, family firms become more of a high-risk, low-return proposition. The potential upside for nonfamily investors remains limited, but there is no downside protection to offset it.

B. Industries' Family Premium or Discount

Another way to test the two broad explanations is by examining whether family firms are valued higher or lower than nonfamily firms in the industries in which the two groups of firms compete. If, on average, family firms are valued relatively higher, it would indicate that these

Table VIII. Effect of Family Identity on the Sensitivity of Family Firms to Profitability Shocks

Table VIII reports fixed-effects regressions of firms' EBITDA on predicted EBITDA, the interaction of predicted EBITDA with a family firm indicator, and several control variables (coefficients not reported). 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. 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. These regressions are then estimated on the subsamples of observations for which the de-meaned predicted EBITDA is positive or negative, respectively. 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 that were randomly selected from among the 8,104 publicly traded US firms that had segment data in 2000. In the first three columns, firms controlled by nonfounding families (the 327 firms shown in Table II) are excluded from the sample, and family firms are defined in one of two ways: 1) founder- or founding-family-owned (Definition 1 in Table II, or the 1,169 firms shown in Table II) firms in which the founder or a member of the founding family by either blood or marriage is an officer, director, or blockholder, either individually or as a group, or 1) founding-family-owned and managed Definition 4a) subset of firms included in 1) that are in their second or later generation and whose CEO is the founder or a family member. In the last three columns, firms owned by founding families (the 1,169 firms of Table II) are excluded from the sample, and family firms are defined in one of two ways: 3) nonfounding individual- or family-controlled firms in which a nonfounding individual or family is a blockholder (the 327 firms of Table II) or 4) nonfounding family-controlled and managed subset of firms included in 3) that are in their second or later generation and whose CEO is an individual blockholder or a member of a blockholding family. The industry average profitability measures are estimated on the 11,854 segments belonging to the full sample of 8,104 firms. All regressions include a constant and the following control variables: Ln(assets), ratio of debt to book value of equity, and capex-to-sales ratio. The *t*-statistics from clustered standard errors (by firm) are in parentheses.

	1. Founders and Founding Families			2. Nonfounding Families and Individuals		
	All Shocks	**Positive Shocks**	**Negative Shocks**	**All Shocks**	**Positive Shocks**	**Negative Shocks**
Panel A. Individual- or Family-Owned or Controlled Firms						
Firm's predicted EBITDA	0.88***	0.92***	0.85***	0.88***	0.92***	0.85***
	(14.86)	(10.81)	(17.64)	(14.74)	(10.87)	(17.63)
Family firm × firm's predicted EBITDA	−0.60***	−0.66***	−0.52***	−0.19***	−0.31***	−0.03
	(−7.20)	(−6.57)	(−6.35)	(−3.30)	(−3.73)	(−0.70)
R^2 (within)	0.66	0.67	0.63	0.70	0.61	0.67

(*Continued*)

Table VIII. Effect of Family Identity on the Sensitivity of Family Firms to Profitability Shocks (*Continued*)

	1. Founders and Founding Families			2. Nonfounding Families and Individuals		
	All Shocks	Positive Shocks	Negative Shocks	All Shocks	Positive Shocks	Negative Shocks
Panel B. Family-Managed Firms (2nd/Later Generation)						
Firm's predicted EBITDA	0.81***	0.84***	0.78***	0.88***	0.92***	0.85***
	(10.69)	(8.10)	(14.52)	(14.72)	(10.86)	(17.62)
Family firm × firm's predicted EBITDA	−0.59***	−0.62***	−0.57***	−0.19***	−0.31***	−0.03
	(−5.46)	(−4.78)	(−6.08)	(−3.19)	(−3.67)	(−0.62)
R^2 (within)	0.63	0.63	0.61	0.70	0.61	0.67
Number of observations (firm-years)	4,735	2,222	2,432	2,573	1,205	1,334

***Significant at the 0.01 level.

firms are at a competitive advantage relative to their peers. Alternatively, if family firms' relative valuation is lower, 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 nonfamily counterparts.

To implement this test, we construct a measure of the excess value (Tobin's q) of family firms relative to nonfamily 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 adjustment 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 qs 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, and for which our measure cannot be computed, we use the family premium of the corresponding two-digit industry.

Table IX reports the mean and median family premium or discount across the entire sample of 254 three-digit industries. Also reported are test statistics from two-tailed t-tests and nonparametric Wilcoxon signed-rank tests of whether the mean and median, respectively, are significantly different from zero.

