

Family Control, Product Market Competition and Firm Performance

Seun-Young Park and Hyun-Han Shin

In this paper, we try to determine the effect of the presence of family shareholders on company performance in the absence of external corporate governance. Our empirical results using Anderson *et al.* (2009, 2012)'s family firm data suggests that family firms exhibit superior firm performance relative to nonfamily firms when the level of product market competition is weak, suggesting that the family control is an effective internal corporate governance mechanism that can compensate for weak external corporate governance. Furthermore, a family firm's performance results in being superior to nonfamily firms' performance in weak competitive markets, regardless of whether the CEO of a family firm is a founder, heir or professional manager. These findings suggest that the family control is an effective organizational structure in mitigating agency problems and enhancing firm performance when external corporate governance is weak.

Keywords: Corporate governance, Family control, Product market competition, Agency problem, Firm performance

JEL Classification: L13, G34, D43

I. Introduction

Most previous studies have reported both positive and negative influences of family control on firm performance. While studies showing evidence of positive influences assert that family ownership actually reduces the agency problem, due to the alignment of ownership and

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[**Seoul Journal of Economics** 2016, Vol. 29, No. 3]

management (Anderson, and Reeb 2003), studies showing evidence of negative influences argue that the interests of controlling family shareholders infringe on the interests of minority shareholders (Holderness, and Sheehan 1988). Little research has been conducted on the association between external corporate governance and internal corporate governance, however, especially on the relation between product market competition and family control. Therefore, in this study we examine the effect of internal corporate governance on the agency problem, which has been found to be more severe when external corporate governance is weaker.

The effect of internal control on operating and stock market performance depends on the level of product market competition. In a similar study by Januszewski *et al.* (2002), Nickell *et al.* (1997) and Koke, and Renneboog (2005), the impact of corporate control (namely blockholder ownership) and product market competition on productivity growth is examined. Specifically, Januszewski *et al.* (2002) show that in the case of German manufacturers, the productivity growth seems to be higher when operating in markets with intense competition. In addition, a positive effect of competition increases even more so when strong ultimate owners (*i.e.*, private individuals, government authorities) are in place, suggesting that competition and tight control are complementary.

On the other hand, Nickell *et al.* (1997) and Koke, and Renneboog (2005) suggest that product market competition and insider control are substitute mechanisms. Specifically, Nickell *et al.* (1997) indicate that in the case of UK manufacturing companies, strong ownership (the largest shareholders were insurance companies, pension funds or banks in this case) and product market competition are substitutes, each increasing the productivity. Koke, and Renneboog (2005) suggest that weak product market competition has a negative impact on productivity growth in both UK and German markets. For UK firms, however, it reports that a negative effect on weak product market competition is mitigated in firms with a large portion of insider control (directors and their families).

With these past studies in mind, the differentiating points of this study are as follows: First, this study focuses on controlling family shareholders whose characteristics are quite different from general large shareholders. Second, we study the family control variable in depth by analyzing the different impacts generated by different types of CEOs within the family firms when compared with nonfamily firms, further developing the results of preceding studies.

One of the defining characteristics of public companies in the US is

the separation of management and ownership. This separation, however, can cause agency problems between managers and outside shareholders (Demsetz, and Lehn 1985; Jensen, and Meckling 1976; Shleifer, and Vishny 1997), and such agency problems can be even more severe for firms with weak external monitoring systems on management. Unlike firms with dispersed shareholders, however, undiversified investment by family members is characteristic of family controlled firms. Family shareholders consider these long-term investments as a way of connecting multiple generations, and value the reputation of the family firm (Anderson, and Reeb 2003; Anderson *et al.* 2002; Demsetz, and Lehn 1985; Steier 2001). Thus, the characteristics of family firms are quite different from those of conventional firms with general large shareholders. Family members often occupy important management positions and have considerable influence and control.¹ In fact, a more effective control of management may occur in family-controlled firms due to tight monitoring of daily operations, reliance on the family directors' business knowledge, and the advantage of their lengthy tenure in the business. Thus, we hypothesize that the benefits of having family control within firms to be greater than in general large shareholder firms, where we suspect monitoring of management by external corporate governance is poor.

On the contrary, it is also possible that the lack of market monitoring and external control may have a detrimental effect on family-controlled firms. Uncontested power of controlling owners and weak check-and-balance systems may create an entrenchment problem in which the controlling owners have too much freedom to extract wealth from outside shareholders. This tendency is even more pronounced when both the market pressure and the internal mechanism for monitoring and restraining the controlling owners are weak. Under these circumstances, the impact of family control on firm performance can be negative.

To address this issue, we utilized the publicly disclosed family firm data, which is a combined and augmented sample from Anderson *et al.* (2009, 2012). The data in this sample uses the 2,000 largest firms in terms of total assets from the years 2001 to 2010. The family firms defined in the sample are those in which the founder or founders' heirs

¹ According to Shleifer, and Vishny (1986), family firms, which account for 33% of the Fortune 500 companies, are usually run by large shareholders. The share distribution is not highly segmented; usually a few large shareholders are founding members and are represented on the board of directors.

maintain an equity position, serve on the board, or serve as a top-level manager. To measure the founder or heir presence, Anderson places no minimum ownership on threshold (Anderson *et al.*, 2009).²

In aggregate, our empirical results suggest that family firms exhibit superior firm performance relative to nonfamily firms when the level of product market competition is weak. This suggests that the family control is an effective internal corporate governance mechanism that can compensate for weak external corporate governance. Yet, previous studies (Wang 2006; Chen *et al.* 2010; Ali *et al.* 2007; Anderson, and Reeb 2003; Anderson *et al.* 2009) show that firm performances differ depending on whether the CEO is a founder, an heir or an outside hire. Therefore, our analysis also investigates the influence of a family member acting as the CEO³ on a family firm's performance in the absence of market pressure. Interestingly, irrespective of whether the CEO is a founder, a heir or hire, when compared to nonfamily firms, we found that continued family presence (maintaining influence in the firm primarily through an equity stake or as a top-level manager) generates significantly better accounting and stock market performance under weak product market competition.

This paper is organized as follows: Section II reviews previous literature and develops the hypotheses, Section III describes the data and research design, Section IV provides summary statistics and summarizes the empirical results of this study on the effect of family control on firm performance in noncompetitive industries and finally, Section V concludes the paper.

II. Literature Review & Hypothesis Development

A. Product-Market Competition

Most studies on corporate governance have focused on mechanisms to mitigate the agency problem (Bushman, and Smith 2003). Franks,

² For robustness test, they use the fractional level of founder or heir ownership, and the results are robust to using a dummy variable at the 1% level and 5% level to denote founder or heir firms. Therefore, the results of our study using their family firm variables too are determined to be robust as well in terms of family-firm variable definition.

³ In order to distinguish CEO classification we manually collect data from corporate proxy statements from 2001 to 2010 since Anderson *et al.* (2009, 2012) disclose only a dummy variable that equals one when firms are family controlled, and zero otherwise.

and Mayer (1996, 2001) categorize corporate control mechanisms into external and internal. To qualify as an internal mechanism, controlling shareholders and the board must play an important role in internal controls, while in an external mechanism, firm managers are given incentives to motivate them to align themselves with shareholders' interests according to various external pressures, such as hostile takeovers and product market competition.

One of the most frequently discussed external mechanisms is corporate takeover. One of the major characteristics of a takeover is being period specific (Holmstrom, and Kaplan 2001), suggesting that takeovers have a disciplinary function when the internal governance mechanism is weak (Kini *et al.* 2004). For example, low-performing managers become acquired or fired (Martin, and McConnel 1991; Huson *et al.*, 2001) and have difficulty moving to a higher position (Agrawal, and Walkling 1994). Furthermore, Mikkelsen, and Partch (1997), Denis *et al.* (2000) find that CEO turnovers are more frequent in low-performance firms, and more restructuring activities occur during the active period of takeovers relative to less active periods. These results suggest that in general, takeover activities decrease the principal-agent conflicts both in target and non-target firms.

Another external mechanism is product market competition, and this is the main focus of this study. Gilson, and Roe (1993) describe intense product market competition as the most elegant monitoring mechanism. They state that product market competition, which increases the risk of bankruptcy, can motivate firms to perform better and to monitor each other's performance. Holmstrom, and Tirole (1993) show that product market competition forces managers to discipline themselves for optimal performance, since complete information on company expenses is made available to the public in a perfectly competitive market. Hart (1983) presents theoretical models proposing that product market competition reduces managerial slack with an optimally chosen managerial incentive scheme. Hart's study also suggests, however, that there could still be managerial slack with optimal incentive scheme when a firm's cost is so low that the manager can still achieve the income target even if he or she takes on a discretionary behavior for his or her own benefit.

