

Family Firms and Top Management Compensation Incentives

Zhi Li^a, Harley E. Ryan, Jr.^b, Lingling Wang^{a,*}

^a*A. B. Freeman School of Business, Tulane University, New Orleans, LA 70118, USA*

^b*J. Mack Robinson College of Business, Georgia State University, Atlanta, GA 30303, USA*

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ABSTRACT

We examine the influence of founding family ownership, family involvement in management, and promotion environments in family firms on compensation incentives. When family members participate in management, family firms provide lower pay-for-performance sensitivity (PPS), weaker tournament incentives to non-CEO executives, and weaker risk-taking incentives (vega) to non-family executives. Tournament and performance-based incentives exert little influence on performance in these firms. The influence of family ownership on PPS and vega is significantly stronger than the influence of non-family blockholder ownership. Altogether, the results suggest that family ownership, family management, and familial attachment combine to create both superior monitoring and private benefits.

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*Author contact information: Tel: +1-504-314-2488; Email: zli1@tulane.edu (Z. Li), Tel.: +1-404-651-2674; Email: cryan@gsu.edu (H. E. Ryan), Tel: +1-504-865-5044; Email: lwang1@tulane.edu (L. Wang)

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1. Introduction

Family firms comprise more than one third of publicly held firms in the United States and around the world.¹ Compared to non-family firms, family firms often pass control to other family members, have higher ownership concentration, frequently combine ownership and control of the firm, and are characterized by family members' intangible commitment to the firm. These features change the promotion-based "tournament" incentives faced by non-CEO executives, alleviate owner-manager agency conflicts, and introduce new conflicts between family and non-family shareholders. The literature suggests that these characteristics of family firms affect firm value (e.g., Anderson and Reeb, 2003a; Morck and Yeung, 2003; Villalonga and Amit, 2006; Bertrand et al., 2008).

It stands to reason that the unique nature of family firms would also alter the compensation incentives provided to top executives and the influence of these incentives on firm performance and value. However, most studies of executive compensation design rely on models of widely-held public firms where the focus is to align the interests of managers with those of dispersed shareholders. The different tournament and agency environments in family firms suggest that it is important to study whether and how family-firm features influence compensation design. We use a sample of S&P 1500 firms to examine tournament incentives, pay-for-performance sensitivity, and risk-taking incentives for the top five executives in family and non-family firms. Consistent with predictions from tournament theory and principal-agent theory, we find that family firms adjust compensation design for top executives in response to different tournament environments and agency conflicts.

¹ Shleifer and Vishny (1986) find that about 33% of firms in the Fortune 500 have family representation on the board of directors. Anderson and Reeb (2003) report that founding families represent about one-third of S&P 500 firms in the 1990s. Villalonga and Amit (2006) examine Fortune 500 firms from 1994-2000 and estimate that 38% are family firms. La Porta et al. (1999) document that about 30% of a sample of primarily large firms in 27 nations is controlled by families or individuals. Claessens, Djankov, and Lang (2000) find that over two-thirds of corporations in nine East Asian countries are controlled by families or individuals, and Faccio and Lang (2002) find that 44% of the public corporations in 13 Western European countries are family controlled.

The ‘family’ in our study refers to the family of the firm’s founder. We follow Villalonga and Amit (2006) and define a person as the firm’s founder if that individual is “responsible for the firm’s early growth and development into the business that it later became known for”. Based on this definition, 41% of the S&P 1500 firms in our sample have the founder or a member of the founding family as a senior officer, director, or 5% blockholder. In addition to concentrated ownership of the firm, founding families have a psychological attachment to the business, the desire to protect the family legacy, a long-term managerial horizon, and greater firm-specific human capital. These attributes possibly allow families to better manage and monitor the firm (Bertrand and Schoar, 2006).² Although firms may have other investors with concentrated ownership, neither individual blockholders nor institutional money managers possess the non-pecuniary attachment of family members. Therefore, their commitment to the firm and private benefit of control is weaker than that of founding family members (Villalonga and Amit, 2006).

Family firms exhibit significant variation in family management and control. Initially, most family firms are headed by the founder for an extended period of time. For instance Michael Dell founded Dell Inc. in 1984 and currently remains active as chairman and CEO. After the founder steps down, some family firms maintain close control of the firm and appoint family members as CEO if a suitable family candidate is available. For example, in the McGraw-Hill Companies, six out of nine CEOs in the company’s history are descendants of James H. McGraw. On the other hand, although family members maintain concentrated ownership and serve as directors, no family member is currently in the top management team at Wal-Mart Stores, Inc. These differences in family involvement affect the tournament prospects for non-family executives, the ability of the family to monitor and control non-family executives, and the perceived benefits of private control by family members. Motivated by these

² For example, John Walton describes the Walton family’s view toward Wal-Mart Stores, Inc. as follows “We view it really more as a trust, or as a legacy that we’re responsible for, rather than something we own” (Weber and Lavelle, 2003). The company biography of Bennett Dorrance, grandson of the founder of the Campbell Soup Company, states “As a major shareowner, a *descendent of the Company’s founder*, and a director who has served on the Board for 22 years, he brings the perspective of a long-term, highly committed shareowner to the deliberations and decisions of the Board” (Campbell Soup Company 2011 Proxy Statement).

differences in family involvement, we also examine how the difference in family management, either as the CEO or lower-tier executives, affects incentive compensation for top executives.

Tournament theory suggests that the prospect of being promoted to a higher level in the organizational hierarchy motivates managers to exert more effort (e.g., Lazear and Rosen, 1981). Kale, Reis, and Venkateswaran (2009) find that the compensation gap between CEO and non-CEO executives (which they call vice presidents, henceforth, VPs), a measure of the tournament prize, positively influences firm performance. They also find that this influence increases as the likelihood that an inside VP will be promoted to CEO increases. CEOs affiliated with the founding family have longer tenures and the tendency to pass control to family members (Bertrand and Schoar, 2006). These features reduce the likelihood that a non-family executive will be promoted to CEO and thus the efficacy of tournament incentives. Thus, we expect that family firms rely less on tournament incentives to motivate non-CEO executives and have a smaller compensation gap between CEOs and VPs. Within family firms, we expect the compensation gap to increase as the prospect of promoting non-family executives increases, for instance when no top executives are family members.

Agency theory suggests that the separation of ownership and control allows managers to pursue their own incentives, which destroys firm value if the managers' incentives diverge from shareholders' incentives. Several features of family firms mitigate the shareholder-manager agency conflict. First, concentrated family ownership provides family members with strong incentives to monitor the executives of the firm. Second, family members may be better monitors because of their firm-specific knowledge and stronger commitment to the firm (Bertrand and Schoar, 2006). Presumably, founders and other family members develop greater firm commitment and adopt longer horizons as a result of their "psychological ownership" of their firms (Wasserman, 2006; Villalonga and Amit, 2010). Third, family members that are managers of the firm can serve as internal monitors and, in the spirit of models that show that insiders improve monitoring by providing information to outsiders (e.g., Raheja, 2005; Harris and Raviv, 2008), enhance external monitoring by providing information to outside family members.

Performance-based incentive compensation that aligns the interests of managers and shareholders alleviates the agency conflict and the associated reduction in firm value (Jensen and Meckling, 1976; Holmstrom, 1979; Shavell, 1979). However, incentive alignment is costly and therefore a second-best solution to the agency problem. High ownership concentration, a long-term perspective, firm-specific knowledge, and the non-pecuniary attachment of the founding family to the organization should mitigate the shareholder-manager agency problem in family firms. Thus, we expect that family firms will rely less on costly performance-based compensation. Moreover, we expect this influence to be greater when family executives can serve as internal monitors and provide information to outside family members.

On the other hand, concentrated ownership exposes family owners to high levels of idiosyncratic risk. The higher level of undiversified risk makes family wealth more sensitive to fluctuations in the firm's share price and also puts private benefits of control at risk. Private benefits of control include utility derived from preserving the family legacy for future generations or ensuring the well being of other family members (Becker, 1981; Bertrand and Schoar, 2006). The existence of private benefits creates a separate agency problem between family members and non-family shareholders. In the aggregate, evidence suggests that the positive influence of family ownership outweighs any negative effects associated with private benefits of control (e.g., Anderson and Reeb, 2003a, 2003b; Villalonga and Amit, 2006). However, the impact of conflicts of interests between family and non-family shareholders varies with governance mechanisms such as board structure (Anderson and Reeb, 2004) and transparency (Anderson, Duru, and Reeb, 2009). Thus, there is good reason to expect that the desire to protect private benefits of control will influence incentive compensation in family firms. To reduce equity risk exposure and avoid the potential loss of private benefits, family members are likely to prefer lower risk than non-family members. Family CEOs share these preferences and can supervise risk-taking behavior in the firm. However, non-family CEOs, who have less concentrated ownership and do not share the private family benefits, are less sensitive to risk. Thus, we posit that family firms will provide lower risk-taking

incentives to non-family CEOs and executives. We expect this influence to be greater when there are family VPs as potential heirs who stand to receive future private benefits.³

To shed light on these issues, we examine compensation incentives for the top five executives of industrial firms in the S&P 1500 index for 2003-2006. Our sample comprises 672 family-firms and 957 non-family firms over 5,107 firm years. Consistent with predictions from tournament theory, we find that the compensation gap between the CEO and VPs is lower in family firms than in non-family firms. The pay gap is the lowest when the CEO is the founder, followed by firms with descendant CEOs, and then by firms with a non-family CEO and family VPs. When family members are not involved in the management of the firm, the compensation gap does not differ, *ceteris paribus*, from non-family firms. These findings suggest that family firms adjust tournament incentives for non-family executives based on the likelihood of promoting them to CEO position.

We also find that compensation in family firms has lower pay-for-performance sensitivity (δ) for CEOs and other top executives. When the CEO is a member of the family, both the CEO and VPs have significantly lower compensation δ than do non-family firms. For non-family CEOs, the CEO pay-for-performance sensitivity remains lower than non-family firms when there are family VPs present. If no family member is among the top five executives, CEOs in family firms receive the same compensation δ as CEOs in non-family firms. However, the δ of compensation paid to VPs remains lower than that received by VPs in non-family firms. Taken together, these results suggest that family firms rely less on costly performance-based compensation than do non-family firms as a result of reduced agency conflicts and better monitoring, particularly when family members are top managers.

We follow Coles, Daniel, and Naveen (2006) and measure risk-taking incentives as the sensitivity of the executive pay with respect to changes in stock volatility (ν). When the CEO is a family

³ An outside CEO may serve as a “placeholder” until a founding family VP is ready to take control. For instance, the McGraw-Hill Companies, Inc. have had three outside CEOs in more than 100 years of the company’s history. But whenever there is a family member suitable to be the CEO, the CEO position reverts back to the family.

member, the vegas of CEO and VP compensation are comparable to the vegas faced by executives in non-family firms. However, if the CEO is not a family member and family members are among the top five executives, the vega is lower for both the outside CEO and lower-tier executives. These results suggest that a family CEO, who shares the private benefits of control, can effectively control internal risk-taking that could jeopardize family interests. However, the absence of a family CEO makes it more difficult to monitor and control risk taking so family firms provide weaker risk-taking incentives. When there are no family executives risk-taking incentives in family firms do not differ from those in non-family firms.