Panel A presents the results for each of our four alternative definitions of a family firm. Consistent with the findings of Villalonga and Amit (2006), the results are entirely contingent on the definition used. Using the first definition (founder and founding family owned), family firms trade at an average 15.8% premium relative to nonfamily firms. The premium is significantly different from zero at the 1% level. In contrast, using the second definition, which restricts the first one by requiring that family firms are in their second or later generation and family managed, the average premium across the entire sample turns into a significant discount of 12.1%. The third definition (individual or family controlled firms) yields an insignificant premium of 4.7%, while the fourth definition (second or later generation family controlled and managed firms) yields a significant discount of 16.8%.

The analysis of the median premium or discount yields values are generally lower than the averages indicating that the distribution is skewed toward the right. The premium under Definition 1 becomes insignificantly different from zero using the nonparametric sign test, while the premium under Definition 2 turns into a discount of 7.9% (although it remains insignificant). The discounts under Definitions 2 and 4 become much larger in absolute value (22.8% and 29.8%, respectively) and highly significant.

The differences in results between Definitions 1 and 2 and between Definitions 3 and 4 are the most striking but are entirely consistent with the findings of Villalonga and Amit (2006) for Fortune 500 firms. 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. The results in this paper, which uses a different type of industry adjustment, provides confirmation for those findings in a larger and more random sample of US firms.

Furthermore, this paper confirms that the identity of the family also matters with respect to the effect of family ownership, control, and management on firm performance. The differences in results between Definitions 1 and 3 and between Definitions 2 and 4 suggest that only founders and their families, but not other individual and family blockholders, have a positive effect on firm value. To gain further insight into this new result, we break down our analysis of the family premium or discount by subsamples based on family identity, as we did in the shocks analyses.

The results are reported in Panel B of Table IX and provide further support for our conclusion. When only founding families are included, the results are similar to those in Panel A. Founder- or founding-family-owned firms trade at a significant average premium of 11.7% relative to

Table IX. Industries' Family Premium or Discount

Table IX presents summary statistics of industries' family premium or discount, which is the difference between the average Tobin's *q* of family firms and nonfamily firms in an industry, relative to the *q* on nonfamily firms. The sample comprises the 254 three-digit industries that are home to the 8,104 publicly traded US firms that had segment data in 2000. In Panel A, the premium or discount is measured using a random subsample of 2,110 firms for which we collect ownership data, and family firms are defined in one of four ways (see Table III): 1) founder- or founding-family-owned firms in which the founder or a member of the founding family by either blood or marriage is an officer, director, or blockholder either individually or as a group; 2) founding-family-owned and managed subset of firms included in 1) that are in their second or later generation and whose CEO is the founder or a family member; 3) individual- or family-controlled firms in which an individual or family (founding or nonfounding) is a blockholder; and 4) family-controlled and managed subset of firms included in 3) that are in their second or later generation and whose CEO is an individual blockholder or a member of a blockholding family. In Panel B, the premium or discount is measured using two different subsamples of the 2,110 firms based on the identity of the controlling families. In the first two columns of Panel B, firms controlled by nonfounding families (the 327 firms shown in Table II) are excluded from the sample, and family firms are defined in one of two ways, similar to definitions 1) and 2) above. In the last two columns of Panel B, firms owned by founding families (the 1,169 firms of Table II) are excluded from the sample, and family firms are defined in one of two ways, similar to definitions 3) and 4) above. The *t*-statistics are from two-tailed tests of whether the mean is different from zero. The *z*-statistics are from Wilcoxon signed-rank tests of whether the median is different from zero.

Panel A. Full Sample

	1. Founder or Founding Family Owned	2. Founding Family Owned and Managed (2nd/Later Generation)	3. Individual or Family Controlled	4. Family Controlled and Managed (2nd/Later Generation)
Mean	15.8%***	−12.1%***	4.7%	−16.8%***
t-stat	3.08	−3.48	1.24	−4.99
Median	1.6%	−22.8%***	−7.9%	−29.8%***
z-stat	1.34	−7.48	−1.52	−8.72
SD	81.8%	55.2%	60.2%	53.5%

(*Continued*)

Table IX. Industries' Family Premium or Discount (*Continued*)