Nickell (1996) and Griffith (2001) document a positive association between intensified product market competition and productivity growth. In a study of the banking industry, Berger, and Hannan (1998) show that increasing market competition increases cost efficiency. Previous studies (Januszewski *et al.* 2002; Nickell *et al.* 1997; Koke, and Renneboog,

2005) provide evidence that an internal corporate governance mechanism can complement (or substitute for) product market competition. Koke, and Renneboog (2005) prove that weaker product market competition has a negative effect on productivity. In a developed capital market such as that in England, however, having insider control (directors and their families) improves productivity under conditions of weak product market competition. Koke and Renneboog's study does not directly deal with the controlling family shareholders, however.

Giroud, and Mueller (2011) report that poor corporate governance results in lower equity returns, poorer operating performance, and reduced firm value; however, these negative results are evident only in noncompetitive industries. They explain that managers maximize corporate performance through self-discipline under conditions of fierce product market competition. Randoy, and Jenssen (2004) and Li, and Niu (2006) also examine the interaction between internal corporate governance and product market competition. These studies document that increasing the proportion of independent directors on the board decreases firm value in a highly competitive product market, suggesting that additional monitoring by independent directors may be costly under conditions of efficient market monitoring.

B. Family Governance and Firm Performance

Family ownership is an important form of corporate ownership structure, and a high proportion of companies around the world are family controlled (Burkart *et al.* 2003). Shleifer, and Vishny (1986) report that 33% (149/456) of firms in a sample of Fortune 500 corporations in 1980 have family members represented on the board of directors. In addition, Anderson, and Reeb (2003) identify members of founding families in 33% of S&P 500 corporations listed from 1992 to 1999.

According to a number of previous studies (Anderson, and Reeb 2003; Faccio, and Lang 2002; La Porta *et al.* 1999; Wang 2006; Barth *et al.* 2005), a firm is a family firm if the founder's family has a certain proportion of shares or participates in its management, though each study uses different percentages of shares as the benchmark. The effects of family governance on firm performance have been explained within an agency framework: the entrenchment hypothesis and the alignment hypothesis. The entrenchment hypothesis represents the traditional view, which focuses on the inefficiency of family controlled firms due to the fact that controlling owners have ultimate power to pursue their private

interests, exhibit opportunistic behaviors, and damage the interests of minority shareholders in order to maximize their own wealth (Fama, and Jensen 1983; Morck *et al.* 1988; Shleifer, and Vishny 1997; DeAngelo, and DeAngelo 2000; Burkart *et al.* 1997). This view says that in family controlled firms, the monitoring and controlling functions of the board of directors are undermined by family member's interests, who may be dominating the board or hire directors to work for them and represent their interests, not those of outside shareholders. This kind of behavior tends to increase the possibility of wealth expropriation from those shareholders.

On the other hand, by looking from the perspective of the agency problem between managers and controlling shareholders, Demsetz, and Lehn (1985) suggest that the economic motives of controlling shareholders may have positive effects on firm performance, because they are strongly inclined to reduce agency costs and maximize firm value. Therefore, the interests of controlling shareholders and minority shareholders are better aligned in a centralized ownership structure, in which controlling shareholders effectively monitor the managers (the alignment hypothesis). The agency problem cannot on its own fully address the multifaceted realities inherent in family firms, however (Eisenhardt 1989). Generally, family shareholders and other large shareholders may seem similar in that they both have high equity ownerships, but family shareholders are different as they are long-term investors, participate in management activities and their shares consist of less-diversified holdings. More specifically, founding families take on the role of stewards for their family firms to ensure the firm's success in future generations. Hence, from the stewardship perspective, a family member's objectives align with those of the firm, enabling them to free themselves from self-serving behaviors and individualism, and instead focus on pro-organizational behaviors as the firm's steward (Moores 2009; Salvato, and Moores 2010; Prencipe *et al.* 2008, 2011; Cascino *et al.* 2010). These studies cited in the previous sentence all state that agency and stewardship theories are both necessary in order to understand family firms, and that these theories serve as a complement to each other.

Consequently, the operating and stock market performance of family firms can go in two distinct directions. Corporate performance can be hurt by the decisions of controlling shareholders to maximize the family's private interests, or corporate performance can be improved by the alignment of the economic motives of controlling family shareholders and the interests of minority shareholders.

C. Hypothesis Development

Most previous studies have focused on the role and efficiency of corporate governance. Little research has been conducted on the role of family firms in the absence of external corporate governance, however. Therefore, this paper will examine the effect of the presence of family shareholders on firm performance under conditions of low pressure from product market competition. If the level of competition in the product market is low, the market's monitoring function and control over managers becomes weak, resulting in an agency problem between managers and shareholders, which in turn negatively affects corporate performance.

In the meantime, from the perspective of agency theory, the interests of controlling shareholders and minority shareholders are better aligned in a centralized ownership structure, in which controlling shareholders effectively monitor the managers. In addition if a situation is analyzed from the stewardship perspective, founding families take on the role of stewards for their family firms to ensure the firm's success in future generations. Hence, economic motives of family shareholders may have positive effects on firm performance, as they are strongly inclined to reduce agency costs and maximize firm value. The benefits will be even greater when the control of external corporate governance is lacking. Therefore, this paper is predicting that the agency problem caused by weak external corporate governance is mitigated by efficient internal corporate governance in family controlled firms.

In contrast, family shareholders may pursue private interests more easily when the external monitoring mechanism is weak, and the entrenchment of external shareholders' interests may become more serious. This occurs in family firms where the internal corporate governance mechanism for monitoring and controlling insiders' pursuit of private interests is weak. In this sense, the impact on firm performance in firms with family control may be either positive or negative in noncompetitive industries, which becomes an empirical issue. Furthermore, anecdotal evidences⁴ and prior literatures (Wang 2006; Chen *et al.* 2010; Ali *et al.* 2007; Anderson, and Reeb 2003; Anderson *et al.* 2009) suggest that there exists differential performance in family firms based on the CEO status. In order to distinguish CEO classification,⁵ we manually collected

⁴ For example, CEO of Hewlett-Packard recently noted, founding families have concerns and interests of their own, such as stability and capital preservation, that may not align with the interests of other investors or their firm (Anderson, and Reeb 2003).

data from corporate proxy statements from 2001 to 2010, and delineated three CEO types in family firms: founder CEO, heir CEO, and professional manager or an outside hire CEO. This analysis also investigates the influence of a family member acting as the CEO on a family firm's performance in the absence of market pressure.

Family CEOs can further strengthen a family's degree of control, and the CEOs that are a member of the family can have a positive or a negative impact on their firms depending on their motives. As previous studies mention (DeAngelo, and DeAngelo 2000; Labatkin *et al.* 2007; Schulze *et al.* 2001, 2002, 2003), if given the uncontested power within the firm, family CEOs can entrench themselves and extract private benefits of control, thus granting them greater ease in extracting firm resources at the minority shareholders' expense. In other words, they have the potential to lead to competitive disadvantages, as they tend to be against recruiting outside personnel though they may be competent and qualified to run the firm (Morck *et al.* 2000; Schulze *et al.* 2001). Preceding studies suggest that because of these issues regarding succession of management control, heir controlled family firms have greater negative firm performances than those that are founder controlled (Villalonga, and Amit 2006; Bennedsen *et al.* 2006; Perez-Gonzalez 2006; Morck, and Yeung 2003).

In this sense, when the CEO of a firm is a family member, the ability or potential for the family CEO to obtain private benefits is even greater when external monitoring is not in place. These kinds of actions can lead to poor firm performance relative to nonfamily firms. Another factor leading to potentially low performance is the problem of entrenchment in heir controlled firms, as an heir might be less competent, able or committed to the firm than the founder (Morck, and Yeung 2003; Perez-Gonzalez 2006).⁶

Those suggesting positive influence of family members in firms, however, insist that when family members participate in management acti-

⁵ Anderson *et al.* (2009, 2012) provide only a dummy variable that equals one when firms are family controlled and zero otherwise. That is, because they do not provide any of characteristics of family firms, such as ownership information and classification as founder or heir, we manually collected the data from the corporate proxy statement.

⁶ Schulze *et al.* (2001) state that appointing a family CEO without experience and knowledge often cause nonfamily executives to be unhappy, and this dark side of altruism, in which parents are compelled to be generous to their kin (Labatkin *et al.* 2007), usually affects a firm negatively.

vities, the “No Absentee Landlords” (Weber *et al.* 2003; Wang 2006) approach is likely to create a strong monitoring mechanism that leads to responsible management for all shareholders and decreases self-serving or myopic behavior on the part of managers.⁷ Therefore, the monitoring and control by family CEOs are a powerful and efficient internal governance mechanism, which could replace external monitoring and could even result in superior firm performance compared to those of non-family firms.