To separate the effects of concentrated ownership and familial attachment, we compare the influence of family ownership on compensation incentives to the influence of non-family block ownership. The influence of family ownership on the compensation gap is not statistically different from the influence of non-family block ownership by individuals or entities that are active in the management of the firm or that hold seats on the board of directors (active blocks). However, active blocks exert only a weak influence on the CEO delta and no influence on VP delta, CEO vega or VP vega. Moreover, the influence of family ownership on delta and vega for CEOs or VPs is significantly greater than that of active non-family blocks. These results indicate that the influence of founding families on the incentive structure of the firm is greater than the influence associated with other forms of concentrated ownership. This influence is consistent with the presence of psychological attachment that facilitates superior monitoring as well as private benefits of control that result in lower risk-taking incentives. Passive blockholders, those without executive or board positions, exert no influence on compensation incentives.

Our results are robust to the inclusion of a variety of firm- and manager-specific characteristics, industry and year fixed effects, the use of several alternative definitions of family firms and excluding non-CEO executive chairs from the VP compensation calculations. To control for the possibility that our results are driven by sample selection bias, which could be caused by unobserved omitted variables that influence both a firm's family status and the design of executive compensation, we use the two-step

treatment model (Heckman, 1979). We obtain similar results when we estimate our models with the Heckman treatment effects approach.

As an additional test, we examine the relation between tournament incentives and firm performance in family vs. non-family firms. Kale et al. (2009) find that firm value (Tobin's Q) and operating performance is positively related to the compensation gap, and that the relation becomes weaker when the probability that a VP will be promoted to the CEO position decreases. We find a positive relation between firm performance and the compensation gap in non-family firms and in family firms when there is no family member present in top management. We find no relation between performance and the compensation gap in family firms when any family member serves as the CEO or a VP. Together, these results indicate that impediments to promotion faced by non-family VPs reduce the efficacy of tournament incentives in family firms.

Villalonga and Amit (2006) suggest that the valuation impact of family firms represents a tradeoff between lower manager-shareholder agency conflicts and higher majority-minority shareholder conflicts. Our results suggest that these same two economic forces shape the compensation incentives offered to top management and offer additional insight into what creates value in family firms. Concentrated ownership and family monitoring mitigate the need for performance-based incentives to align managers with shareholders. However, promotion from within the family and the desire to protect private benefits results in weaker tournament and risk-taking incentives. Thus, the observed compensation structure represents both the mitigation and influence of agency problems within the family firm.

Prior studies of compensation in family firms focus primarily on the level and mix of CEO compensation in family firms (e.g., Gomez-Mejia, Larraza-Kintana, and Makri, 2003) with only limited attention to the influence of economic and contracting environment in family firms on incentives. A growing body of literature suggests that incentives offered to all top-tier executives, including promotion incentives, affect firm policies and performance (e.g., Aggarwal and Samwick, 2003, 2006; Kale et al., 2009; Chava and Purnanandam, 2010). To the best of our knowledge, our paper is the first to investigate

the compensation design of all top-five executives in family firms and provide evidence on how family's ownership, management involvement, and private benefits of control influence their tournament, the pay-for-performance, and risk-taking incentives. In addition, our results suggest that the influence of family firms extends beyond concentrated ownership and reflects familial attachment that results in both superior monitoring and private benefits of control that are unique to the founding family. Thus our study adds to research on how firm policies and decisions in family firms differ from non-family firms (e.g., Anderson and Reeb, 2003b; Fahlenbrach, 2009; and Li and Srinivasan, 2011).

Our paper also adds to the literature on the determinants of incentive compensation (e.g., Bizjak, Brickley, and Coles, 1993; Core and Guay, 1999; Ryan and Wiggins, 2001; Coles, Daniel and Naveen, 2006). Specifically, our results demonstrate that the source of concentrated ownership and the blockholder's involvement in the firm's management or governance influences compensation incentives. Family firms have a large presence in the economy, and they have unique characteristics that influence the design of executive incentive contracts. These features cannot be easily captured by the firm and executive characteristics commonly used in the compensation literature. Based on the mixed evidence in the literature, Murphy (1999) concludes that there is little evidence that pay-for-performance sensitivity leads to better firm performance. Our findings suggest that pooling family and non-family firms together could obscure relations between performance and incentive compensation.

The article is organized as follows. Section 2 describes our sample and data. Section 3 presents the regressions results and several robustness checks we conduct. Section 4 concludes.

2. Data, Variable Construction and Summary Statistics

2.1. Data

To obtain a sample, we start with all firm years in the *Standard and Poor's ExecuComp* database from 2003 to 2006. The *Execucomp* database provides data on compensation for the top executives of firms in the S&P 1500 index. We exclude financial (SIC codes 6000 – 6999) and utility firms (SIC codes 4900 - 4999). We obtain financial and accounting data for the firms from the *Compustat Fundamental*

Annual database and stock return data from the *Center for Research on Security Prices* (CRSP) database. From the *Execucomp* database, we also obtain information on CEO age and tenure. Board-of-director characteristics come from the *Corporate Library* database. To estimate the risk-free rate used in vega and delta computations, we use the ten-year treasury notes constant maturity series available from the Federal Reserve Bank's official website. To be included in the sample, we require that the firm has information on CEO and VP compensation, CEO age, CEO tenure, sales, leverage and profitability. We use the Consumer Price Index (CPI-U) compiled by the BLS to adjust dollar values to 2003-dollar levels. To control for the influence of extreme values, we winsorize accounting, compensation, and performance variables at the 99th and 1st percentiles. Our final sample consists of 5,107 firm-years for 1,573 firms.

2.2. Family Firms

We follow Anderson and Reeb (2003a, 2003b) and Villalonga and Amit (2006) and define family firms as firms in which the founder or any family member of the founding family is a director or one of the top five officers, or family members in the aggregate own 5% or more of the outstanding equity. In Table 6, we demonstrate that our results are robust to three alternative family firm definitions where we require: (i) a family member serves as one of the top five executives or the family ownership of at least 10% of outstanding equity (ii) a family member serves as one of the top five executives or a director, or (iii) a family member serves as the CEO or the family is the largest vote holder.

We follow a two-step process to collect the information to determine a firm's family status. In the first step, we read news wire stories, company filings, and corporate websites to identify the founder and the founding family of each firm in our sample. As in Villalonga and Amit (2006), we classify a person as the founder if she is responsible for the firm's early growth and development and is recognized as the founder by the public. In the case of multiple founders, we define the controlling family as the family that has the largest ownership. In the event multiple families have equal ownership, we define the controlling family as the family with the most managerial positions and directors on the board. In the

second step, we read each firm's annual proxy statement to determine if members of the founding family remain active in the management of the firm, the ownership by the founding family, and the presence of family directors. For firms classified as family firms, we also ascertain whether the founder is the CEO and, if not, the generation relative to the founder of any family officers.

Our final sample comprises 1,573 firms of which 672 are classified as family firms and 957 are classified as non-family firms.⁴ Over the period of the study, the panel dataset contains 2,094 family firm years and 3,013 non-family firm years for a total of 5,107 observations. Approximately 41% of our sample consists of family firms, which is comparable to samples of family firms in Europe (e.g., Faccio and Lang, 2002). Anderson and Reeb (2003a) estimate about one-third of U.S. firms in the S&P 500 are family firms, and Villalonga and Amit (2006) estimate 38% of the Fortune 500 firms are family controlled. Anderson, Duru, and Reeb (2009) classify 47.6% of the largest 2,000 U.S. firms as family firms, which indicates that the proportion of family firms in the U.S. increases as the sample comprises a greater fraction of smaller firms. We examine firms from the S&P 1500, which includes firms in the S&P 500, the Midcap 400, and the Smallcap 600. For firms in the S&P 500 index, we classify 34.7% as family firms, which is comparable to the estimates by Anderson and Reeb (2003a) and Villalonga and Amit (2006). About 41.5% of the firms in the Midcap 400 and 46.5% of the firms in the Smallcap 600 are family firms.

2.3. Variables for Compensation Incentives

To examine how the features of family firms influence incentive compensation, we focus on the following measures: (i) the total compensation gap between the CEO and the median VP; (ii) the sensitivity of the executive's annual compensation to the firm's stock performance (delta); (iii) the sensitivity of the executive's annual compensation to the firm's stock volatility (vega). We include an executive in the VP compensation calculations when the executive's cash compensation (salary, bonus,

⁴ The number of family firms and non-family firms exceed the total number of firms because 56 firms change their status from family to non-family during the sample period. Our results are robust to removing these 56 firms.

and other cash compensation) ranks among the top five executives in the firm. Our results are robust, however, if we use all non-CEO executives reported in *ExecuComp*.

We follow Kale et al. (2009) and use the total compensation gap, which is the difference between the CEO's total compensation and the median total compensation of the firm's VPs, to measure tournament incentives. We obtain similar results if we use the mean value of the VP's total compensation to construct the total compensation gap. To measure the total compensation for an executive, we use the variable TDC1 in the *ExecuComp* database. TDC1 includes all cash compensation, the value of restricted stock grants and option grants, long-term incentive payouts, and all other compensation.

We compute the compensation delta as of the pay-for-performance sensitivity to stock price performance of an executive's annual pay. Delta equals the dollar change in the executive's annual compensation with respect to a 1% change in stock price. Specifically, an executive's compensation delta in year t is computed as:

$$\text{Compensation delta}_t = \text{delta of new restricted stock grants}_t + \text{delta of new option grants}_t$$

where the delta of new restricted stock grants $_t$ equals $\# \text{restricted stock grants} \times 0.01 \times \text{stock price}$. We follow Core and Guay (2002) and Coles et al (2006) and compute the delta of new option grants as the change in the Black-Scholes value of the options for a 1% change in stock price.

We estimate an executive's risk-taking incentives as the sensitivity of the executive's Black Scholes value of new option grants with respect to a 0.01 change in stock volatility (vega). We do not estimate the vega of stock grants since Guay (1999) documents that the vega of stocks is insignificant compared to the vega of options. Because founding families tend to have large equity ownership in their firms, family executives' total wealth will be more sensitive to changes in stock price and volatility than the wealth of executives in non-family firms. To capture executives' existing incentive from their portfolio holdings, we calculate the portfolio delta and portfolio vega based on the executives' existing

equity holdings at the beginning of the year following the approximation method of Core and Guay (2002). We include these two variables as control variables in our regression analysis.