Panel B. Subsamples Based on Family Identity

	1. Founders and Founding Families		2. Nonfounding Families and Individuals	
	1.1. Founder or Founding Family Owned	1.2. Founding Family Owned and Managed (2nd/Later Generation)	2.1. NonFounding Individual or Family Controlled	2.2. Nonfounding Family Controlled and Managed (2nd/Later Generation)
Mean	11.7%**	−11.4%***	1.9%	−27.1%***
t-stat	2.41	−2.73	0.44	−8.13
Median	−0.1%	−24.4%***	−11.8%**	−40.9%***
z-stat	0.82	−7.60	−2.96	−11.22
SD	77.7%	66.5%	70.1%	52.7%

***Significant at the 0.01 level.
**Significant at the 0.05 level.

nonfamily firms, while second- and later-generation family managed firms trade at a significant average discount of 11.4%. Using medians, the premium becomes insignificant while the discount becomes even larger (24.4%). When only nonfounding families and individual blockholders are considered, family firms trade at an insignificant average premium, but at a significant median discount of 11.8% relative to nonfamily firms. Second- and later-generation firms that are controlled and managed by nonfounding families trade at a significant average discount of 27.1% and at a significant median discount of 40.9%, the largest in Table IX.

These results seem to suggest that nonfounding families destroy shareholder value. Yet, one needs to be careful before drawing that conclusion due to the endogenous nature of outside investment; it might just be the case that nonfounding families choose to purchase firms that trade at a low price.

Nevertheless, our test results regarding the family premium or discount are consistent with the results of our shocks analysis. When founders and their families are in control, the competitive advantage explanation dominates or at least coexists with the private benefits of control explanation. However, when nonfounding families and individual blockholders are in control, the private benefits explanation dominates. Altogether, the two sets of results suggest that the explanation of family control of firms and industries hinges on three factors: 1) the identity of the controlling family (founding vs. nonfounding), 2) the family's generation (first vs. later), and 3) family management (founder CEO vs. descendant CEO vs. nonfamily CEO).

C. 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 II to guide our choice of variables.

Tables X and XI present the results of this exercise. Table X displays univariate tests, while Table XI reports the results of multivariate probit models estimated at the segment level. In addition to the theoretical predictors discussed above, we include three control variables in all of our analyses: 1) ROA, 2) log of firm age, and 3) 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%.

1. Univariate Tests

Table X reports means, standard deviations, and tests of differences in means between family and nonfamily firms and segments, and between family controlled industries and nonfamily controlled 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 nonfamily 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 report the results of the analysis on the 254 three-digit industries only, but note that the results are similar for the 66 two-digit industries. Panel A displays results using the first and second definitions of a family firm, while Panel B presents results using the third and fourth definitions.

Consistent with the value-maximizing size argument, family firms have significantly lower PPE/assets and segment size than nonfamily firms. However, the PPE-to-assets ratio of those firms that are managed by founding families in their second and later generations is, in fact,

Table X. Univariate Tests of the Propensity of Firms and Industries to be Family Controlled

Table X displays means, standard deviations, and tests of differences in means between family and nonfamily firms and industries. Family-controlled industries are those above the median percentage of family firms in each industry. Family firms are defined in one of four ways (see Table III): 1) founder- or founding-family-owned firms in which the founder or a member of the founding family by either blood or marriage is an officer, director, or blockholder either individually or as a group; 2) founding-family-owned and managed subset of firms included in 1) that are in their second or later generation and whose CEO is the founder or a family member; 3) individual- or family-controlled firms in which an individual or family (founding or nonfounding) is a blockholder; and 4) family-controlled and managed subset of firms included in 3) that are in their second or later generation and whose CEO is an individual blockholder or a member of a blockholding family. The sample comprises the 8,104 publicly traded US firms that had segment data in 2000. 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 V.