Consequently, this paper investigates whether a family firm exhibits differential operating and stock market performance relative to nonfamily firms in the absence of external corporate governance. We further examine the impact of family members actively taking control of firm management as CEOs. Therefore we posit the following hypotheses:

Hypothesis 1

The level of product market competition has different effects on operating performance in family firms (controlled by founder CEO, heir CEO, or professional CEO) and nonfamily firms.

Hypothesis 2

The level of product market competition has different effects on stock market performance in family firms (controlled by founder CEO, heir CEO, or professional CEO) and nonfamily firms.

III. Sample Selection & Research Design

A. Sample Selection

We used the family ownership data for the Top 2,000 largest firms from 2001 to 2010, and the data in this study is a combined and augmented sample from Anderson *et al.* (2009, 2012).⁸ Firm-specific data is drawn from COMPUSTAT. Financial firms (SIC codes 6020 through 6799) and regulated public utilities (SIC codes 4911 through 4991) are excluded, as they are subject to different government and

⁷ Stewardship theory, developed by Donaldson, and Davis (1991, 1993), is a new perspective on understanding the existing relationships between the ownership and management of a company.

⁸ In their study, the family firms are those in which the founder or founders' heirs maintain an equity position, serve on the board, or serve as a top level manager. To measure the founder or heir presence, they place no minimum ownership threshold following Anderson *et al.* (2009, 2012).

TABLE 1
SAMPLE SELECTION

Sample Selection	Number of firm-years
Family Ownership Data for the Top-2,000 Largest Firms for 2001 and spans from 2001 through 2010 (provided by Anderson <i>et al.</i> , 2009, 2012)	16,200
Less industries with less than five firms per two-digit SIC	(971)
Less observations with missing data	(4,592)
Final Sample	10,637
Family Firms	2,994
Founder-CEO-firm	787
Heir-CEO-firm	879
Professional-CEO-firm	1,328
Nonfamily Firms	7,643

accounting regulations from those of other firms. In addition, firms with negative equity are also eliminated in order to prevent distortions caused by financial distress. In order to control for the possible effect of outliers while maintaining the sample size, continuous variables used in our study are winsorized, or limiting the extreme values, at the 1st and 99th percentiles.

As shown in Table 1, our final sample consists of 10,637 firm-year observations, where 28% ($n=2,994$) of them are family firms, 16% ($n=1,666$) of them have family CEOs, 7% ($n=787$) of them have founder CEOs, 8% ($n=879$) of them have heir CEOs and lastly 12% ($n=1,328$) of them have professional CEOs. Table 2 shows the sample distribution by industry. Family firms are evenly distributed among the two-digit Standard Industry Codes (SIC).

B. Variables and Research Design

The Herfindahl-Hirschman Index (*HHI*) is utilized to measure the level of product market competition, which is a commonly used measure in empirical industrial organization literature. Higher *HHI* values imply lower levels of product market competition. The *HHI* is calculated as the sum of squared market shares in a given year and industry, and the market share of a company is defined as the proportion of the company’s sales in a given industry year. To calculate *HHI* values, all available COMPUSTAT firms are included in industries with at least five

TABLE 2
SAMPLE DISTRIBUTION BY INDUSTRY

SIC Code	Industry description	Nonfamily Firm	Family Firm	Percent Family Firms in Industry
1	Agricultural production	40	9	18%
10	Metal mining	47	0	0%
12	Coal mining	32	0	0%
13	Oil and gas extraction	367	78	18%
14	Non metallic minerals, except fuels	20	10	33%
15	General building contractors	41	77	65%
16	Heavy construction, except building	47	13	22%
17	Special trade contractors	24	0	0%
20	Food and kindred products	207	183	47%
21	Tobacco products	24	0	0%
22	Textile mill products	12	51	81%
23	Apparel and other textile products	59	54	48%
24	Lumber and wood products	59	32	35%
25	Furniture and fixtures	91	19	17%
26	Paper and allied products	153	45	23%
27	Printing and publishing	65	102	61%
28	Chemicals and allied products	736	141	16%
29	Petroleum and coal products	69	24	26%
30	Rubber and misc. plastics products	73	40	35%
31	Leather and leather products	36	15	29%
32	Stone, clay, and glass products	58	9	13%
33	Leather and leather products	194	52	21%
34	Fabricated metal products	132	71	35%
35	Industrial machinery and equipment	691	153	18%
36	Electronic & other electric equip.	820	262	24%
37	Transportation equipment	306	76	20%
38	Instruments and related products	524	133	20%
39	Misc. manufacturing industries	56	41	42%
40	Railroad transportation	49	3	6%
42	Trucking and warehousing	51	60	54%
44	Water transportation	36	23	39%
45	Transportation by air	86	22	20%
47	Transportation services	36	11	23%
48	Communication	29	101	78%
50	Wholesale trade-durable goods	205	110	35%
51	Wholesale trade-nondurable goods	117	18	13%
52	Eating and drinking places	30	16	35%
53	General merchandise stores	122	61	33%
54	Food stores	49	32	40%
55	Automotive dealers	50	42	46%
56	Apparel and accessory stores	115	111	49%
57	Furniture and home furnishings	67	20	23%
58	Eating and drinking places	172	52	23%
59	Miscellaneous retail	152	46	23%
70	Hotels and other lodging places	16	16	50%
72	Personal services	44	17	28%
73	Business services	768	378	33%
75	Auto repair, services, and parking	24	6	20%
78	Motion pictures	22	10	31%
79	Amusement & recreation services	60	26	30%
80	Health services	183	17	9%
82	Educational services	26	32	55%
83	Social services	0	10	100%
87	Engineering & management svc.	119	43	27%
99	Nonclassifiable establishments	32	21	40%
Sum		7,643	2,994	28%

Note: Numbers and percentages of firms by two-digit SIC. Percent of family firms in each industry is computed as the number of family firms divided by the total number of firms.

firms per two-digit SIC.

For robustness checks, we used two alternative measures to proxy for product market competition: (1) four-firm concentration ratio,⁹ which is the sum of market shares of the four largest firms in an industry, and (2) *HHI* using three-digit SIC industries. Similar results were obtained using two of these alternative and competitive measures, and the results are displayed in Table 6.

There are four different variables representing family control: (1) *FAM* is a dummy variable, which takes the value of 1 if the firm in question is a family firm and 0 otherwise; (2) *Founder CEO* is a dummy variable which takes the value of 1 if the founder holds the CEO position; (3) *Heir CEO* is a dummy variable which takes the value of 1 if an heir holds the CEO position; (4) *Professional CEO* is a dummy variable which takes the value of 1 if a professional holds the CEO position in a family firm.

The dependent variable for operating performance in this investigation is return on assets (ROA). ROA is computed in two ways: (1) by using earnings before interest, tax, depreciation, and amortization (EBITDA) scaled by the book value of average total assets (*ROA1*) and (2) by using net income divided by the book value of average total assets (*ROA2*). As for the stock market performance, we used both measures of Tobin's *Q* (*TQ*) and the market-to-book ratio (*MTB*). Tobin's *Q* is the market value of total assets (total assets — book value of equity + market value of equity) divided by the book value of total assets. The market-to-book ratio (*MTB*) is the market value of equity (common stock × fiscal year-end stock price) divided by the book value of equity.

Our interest variable is the interaction between *FAM* (*Founder CEO*, *Heir CEO*, *Professional CEO*) and *HHI*. For example, *FAM* × *HHI* in this model indicates the effect of family control on firm operating and stock market performance depending on the level of product market competition. Other variables, such as family firm characteristics suggested by Anderson, and Reeb (2003), are added as controls to adjust for confounding effects on firm performance (either operating or stock market performance). Since we are analyzing the effects of product market competition on current year's performance, we use the control variables

⁹ *HHI* and 'four-firm concentration ratio' are common in the empirical industrial organization literature and is routinely used by government agencies (Giroud, and Mueller 2011). In addition, *HHI* is well grounded in theory (see Tirole 1988, pp.221-3).

of the preceding year ($t-1$) to avoid endogeneity.¹⁰ Firm size (*SIZE*) is the natural log of the market value of equity. The leverage ratio (*LEV*) is the long-term debt to equity, and firm age (*AGE*) is measured as the natural log of the number of years since the company first appeared in COMPUSTAT. We also control for CEO equity-based pay (*OPTION*) because of the relation between executive pay and firm performance. The measure *OPTION* is calculated as the option value divided by the total compensation, including equity-based pay, salary, and annual bonus. Compensation data is drawn from S&P's COMPUEXEC. *GPM* is included to control for the operating profit. It is measured as gross profit to sales. And the dummy variables for year (*YRD*) and industry (*IND*) based on first-digit SIC are included.