2.4. Summary Statistics

Table 1 present summary statistics for the family and compensation variables, and control variables used in our study. The mean (median) total compensation gap between the CEO and the median VP is \$3.14 million (\$1.72 million). The mean (median) CEO compensation delta is \$46,472 (\$20,511) and the mean (median) portfolio delta is \$779,905(\$257,776). The mean (median) CEO compensation vega is \$28,791 (\$9,432) and the mean (median) portfolio vega is \$179,558 (\$66,093). VPs have lower deltas and vegas compared to those of the CEO. A 1% increase in stock price increases the median VP's annual income by \$12,902 (\$6,422) based on the mean (median) and their portfolio value by \$94,453 (\$45,071) based on the mean (median). A 0.01 change in stock volatility increases the median VP's annual income by \$8,169 (\$3,225) and the median VP's portfolio value by \$40,512 (\$17,670) based on the mean (median). The mean (median) CEO total compensation is 4.69 (2.88) million dollars. The median total VP compensation has a mean of \$1.55 million and a median of \$1.04 million. On average, about 51.4% of the CEO's total pay and 55.4% of the median VP's total pay are in cash. See the Appendix for definitions of control variables.

[Insert Table 1 about here]

3. Results

3.1. Univariate Comparison of Family and Non-family Compensation Incentives

Table 2 presents a comparison of compensation incentives for family and non-family firms. The total compensation gap between the CEO and the median VP is significantly lower in family firms, with an average (median) gap of \$2.715 million (\$1.241 million) compared to \$3.433 million (\$2.041 million)

for non-family firms. These comparisons suggest that family firms provide weaker tournament incentives than non-family firms.

[Insert Table 2 about here]

The compensation delta is also significantly lower for CEOs and VPs in family firms compared with that of the non-family firm executives. A 1% increase in the firm's stock price increases the annual compensation of a family-firm CEO by \$42,708 on average, which is \$6,381 (13%) less than the average increase that a CEO in a non-family firm receives for the same percentage increase in stock price. This difference supports the hypothesis that family firms suffer less from the shareholder-manager agency conflict and do not rely as heavily on costly equity-based incentives as an alignment mechanism.

Family firms tend to have high ownership concentration, which provides higher sensitivity of total wealth to stock price performance. For a 1% increase in stock price, the average increase in a family CEO's total wealth is \$1.167 million, which is more than double the \$0.513 million average increase in the total wealth of a non-family CEO. Since firms can use annual grants to adjust the CEO's total wealth sensitivity to performance, we control for the portfolio sensitivities in our multivariate regressions. Family and non-family firms also differ in their executives' risk-taking incentives. Both the compensation and portfolio vega of CEOs in family firms are significantly lower than those of CEOs in non-family firms, which indicates that, in general, family firms may prefer lower risk levels.

3.2. Multivariate Analysis of Family Firms and Top Management Compensation Incentives

In this section, we present our multivariate analysis of the relations between family firm features and incentive compensation design. In each regression, we examine the impact of measures of family ownership, control and involvement on the various measures of compensation incentives. We use a continuous family ownership variable, measured as the percentage of shares held by the founding family as a group, and a family firm dummy to identify family control.

We include control variables in our regressions that have been identified in the literature to influence incentive compensation.⁵ These control variables include the CEO's age and tenure, return on assets, sales growth, financial leverage, the standard deviation of past stock returns, firm size as measured by the natural log of total assets, capital expenditures, R&D expense, advertising expense, and the number of 4-digit SIC codes that the firm operates each fiscal year. Villalonga and Amit (2006) and Gompers, Ishii and Metrick (2010) argue that dual-class stocks change firm ownership structure and have significant value impact, so we include a dummy variable for dual-class firm years. We also collect 5% block ownership from proxy statements and include the percentage of non-family block ownership as a control variable since evidence indicates that blockholders, influence executive compensation design, corporate governance and monitoring (e.g., Gillan and Starks, 2000; Hartzell and Starks, 2003; Parrino, Sias, and Starks, 2003). The definitions for these control variables are presented in the Appendix. We include year and industry dummies in every compensation regression to control for year and industry fixed effects.

A. Analysis of the Compensation Gap between CEOs and Vice Presidents

In order to receive and preserve private benefits of control, family firms may be more likely to promote heirs and siblings over more qualified candidates who are not from the family. Such favoritism would reduce the efficacy of tournament incentives for non-CEO executives. As a result, family firms are less likely to conduct promotion-based tournaments and use the pay gap as a tournament prize. Thus, we expect to observe smaller compensation gaps in family firms.

[Insert Table 3 about here]

We use the natural log value of the total compensation gap as the dependent variable in the gap regressions. Since the compensation gap can be negative in some cases (around 5.5% of the sample), we follow Kale et al. (2009) and add the absolute value of the minimum gap to each observation. This

⁵ See Bizjak, Brickley, and Coles (1993), Mehran (1995), Core and Guay (1999), Ryan and Wiggins (2001) and Coles, Daniel and Naveen (2006).

procedure monotonically transforms all the compensation gaps to be positive. Our results are qualitatively similar if we exclude all observations with a negative compensation gap from the sample. We present the results of our analysis of the compensation gap in Table 3. Consistent with our expectation that family firms are less likely to promote non-family VPs and therefore are less likely to use tournament incentives, the gap is negatively related to the percentage of family ownership and the family firm indicator variable in models 1 and 2 (p -values are less than 0.01).

We next separate family firms into three sub-groups: the CEO is a founder, a descendant, or someone who is from outside the family. In the first two cases, the current executive structure does not exhibit a willingness to choose a person from outside the family for CEO, so non-family VPs could rationally conclude that the prospects for promotion are lower. In untabulated results, we find that founder CEOs have longer tenure than descendant CEOs (on average 17.9 years and 11.9 years, respectively), and that both have significantly longer tenures than non-family CEOs (on average 5.3 years). The longer tenures of family CEOs reduce the potential that any VP will be promoted to the top position in the short run and further diminish the likelihood of a tournament in family firms. Thus we expect that tournament incentive to be the weakest when the founder is the CEO, followed by firms with descendant CEOs. When an outsider serves as CEO, the family has demonstrated a willingness to appoint a non-family member as CEO, so VPs should expect a higher likelihood that they could be promoted.

Model 3 in Table 3 presents the results of our multivariate analysis of the relation between family CEO status and the compensation gap. Confirming our hypothesis, the coefficient on the founder CEO dummy is -0.428 and the coefficient on the descendant CEO group is -0.154. Both coefficients are significantly different from zero with p -values less than 0.01. When CEO is not a family member, the coefficient is much smaller (-0.040) and is not significantly different from zero. An F -test reveals that the coefficients on the founder CEO, descendant CEO, and non-family CEO dummies are all statistically different from each other as predicted.

When there is an outside CEO but family presence in top management team, tournament incentives are likely to be weaker as a result of the family VPs. For instance, the outsider could serve as a “placeholder” CEO only to pass control back to a family heir after the heir has obtained suitable experience. In model 4, we add an additional level of refinement by dividing non-family CEO group into subgroups with or without family VPs. A tournament is more likely when no family members are active in the top management of the firm. Consistent with this conjecture, we find that the compensation gap is lower (coefficient=-0.180, p -value = 0.06) when there is a family VP, and is not significantly different from that of the non-family firms when there is no family member among the top five executives. Overall, the results presented in Table 3 validate our prediction that the use of tournament incentive in family firms depends on the probability of promoting non-family executives. When there are family members in the upper management of the firm, either as CEO or VPs, the compensation gap is lower, consistent with the premise that these firms are less likely to promote a non-family VP to CEO and therefore do not use tournament incentives. However, when no family members are top officers, the tournament prize is comparable to those in non-family firms.

B. Analysis of Pay-for-performance Sensitivity

We next examine the influence of the various levels of family control on the annual compensation delta. Since firms may use compensation to adjust overall incentives to some target level, we include the delta from the executive’s existing portfolio at the beginning of the year as an additional control variable in these regressions. If the high ownership concentration and better monitoring ability of family firms mitigate the manager-shareholder agency conflict, we expect that family firms will rely less on pay-for-performance sensitivity to motivate managers than non-family firms.

Columns (1) to (3) of Table 4 present the results of our analysis of the pay-for-performance sensitivity in the CEO’s compensation package, and columns (4)-(6) present the result for non-CEO executives. As expected, both CEO and VP’s compensation deltas are negatively related to the family

ownership and the family firm dummy (all significant at less than the 0.01 level), as shown in models (1), (2), (4) and (5).

To further refine the analysis, we divide family firms into sub-groups based on family CEO and family VP presence. We present the results for CEOs in model 4 and for VPs in model 6. When CEO is a family member, both the CEO and VPs have significantly lower deltas, consistent with reduced agency conflicts and better monitoring of VPs by the family CEO. When CEO is not a family member and there are family VPs, the compensation provided to both the outside CEO and the VPs are less sensitive to stock price performance (p -values are 0.01 or lower). We interpret this result to suggest that when family members serve as VPs, the family can more effectively monitor a non-family CEO and other VPs, either by direct family VP monitoring or by providing useful information to non-executive family members. When no family members are among the top five executives to facilitate monitoring, the outside CEO's delta is not different from that in non-family firms. F -tests indicate that the compensation deltas for both the CEO and VPs are significantly higher than when family members serve as VPs. This finding is consistent with the premise that family firms rely more on performance based incentives when there are no family members in the top management team to facilitate monitoring.

[Insert Table 4 about here]

The evidence in Table 4 supports the hypothesis that family firms rely less on performance-based incentives as a substitute for direct monitoring of executives. The findings are also consistent with the notion that family VPs can improve the monitoring of non-family CEOs. A recent paper by Li and Srinivasan (2011) examines corporate governance outcomes in firms where the founder sits on the board but does not serve as the CEO. One of their findings is that ex post total compensation for non-founder CEOs is more sensitive to performance in these founder-director companies. Our analysis differs from their analysis since we focus on (i) ex ante equity-based incentives and (ii) the influence of family involvement in the management of the firm. Overall, our results show that family control and family

presence as active managers significantly change the dynamics of agency conflicts within firms and shape the ex ante compensation pay-for-performance sensitivity accordingly.

C. Analysis of risk-taking Incentives

Table 5 presents our analysis of the influence of family control on risk-taking incentives as measured by the compensation vega, or sensitivity to volatility. Family holdings are undiversified and families receive private benefits of control, so family members would prefer less risky strategies. Since outside executives have less concentrated stock holdings and do not share in the private benefits, they are not likely to have the same risk preferences as the family. Thus, we expect that family firms will provide weaker risk-taking incentives to align outside executives' risk preferences with those of the family.

The first three columns of Table 5 present the results from our analysis of risk-taking incentives for CEOs. The coefficients on family ownership (model 1) and the family firm indicator (model 2) are negative as predicted, with p -values less than 0.01 and 0.13, respectively. In model 3, we further segregate the family firms based on whether the CEO is from the founding family or outside the family. We also divide the group of family firms with non-family CEOs into firms with family VPs and without family VPs. We find that risk-taking incentives are significantly lower only when the CEO is not a family member and there is at least one family VP (p -value is 0.02). These results are consistent with the hypothesis that when family VPs are potential heirs and the CEO is not a family member, members of the family unit reduce risk-taking incentives to preserve private benefits of control for future generations.