Panel A. Founding-Family-Owned Firms and Industries

Variable	Mean All Firms	*SD*	1. Founder or Founding Family Owned				2. Founding Family Owned and Managed (2nd/Later Gen.)			
			Mean FCI (1)	Mean NFCI (2)	Diff. (1)–(2)	*t*-stat	Mean FMI (3)	Mean NFMI (4)	Diff. (3)–(4)	*t*-stat
Firm Characteristics										
PPE/assets	0.26	0.23	0.24	0.29	−0.05***	−4.73	0.30	0.26	0.04**	2.12
Market risk (beta)	1.07	1.10	1.21	0.90	0.31***	6.06	0.74	1.10	−0.36***	−3.95
Idiosyncratic risk	0.58	0.57	0.67	0.48	0.19***	7.3	0.42	0.60	−0.17***	−3.73
PAC contributions	91.3	145.0	106.2	83.3	22.9	1.02	96.9	90.8	6.07	0.15
Stock turnover	1.60	1.79	1.66	1.53	0.12	1.55	1.17	1.64	−0.47***	−3.42
Dual-class status	0.09	0.28	0.12	0.05	0.06***	5.02	0.29	0.07	0.23***	10.63
Discount v. single-class peers	−0.24	0.71	−0.22	−0.27	0.04	1.34	−0.33	−0.23	−0.09*	−1.71
Discounted dual-class status	0.80	0.40	0.80	0.81	−0.01	−0.59	0.88	0.79	0.09***	2.9
Firm transparency	0.75	0.22	0.76	0.74	0.02**	2.31	0.79	0.75	0.04**	2.2
Debt/assets	0.24	0.32	0.22	0.27	−0.05***	−3.55	0.27	0.24	0.03	1.24
ROA	−0.11	1.13	−0.13	−0.08	−0.05	−1.02	0.04	−0.13	0.17**	1.96
Age	15.74	13.14	12.57	19.42	−6.85***	−11.3	20.29	15.27	5.02***	4.71
Sales growth	2.17	48.67	1.11	3.48	−2.37	−1.1	0.23	2.37	−2.13	−0.57

(*Continued*)

Table X. Univariate Tests of the Propensity of Firms and Industries to be Family Controlled (*Continued*)

Panel A. Founding-Family-Owned Firms and Industries (*Continued*)

Variable	Mean All Firms	*SD*	1. Founder or Founding Family Owned				2. Founding Family Owned and Managed (2nd/Later Gen.)			
			Mean FCI (1)	Mean NFCI (2)	Diff. (1)–(2)	*t*-stat	Mean FMI (3)	Mean NFMI (4)	Diff. (3)–(4)	*t*-stat
STD (EBITDA) over last 3 years	109	453	69	157	−88***	−4.4	87	111	−24	−0.68
STD(ROA) over last 3 years	0.17	0.86	0.20	0.14	0.06	1.59	0.05	0.19	−0.14**	−2.1
Assets	4,960	23,596	2,748	7,708	−4,960***	−4.82	4,252	5,029	−777	−0.43
Number of firms	2,110		1,169	941			187	1,923		
Segment Characteristics										
Sales	2,438	7,679	1,764	3,275	−1,511***	−4.51	1,566	2,522	−956	−1.63
EBITDA	305	1,208	168	471	−303***	−5.51	207	315	−108	−1.12
Number of segments	3,968		2,043	1,925			388	3,580		
Industry Characteristics										
Industry concentration	0.22	0.15	0.22	0.22	0.00	0.19	0.21	0.23	−0.03	−1.42
Number of firms in industry	46.7	101.9	57.3	33.1	24.2*	1.89	34.7	59.2	−24.4*	−1.92
Skilled employment	3.82	5.33	3.61	4.08	−0.47	−0.7	3.16	4.51	−1.36**	−2.04
Industry transparency	0.44	0.19	0.43	0.45	−0.02	−0.86	0.43	0.44	0.00	−0.05
Number of industries	254		142	112			130	124		

(*Continued*)

Table X. Univariate Tests of the Propensity of Firms and Industries to be Family Controlled (*Continued*)

Panel B. Family-Controlled Firms and Industries(Founding or Not)

Variable	3. Individual or Family Controlled				4. Family Controlled and Managed (2nd /Later Gen.)			
	Mean FCI (1)	Mean NFCI (2)	Diff. (1)–(2)	*t*-stat	Mean FMI (3)	Mean NFMI (4)	Diff. (3)–(4)	*t*-stat
Firm Characteristics								
PPE/assets	0.25	0.28	−0.04***	−3.69	0.28	0.26	0.02	0.93
Market risk (beta)	1.11	1.02	0.09*	1.67	0.76	1.10	−0.34***	−3.73
Idiosyncratic risk	0.67	0.47	0.20***	7.55	0.45	0.59	−0.14***	−2.91
PAC contributions	99.5	88.8	10.7	0.42	46.7	93.0	−46.3	−0.83
Stock turnover	1.39	1.89	−0.50***	−6.28	1.04	1.65	−0.61***	−4.37
Dual-class status	0.11	0.06	0.05***	4.01	0.30	0.07	0.23***	10.84
Discount vs. single-class peers	−0.25	−0.24	−0.01	−0.27	−0.33	−0.23	−0.10*	−1.76
Discounted dual-class status	0.81	0.80	0.01	0.47	0.87	0.80	0.07**	2.38
Firm transparency	0.80	0.69	0.11***	10.76	0.81	0.74	0.07***	3.79
Debt/assets	0.24	0.25	−0.01	−0.51	0.26	0.24	0.02	0.94
ROA	−0.18	−0.02	−0.16***	−3.22	0.03	−0.12	0.15*	1.72
Age	12.61	19.60	−6.99***	−11.5	18.83	15.43	3.39***	3.12
Sales growth	0.63	4.32	−3.70*	−1.7	0.18	2.37	−2.19	−0.58
STD (EBITDA) over last 3 years	41	204	−163***	−8.12	66	113	−47	−1.34
STD (ROA) over last 3 years	0.21	0.12	0.08**	2.21	0.05	0.19	−0.13**	−2.01
Assets	2,039	9,067	−7,028***	−6.82	4,872	4,969	−97	−0.05
Number of firms	1,233	877			183	1,927		