Finally, the following equations are utilized to investigate the effect of family control on a firm's operating and stock market performance (Equation (1) and (2), respectively) in relation to the level of product market competition.

$$ROA_{i,t} = \alpha + \beta_1 FAM_{i,t} + \beta_2 HHI_{i,t-1} + \beta_3 FAM \times HHI_{i,t-1} + \beta_4 SIZE_{i,t-1} + \beta_5 LEV_{i,t-1} + \beta_6 AGE_{i,t-1} + \beta_7 OPTION_{i,t-1} + \beta YRD + \beta IND + \varepsilon \quad (1)$$

$$TQ(MTB)_{i,t} = \alpha + \beta_1 FAM_{i,t} + \beta_2 HHI_{i,t-1} + \beta_3 FAM \times HHI_{i,t-1} + \beta_4 SIZE_{i,t-1} + \beta_5 LEV_{i,t-1} + \beta_6 AGE_{i,t-1} + \beta_7 OPTION_{i,t-1} + \beta_8 GPM_{i,t-1} + \beta YRD + \beta IND + \varepsilon \quad (2)$$

IV. Results of Empirical Analysis

A. Descriptive Statistics & Correlation Analysis

Table 3 shows the descriptive statistics and correlations among the variables used in this study. While Panel A presents the descriptive statistics of the full sample, Panel B provides the results of the means and median tests of the sample by family firms and nonfamily firms.

In Panel A, the average degree of product market competition (*HHI*) for the year $t-1$ is 7.8% in this sample. The performance variables of

¹⁰ However, the current-year(t) variable is applied for family control since it is determined to be more relevant to the purpose of this study to see the impact of the current year's family control on the current year's performance. But it is verified that the result of the regression analysis remains intact even when the $t-1$ family dummy variable is used.

TABLE 3
DESCRIPTIVE STATISTICS AND CORRELATION ANALYSIS

Panel A: Descriptive Statistics for the Full Sample

	Mean	Standard Deviation	Median	Min.	Max.
ROA1	0.118	0.104	0.121	-0.256	0.394
ROA2	0.020	0.118	0.041	-0.521	0.248
TQ	1.734	0.921	1.453	0.670	5.772
MTB	2.814	2.798	2.035	0.269	19.992
HHI (<i>t</i> - 1)	0.078	0.063	0.049	0.023	0.335
SIZE (<i>t</i> - 1)	7.044	1.669	6.930	3.277	11.537
LEV (<i>t</i> - 1)	0.769	1.435	0.370	0.000	10.431
AGE (<i>t</i> - 1)	2.930	0.725	2.890	1.099	4.078
OPTION (<i>t</i> - 1)	0.237	0.299	0.000	0.000	0.955
GPM (<i>t</i> - 1)	0.359	0.276	0.345	-1.257	0.897

Panel B: Differences of Means and Median Tests between Family Firms and Nonfamily Firms

	Family Firm (n = 2,994)		Nonfamily Firm (n = 7,643)		Means t-test	Median wilcoxon test
	Mean	Median	Mean	Median		
ROA1	0.120	0.120	0.117	0.122	1.540	-0.519
ROA2	0.024	0.040	0.018	0.042	3.020 ***	-0.265
TQ	1.657	1.386	1.776	1.494	-7.720 ***	-10.379 ***
MTB	2.430	1.840	3.021	2.152	-13.560 ***	-14.369 ***
HHI (<i>t</i> - 1)	0.081	0.059	0.076	0.047	4.640 ***	5.984 ***
SIZE (<i>t</i> - 1)	6.634	6.539	7.265	7.160	-22.790 ***	-23.063 ***
LEV (<i>t</i> - 1)	0.706	0.321	0.803	0.396	-4.090 ***	-7.306 ***
AGE (<i>t</i> - 1)	2.828	2.773	2.984	2.944	-12.860 ***	-13.203 ***
OPTION (<i>t</i> - 1)	0.195	0.000	0.254	0.054	-9.530 ***	-9.172 ***
GPM (<i>t</i> - 1)	0.359	0.344	0.358	0.345	0.260	-1.732 *

ROA1 and ROA2 are 11.8% and 2.0%, respectively. In addition, values for the stock market performance measures TQ and MTB are 1.734 and 2.814, respectively.

In Panel B, the proportion of family firms is 28% amongst our sample, and the mean (median) value of HHI for family firms is significantly higher 8.1% (5.9%) compared to 7.6% (4.7%) for nonfamily firms at the 1% level, implying that family firms are more distributed in noncompetitive industries. In terms of operating performance, we find little difference between family firms and nonfamily firms, with the exception of

TABLE 3
(CONTINUED)

Panel C: Pearson and Spearman Correlations (above/below the diagonal, respectively; p-values in parentheses)

	1	2	3	4	5	6	7	8	9	10	11
1 FAM		0.038 (<.0001)	0.013 (0.111)	0.024 (0.001)	-0.062 (<.0001)	-0.101 (<.0001)	-0.182 (<.0001)	-0.031 (0.001)	-0.104 (<.0001)	-0.089 (<.0001)	0.002 (0.841)
2 HHI	0.049 (<.0001)		0.109 (<.0001)	0.075 (<.0001)	-0.116 (<.0001)	-0.076 (<.0001)	-0.041 (<.0001)	0.034 (<.0001)	0.084 (<.0001)	-0.134 (<.0001)	-0.097 (<.0001)
3 ROA1	-0.004 (0.671)	0.146 (<.0001)		0.765 (<.0001)	0.354 (<.0001)	0.233 (<.0001)	0.334 (<.0001)	0.006 (0.491)	0.180 (<.0001)	-0.018 (0.061)	0.332 (<.0001)
4 ROA2	-0.002 (0.831)	0.085 (<.0001)	0.807 (<.0001)		0.289 (<.0001)	0.152 (<.0001)	0.300 (<.0001)	-0.012 (0.141)	0.228 (<.0001)	-0.048 (<.0001)	0.239 (<.0001)
5 TQ	-0.085 (<.0001)	-0.182 (<.0001)	0.490 (<.0001)	0.536 (<.0001)		0.667 (<.0001)	0.383 (<.0001)	-0.104 (<.0001)	-0.070 (<.0001)	0.206 (<.0001)	0.214 (<.0001)
6 MTB	-0.117 (<.0001)	-0.143 (<.0001)	0.454 (<.0001)	0.450 (<.0001)	0.911 (<.0001)		0.284 (<.0001)	0.286 (<.0001)	0.000 (0.951)	0.113 (<.0001)	0.088 (<.0001)
7 SIZE	-0.189 (<.0001)	-0.078 (<.0001)	0.367 (<.0001)	0.395 (<.0001)	0.442 (<.0001)	0.443 (<.0001)		-0.098 (<.0001)	0.304 (<.0001)	0.104 (<.0001)	0.194 (<.0001)
8 LEV	-0.059 (<.0001)	0.138 (<.0001)	0.016 (0.061)	-0.129 (<.0001)	-0.240 (<.0001)	-0.005 (0.571)	-0.001 (0.871)		0.016 (0.051)	-0.044 (<.0001)	-0.055 (<.0001)
9 AGE	-0.109 (<.0001)	0.098 (<.0001)	0.152 (<.0001)	0.182 (<.0001)	-0.025 (0.001)	0.029 (0.001)	0.302 (<.0001)	0.133 (<.0001)		-0.201 (<.0001)	-0.025 (0.001)
10 OPTION	-0.089 (<.0001)	-0.116 (<.0001)	0.009 (0.351)	-0.003 (0.761)	0.190 (<.0001)	0.165 (<.0001)	0.078 (<.0001)	-0.029 (0.001)	-0.162 (<.0001)		0.115 (<.0001)
11 GPM	-0.015 (0.071)	-0.249 (<.0001)	0.195 (<.0001)	0.177 (<.0001)	0.326 (<.0001)	0.246 (<.0001)	0.207 (<.0001)	-0.175 (<.0001)	-0.110 (<.0001)	0.093 (<.0001)	

Notes: Panels A, B, and C provide summary statistics and correlations for the data employed in our analysis. The data set is comprised of 10,637 firm-year observations from 2001 to 2010. FAM is a binary variable that equals one if the firm is a family firm. The HHI (Herfindahl-Hirschman Index) is calculated as the sum of squared market shares in a given industry year, and the market share of a company is the proportion of the company's sales in a given industry year. ROA1 is earnings before interest, tax, depreciation, and amortization (EBITDA) to average the total assets. ROA2 uses net income to average total assets. TQ is calculated as the market value of assets (total assets – book value of equity + market value of equity) divided by the book value of assets. MTB is the market value of equity to book value of equity. SIZE is the natural logarithm of market value of equity in year $t-1$. LEV is long-term debt to book value of equity in year $t-1$. AGE is the natural logarithm of the number of years since the company first appeared in COMPUSTAT in year $t-1$. OPTION is the option value divided by the total compensation, including equity-based pay, salary, and annual bonus in year $t-1$. GPM is operating profit calculated as gross profit to sales. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

ROA2 (using net income as the numerator), which indicates that family firms are significantly better performers at the 1% level.