[Insert Table 5 about here]

We present the analysis of risk-taking incentives offered to VPs in models 4 – 6 of Table 5. In model 4 and 5, vega is negatively related to family ownership and the family firm dummy variable. As expected, in model 6, we observe that the negative vega coefficient is driven by the sub-group where the CEO is from outside the family and there is at least one family VP (p -value is 0.03). When the CEO is a family member, we find no difference in vegas of non-CEO executives between family and non-family

firms. This finding suggests that when the CEO is a family member, her interests are aligned with other family members and she can supervise risk-taking behavior of other executives directly without relying on the compensation design to align incentives. Anderson and Reeb (2003b) find no evidence that founding family ownership or the presence of family CEO leads to lower firm-specific risk. Adding to their findings, we examine ex ante risk-taking incentives and find that family firms do not offer weaker risk-taking incentives to their executives except when the CEO is not a family member and there is at least one family VP. Our findings suggest that studying family involvement in non-CEO executive positions helps us better identify the family firms with private benefits of control, which allows us to gain additional insights on family firms' risk-taking motivations.

Altogether the evidence in Table 5 suggests that undiversified holdings and the desire to preserve private benefits of family control lead family firms to prefer lower risk-taking incentives. If the CEO is not a family member, she is not exposed to the risk associated with high level of undiversified stock holdings and does not share in the private benefits of family control. Thus, she has greater risk preferences, and the family uses pay packages that provide less reward for taking risk.

D. Comparison of the Influence of Family Ownership to Non-family Block Ownership

We next examine whether the influence of family firms reflects unique familial attachment to the firm and private benefits unique to the family control of the firm, or whether the influence is merely associated with concentrated ownership. To facilitate this analysis, we classify non-family block ownership the degree of involvement in the firm (CEO, VP, or director) and by type (e.g., asset manager, private equity, etc.). We identify the degree of involvement in the firm from proxy statements. When possible, we classify the type of investment based on footnotes in the proxy statements, articles in the popular press, and institutional websites. When we cannot determine the type of investment from these sources, we use the primary business of the blockholder in the expanded Thompson 13-f classifications created by Agarwal, et al (2011). Many entities engage in varied investment activities, so a primary

business definition may not reflect the type of the investment. Thus, we analyze the influence of the non-family block ownership by the degree of involvement in the firm's management and governance.

[Insert Table 6 about here]

Table 6 presents descriptive statistics on the types of non-family blockholders, their propensity to invest in family firms, and the degree to which the blockholder is active in the firm's management or holds seats on the firm's board of directors. The blockholders are sorted by descending order in which they are active in management or the board. All blockholder types invest in a non-trivial percentage of family firms. The propensity of these blockholders to invest in family firms ranges from 21.2% (Other) to 40.6% (Bank Holding Companies). Non-family individual blockholders, which include executives who have amassed a block ownership in the firm, wealthy individuals, and families of co-founders whose aggregate ownership is not the majority founder interest, are the most active. Over 64% of these individual blockholders serve as a director or as an executive of the firm. Private equity investors are the next most active (53.9% have executive or director positions), followed by non-financial corporations that own blocks in other corporations (49.4% have director or executive positions). Mutual fund families and asset management firms, which represent the majority of blockholders, are the least active in the firms in which they invest. Less than 1% of these blockholders hold executive or director positions.

We test the influence of family ownership and non-family block ownership and present the results in table 7. In panel A, we use total family ownership as our proxy for family influence. For each incentive measure – compensation gap, delta, and vega – we present in model (1) the coefficients on family ownership, the coefficients on the non-family block ownership, and F -tests for the difference between the coefficients. In model (2) we separate the non-family block ownership into active blocks (those that hold management positions or seats on the board of directors) and passive blocks (those that do not). Each model includes all control variables as in tables 3, 4, and 5.

[Insert Table 7 about here]

For the total compensation gap, both the family ownership and the non-family block ownership exert a negative influence. The magnitude of the family ownership is more than double that of the non-family block, but the difference is statistically insignificant with a p -value of 0.12. In model (2), family ownership exerts a significantly significant negative influence on the compensation gap, while the effect of active non-family blocks is negative but not statistically significant. However, there is no significant difference between the magnitudes of the coefficients on family ownership and non-family block ownership. In contrast, the coefficient on family ownership is significantly more negative than the coefficient on passive non-family block ownership (p -value is 0.03). Thus, the evidence indicates that the influence of family on tournament incentives is more negative than the influence of passive non-family block ownership, but that the influence of family ownership is not significantly different from the influence of the active non-family blockholders.

The analysis of delta and vega tell a different story. Although the coefficient is negative for both family ownership and active non-family blocks, the coefficient is significant for family ownership at the 1% level in all models. In contrast, the coefficient on active non-family block ownership is significant only in the analysis of CEO delta, and then only at the 10% level. Moreover, the coefficient on family ownership is significantly more negative than the coefficient on active non-family block ownership in all models. Passive non-family blocks never exert a significant influence on delta or vega, and the coefficient on family ownership is significantly more negative in all cases.

In table 1, we observe that a non-trivial number of family firms have aggregate family ownership based on cash flow rights that is below the 5% block definition. For instance, the twenty-fifth percentile of family ownership is 2.16%. Thus, in panel B, we compare the influence of family block ownership (5% or greater) on compensation incentives to the influence of non-family block ownership. The results are similar to those presented in panel A. We find significant difference between the influence of family ownership and the influence of passive non-family blocks on all three incentive measures. Family ownership also more negatively impacts executive delta and vega than do active non-family blockholders.

Our analysis of family and non-family block ownership provides three important implications. First, the degree of involvement of block holders appears more critical than the mere presence of a block. Blockholders that are active in the management or governance of the firm influence compensation incentives in at least some cases. Second, active participation by blockholders appears to lessen the likelihood of a tournament and results in weaker tournament incentives. Third, family ownership exerts a significant influence on alignment and risk-taking incentives beyond that associated with concentrated ownership. This influence suggests that psychological ownership and familial attachment associated with founding family ownership results in superior monitoring that lessens the need for costly incentive alignment. In addition, the family bond creates private benefits of control that are uniquely valuable to founding families and result in the provision of weaker risk-taking incentives.

E. Robustness Checks

E.1 Alternative definition of family firms

To examine if our results are sensitive to the definition of a family firm, we use three more restrictive definitions of family firms to estimate our models. In the first alternative definition, we define a firm as family firm if there is at least one family executive or the family ownership is at least 10%. This definition results in 1,637 family firm years, which accounts for 32.1% of the whole sample. In the second alternative definition, we define a firm as family firm only if there is a family director or a family executive, which results in 2,049 family firm years (40.1% of the sample). In the third and the most stringent definition, we classify a firm as a family firm only if a family member serves as the CEO or the family is the largest vote holder. Under this definition, there are 1,561 family firm years that account for 29.9% of the sample.

We present results based on these alternative definitions in Table 8. Consistent with the findings in Tables 3, 4, and 5, *ceteris paribus*, family firms have lower total compensation GAP, lower pay-for-performance sensitivity, and lower risk-taking incentive for both CEOs and non-CEO executives. When there is family member present in the top management team, the compensation gap and the pay-for-

performance sensitivity for executives are significantly lower than those of non-family firms. The compensation package for CEOs in family firms also has a lower sensitivity to volatility when the CEO is outside the family and there are family VPs. For the last alternative definition, the statistical significance of risk-taking incentives for VPs is slightly weaker, but the sign and magnitude of the coefficient is comparable to those in the baseline definition.

[Insert Table 8 about here]

E.2 Alternative definition of Non-CEO executives

About 8.6% of the firms in our sample have a non-CEO executive chairman.⁶ We think it is unlikely that an executive chair competes with VPs to become CEO, so we estimate our regressions on an alternative sample of VPs that excludes non-CEO executive chairs. If the firm reports more than five top executives, we replace the executive chair with the sixth-ranked executive. If the firm reports five top executives, we drop the executive chair from the non-CEO executives group. Panel A and B of Table 9 present the revised compensation gap and VP compensation incentive results respectively. Regression results based on this alternative sample are similar to those in Tables 3, 4, and 5. We do not report results for CEO compensation in Table 9 since our measures of CEO incentives are not affected by the exclusion of non-CEO executive chairs.

It is also possible that family VPs have different pay schemes than non-family VPs, and that combining these two groups biases our results. As an additional robustness check, we exclude all family members from VP compensation calculation. In untabulated results, we obtain qualitatively similar results as those reported in previous sections

[Insert Table 9 about here]

⁶ Typically, a CEO who chairs the board relinquishes the title of CEO but remains an executive chair with day-to-day involvement in the operations of the firm.

E.3 Self-selection of family firms

Families make an explicit decision to retain control of a firm. If unobserved variables influence the firm's decision to remain under family control and also affect the compensation design in the firm, our analysis could suffer from a self-selection bias. To address this concern, we use the Heckman (1979) two-stage treatment effects model with corrected standard errors as suggested by Greene (1981). The treatment variable is the family dummy which equals one if the firm is a family firm. In the first stage, we use a probit model to estimate the probability of being a family firm. To meet the exclusion restrictions in the Heckman model, we include two instrumental variables in the first stage probit model: (i) a firm's industry-median adjusted age, and (ii) a dummy variable to indicate if the firm is incorporated in Delaware. As a family firm gets older, it becomes more likely that a lack of family heirs interested in the business or liquidity needs of a larger number of heirs will cause the firm to exit its family status. Non-family firms may prefer to be incorporated in Delaware to take advantage of the anti-takeover statutes, but family firms are likely to be indifferent to such statutes since family control provides a substantial impediment to unwanted takeovers.

We present the results of our two-stage Heckman analysis in Table 10. Consistent with our expectations, the first-stage estimation produces statistically significant negative coefficients on both instrumental variables. We present the second stage regressions of compensation incentives on the family dummy in the remaining columns of Table 8. Confirming the results in Tables 3 through 5, we find that family firms have significantly lower compensation gap, deltas and vegas. In untabulated results, we use the treatment-effects model to estimate the probability of being in the sub-group of family firms with an outside CEO and family VPs. In this model, we confirm that both CEO and VP vegas are lower for this subgroup as presented in Table 5. These relations suggest that the private benefits of family control lead family firms to offer lower risk-taking incentives for top executives.

[Insert Table 8 about here]

3.3 Incentives of Executive Compensation and Firm Performance

In this section, we examine the relation between firm performance and tournament incentives. Kale et al. (2009) find that the firm's Q and return on assets relate positively to the compensation gap between CEOs and non-CEO executives, which supports the notion that tournament incentives can motivate executives to enhance firm performance. Moreover, they find that tournament incentives are more effective when the potential for promotion is more likely. Thus, if there is a sufficiently low probability that non-family VPs will be promoted to CEO in family firms, then tournament incentives will be ineffective and less likely to be used by these firms. In this case, we do not expect a relation between the compensation gap and firm performance in family firms.

To test our hypothesis, we divide our sample into three categories based on non-family VPs' promotional prospects: non-family firms, family firms with family executives, and family firms without family executives. Table 3 shows that the compensation gap is lower when there are family executives, which is consistent with a lower likelihood of promoting non-family VPs to CEO in these family firms. The compensation gaps are comparable for non-family firms and family firms without family management. Thus, we expect to find no relation between the compensation gap and firm performance for family firms with family management, but a positive relation for non-family firms and family firms without family management.