(*Continued*)

Table X. Univariate Tests of the Propensity of Firms and Industries to be Family Controlled (*Continued*)

Panel B. Family-Controlled Firms and Industries(Founding or Not) (*Continued*)

Variable	3. Individual or Family Controlled				4. Family Controlled and Managed (2nd /Later Gen.)			
	Mean FCI (1)	Mean NFCI (2)	Diff. (1)–(2)	*t*-stat	Mean FMI (3)	Mean NFMI (4)	Diff. (3)–(4)	*t*-stat
Segment Characteristics								
Sales	1,126	4,282	−3,156***	−9.5	1,131	2,562	−1,431**	−2.41
EBITDA	102	596	−493***	−8.99	118	323	−205**	−2.12
Number of segments	2,135	1,833			363	3,605		
Industry Characteristics								
Industry concentration	0.22	0.23	−0.01	−0.54	0.20	0.24	−0.04**	−2.4
Number of firms in industry	53.9	39.5	14.4	1.13	42.8	50.5	−7.7	−0.6
Skilled employment	3.54	4.10	−0.57	−0.84	3.37	4.27	−0.90	−1.35
Industry transparency	0.43	0.44	0.00	−0.12	0.42	0.45	−0.03	−1.21
Number of industries	127	127			127	127		

***Significant at the 0.01 level.
**Significant at the 0.05 level.
*Significant at the 0.10 level.

Table XI. Propensity of Business Segments to be Family Controlled: Multivariate Probit Models

Table XI reports the probit regressions of the probability of a segment belonging to a family firm on industry, firm, and segment characteristics. The models in Panel B decompose firm characteristics into industry averages and firm-specific (industry-adjusted) characteristics. Family firms are defined in one of four ways (see Table III): 1) founder- or founding-family-owned firms in which the founder or a member of the founding family by either blood or marriage is an officer, director, or blockholder, either individually or as a group; 2) founding-family-owned and managed subset of firms included in 1) that are in their second or later generation and whose CEO is the founder or a family member; 3) individual- or family-controlled firms in which an individual or family (founding or nonfounding) is a blockholder; and 4) family-controlled and managed subset of firms included in 3) that are in their second or later generation and whose CEO is an individual blockholder or a member of a blockholding family. The sample comprises the 3,429 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 V.

	1. Founder or Founding Family Owned		2. Founding Family Owned and Managed (2nd/Later Gen.)		3. Individual or Family Controlled		4. Family Controlled and Managed (2nd/Later Gen.)	
	Coeff.	***t*-stat**	**Coeff.**	***t*-stat**	**Coeff.**	***t*-stat**	**Coeff.**	***t*-stat**
Panel A. Industry, Firm, and Segment Characteristics								
Ln (segment sales)	−0.062***	−4.07	0.006	0.29	−0.216***	−13.29	−0.060***	−3.04
Firm PPE/assets	−0.182	−1.38	0.185	1.16	−0.242*	−1.64	−0.227	−1.22
Firm market risk (beta)	0.136***	3.45	−0.013	−0.18	0.213***	5.33	0.019	0.27
Firm idiosyncratic risk	0.125	1.38	0.411**	2.40	0.561***	3.82	0.484***	3.30
Industry concentration	0.054	0.20	0.378	1.24	0.075	0.27	0.147	0.39
Number of firms in industry	0.000**	2.12	0.000	0.50	0.000	−0.06	0.000	−0.93
Industry skilled employment	−0.010*	−1.93	−0.006	−0.87	0.000	−0.01	0.004	0.61
Firm PAC contributions	0.000	1.35	−0.001	−1.39	0.001*	1.91	−0.004***	−3.38
Stock turnover	−0.044***	−2.88	−0.078**	−2.02	−0.206***	−9.30	−0.126***	−2.86
Dual-class status	0.734***	8.86	1.136***	14.6	0.816***	8.12	1.201***	13.92
Discount vs. single-class peers	0.294***	3.65	0.146	1.28	0.088	0.95	−0.184	−1.38
Discounted dual-class status	0.199*	1.94	0.382***	2.75	0.032	0.29	−0.096	−0.65
Firm transparency	0.209	1.39	0.457**	2.17	0.754***	4.68	0.221	1.02
Industry transparency	0.127	0.69	0.258	1.19	0.336	1.52	0.337	1.28
Firm debt/assets	−0.431***	−3.11	−0.353**	−2.22	−0.206	−1.57	−0.322*	−1.90