With the values for the measure of stock market performance (*TQ* and *MTB*) in mind, it is observed that family firms have significantly lower firm value than nonfamily firms. Therefore, the univariate evidence suggests that firm value of family firms is lower than nonfamily firms during the time period examined here, though the operating performance of family firms is significantly better in terms of *ROA2*.

With respect to the control variables for the year $t-1$, the results demonstrate that family firms are smaller in *SIZE* with younger ages (*AGE*), and have about 70.6% (32.1%) long-term debt (*LEV*) in their capital structures, versus 80.3% (39.6%) for nonfamily firms. The mean and median differences of those values between the two groups are all significantly different at the 1% level. Interestingly, it should also be noted that CEOs in family firms earn nearly 6% less of their total pay in equity-based forms compared to CEOs in nonfamily firms, which is similar to what Anderson, and Reeb (2003) found.

Panel C provides the correlation matrix of the variables in the sample. The upper diagonal shows the Pearson correlations and the lower diagonal shows the Spearman correlations. The correlation coefficients are relatively small.¹¹ Like the results of the difference of means (median) tests in Panel B, a positive correlation is observed between the family firm dummy (*FAM*) and *HHI*, as well as with *ROA2*, which implies family firms are distributed more in noncompetitive industries and have better operating performance there. On the other hand, we find that *FAM* is negatively correlated with the market value (*TQ* and *MTB*), suggesting lower stock market performance in family firms. The relation between family presence and firm performance can be seen in the following section after controlling for confounding factors.

V. Multivariate Analysis

A. Main Results

Table 4 consists of Panel A and Panel B. Panel A contains the result of the analysis on whether the performance of family firms, compared

¹¹The correlation matrix for the sample reveals no correlation coefficients greater than a threshold of 0.5, as suggested by Neter *et al.* (1996). The variance inflation scores for all variables were <2 in the regression models, indicating no significant impact of collinearity among the variables in the regression.

TABLE 4

REGRESSION RESULTS FOR OPERATING AND STOCK MARKET PERFORMANCE

Panel A: Family Firms versus Nonfamily Firms

Variables	Operating Performance		Market Performance	
	ROA1 (using EBITDA) (1)	ROA2 (using NI) (2)	TQ (3)	MTB (4)
Constant	-0.007 (-1.121)	-0.117*** (-16.884)	0.582*** (9.758)	-0.810*** (-4.477)
β_1 FAM	0.005* (1.779)	0.010*** (2.923)	-0.068** (-2.462)	-0.288*** (-3.454)
β_2 HHI ($t-1$)	0.082*** (5.037)	0.030* (1.677)	-0.982*** (-6.596)	-2.370*** (-5.244)
β_3 FAM * HHI ($t-1$)	0.049* (1.720)	0.055* (1.753)	1.532*** (5.785)	2.743*** (3.415)
β_4 SIZE ($t-1$)	0.021*** (36.009)	0.019*** (30.511)	0.210*** (38.357)	0.530*** (31.955)
β_5 LEV ($t-1$)	-0.002** (-2.228)	-0.003*** (-3.400)	-0.040*** (-6.201)	0.754*** (38.194)
β_6 AGE ($t-1$)	-0.006*** (-4.123)	-0.006*** (-4.111)	-0.216*** (-17.019)	-0.375*** (-9.735)
β_7 OPTION ($t-1$)	-0.035*** (-9.624)	-0.035*** (-8.579)	0.174*** (5.110)	0.256** (2.473)
β_8 GPM ($t-1$)			0.963*** (25.462)	1.555*** (13.549)
Industry control	Yes	Yes	Yes	Yes
Year control	Yes	Yes	Yes	Yes
Observations	10,637	10,637	10,637	10,637
Adj. R ²	0.128	0.132	0.275	0.228
F-value	96.93***	100.6***	236.2***	184.4***

to nonfamily firms, differs depending on the level of market competition. Panel B-1 to B-4 contains further analysis on whether a family firm's performances varies depending on the type of CEO hired. The table contains four columns, each of which displays a regression result. In columns (1) and (2) we provide the results using accounting performance measures (ROA1 and ROA2, respectively) as dependent variables, while stock market performance measures (TQ and MTB, respectively) are used as dependent variables in columns (3) and (4).¹²

TABLE 4
(CONTINUED)

Panel B-1: Family Firms with Founder and Heir CEOs versus Nonfamily Firms

Variables	Operating Performance		Market Performance	
	ROA1 (using EBITDA) (1)	ROA2 (using NI) (2)	TQ (3)	MTB (4)
Constant	0.005 (0.646)	-0.175*** (-12.095)	0.606*** (8.389)	-1.468*** (-3.827)
β_1 Family CEO	0.008** (2.190)	0.014*** (3.266)	-0.019 (-0.551)	-0.284*** (-2.643)
β_2 HHI ($t-1$)	0.043** (2.408)	-0.006 (-0.276)	-0.414** (-2.480)	-0.751 (-1.470)
β_3 Family CEO * HHI ($t-1$)	0.060* (1.663)	0.056* (1.696)	1.116*** (3.160)	2.251** (2.081)
β_4 SIZE ($t-1$)	0.021*** (33.813)	0.020*** (28.790)	0.206*** (34.423)	0.521*** (28.465)
β_5 LEV ($t-1$)	-0.002** (-2.359)	-0.003*** (-3.143)	-0.040*** (-5.915)	0.747*** (35.966)
β_6 AGE ($t-1$)	-0.004*** (-3.018)	0.007*** (4.251)	-0.207*** (-14.936)	-0.369*** (-8.676)
β_7 OPTION ($t-1$)	-0.038*** (-9.775)	-0.037*** (-8.419)	0.145*** (3.995)	0.174 (1.574)
β_8 GPM ($t-1$)			1.118*** (27.268)	1.925*** (15.326)
Industry control	Yes	Yes	Yes	Yes
Year control	Yes	Yes	Yes	Yes
Observations	9,345	9,345	9,345	9,345
Adj. R ²	0.151	0.145	0.290	0.246
F-value	72.00***	68.50***	158.0***	126.5***

¹²We present the main results using the ordinary least square (OLS) regression in Table 4, and the p-values on the variables are two-tailed values calculated based on White's (1980) heteroskedasticity-corrected standard errors. In robustness checks, we also analyze alternative econometric techniques that control for serial correlation. These techniques include: (a) Firm-level clustering regressions to adjust for standard errors if there is an autocorrelation at the firm level, and (b) Fama-MacBeth regressions. The results from the alternative regression methods are similar to our main results and are shown in Table 7.

TABLE 4
(CONTINUED)

Panel B-2: Family Firms with Founder CEOs versus Nonfamily Firms

Variables	Operating Performance		Market Performance	
	ROA1 (using EBITDA) (1)	ROA2 (using NI) (2)	TQ (3)	MTB (4)
Constant	-0.048*** (-5.400)	-0.181*** (-11.969)	0.249* (1.934)	-1.497*** (-3.713)
β_1 Founder CEO	0.001 (0.268)	0.014** (2.398)	0.080* (1.662)	-0.038 (-0.256)
β_2 HHI ($t-1$)	0.038** (2.099)	-0.017 (-0.803)	-0.420** (-2.463)	-0.762* (-1.687)
β_3 Founder CEO * HHI ($t-1$)	0.172*** (3.222)	0.090* (1.695)	1.373*** (2.746)	2.226* (1.832)
β_4 SIZE ($t-1$)	0.022*** (32.754)	0.020*** (27.228)	0.207*** (32.701)	0.526*** (26.686)
β_5 LEV ($t-1$)	-0.001 (-1.559)	-0.002** (-2.254)	-0.032*** (-4.460)	0.790*** (35.253)
β_6 AGE ($t-1$)	-0.005*** (-2.894)	0.008*** (4.421)	-0.212*** (-14.365)	-0.387*** (-8.442)
β_7 OPTION ($t-1$)	-0.037*** (-9.035)	-0.035*** (-7.560)	0.173*** (4.520)	0.250** (2.094)
β_8 GPM ($t-1$)			1.150*** (26.900)	1.987*** (14.949)
Industry control	Yes	Yes	Yes	Yes
Year control	Yes	Yes	Yes	Yes
Observations	8,466	8,466	8,466	8,466
Adj. R ²	0.155	0.146	0.297	0.247
F-value	67.30***	62.70***	147.8***	115.1***

In Panel A of Table 4, the coefficient estimates on the stand-alone family dummy variable (β_1 FAM) in columns (1) and (2) are all positive and significant. On the other hand, in columns (3) and (4), which display the impact on stock market performance, the coefficients of FAM are all negative and significant above the 5% significance level. Such contrary evidence suggests that family firms are better in accounting performance, but not in market performance compared to nonfamily firms. This is generally consistent with the preceding studies on family

TABLE 4
(CONTINUED)