We use a firm-level fixed effect model to study the influence of tournament incentives on firm performance. To measure firm performance, we use Tobin's Q and return on asset (ROA). We present results for both unadjusted performance and industry-adjusted performance based on the Fama-French 48 industry classifications. In the regression, we include the portfolio delta of both the CEO and VPs to control for pay-for-performance incentive effects.⁷ In addition to the CEO and firm characteristic

⁷ For completeness, we also include portfolio vegas in the specification and find that our results with respect to the compensation gap are robust to the inclusion of the risk-taking incentives. We do not report these results since CEO and VP deltas and vegas are all highly correlated, in some subgroups as high as 0.90 on a pairwise basis. The extreme multicollinearity makes interpretation of results on delta or vega extremely difficult.

variables used in previous regressions, we include the square of firm size and dividend yields as additional control variables as in Kale et al. (2009). We also include year fixed effects in the regressions.

[Insert Table 11 about here]

We present the regression results for the three sub-groups in Table 11.⁸ For non-family firms, we find a positive relation between the compensation gap and firm Q (the coefficient is 0.026 with a p -value of 0.01). The results for industry-adjusted Q are similar in magnitude and significance. For family firms without family executives, the coefficients on the compensation gap are also positive and significant with p -values of 0.06 for Q and 0.07 for adjusted Q. These results are consistent with our prediction that non-family firms and family firms without family executives (i.e., without apparent family heir) are more likely to use promotion-based tournament incentives to motivate VPs to improve performance. When there is family member in the top management team, we find that the compensation gap has no effect on firm Q or industry adjusted Q (p -values are 0.23 and 0.32, respectively). We obtain similar results when we use ROA or industry-adjusted ROA to measure performance – the coefficients on the compensation gap for family firms without family executives are positive and significant at the 5% level. Altogether, these results support our argument that when the probability of promoting a non-family VP to CEO is low, the compensation gap does not provide incentives to the VPs to work harder to improve the performance of family firms.

The correlations between the CEO portfolio delta and the VP portfolio delta are significantly positive and as high as 0.83 in some subgroups. The collinearity potentially inflates errors and reverses signs on the coefficients, which confounds interpretation. We take two steps to assess the collinearity. First, we estimate all regressions with only the CEO or the VP portfolio delta, respectively. In untabulated results, we find that the CEO delta is positive in all specifications, but significant only for non-family firms. Likewise, the coefficient on the VP portfolio delta is also positive in all specifications.

⁸ In untabulated results, we find that the compensation gap relates positively to firm Q and return on assets in the overall sample, confirming the results in Kale et al. (2009).

For Q and adjusted Q, the VP portfolio delta is only significant for non-family firms. For accounting performance, the VP delta is significant only for non-family firms and for family firms without family involvement in top management. Second, we estimate F-tests that the coefficients on the CEO and VP portfolio deltas are jointly positive. The p-values from these tests, presented at the bottom of Table 11, indicate that the coefficients are jointly significant in three of four non-family specifications and three of eight family specifications.

In the aggregate, the performance results suggest that incentives, both promotion incentives and pay-for-performance sensitivity, are less correlated with firm performance in family firms than in non-family firms. Yet, evidence (Anderson and Reeb (2003); Villalonga and Amit (2006) indicates that founding family presence has a positive influence on firm value. Our results, combined with this prior evidence, appears consistent with the premise that the family structure results in superior monitoring capabilities, which lessens both the need for compensation incentives and weakens the influence of these incentives on firm performance.

Villalonga and Amit (2006) and Gompers, Ishii and Metrick (2010) find that the presence of dual class shares affects firm value. In the vast majority of our firms, the presence of dual class stock within a firm does not vary over time. Thus, the firm fixed effects largely controls for any dual class structure. As a robustness check, we include a dual class stock dummy variable as an additional control variable and estimate the performance regressions with industry and year fixed effects. In untabulated results, we find similar results to those reported in Table 11, but with stronger statistical significance. As expected, firm performance is negatively related to the dual class structure. Firm performance is positively related to the compensation gap in non-family firms and family firms without a family executive. When there is family member in the top management team, the compensation gap does not relate to firm performance. Thus, the results confirm our interpretation that tournaments do not provide a substantial incentive for non-family VPs when family members are active in the management of the firm.

4. Conclusion

Family owned and controlled firms represent a significant proportion of publicly held firms, and evidence suggests that family-firm characteristics influence firm value. Despite the fact that family firms have unique characteristics that influence the tournament environment and alter the nature of agency conflicts within the firm, we have little empirical evidence on how these unique features of family firms influence the design of compensation incentives. We shed light on this issue by providing empirical evidence on the relations between concentrated ownership and private benefits and incentive compensation in family firms.

Our results suggest that the compensation structure of family firms represents a response to different tournament environments and agency problems. We find that tournament incentives are significantly weaker when the CEO is a family member or when there is a family VP. However, when the CEO is outside the family and there is no family VP, the tournament incentives are comparable to non-family firms. We also document that the measure of tournament incentives does not relate to performance in family firms, except when there are no family members in the top management team. We also find that family firms rely less on performance-based compensation and that performance-based incentives are less correlated with firm performance in family firms. These findings support the premise that the concentrated ownership of family members, non-pecuniary incentives to monitor, and the presence of family executives improve monitoring and reduce the need for incentive alignment. When there is a non-family CEO, we find this substitution effect is present only when family members are active in the management of the firm. Based on these findings, we conclude that inside family members play a pivotal role in monitoring non-family CEOs. Our results also suggest that the desire to preserve private benefits of control for family members leads to lower risk-taking incentives, particularly when a non-family member is CEO and there are family VPs with a future claim on control benefits.

We also find that the influence of family ownership on compensation incentives is significantly greater than most other types of concentrated ownership. Notably, family firms provide weaker pay-for-

performance sensitivity and risk-taking incentives than do other concentrated owners that are active in the management and governance of the firm. These results suggest that the attachment of the founding family to the firm creates a non-pecuniary psychological attachment to the firm that results in superior monitoring and creates private benefits of control that are unique to the founding family. Thus, our findings confirm Villalonga and Amit's (2006) assertion that family firms represent a tradeoff between lower manager-shareholder agency costs and higher agency costs associated with private benefits of family control. Our results suggest that the tradeoff between these economic forces shape the compensation incentives offered to top management and offer additional insight into what creates value in family firms

Our findings add to our understanding of how family ownership concentration, the combination of ownership and control, and non-pecuniary family motives influence compensation incentives in the firm. Family firms differ from non-family firms in unique and important dimensions, and they alter their compensation design in response to these differences. Since family firms represent a substantial proportion of publicly traded firms, these differences can exert a non-trivial influence on the cross-sectional variation in compensation practices. Thus, researchers who study the presence and effects of incentives should be cognizant of the nature of the firm's ownership structure and not just the level of concentrated ownership. Likewise, researchers who study the actions and valuation of family firms should consider the level and types of incentives offered to management based on the extent to which the family is active in the management of the firm.

Appendix: Definitions and Data Source of Control Variables

Variable	Source	Definition
CEO Tenure	ExecuComp	Number of years served as CEO
CEO Age	ExecuComp	Age of CEO
ROA	Compustat	Return on Asset; OIBDP/AT
Q	Compustat	(Market value of equity + book value of debt) / book value of total assets; (AT-CEQ + RPCC_F * CSHO) / AT
Sales Growth	Compustat	Annual sales growth rate
Leverage	Compustat	Book value of debt / total assets; (DLTT+DLC)/AT
Std. of Previous 60-month returns	CRSP	Standard deviation of stock returns in the previous 60 months.
Firm Size	Compustat	Ln (total assets); Ln(AT)
Capital/Sales	Compustat	Net fixed assets / sales; PPENT / Sales
RD/Sales	Compustat	R&D to capital; XRD/ Sales; set to zero if missing
Adv./Sales	Compustat	Advertising to capital; XAD/ Sales, set to zero if missing
Dual Class (0/1)	Corporate Library, Proxy Statements, and RiskMetrics	Equals 1 if the firm has dual class shares; 0 otherwise
Board Size	Corporate Library and Proxy Statements	The total number of directors in the board.
Classified Board (0/1)	Corporate Library and Proxy Statements	Equals 1 if the firm's board is classified; 0 otherwise
Non-family Block Ownership	Proxy Statements	The sum of ownership positions that are greater than 5% of cash flow rights
Dividend Yield	Compustat	Dividend per share divided by price per share
# of SIC Codes	Compustat Segment	Number of 4-digit SIC codes that the firm operates

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Table 1. Summary Statistics

This table presents summary statistics for the variables. The sample period is from 2003 to 2006 and has 5,107 firm-year observations. A firm is defined as a *Family Firm* if its founder or a member of the founding family is an officer or director, or owns at least 5% of the firm's equity, either individually or as a group. *Compensation Gap* is measured as the difference between the CEO's total compensation and the median VP's total compensation for that firm-year. *Total Compensation* is comprised of annual salary, bonus, other annual payment, total value of restricted stock and options granted, long-term incentive payouts, and others. CEO or VP *Compensation Delta* is measured as the sum of delta of annual stock grants and option grants. CEO or VP *Portfolio Delta* is measured as the sum of the delta of total stock holdings and the delta of total options held at the beginning of the year. Delta measures the change in the CEO's income with respect to a 1% change in stock price. CEO or VP annual *Compensation Vega* is measured as the Vega of the annual option grants. CEO or VP *Portfolio Vega* is measured as the Vega of all the options held at the beginning of the year. Vega measures the change in the CEO's income with respect to a 0.01 change in stock volatility. Refer to Appendix for definitions of control variables. Compensation and accounting variables are winsorized at the 1st and 99th percentile levels.