(*Continued*)

Table XI. Propensity of Business Segments to be Family Controlled: Multivariate Probit Models (*Continued*)

	1. Founder or Founding Family Owned		2. Founding Family Owned and Managed (2nd/Later Gen.)		3. Individual or Family Controlled		4. Family Controlled and Managed (2nd/Later Gen.)	
	Coeff.	***t*-stat**	**Coeff.**	***t*-stat**	**Coeff.**	***t*-stat**	**Coeff.**	***t*-stat**
Panel A. Industry, Firm, and Segment Characteristics (*Continued*)								
Firm ROA	0.196	1.42	0.819***	3.12	0.581***	4.15	0.882***	3.17
Ln (firm age)	−0.201***	−7.11	0.266***	7.82	−0.062**	−2.09	0.235***	5.71
Firm sales growth	−0.004***	−2.64	−0.002	−0.83	−0.012***	−3.75	−0.063	−1.19
Constant	0.583**	2.26	−3.001***	−8.81	0.788***	2.69	−1.934***	−5.69
Pseudo-R^2	0.09		0.13		0.20		0.15	
Number of obs. (segments)	3,429		3,429		3,429		3,429	
Panel B. Firm Characteristics Decomposed into Industry Averages and Firm-Specific Characteristics								
Ln (segment sales)	−0.051***	−3.19	0.015	0.71	−0.216***	−12.54	−0.058***	−3.03
Ind. avg. Ln (segment sales)	−0.121***	−3.94	−0.016	−0.36	−0.204***	−5.44	−0.035	−0.71
Firm-specific PPE/assets	−0.026	−0.17	0.196	1.12	−0.108	−0.61	−0.335*	−1.70
Industry average PPE/assets	0.066	0.37	0.550**	2.19	−0.055	−0.23	0.104	0.31
Firm market risk (beta)	0.112***	3.29	−0.020	−0.29	0.190***	5.16	0.014	0.20
Firm idiosyncratic risk	0.132	1.49	0.439**	2.45	0.576***	4.02	0.502***	3.21
Industry concentration	−0.129	−0.54	0.439	1.51	−0.008	−0.03	0.361	1.03
Number of firms in industry	0.000**	2.37	0.000	1.32	0.000	−0.64	0.000	−0.40
Industry skilled employment	−0.009**	−2.33	−0.004	−0.56	0.001	0.21	0.007	1.08

(*Continued*)

Table XI. Propensity of Business Segments to be Family Controlled: Multivariate Probit Models (*Continued*)