Panel B-3: Family Firms with Heir CEOs *versus* Nonfamily Firms

Variables	Operating Performance		Market Performance	
	ROA1 (using EBITDA) (1)	ROA2 (using NI) (2)	TQ (3)	MTB (4)
Constant	-0.067*** (-4.938)	-0.158*** (-10.497)	0.625*** (8.610)	-0.111 (-0.477)
β_1 Heir CEO	0.017*** (3.443)	0.015*** (2.662)	-0.103** (-2.225)	-0.491*** (-3.354)
β_2 HHI ($t-1$)	0.045** (2.490)	-0.009 (-0.424)	-0.403** (-2.429)	-0.613 (-1.169)
β_3 Heir CEO * HHI ($t-1$)	-0.056 (-1.130)	0.014 (0.249)	0.829** (2.122)	2.156** (2.164)
β_4 SIZE ($t-1$)	0.022*** (33.396)	0.021*** (28.613)	0.188*** (30.699)	0.485*** (25.120)
β_5 LEV ($t-1$)	-0.001* (-1.869)	-0.002*** (-2.733)	-0.037*** (-5.479)	0.747*** (35.177)
β_6 AGE ($t-1$)	-0.006*** (-4.003)	0.006*** (3.366)	-0.182*** (-12.881)	-0.317*** (-7.088)
β_7 OPTION ($t-1$)	-0.040*** (-9.530)	-0.041*** (-8.722)	0.204*** (5.359)	0.207* (1.721)
β_8 GPM ($t-1$)			1.187*** (27.568)	2.152*** (15.832)
Industry control	Yes	Yes	Yes	Yes
Year control	Yes	Yes	Yes	Yes
Observations	8,558	8,558	8,558	8,558
Adj. R ²	0.157	0.148	0.294	0.248
F-value	68.89***	64.66***	147.6***	117.0***

firms. For example, Anderson, and Reeb (2003) show that family firms are superior when it comes to accounting profitability measures, but only those family firms with founder CEOs and outside (hired) CEOs demonstrate outstanding market performance. Those with heir CEOs do not perform better in the market, according to Anderson. Similarly, the Perez-Gonzalez (2006) study shows that stock return is negatively related to family heirs. Holderness, and Sheehan (1988), Morck *et al.* (2000)

TABLE 4
(CONTINUED)

Panel B-4: Family Firms with Professional CEOs *versus* Nonfamily Firms

Variables	Operating Performance		Market Performance	
	ROA1 (using EBITDA) (1)	ROA2 (using NI) (2)	TQ (3)	MTB (4)
Constant	-0.096*** (-7.611)	-0.119*** (-13.817)	0.050 (0.422)	-0.464** (-2.062)
β_1 Professional CEO	0.000 (0.084)	0.004 (0.906)	-0.060* (-1.663)	-0.152 (-1.321)
β_2 HHI ($t-1$)	0.047*** (2.647)	-0.014 (-0.670)	-0.293* (-1.783)	-0.402 (-0.772)
β_3 Professional CEO * HHI ($t-1$)	0.054* (1.681)	0.069** (2.098)	1.403*** (4.251)	1.710** (2.094)
β_4 SIZE ($t-1$)	0.022*** (34.830)	0.020*** (29.073)	0.198*** (33.791)	0.503*** (27.064)
β_5 LEV ($t-1$)	-0.001 (-1.091)	-0.002** (-2.062)	-0.032*** (-4.753)	0.782*** (36.411)
β_6 AGE ($t-1$)	-0.005*** (-3.620)	0.007*** (4.257)	-0.198*** (-14.370)	-0.313*** (-7.146)
β_7 OPTION ($t-1$)	-0.034*** (-8.494)	-0.036*** (-7.859)	0.242*** (6.530)	0.317*** (2.694)
β_8 GPM ($t-1$)			1.229*** (29.416)	2.205*** (16.645)
Industry control	Yes	Yes	Yes	Yes
Year control	Yes	Yes	Yes	Yes
Observations	9,007	9,007	9,007	9,007
Adj. R ²	0.157	0.147	0.310	0.251
F-value	72.71***	67.09***	167.4***	125.6***

Notes: This data set is comprised of 10,637 firm-year observations in the years 2001 and 2010. FAM equals one if the firm is a family firm. Family CEO equals one if the founder or heir holds the CEO position. Founder CEO equals one if the founder holds the CEO position. Heir CEO equals one if an heir holds the CEO position. Profession CEO equals one if a professional holds the CEO position in a family firm. The HHI (Herfindahl-Hirschman Index) is calculated as the sum of squared market shares in a given industry year, and the market share of a company is the proportion of the company's sales in a given industry year. ROA1 is earnings before interest, tax, depreciation, and amortization (EBITDA) to average the total assets. ROA2 uses net income to average total assets. TQ is calculated as the market value of assets (total assets - book value of equity + market value of equity) divided by the book value of assets. MTB is the market value of equity to book value of equity. SIZE is the natural logarithm of market value of equity in year $t-1$. LEV is the long-term debt to book value of equity in year $t-1$. AGE is the natural logarithm of the number of years since the company first appeared in COMPUSTAT in year $t-1$. OPTION is the option value divided by the total compensation, including equity-based pay, salary, and annual bonus in year $t-1$. GPM is operating profit calculated as gross profit to sales. All regressions include dummy variables for one-digit SIC codes and for each year of the sample period. The coefficients on the industry and year dummies are not reported for brevity. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively. White (1980)-corrected t-values appear in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

report that family firms have relatively lower Tobin Qs than nonfamily firms. These results suggest that investors negatively perceive family firms management successions by the heirs. Therefore, this study analyzes whether family firms operating and market stock performances vary depending on their CEO types through additional tests, and the results are in Panel B-1~B-4 of Table 4.

In the meantime, the main interest of this study is not in the comparison between family and nonfamily firms, but rather in the impact of product market competition on a family firm's performance. Interestingly, the interaction between *FAM* and *HHI* (β_3 *FAM*HHI*), which are the main focus of our study, indicate that as product market competition decreases, family firms appear to demonstrate better operating and stock market performances relative to nonfamily firms.

From an economic perspective, for firms in the highest quintile of *HHI* (18.3%, a weakly competitive environment), family firms have more positive impact by 2.8% and 3.1% on operating profit (*ROA1*) and stock market performance (*TQ*), respectively, than nonfamily firms.¹³ Therefore, contrary to the concern that family influence harms firm performance and that such negative impact on performance might be exacerbated under a lack of market pressure, our evidence suggests that family firms perform better than nonfamily firms. Particularly, family firms in non-competitive industries benefit more from good governance than do firms in competitive industries.

Panel B shows the result of the analysis comparing family firms categorized by their CEO types to nonfamily firms. Firstly, in Panel B-1, we analyze the family firms in which the founder or heir serve as the firm's CEOs against nonfamily firms. *Family CEO* \times *HHI*_{*t*-1}, is the variable of our interest in this panel, and positive coefficients are shown in all four models, suggesting that those family firms with family CEOs show superior operating and stock market performances to those of nonfamily firms under weak product market competition conditions.

Panel B-2 and B-3 contain the results of the analysis in which family CEOs are further segregated as founder CEOs and heir CEOs. Panel B-2 shows that *Founder CEO* \times *HHI*_{*t*-1} has positive coefficients in all four models, as expected, suggesting that family firms with founder CEOs are better performers as product market competition decreases.

¹³ We calculate this as follows: 1) for operating performance (*ROA1*), β_1 FAM + β_2 HHI + β_3 FAM*HHI = 0.005 + 0.082*0.183 + 0.049*0.183; 2) for stock market performance (*TQ*), β_1 FAM + β_2 HHI + β_3 FAM*HHI = -0.068 - 0.982*0.183 + 1.532*0.183.

On the other hand, Panel B-3 shows that *Heir CEO* \times HHI_{t-1} does not have statistically meaningful coefficient values in column (1) and (2), whereas the interaction terms are positive at the 5% significance level in column (3) and (4). This suggests that heir CEOs do not seem to bring about additional positive impact in terms of accounting performance under weak product market competition, but investors perceive those firms with heir CEOs still to be more positive than nonfamily firms.

Lastly, Panel B-4 contains the results of the analysis in which the family firms with professional CEOs are compared with nonfamily firms, and they show that *Professional CEO* \times HHI_{t-1} has positive coefficients in all four models, confirming our earlier evidence. Taken as a whole and irrespective of whether the CEO is a founder, heir or hire, when compared to nonfamily firms we find family presence (maintaining influence in the firm primarily through an equity stake or as a top level manager) generates significantly better accounting and stock market performances under weak product market competition.

B. Additional Tests

We then further analyzed amongst family firms whether the firm's performance differs depending on CEO classification. These results are displayed in Table 5, and interestingly only β_4 *Founder CEO* \times HHI_{t-1} is shown to have positive coefficients in column (3) and (4), whereas β_5 *Heir CEO* \times HHI_{t-1} is shown to have negative coefficients at the 5% significance level in column (5) and (6).