	Mean	Median	25 th	75 th	Std. Dev.	Obs.
<u><i>Family Firm Variables</i></u>						
Family Firm Dummy (%)	41.00%					5,107
Family Ownership	12.05%	7.26%	2.16%	17.63%	12.84%	2,094
% Founder CEOs in Family Firms	35.34%					2,094
% Descendent CEOs in Family Firms	18.53%					2,094
% Non-family CEOs in Family Firms	46.13%					2,094
<u><i>Tournament Incentives</i></u>						
Compensation GAP (\$000s)	3138.771	1718.782	667.503	3871.756	4261.363	5,107
<u><i>Pay for Performance Sensitivity</i></u>						
CEO Compensation Delta (\$000s)	46.472	20.511	3.563	57.553	71.909	5,107
VP Compensation Delta(\$000s)	12.902	6.422	2.117	16.329	17.857	5,107
<u><i>Risk-taking Incentives</i></u>						
CEO Compensation Vega(\$000s)	28.791	9.432	0.000	34.174	49.112	5,107
VP Compensation Vega(\$000s)	8.169	3.225	0.000	9.865	13.028	5,107
<u><i>Other Compensation Variables</i></u>						
CEO Total Comp (\$000s)	4687.562	2876.156	1383.477	5717.339	5326.348	5,107
VP Total Comp (\$000s)	1548.697	1042.461	609.192	1876.333	1497.452	5,107
CEO Portfolio Delta ((\$000s)	779.905	257.776	98.663	653.427	1809.000	4,967
VP Portfolio Delta(\$000s)	94.453	45.071	18.772	104.287	142.443	4,967
CEO Portfolio Vega(\$000s)	179.558	66.093	23.071	184.114	372.162	4,967
VP Portfolio Vega(\$000s)	40.512	17.670	6.924	43.672	62.964	4,967
<u><i>Other Firm Variables</i></u>						
CEO Tenure	8.296	6.000	3.000	11.000	7.612	5,107
CEO Age	55.334	55.000	50.000	60.000	7.372	5,107
ROA	0.139	0.133	0.089	0.188	0.090	5,107
Q	2.088	1.733	1.352	2.418	1.138	5,107
Sales Growth	0.141	0.106	0.034	0.203	0.206	5,107
Leverage	0.201	0.188	0.037	0.306	0.172	5,107
Std. of Previous 60-month returns	0.474	0.410	0.308	0.585	0.231	5,107
Ln(Assets)	7.315	7.163	6.242	8.242	1.498	5,107
Capital/Sales	0.344	0.185	0.103	0.366	0.476	5,107
RD/Sales	0.049	0.003	0.000	0.053	0.096	5,107
Adv./Sales	0.012	0.000	0.000	0.012	0.025	5,107
Dual Class (0/1)	0.108					5,107
Board Size	8.993	9.000	7.000	10.000	2.161	5,107
Classified Board (0/1)	0.563					5,107
Non-family Block Ownership	0.237	0.217	0.124	0.328	0.158	5,107
# of SIC codes	1.572	1.000	1.000	2.000	0.987	5,107
Dividend Yield	0.728	0.000	0.000	1.170	1.130	5,107

Table 2. Compensation Incentives of Family Firms vs. non-Family Firms

The table presents the comparison of CEO and VP compensation for family and non-family firms. The sample period is from 2003 to 2006 and has 5,107 firm-year observations. A firm is defined as a *Family Firm* if its founder or a member of the founding family is an officer or director, or owns at least 5% of the firm's equity, either individually or as a group. *Total Compensation* is comprised of annual salary, bonus, other annual payment, total value of restricted stock and options granted, long-term incentive payouts, and others. *Compensation Gap* is measured as the difference between the CEO's total compensation and the median VP's total compensation for that firm-year. CEO or VP *Compensation Delta* is measured as the sum of delta of annual stock grants and option grants. CEO or VP *Portfolio Delta* is measured as the sum of the delta of total stock holdings and the delta of total options held at the beginning of the year. Delta measures the change in the CEO's income with respect to a 1% change in stock price. CEO or VP annual *Compensation Vega* is measured as the Vega of the annual option grants. CEO or VP *Portfolio Vega* is measured as the Vega of all the options held at the beginning of the year. Vega measures the change in the CEO's income with respect to a 0.01 change in stock volatility. All variables are winsorized at the 1st and 99th percentile levels.

	Non-family firms	Family Firms	<i>p</i> -value (difference)
	<i>Mean Comparison</i>		
<u>Tournament Incentives:</u>			
Compensation GAP(\$000s)	3,432.698	2,715.847	0.000
<u>Pay for Performance Sensitivity:</u>			
CEO Compensation Delta(\$000s)	49.089	42.708	0.002
CEO Portfolio Delta(\$000s)	513.608	1,167.185	0.000
VP Compensation Delta(\$000s)	13.208	12.461	0.152
VP Portfolio Delta(\$000s)	85.506	107.473	0.000
<u>Risk-taking Incentives:</u>			
CEO Compensation Vega(\$000s)	30.697	26.050	0.001
CEO Portfolio Vega (\$000s)	187.258	168.260	0.086
VP Compensation Vega(\$000s)	8.439	7.782	0.081
VP Portfolio Vega(\$000s)	41.169	39.554	0.375
	<i>Median Comparison</i>		
<u>Tournament Incentives:</u>			
Compensation GAP(\$000s)	2,041.483	1,241.004	0.000
<u>Pay for Performance Sensitivity:</u>			
CEO Compensation Delta(\$000s)	25.163	13.952	0.000
CEO Portfolio Delta(\$000s)	217.893	340.541	0.000
VP Compensation Delta(\$000s)	7.048	5.239	0.000
VP Portfolio Delta(\$000s)	44.728	45.722	0.656
<u>Risk-taking Incentives:</u>			
CEO Compensation Vega(\$000s)	11.821	6.172	0.000
CEO Portfolio Vega (\$000s)	76.567	53.516	0.000
VP Compensation Vega(\$000s)	3.685	2.659	0.000
VP Portfolio Vega(\$000s)	18.812	16.171	0.001

Table 3 Compensation Gap Regressions

Table 3 presents OLS regressions of total compensation gap on family firm and CEO characteristics. The sample period is from 2003 to 2006. The dependant variable is the log of *Total Compensation Gap*, which is measured as the difference between the CEO's total compensation and the median VP's total compensation for that firm-year. A firm is defined as a *Family Firm* if its founder or a member of the founding family is an officer or director, or owns at least 5% of the firm's equity, either individually or as a group. *Family Ownership* is the family owned cash flow rights as a % of total cash flow rights. *Founder CEO*, *Descendant CEO* and *Non-family CEO* are dummy variables that equal to one if the family firm CEO is the founder, descendant of the founder, or hired from outside respectively. Refer to Appendix for definitions of control variables. Compensation and accounting variables are winsorized at the 1st and 99th percentile levels. All regressions include year fixed effect and Fama-French 48 industry fixed effect. The standard errors are robust and adjusted for firm-level clustering. The symbols ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively.

	(1)	(2)	(3)	(4)
Family Ownership	-0.761*** (0.00)			
Family Firm		-0.174*** (0.00)		
Founder CEO			-0.428*** (0.00)	-0.426*** (0.00)
Descendant CEO			-0.154** (0.01)	-0.156** (0.01)
Non-family CEO			-0.040 (0.40)	
Non-family CEO w/ Family Executives				-0.180* (0.06)
Non-family CEO w/o Family Executives				0.014 (0.77)
<i>Control Variables</i>				
Ln(CEO age)	-0.086 (0.65)	-0.142 (0.45)	-0.121 (0.52)	-0.128 (0.50)
Ln(CEO tenure)	0.004 (0.89)	0.017 (0.58)	0.082** (0.01)	0.077** (0.02)
ROA	1.310*** (0.00)	1.321*** (0.00)	1.284*** (0.00)	1.269*** (0.00)
Sales Growth	0.020 (0.83)	0.044 (0.63)	0.042 (0.65)	0.041 (0.65)
Leverage	0.023 (0.88)	0.004 (0.98)	0.003 (0.98)	-0.001 (1.00)
Std. of Previous 60-month Returns	0.127 (0.16)	0.144 (0.11)	0.190** (0.03)	0.188** (0.03)
Ln(Assets)	0.255*** (0.00)	0.256*** (0.00)	0.258*** (0.00)	0.257*** (0.00)
Capital/Sales	-0.025 (0.57)	-0.020 (0.65)	-0.027 (0.54)	-0.023 (0.60)
Advertising/Sales	0.247 (0.80)	0.018 (0.99)	0.064 (0.95)	0.049 (0.96)
RD/Sales	0.607** (0.02)	0.678*** (0.01)	0.644*** (0.01)	0.632** (0.01)

(Continued)

Table 3 Continued

Dual Class (0/1)	-0.165* (0.10)	-0.185* (0.05)	-0.184* (0.06)	-0.175* (0.07)
Non-family Block Ownership	-0.317* (0.05)	-0.285* (0.08)	-0.262 (0.11)	-0.269* (0.10)
Board Size	0.019 (0.85)	0.038 (0.69)	-0.001 (0.99)	-0.004 (0.96)
Classified Board (0/1)	0.034 (0.35)	0.040 (0.26)	0.045 (0.22)	0.045 (0.21)
# of SIC Codes	-0.003 (0.91)	-0.002 (0.93)	-0.003 (0.91)	-0.005 (0.84)
Intercept	6.335*** (0.00)	6.454*** (0.00)	6.313*** (0.00)	6.371*** (0.00)
Year and Industry Fixed Effects	Yes	Yes	Yes	Yes
Obs.	5,107	5,107	5,107	5,107
R ²	0.165	0.166	0.174	0.175

Table 4 Pay for Performance Sensitivity Regressions – CEO and VPs

Table 4 presents OLS regressions of CEO and VP annual compensation pay for performance sensitivity (Delta) on family firm and CEO characteristics. The sample period is from 2003 to 2006. The dependant variable is the log of CEO or VP annual *Compensation Delta*, which is measured as the sum of delta of annual stock grants and option grants. CEO or VP Portfolio Delta is measured as the sum of the delta of total stock holdings and the delta of total options held at the beginning of the year. Delta measure the change in CEO income with respect to 1% change in stock price. A firm is defined as a *Family Firm* if its founder or a member of the founding family is an officer or director, or owns at least 5% of the firm's equity, either individually or as a group. *Family Ownership* is the family owned cash flow rights as a % of total cash flow rights. *Founder CEO*, *Descendant CEO* and *Non-family CEO* are dummy variables that equal to one if the family firm CEO is the founder, descendant of the founder, or hired from outside respectively. Refer to Appendix for definitions of control variables. Compensation and accounting variables are winsorized at the 1st and 99th percentile levels. All regressions include year fixed effect and Fama-French 48 industry fixed effect. The standard errors are robust and adjusted for firm-level clustering. The symbols ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively.

	CEO Compensation Delta			VP Compensation Delta		
	(1)	(2)	(3)	(4)	(5)	(6)
Family Ownership	-2.308*** (0.00)			-1.104*** (0.00)		
Family Firm		-0.238*** (0.00)			-0.133*** (0.00)	
Family CEO			-0.365*** (0.00)			-0.142*** (0.01)
Non-family CEO w/ Family Executives			-0.367** (0.01)			-0.256*** (0.00)
Non-family CEO w/o Family Executives			-0.055 (0.47)			-0.074 (0.12)
<i>Control Variables</i>						
CEO or VP Portfolio Delta	0.059** (0.02)	0.036 (0.19)	0.046* (0.09)	0.188*** (0.00)	0.198*** (0.00)	0.201*** (0.00)
Ln(CEO age)	-0.839*** (0.00)	-0.933*** (0.00)	-0.968*** (0.00)	-0.191 (0.17)	-0.235* (0.10)	-0.243* (0.09)
Ln(CEO tenure)	-0.173*** (0.00)	-0.164*** (0.00)	-0.135*** (0.00)	-0.010 (0.69)	-0.013 (0.63)	-0.014 (0.64)
ROA	1.760*** (0.00)	1.882*** (0.00)	1.792*** (0.00)	1.162*** (0.00)	1.161*** (0.00)	1.136*** (0.00)
Sales Growth	0.106 (0.40)	0.164 (0.20)	0.153 (0.23)	0.127 (0.11)	0.151* (0.06)	0.150* (0.06)
Leverage	-1.032*** (0.00)	-1.094*** (0.00)	-1.072*** (0.00)	-1.003*** (0.00)	-1.005*** (0.00)	-1.004*** (0.00)
Std. of Previous 60-month Returns	0.171 (0.26)	0.205 (0.19)	0.215 (0.16)	0.313*** (0.00)	0.338*** (0.00)	0.338*** (0.00)
Ln(Assets)	0.539*** (0.00)	0.575*** (0.00)	0.567*** (0.00)	0.401*** (0.00)	0.405*** (0.00)	0.402*** (0.00)
Capital/Sales	-0.062 (0.44)	-0.062 (0.44)	-0.056 (0.49)	-0.100** (0.05)	-0.097* (0.06)	-0.093* (0.06)
Advertising/Sales	-0.280 (0.84)	-0.594 (0.66)	-0.663 (0.63)	1.123 (0.15)	0.890 (0.25)	0.868 (0.26)
RD/Sales	1.860*** (0.00)	2.059*** (0.00)	1.971*** (0.00)	1.337*** (0.00)	1.404*** (0.00)	1.382*** (0.00)