	1. Founder or Founding Family Owned		2. Founding Family Owned and Managed (2nd/Later Gen.)		3. Individual or Family Controlled		4. Family Controlled and Managed (2nd/Later Gen.)	
	Coeff.	***t*-stat**	**Coeff.**	***t*-stat**	**Coeff.**	***t*-stat**	**Coeff.**	***t*-stat**
Panel B. Firm Characteristics Decomposed into Industry Averages and Firm-Specific Characteristics (Continued)								
Firm-Spf. PAC contributions	0.000	1.36	0.000	−0.88	0.000**	2.37	0.000***	−2.85
Ind. Avg. PAC contributions	0.000	−0.42	0.000*	−1.65	0.000	−1.40	0.000***	−2.73
Firm-specific stock turnover	−0.033**	−2.03	−0.063*	−1.66	−0.196***	−8.38	−0.111***	−2.56
Industry stock turnover	−0.042**	−2.55	−0.079**	−2.09	−0.201***	−8.56	−0.125***	−2.93
Firm-spf. dual-class status	2.098***	5.98	2.423***	6.79	1.798***	5.27	1.979***	4.76
Ind.% of dual-class firms	0.608***	7.76	1.037***	12.7	0.727***	7.39	1.150***	12.43
Firm-spf. dct. vs. single-class	0.832***	2.83	0.760**	2.05	0.988***	2.71	0.784*	1.79
Ind. Avg Dct. vs. single-class	0.260***	3.54	0.116	0.99	0.057	0.61	−0.215	−1.53
Firm-spf. discted. dual-class	0.762*	1.93	0.834	1.60	1.165**	2.11	0.316	0.51
Ind.% of discted. dual-class	0.185*	1.86	0.357***	2.60	−0.015	−0.14	−0.125	−0.84
Firm transparency	0.236	1.49	0.519**	2.44	0.787***	4.74	0.266	1.21
Industry transparency	0.355**	2.09	0.209	0.94	0.519**	2.44	0.159	0.60
Firm-specific debt/assets	−0.491***	−3.54	−0.431***	−2.71	−0.246*	−1.87	−0.371**	−2.19
Ind. avg. debt/assets	−0.533***	−3.84	−0.437***	−2.76	−0.308**	−2.33	−0.376**	−2.21
Firm-specific ROA	0.157	1.13	0.723***	2.77	0.549***	4.12	0.802***	2.83
Industry average ROA	0.618*	1.83	2.028***	4.28	1.158***	2.68	2.301***	4.43
Ln (firm-specific age)	−0.159***	−5.45	0.293***	7.79	−0.012	−0.39	0.256***	5.65
Ln (industry average age)	−0.666***	−6.95	0.060	0.46	−0.578***	−5.36	0.064	0.41
Firm-specific sales growth	−0.004**	−2.41	−0.003	−0.81	−0.012***	−3.73	−0.075	−1.35
Industry avg. sales growth	−0.026**	−2.51	−0.018	−1.38	−0.009	−0.93	−0.063	−1.10
Constant	1.732***	3.76	−2.783***	−4.38	1.179**	2.10	−2.030***	−2.79
Pseudo-R^2	0.11		0.15		0.22		0.17	
Number of obs. (segments)	3,429		3,429		3,429		3,429	

***Significant at the 0.01 level.
**Significant at the 0.05 level.
*Significant at the 0.10 level.

significantly higher than that of nonfamily firms. A similar sign reversal is observed for the various measures of risk (systematic, idiosyncratic, and profit volatility). In support of Demsetz and Lehn's (1985) arguments and findings regarding the correlation between the noisiness of the environment, monitoring needs, and ownership concentration, family firms under Definitions 1 and 3 have greater risk. When the definitions of family firm are restricted to second and later generation and family managed firms, however (Definitions 2 and 4), we find that family firms have lower risk, which is not surprising since all the young, founder-stage firms are now reclassified as nonfamily. Indeed, the three control variables indicate that family firms under Definition 3 are younger and less profitable than the rest (and significantly so when nonfounding families are included), yet the signs are reversed when looking at second or later generation family managed firms only.

It is worth noting that the finding that family firms have high risk under Definitions 1 and 3, while consistent with a monitoring needs argument, may seem difficult to reconcile with the results of our shocks analyses. Since family firms 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 X confirms that the standard deviation of firm EBITDA over the past three years is lower for family firms under all definitions, and significantly so under the first and third. Yet the standard deviation of firm ROA under these two definitions 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 so defined family firms have a significantly smaller asset base (as presented in Table X), which makes their volatility higher when scaling EBITDA by assets as in the ROA ratio.

Consistent with the prediction that the investment horizons of families are longer than those of other shareholders, family firms exhibit a significantly lower stock turnover than their nonfamily counterparts under three out of the four definitions.

Of the industry characteristics, only skilled employment and one of our measures of competition, the number of firms, have the (negative) sign predicted by theory and are statistically significant, if only when the second definition is used. Under the first definition, however, the number of firms has the opposite sign to the negative one predicted by theory. The same is true for our other measure of competition, the Herfindahl index of concentration, under the fourth definition. One possible explanation for these findings is that industry concentration is the logical outcome of a large competitively viable size. From that perspective, our findings can be seen as providing further support for the efficient scale argument. Altogether, these results provide 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 firms, however defined. Yet, one can argue that the presence of dual-class stock per se does not constitute evidence of a private benefits appropriation motive, since a controlling family may use a dual-class share structure to derive nonpecuniary benefits that do not come at the expense of nonfamily shareholders (in line with the amenity potential theory). To rule out this interpretation, we refine our dual-class indicator by interacting it with a dummy that takes on a value of one when the dual-class firm trades at a discount relative to single-class firms in the same industry. Again, we find that the use of value reducing dual-class structures is significantly more prevalent among family firms, but only when these firms are in their second or later generations and are family managed.