Consequently, our additional test reveals that founder firms are significantly better performers in an environment with low levels of market competition, suggesting that founders can provide control and oversight that substitute for the disciplinary role of market pressure. On the other hand, heir firms demonstrate worse performance as the market competition decreases, indicating that heirs exploit the lack of market pressure to extract private benefits at the expense of minority investors.

C. Robustness

a) Alternative Measures of Product Market Competition

Table 6 contains robustness checks considering alternative measures of product market competition. For robustness checks, we used two alternative measures to proxy for product market competition. In Panel A of Table 6, we used a four-firm concentration ratio (*CR4*) based on the two-digit SIC industries and *CR4*, to calculate the sum of market

TABLE 5
 ADDITIONAL REGRESSION RESULTS WITHIN FAMILY FIRMS

Variables	ROA1 (1)	TQ (2)	ROA1 (3)	TQ (4)	ROA1 (5)	TQ (6)	ROA1 (7)	TQ (8)
Constant	-0.024 (-1.573)	-0.751*** (-3.452)	-0.020 (-1.353)	-0.872*** (-4.036)	-0.018 (-1.195)	-0.730*** (-3.407)	-0.015 (-1.030)	-0.679*** (-3.170)
β_1 Family CEO	0.009* (1.769)	0.072 (1.593)						
β_2 Family CEO * HHI ($t-1$)	0.010 (0.203)	-0.486 (-1.134)						
β_3 Founder CEO			-0.003 (-0.536)	0.107** (2.041)				
β_4 Founder CEO * HHI ($t-1$)			0.176*** (3.020)	0.878* (1.665)				
β_5 Heir CEO					0.013** (2.359)	-0.007 (-0.131)		
β_6 Heir CEO * HHI ($t-1$)					-0.136** (-2.444)	-1.273** (-2.538)		
β_7 Professional CEO							-0.009* (-1.769)	-0.072 (-1.593)
β_8 Professional CEO * HHI ($t-1$)							-0.010 (-0.203)	0.486 (1.134)
β_9 HHI ($t-1$)	0.093*** (2.694)	1.331*** (4.234)	0.057** (1.982)	0.970*** (3.722)	0.127*** (4.247)	1.373*** (5.013)	0.102*** (2.861)	0.845** (2.569)
β_{10} SIZE ($t-1$)	0.018*** (16.503)	0.263*** (25.950)	0.018*** (16.415)	0.262*** (26.089)	0.018*** (16.403)	0.259*** (25.678)	0.018*** (16.503)	0.263*** (25.950)
β_{11} LEV ($t-1$)	-0.005*** (-3.129)	-0.089*** (-6.085)	-0.005*** (-3.008)	-0.084*** (-5.772)	-0.006*** (-3.229)	-0.088*** (-5.993)	-0.005*** (-3.129)	-0.089*** (-6.085)
β_{12} AGE ($t-1$)	0.003 (1.112)	-0.22*** (-8.711)	0.004 (1.449)	-0.190*** (-7.191)	0.002 (0.563)	-0.220*** (-8.581)	0.003 (1.112)	-0.225*** (-8.711)
β_{13} OPTION ($t-1$)	-0.021*** (-3.176)	-0.035 (-0.582)	-0.021*** (-3.127)	-0.024 (-0.411)	-0.021*** (-3.233)	-0.040 (-0.672)	-0.021*** (-3.176)	-0.035 (-0.582)
β_{14} GPM ($t-1$)		0.869*** (11.822)		0.887*** (12.111)		0.871*** (11.901)		0.869*** (11.822)
Industry & Year control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,994	2,994	2,994	2,994	2,994	2,994	2,994	2,994
Adj. R ²	0.120	0.323	0.122	0.329	0.119	0.327	0.120	0.323
F-value	19.38***	60.13***	19.77***	61.75***	19.25***	61.11***	19.38***	60.13***

Note: This table reports the additional test that repeats the analysis within family firms using different CEO types. Refer to Table IV for the definitions of the other variables. The coefficients for the industry and year dummies are not reported for brevity. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively and throughout. White (1980)-corrected t-values appear in parentheses.

TABLE 6
ROBUSTNESS: ALTERNATIVE MEASURES OF COMPETITION

Panel A: Using a Four Firm Concentration Ratio (CR4)

Variables	Operating Performance		Market Performance	
	ROA1 (1)	ROA2 (2)	TQ (3)	MTB (4)
Constant	-0.159*** (-9.973)	-0.199*** (-11.398)	0.036 (0.244)	-2.380*** (-5.390)
FAM	-0.000 (-0.082)	0.005 (0.892)	-0.160*** (-3.287)	-0.431*** (-2.931)
CR4 ($t-1$)	0.034*** (4.849)	0.017** (2.166)	-0.214*** (-3.269)	-0.414** (-2.093)
FAM x CR4 ($t-1$)	0.023** (1.990)	0.022* (1.705)	0.516*** (4.876)	0.854*** (2.667)
SIZE ($t-1$)	0.021*** (36.366)	0.020*** (30.811)	0.216*** (38.982)	0.542*** (32.361)
LEV ($t-1$)	-0.002*** (-2.745)	-0.003*** (-3.473)	-0.040*** (-6.063)	0.749*** (37.775)
AGE ($t-1$)	-0.004*** (-3.124)	0.007*** (4.594)	-0.216*** (-16.521)	-0.350*** (-8.830)
OPTION ($t-1$)	-0.034*** (-9.418)	-0.034*** (-8.326)	0.156*** (4.596)	0.220** (2.135)
GPM ($t-1$)			0.961*** (24.819)	1.493*** (12.746)
Industry control	Yes	Yes	Yes	Yes
Year control	Yes	Yes	Yes	Yes
Observations	10,637	10,637	10,637	10,637
Adj. R ²	0.152	0.144	0.285	0.242
F-value	78.95***	74.13***	168.7***	135.6***

shares of the four largest firms in an industry.¹⁴ In Panel B, we used three-digit SIC industries to calculate HHI, referring to *HHI3* in the actual model. As shown, we find qualitatively similar results with all three alternative competition measures.

¹⁴The four-firm concentration ratio indicates the degree to which an industry is oligopolistic and the extent of market control held by the four-largest firms in the industry.

TABLE 6
(CONTINUED)

Panel B: Using the HHI Based on Three Digit SIC Industries (HHI3)

Variables	Operating Performance		Market Performance	
	ROA1 (1)	ROA2 (2)	TQ (3)	MTB (4)
Constant	-0.137*** (-9.661)	-0.201*** (-13.082)	0.084 (0.620)	-2.438*** (-5.980)
FAM	0.001 (0.274)	0.008** (2.197)	-0.058* (-1.949)	-0.180** (-1.991)
HHI3 (<i>t</i> - 1)	0.023*** (2.703)	0.024** (2.433)	-0.441*** (-5.441)	-0.204 (-0.831)
FAM x HHI3 (<i>t</i> - 1)	0.049*** (3.225)	0.035** (2.075)	0.670*** (4.745)	0.695* (1.657)
SIZE (<i>t</i> - 1)	0.021*** (35.216)	0.020*** (29.526)	0.215*** (38.143)	0.546*** (32.010)
LEV (<i>t</i> - 1)	-0.003*** (-3.270)	-0.003*** (-3.777)	-0.046*** (-6.856)	0.718*** (35.081)
AGE (<i>t</i> - 1)	-0.004** (-2.567)	0.007*** (4.420)	-0.219*** (-16.418)	-0.382*** (-9.489)
OPTION (<i>t</i> - 1)	-0.034*** (-9.032)	-0.033*** (-7.975)	0.164*** (4.772)	0.277*** (2.669)
GPM (<i>t</i> - 1)			0.894*** (22.623)	1.405*** (11.760)
Industry control	Yes	Yes	Yes	Yes
Year control	Yes	Yes	Yes	Yes
Observations	10,637	10,637	10,637	10,637
Adj. R ²	0.154	0.144	0.286	0.236
F-value	77.06***	71.01***	162.3***	125.4***

Note: This table reports the robustness test that repeats the analysis using alternative measures of product market competition. In Panel A, the HHI is replaced with the four-firm concentration ratio (CR4), which is the sum of market shares of the four largest firms in an industry. In Panel B, three-digit SIC industries are used to calculate HHI, naming HHI3 in the actual model. Refer to Table IV for the definitions of the other variables. The coefficients on the industry and year dummies are not reported for brevity. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively and throughout. White (1980)-corrected t-values appear in parentheses.