(Continued)

Table 4 Continued

Dual Class (0/1)	-0.007 (0.96)	-0.190 (0.16)	-0.143 (0.29)	-0.068 (0.46)	-0.143* (0.10)	-0.132 (0.13)
Non-family Block Ownership	-0.141 (0.45)	0.101 (0.58)	0.082 (0.65)	-0.085 (0.47)	0.024 (0.83)	0.016 (0.89)
Board Size	0.053 (0.70)	0.062 (0.66)	0.036 (0.80)	-0.000 (1.00)	0.011 (0.89)	0.006 (0.94)
Classified Board (0/1)	0.078 (0.16)	0.098* (0.08)	0.103* (0.07)	0.037 (0.27)	0.045 (0.18)	0.045 (0.18)
# of SIC Codes	-0.053 (0.12)	-0.054 (0.12)	-0.058* (0.10)	-0.041* (0.07)	-0.041* (0.08)	-0.043* (0.06)
Intercept	0.257 (0.80)	0.273 (0.80)	0.455 (0.67)	-1.897*** (0.01)	-1.858*** (0.01)	-1.796*** (0.01)
Year and Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	4,967	4,967	4,967	4,967	4,967	4,967
R ²	0.299	0.290	0.293	0.441	0.437	0.438

Table 5 CEO and VP Risk-taking Incentives

Table 5 presents OLS regressions of CEO and VP risk-taking incentives from annual compensation on family firm and CEO characteristics. The sample period is from 2003 to 2006. The dependant variable is the log of CEO or VP annual *Compensation Vega*, which is measured as the Vega of the annual option grants. CEO or VP Portfolio Vega is measured as the Vega of all the options held at the beginning of the year. Vega measures the change in the CEO's income with respect to a 0.01 change in stock volatility. A firm is defined as a *Family Firm* if its founder or a member of the founding family is an officer or director, or owns at least 5% of the firm's equity, either individually or as a group. *Family Ownership* is the family owned cash flow rights as a % of total cash flow rights. *Founder CEO*, *Descendant CEO* and *Non-family CEO* are dummy variables that equal to one if the family firm CEO is the founder, descendant of the founder, or hired from outside respectively. Refer to Appendix for definitions of control variables. Compensation and accounting variables are winsorized at the 1st and 99th percentile levels. All regressions include year fixed effect and Fama-French 48 industry fixed effect. The standard errors are robust and adjusted for firm-level clustering. The symbols ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively.

	CEO Compensation Vega			VP Compensation Vega		
	(1)	(2)	(3)	(4)	(5)	(6)
Family Ownership	-0.951*** (0.00)			-0.582*** (0.00)		
Family Firm		-0.089 (0.13)			-0.067* (0.08)	
Family CEO			-0.035 (0.65)			-0.041 (0.42)
Non-family CEO w/ Family Executives			-0.291** (0.02)			-0.175** (0.03)
Non-family CEO w/o Family Executives			-0.070 (0.38)			-0.053 (0.28)
<i>Control Variables</i>						
CEO or VP Portfolio Vega	0.303*** (0.00)	0.311*** (0.00)	0.312*** (0.00)	0.320*** (0.00)	0.326*** (0.00)	0.327*** (0.00)
Ln(CEO age)	-0.830*** (0.00)	-0.860*** (0.00)	-0.857*** (0.00)	-0.166 (0.22)	-0.188 (0.16)	-0.187 (0.17)
Ln(CEO tenure)	-0.139*** (0.00)	-0.144*** (0.00)	-0.168*** (0.00)	-0.008 (0.74)	-0.009 (0.70)	-0.021 (0.44)
ROA	1.284*** (0.00)	1.304*** (0.00)	1.304*** (0.00)	1.054*** (0.00)	1.062*** (0.00)	1.060*** (0.00)
Sales Growth	0.118 (0.31)	0.141 (0.22)	0.146 (0.20)	0.113 (0.12)	0.127* (0.08)	0.130* (0.07)
Leverage	-0.939*** (0.00)	-0.946*** (0.00)	-0.957*** (0.00)	-0.718*** (0.00)	-0.720*** (0.00)	-0.725*** (0.00)
Std. of Previous 60-month Returns	-0.731*** (0.00)	-0.701*** (0.00)	-0.703*** (0.00)	-0.406*** (0.00)	-0.387*** (0.00)	-0.388*** (0.00)
Ln(Assets)	0.327*** (0.00)	0.331*** (0.00)	0.330*** (0.00)	0.250*** (0.00)	0.252*** (0.00)	0.252*** (0.00)
Capital /Sales	-0.149 (0.13)	-0.147 (0.13)	-0.141 (0.15)	-0.141** (0.03)	-0.139** (0.03)	-0.136** (0.03)
Advertising/Sales	-0.586 (0.64)	-0.778 (0.54)	-0.808 (0.52)	0.763 (0.34)	0.635 (0.43)	0.618 (0.44)
RD/Sales	1.503*** (0.00)	1.554*** (0.00)	1.560*** (0.00)	1.144*** (0.00)	1.177*** (0.00)	1.179*** (0.00)

(Continued)

Table 5 Continued

Dual Class (0/1)	0.050 (0.64)	-0.021 (0.84)	-0.024 (0.82)	-0.082 (0.25)	-0.122* (0.08)	-0.122* (0.08)
Non-family Block Ownership	0.010 (0.95)	0.115 (0.48)	0.110 (0.50)	-0.144 (0.20)	-0.086 (0.43)	-0.090 (0.42)
Board Size	-0.057 (0.66)	-0.050 (0.70)	-0.043 (0.74)	0.008 (0.92)	0.013 (0.87)	0.016 (0.85)
Classified Board (0/1)	0.049 (0.37)	0.056 (0.31)	0.053 (0.33)	0.024 (0.49)	0.028 (0.41)	0.027 (0.43)
# of SIC Codes	-0.034 (0.31)	-0.034 (0.31)	-0.036 (0.29)	-0.024 (0.28)	-0.024 (0.29)	-0.025 (0.27)
Intercept	-0.487 (0.69)	-0.495 (0.68)	-0.466 (0.70)	-1.424** (0.03)	-1.408** (0.03)	-1.389** (0.03)
Year and Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	4,967	4,967	4,967	4,967	4,967	4,967
R ²	0.354	0.352	0.353	0.458	0.457	0.458

Table 6 Descriptive Statistics for Non-family Blockholdings

This table presents descriptive statistics on the types of non-family blockholders, the percentage of these blockholders that invest in family firms and the percentage that are active in the management of the firm or hold seats on the board of directors. Non-family blockholders are individuals or entities that are not affiliated with the founding family and own 5% or more of the firm's shares as determined by cash flow rights. Non-family blockholders are presented by descending order of the frequency that the blockholder is active in firm management or holds seats on the board of directors.

Blockholder Type	Obs.	% that Invest in a Family Firm	% of Non-family Blockholders with			
			CEO	VP	Director	Director or Executive
Individuals (non-family)	487	37.4%	25.7%	10.7%	62.2%	64.3%
Private Equity	269	26.4%	5.2%	3.0%	53.9%	53.9%
Non-financial Corporation	233	36.5%	4.3%	1.7%	47.6%	49.4%
Other	250	21.2%	4.4%	1.6%	30.0%	30.0%
Hedge Funds	1,313	32.3%	0.2%	0.1%	4.6%	4.6%
Insurance Related	361	37.1%	0.3%	0.0%	1.7%	1.7%
Investment Banking/Brokerage	190	36.3%	0.0%	0.0%	1.6%	1.6%
Bank (or Holding Co.) & Trust	895	40.6%	0.2%	0.0%	1.5%	1.5%
Pension, Retirement or Employee Savings	177	26.0%	0.0%	0.0%	0.6%	0.6%
Asset Management Firms	4,357	37.6%	0.1%	0.0%	0.5%	0.6%
Mutual Fund Families	5,165	38.0%	0.1%	0.0%	0.2%	0.2%

Table 7 Multivariate Analysis Comparison of the Influence of Family Ownership and Non-family Block Ownership on Compensation Incentives

This table presents OLS regressions that test for differences in the influence of family-firm ownership and non-family blockholder ownership on CEO and VP compensation incentives. The sample period is from 2003 to 2006. *Compensation Gap* is measured as the difference between the CEO's total compensation and the median VP's total compensation for that firm-year. CEO (VP) annual *Compensation Delta* is measured as the sum (median sum) of delta of annual stock grants and option grants for the CEO (VPs). CEO (VP) annual *Compensation Vega* is measured as the Vega (median Vega) of the annual option grants for the CEO (VPs). *Family Ownership* is the family owned cash flow rights as a % of total cash flow rights. *Non-Family Block* is the % of total cash flow rights for non-family investors with ownership of 5% or greater. *Family Block* is the family owned cash flow rights as a % of total cash flow rights for firms with family ownerships of 5% or greater. We report coefficients and *p*-values for the ownership and block variables. Other coefficients on are not reported for ease of exposition, but all regressions include control variables and industry and year fixed effects. Compensation and accounting variables are winsorized at the 1st and 99th percentile levels. The standard errors are robust and adjusted for firm-level clustering. The symbols ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively.