Support for the private benefits explanation is only partial, however, since family firms are significantly more transparent than nonfamily firms regardless of the definition of family firm used. Taken together with the finding that family controlled industries are less transparent than nonfamily controlled industries, but not significantly so, these results suggest that families may

choose to operate in businesses where investors have relatively high tolerance for corporate opacity, yet they actually run their firms in a more transparent way that their industry peers. 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 like dual-class stock.

2. Multivariate Tests

Table XI displays the results of probit models regarding the probability that a segment belongs to a family firm. The analysis is performed at the segment level to allow for the inclusion in the same model of the firm, industry, and segment characteristics analyzed in the previous section. 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 monitoring needs 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, thus in greater need of large shareholder monitoring. The sign and significance of stock turnover and firm transparency are the same as in the univariate analyses. Since the discounted dual-class indicator is essentially an interaction of a dual-class indicator and a measure of the discount at which each company trades with respect to the single-class firms in its industry, the models include both interacting variables in addition to the interaction term that is really the variable of interest. The discounted dual-class indicator remains significant under Definition 2 as it was in the univariate analyses, and also becomes significant under Definition 1. Yet, the inclusion of the interacting variables renders the interaction term statistically insignificant under Definition 4.

In addition, the firm's PAC contributions become significant under the third and fourth definitions, but to the extent that they proxy for amenity potential, their sign is only consistent with our theoretical predictions under the third definition.

Panel B of Table XI reports 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 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 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.

IV. 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, monitoring needs, "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 and information asymmetries, which share the implication that value will be maximized only for the family, but not for other investors.

Using a range of univariate and multivariate tests on a large sample of publicly traded US firms, we find that both the competitive advantage and the private benefits of control theories help explain the propensity of firms and industries to be family controlled. Which explanation dominates is contingent on three factors: 1) who the controlling family is (founding vs. nonfounding family), 2) which family generation controls the firm relative to the founder or individual investor who first became a blockholder (first vs. later generation), and 3) who the CEO is (a family member or not). Most notably, 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 nonfamily shareholders. The implication is that nonfamily shareholders in those firms are better off than they would be without family control. In contrast, nonfounding families and individual blockholders seem to act exclusively in their own interest. This does not necessarily mean that outside investors are being expropriated by the controlling family. If the family's selfish behavior was fully discounted into the stock prices at the time outsiders made their investment (which we cannot observe), the outsiders would still be earning a fair rate of return on their investment. Nevertheless, the implication is that nonfamily investors are not only worse off than they would have been in the company of founders and founding families, but also worse off than they would have been in a nonfamily firm. ■

Appendix. Sensitivity of Dual-Class Status and Firm Transparency to Profitability Shocks

Fixed-effects regressions of firms' EBITDA on predicted EBITDA, the interaction of predicted EBITDA with measures of private benefits of control, and several control variables (coefficients not reported) are reported here. 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. The two measures of private benefits of control are dual-class status and firm transparency. Dual-class status is a dummy that takes on a value of one if the firm has dual-class stock, and zero otherwise. Firm transparency is a dummy that takes on a value of one if the firm is above the median level of transparency in the sample, and zero otherwise. Transparency is measured by the firm-specific relative stock return variation, which is the residual sum of squares relative to the total sum of squares (i.e., $1 - R^2$) from regressions of the firms' daily stock returns on market (CRSP value-weighted) returns and three or two-digit industry value-weighted portfolio returns. Each firm is excluded from its own industry portfolio. 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 that were randomly selected from among the 8,104 publicly traded US firms that had segment data in 2000. The industry average profitability measures are estimated on the 11,854 segments belonging to the full sample of 8,104 firms. All regressions include a constant and the following control variables: Ln(assets), ratio of debt to book value of equity, and capex-to-sales ratio. The *t*-statistics from clustered standard errors (by firm) are in parentheses.

	Coeff.	*t*-stat	Coeff.	*t*-stat	Coeff.	*t*-stat
Predicted EBITDA	0.75***	8.23	−0.28***	−10.21	−0.29***	−10.65
Dual-class status × predicted EBITDA	−0.33**	−2.43			−0.34**	−2.56
Firm transparency × predicted EBITDA			1.02***	8.84	1.06***	9.75
R^2 (within)	0.60		0.60		0.61	
Number of observations (firm-years)	5,629		5,629		5,629	

***Significant at the 0.01 level.
**Significant at the 0.05 level.

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