TABLE 7
ROBUSTNESS OF MODEL SPECIFICATIONS

Panel A: Comparison between the Lowest and Highest HHI Quintile

Variables	Lowest HHI Quintile		Highest HHI Quintile	
	ROA1	TQ	ROA1	TQ
Constant	-0.121*** (-8.808)	0.454*** (3.171)	-0.043** (-2.352)	0.614*** (3.252)
FAM	0.010* (1.953)	0.042 (0.794)	0.017*** (4.401)	0.193*** (4.960)
SIZE ($t-1$)	0.022*** (16.985)	0.228*** (15.438)	0.022*** (19.144)	0.204*** (17.643)
LEV ($t-1$)	0.001 (0.659)	0.007 (0.397)	-0.001 (-0.314)	0.009 (0.567)
AGE ($t-1$)	0.019*** (5.882)	-0.212*** (-6.298)	-0.029*** (-10.161)	-0.333*** (-11.534)
OPTION ($t-1$)	-0.037*** (-4.394)	0.330*** (3.727)	-0.008 (-0.937)	0.094 (1.129)
GPM ($t-1$)		0.783*** (9.619)		0.358*** (3.695)
Industry control	Yes	Yes	Yes	Yes
Year control	Yes	Yes	Yes	Yes
Observations	2,120	2,120	2,125	2,125
Adj. R ²	0.205	0.250	0.195	0.215
F-value	38.97***	43.94***	36.56***	35.87***

b) Robustness of Model Specifications

We divided firms into quintiles by ranking firms according to their HHIs, and compared the regression results of the lowest and highest HHI quintile. Panel A of Table 7 presents the results, while columns (1) and (2) show the effect of family firms on operating and stock market performance in the lowest HHI quintile, *i.e.*, more competitive industries. As can be seen, the coefficient of FAM is weakly significant at the 10% level only in operating performance, suggesting that overall performance of family firms is not significantly different from that of nonfamily firms in competitive industries. In columns (3) and (4), however, we find strong evidence that family firms perform better than nonfamily firms in terms of both accounting (ROA1) and market value (TQ) performance in highest HHI quintile, *i.e.* less competitive industries. Our evidence

TABLE 7
(CONTINUED)

Panel B: Using the Firm Clustering Regression

Variables	Operating Performance		Market Performance	
	ROA1 (1)	ROA2 (2)	TQ (3)	MTB (4)
Constant	-0.027** (-2.023)	-0.118*** (-9.479)	0.533*** (4.394)	-0.666 (-1.591)
FAM	0.005 (0.739)	0.009 (1.583)	-0.072 (-1.045)	-0.261 (-1.595)
HHI (<i>t</i> - 1)	0.080** (2.544)	0.029 (1.044)	-0.957*** (-3.061)	-2.237** (-2.246)
FAM x HHI (<i>t</i> - 1)	0.044 (0.654)	0.053 (1.050)	1.489* (1.938)	2.417* (1.652)
SIZE (<i>t</i> - 1)	0.021*** (15.781)	0.020*** (17.080)	0.210*** (16.096)	0.503*** (13.199)
LEV (<i>t</i> - 1) ²	-0.004** (-2.105)	-0.005*** (-3.607)	-0.118*** (-6.563)	0.760*** (7.747)
AGE (<i>t</i> - 1)	-0.005* (-1.743)	0.007** (2.289)	-0.205*** (-6.986)	-0.361*** (-4.230)
OPTION (<i>t</i> - 1)	-0.036*** (-6.158)	-0.036*** (-5.868)	0.153** (2.400)	0.246 (1.491)
GPM (<i>t</i> - 1)			0.945*** (7.665)	1.507*** (4.727)
Year control	Yes	Yes	Yes	Yes
Observations	10,637	10,637	10,637	10,637
Adj. R ²	0.129	0.133	0.284	0.185
F-value	31.03***	50.69***	77.91***	41.44***

confirms the hypothesis that firms in noncompetitive industries benefit more from good governance than do firms in competitive industries, consistent with Giroud, and Mueller (2011).

In Panel B and C, two alternative econometric techniques were used that control for serial correlation within a firm across time. First, we used firm-level clustering regressions for any autocorrelation at the firm level (Huber 1967; Rogers 1983; Peterson 2009), and presented these results in Panel B. As shown, we find that the coefficient of interaction term *FAM* × *HHI* is still significantly positive in relation to both *TQ* and *MTB*, though the operating performance results lack statistical significance.

TABLE 7
(CONTINUED)

Panel C: Using the Fama-MacBeth Regression and Newey West Adjustment for Standard Errors

Variables	Operating Performance		Market Performance	
	ROA1 (1)	ROA2 (2)	TQ (3)	MTB (4)
Constant	-0.001 (-0.16)	-0.120*** (-10.39)	0.778*** (12.07)	-0.685*** (-4.64)
FAM	0.006*** (6.63)	0.011*** (7.49)	-0.046*** (-3.72)	-0.217*** (-3.7)
HHI ($t-1$)	0.091** (2.85)	0.045 (1.27)	-1.171*** (-3.42)	-2.256*** (-3.92)
FAM x HHI ($t-1$)	0.039*** (4.23)	0.044** (2.99)	1.473*** (5.66)	2.302*** (4.62)
SIZE ($t-1$)	0.021*** (13.61)	0.020*** (11.91)	0.239*** (12.26)	0.578*** (15.64)
LEV ($t-1$)	-0.002* (-1.95)	-0.004* (-2.02)	-0.053** (-2.96)	0.737*** (14.28)
AGE ($t-1$)	-0.008** (-2.8)	0.002 (0.48)	-0.237*** (-16.28)	-0.379*** (-11.4)
OPTION ($t-1$)	-0.020** (-2.4)	-0.017* (-1.91)	-0.045 (-0.26)	1.220 (0.46)
GPM ($t-1$)			0.955*** (4.35)	2.303*** (4.05)
Industry control	Yes	Yes	Yes	Yes
Observations	10,637	10,637	10,637	10,637

Notes: Table 7 reports the robustness test that repeats the analysis using alternative econometric techniques that serve as a control for serial correlation. In Panel A, firms have been ranked into five groups according to their HHIs and the regression results of the lowest and highest HHI quintile are presented. In Panel B, firm-level clustering regressions have been used to adjust for standard errors, if there is an autocorrelation at the firm level. In Panel C, Fama-MacBeth regressions are used, meaning that cross-sectional regressions have been run separately for each year and the means of coefficients and standard errors have been obtained by using the Newey-West procedure (Newey and West, 1987). Refer to Table IV for the definitions of the variables. The coefficients on the industry and year dummies are not reported for brevity. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively and throughout. White (1980)-corrected t-values appear in parentheses.

In Panel C, we use Fama-MacBeth regressions (Fama, and MacBeth 1973). That is, we run cross-sectional regressions (including dummy variables for first-digit SIC codes) separately for each year, and obtained the means of coefficients and standard errors using the Newey-West procedure (Newey, and West 1987). Overall, our estimates from Fama-MacBeth regressions are consistent with our prior OLS results, suggesting that family firms are superior performers in noncompetitive industries.

VI. Conclusion

In this study, the level of product market competition is considered as a form of external corporate governance, and family ownership is considered as a form of internal corporate governance. We examined the effect of these two forms of governance on firm performance. The impact of product market competition on firm performance in firms with family control is our specific focus. Further, this study categorizes family firms with CEO classification (founders, heirs, and professional CEOs) and analyzes whether family firms have different impacts depending on the CEO type.

The regression analysis reveals the following results. First, family firms perform better in terms of operating performance when the level of product market competition is low, which implies that the agency problem caused by weak external corporate governance is effectively mitigated by the controlling governance of family shareholders. Second, in terms of stock market performance, firm value is higher for family firms in noncompetitive industries, which suggests that the market recognizes and properly values the strength of the characteristics of family firms. Furthermore, the results of the analysis by family firms CEO types shows that the outstanding performances of family firms still hold regardless of their CEO types (founder / heir / professional CEO) when compared with nonfamily firms.

For robustness checks, we use alternative measures to proxy for product market competition and apply alternative econometric techniques that control for serial correlation within a firm across time. The results from robustness checks are qualitatively consistent with our prior OLS results, suggesting that family firms are superior performers in non-competitive industries.

Therefore, our evidence presented in this paper supports the hypothesis

that the interests of external minority shareholders and those of family shareholders coincide rather than infringing on one another. In addition, the strength of family firms is more pronounced when the level of product market competition is weak. Taken as a whole, family control is an effective internal corporate governance mechanism that compensates for weak external corporate governance, mitigates the agency problem, and ultimately has a positive impact on the firm.

This study contributes to the growing line of research on the relation between governance structure and product market competition. In sum, our results suggest that the efforts to improve corporate governance might focus primarily on managerial expropriation and opportunism under conditions of weak product market competition. We would like to extend a word of caution, however, that firm performance may be affected by other confounding corporate governance factors that are not considered in this study.

(Received 9 March 2015; Revised 1 March 2016; Accepted 23 March 2016)

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