Panel A. The Influence of Family Ownership Compared to the Influence of Non-family Block Ownership

	<u>Compensation Gap</u>		<u>CEO Delta</u>		<u>VP Delta</u>		<u>CEO Vega</u>		<u>VP Vega</u>	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Family Ownership	-0.761*** (0.00)	-0.741*** (0.00)	-2.308*** (0.00)	-2.288*** (0.00)	-1.104*** (0.00)	-1.092*** (0.00)	-0.951*** (0.00)	-0.937*** (0.00)	-0.582*** (0.00)	-0.576*** (0.00)
Non-Family Block Ownership			-0.317* (0.05)	-0.141 (0.45)			-0.085 (0.47)	0.010 (0.95)		-0.144 (0.20)
Active Non-Family Block Ownership		-0.649 (0.13)		-0.689* (0.09)		-0.347 (0.12)		-0.013 (0.97)		-0.101 (0.63)
Passive Non-Family Block Ownership		-0.193 (0.19)		0.064 (0.74)		0.011 (0.93)		0.061 (0.74)		-0.140 (0.26)
<u>F-tests for Equality of Coefficients</u>										
$\beta_{\text{Family Ownership}} \neq \beta_{\text{Non-family Block Ownership}}$	2.367 (0.12)		35.44*** (0.00)		22.18*** (0.00)		9.761*** (0.00)		4.977** (0.03)	
$\beta_{\text{Family Ownership}} \neq \beta_{\text{Active Non-family Block Ownership}}$		0.029 (0.87)		9.303*** (0.00)		6.153** (0.01)		5.007** (0.03)		3.205* (0.07)
$\beta_{\text{Family Ownership}} \neq \beta_{\text{Passive Non-family Block Ownership}}$		4.652** (0.03)		42.85*** (0.00)		26.02*** (0.00)		9.955*** (0.00)		4.668** (0.03)
R ²	0.165	0.166	0.299	0.300	0.441	0.441	0.354	0.354	0.458	0.458

(Continued)

Table 7 Continued

Panel B. The Influence of Family Block Ownership Compared To the Influence of Non-Family Block Ownership

	<u>Compensation Gap</u>		<u>CEO Delta</u>		<u>VP Delta</u>		<u>CEO Vega</u>		<u>VP Vega</u>	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Family Block (% own)	-0.725*** (0.00)	-0.705*** (0.00)	-2.305*** (0.00)	-2.282*** (0.00)	-1.106*** (0.00)	-1.093*** (0.00)	-0.973*** (0.00)	-0.959*** (0.00)	-0.590*** (0.00)	-0.584*** (0.00)
Non-Family Block (% own)	-0.310* (0.06)		-0.139 (0.45)		-0.085 (0.47)		0.007 (0.97)		-0.145 (0.20)	
Active Non-Family Block (% own)		-0.640 (0.14)		-0.676* (0.09)		-0.342 (0.12)		-0.012 (0.97)		-0.100 (0.63)
Passive Non-Family Block (% own)		-0.187 (0.20)		0.063 (0.75)		0.011 (0.93)		0.056 (0.76)		-0.142 (0.25)
$\beta_{\text{Family Block}} \neq \beta_{\text{Non-family Block}}$	2.098 (0.15)		36.19*** (0.00)		22.69*** (0.00)		10.34*** (0.00)		5.239** (0.02)	
$\beta_{\text{Family Block}} \neq \beta_{\text{Active Non-family Block}}$		0.0142 (0.91)		9.437*** (0.00)		6.311** (0.01)		5.289** (0.02)		3.349* (0.07)
$\beta_{\text{Family Block}} \neq \beta_{\text{Passive Non-family Block}}$		4.201** (0.04)		43.65*** (0.00)		26.49*** (0.00)		10.52*** (0.00)		4.913** (0.03)
R ²	0.165	0.165	0.300	0.300	0.441	0.441	0.354	0.354	0.458	0.458

Table 8 Alternative Definitions of Family Firms

Table 8 presents OLS regression of CEO and VP compensation incentives on family firm and CEO characteristics. The sample period is from 2003 to 2006. The dependant variable in Panel A is the natural log of *Total Compensation Gap*, in Panel B is the natural log of CEO or VP *Compensation Delta*, in Panel C is the natural log of CEO or VP *Compensation Vega*. *Total Compensation Gap* is measured as the difference between the CEO's total compensation and the median VP's total compensation for that firm-year. CEO (VP) annual *Compensation Vega* is measured as the Vega (median Vega) of the annual option grants for the CEO (VPs). CEO (VP) annual *Compensation Delta* is measured as the sum (median sum) of delta of annual stock grants and option grants for the CEO (VPs). We report coefficients and p-values on family variables. Other coefficients on are not reported for ease of exposition, but all regressions include control variables and industry and year fixed effects. In alternative definition I, a firm is defined as a *Family Firm* if there is at least one family executive or the family owns at least 10% of the firm's equity. In alternative definition II, a firm is defined as a *Family Firm* if there is at least one family executive or family director. In alternative definition III, a firm is defined as a *Family Firm* if a family member serves as the CEO or the family holds the most voting rights. *Founder CEO*, *Descendant CEO* and *Non-family CEO* are dummy variables that equal to one if the family firm CEO is the founder, descendant of the founder, or hired from outside the family respectively. Compensation and accounting variables are winsorized at the 1st and 99th percentile levels. The standard errors are robust and adjusted for firm-level clustering. The symbols ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively.

Panel A. Tournament Incentives (5,107 Obs.)

	Family Firm Alternative Definition I (At least one family executive or family ownership >= 10%)			Family Firm Alternative Definition II (At least one family executive or director)			Family Firm Alternative Definition III (Family is the largest vote holder)		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
	Family Firm	-0.226*** (0.00)			-0.182*** (0.00)			-0.244*** (0.00)	
Founder CEO		-0.424*** (0.00)	-0.421*** (0.00)		-0.429*** (0.00)	-0.427*** (0.00)		-0.425*** (0.00)	-0.423*** (0.00)
Descendant CEO		-0.151** (0.01)	-0.146** (0.02)		-0.155** (0.01)	-0.157** (0.01)		-0.154** (0.01)	-0.155** (0.01)
Non-family CEO		-0.049 (0.49)			-0.047 (0.34)			-0.063 (0.40)	
Non-family CEO w/ Family Executives			-0.173* (0.07)			-0.181* (0.06)			-0.300** (0.04)
Non-family CEO w/o Family Executives			0.106 (0.16)			0.009 (0.86)			0.050 (0.45)
R ²	0.168	0.174	0.175	0.167	0.174	0.175	0.169	0.174	0.176

(Continued)

Table 8 Continued.

Panel B. CEO and VP Pay for Performance Sensitivity (4,967 Obs)

	Family Alternative Definition I				Family Alternative Definition II				Family Alternative Definition III			
	CEO Delta		VP Delta		CEO Delta		VP Delta		CEO Delta		VP Delta	
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Family Firm	-0.276*** (0.00)		-0.148*** (0.00)		-0.245*** (0.00)		-0.134*** (0.00)		-0.311*** (0.00)		-0.156*** (0.00)	
Family CEO		-0.347*** (0.00)		-0.133** (0.01)		-0.365*** (0.00)		-0.141*** (0.01)		-0.358*** (0.00)		-0.136** (0.01)
Non-family CEO w/Family Executives		-0.347** (0.02)		-0.245*** (0.01)		-0.367** (0.01)		-0.255*** (0.00)		-0.604*** (0.01)		-0.361*** (0.00)
Non-family CEO w/o Family Executives		0.071 (0.55)		-0.076 (0.32)		-0.059 (0.45)		-0.074 (0.13)		-0.041 (0.71)		-0.112 (0.12)
R2	0.291	0.293	0.437	0.437	0.290	0.293	0.437	0.438	0.292	0.294	0.437	0.438

Panel C. CEO and VP Risk-taking Incentives (4,967 Obs)

	Family Alternative Definition I				Family Alternative Definition II				Family Alternative Definition III			
	CEO Vega		VP Vega		CEO Vega		VP Vega		CEO Vega		VP Vega	
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Family Firm	-0.081 (0.22)		-0.069 (0.11)		-0.087 (0.15)		-0.071* (0.07)		-0.054 (0.41)		-0.044 (0.30)	
Family CEO		-0.022 (0.76)		-0.035 (0.49)		-0.033 (0.67)		-0.042 (0.41)		-0.017 (0.82)		-0.028 (0.57)
Non-family CEO w/Family Executives		-0.277** (0.02)		-0.168** (0.04)		-0.289** (0.02)		-0.176** (0.03)		-0.313** (0.04)		-0.140 (0.16)
Non-family CEO w/o Family Executives		-0.027 (0.84)		-0.061 (0.45)		-0.064 (0.43)		-0.060 (0.23)		-0.031 (0.78)		-0.042 (0.55)
R ²	0.352	0.353	0.457	0.457	0.352	0.353	0.457	0.458	0.352	0.352	0.457	0.457

Table 9 Excludes the Chairman of the Board in the Calculation of Compensation Incentives

Table 9 presents OLS regression of VP compensation incentives on family firm and CEO characteristics. The sample period is from 2003 to 2006. The dependant variable in Panel A is the natural log of *Total Compensation Gap*, in Panel B is the natural log of *VP Compensation Delta* from column (1) to (3), and the natural log of *VP Compensation Vega* from column (4) to (6). *Total Compensation Gap* is measured as the difference between the CEO's total compensation and the median VP's, excluding chairman, total compensation for that firm-year. VP annual *Compensation Delta* is measured as the median sum of delta of annual stock grants and option grants for the VPs, excluding chairman. VP annual *Compensation Vega* is measured as the median Vega of the annual option grants for the CEO (VPs, excluding chairman). We report coefficients and p-values on family variables. Other coefficients are not reported for ease of exposition, but all regressions include control variables and industry and year fixed effects. *Founder CEO*, *Descendant CEO* and *Non-family CEO* are dummy variables that equal to one if the family firm CEO is the founder, descendant of the founder, or hired from outside the family respectively. Compensation and accounting variables are winsorized at the 1st and 99th percentile levels. The standard errors are robust and adjusted for firm-level clustering. The symbols ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively.

Panel A. Tournament Incentives (5,107 Obs.)		(1)	(2)	(3)	(4)	
Family Ownership		-0.791*** (0.00)				
Family Firm			-0.184*** (0.00)			
Founder CEO				-0.429*** (0.00)	-0.427*** (0.00)	
Descendant CEO				-0.157** (0.01)	-0.160** (0.01)	
Non-family CEO				-0.057 (0.29)		
Non-family CEO w/ Family Executives					-0.220* (0.07)	
Non-family CEO w/o Family Executives					0.007 (0.89)	
R ²		0.145	0.146	0.152	0.154	
Panel B. VP Delta and Risk-taking Incentives (4,967 Obs)						
		VP Delta			VP Vega	
		(1)	(2)	(3)	(4)	(5)
Family Ownership		-1.060*** (0.00)			-0.526*** (0.01)	
Family Firm			-0.123*** (0.00)			-0.058 (0.13)
Family CEO				-0.137** (0.01)		-0.030 (0.55)
Non-family CEO w/Family Executives				-0.224*** (0.01)		-0.155* (0.05)
Non-family CEO w/o Family Executives				-0.068 (0.15)		-0.050 (0.31)
R ²		0.442	0.439	0.439	0.460	0.459

Table 10 Analysis with Treatment Effects

Table 10 presents two-step treatment effects estimations of CEO and VP compensation incentives on family firm and CEO characteristics. The sample period is from 2003 to 2006. A firm is defined as a *Family Firm* if its founder or a member of the family is an officer or director, or owns at least 5% of the firm's equity, either individually or as a group. The dependent variable for tournament incentives regression is the natural log of *Total Compensation Gap*. The dependent variable for Delta regressions is the natural log of CEO or VP *Compensation Delta*, for risk-taking incentives regressions is the natural log of CEO or VP *Compensation Vega*. *Total Compensation Gap* is measured as the difference between the CEO's total compensation and the median VP's total compensation for that firm-year. CEO (VP) *Compensation Vega* is measured as the Vega (median Vega) of the annual option grants for the CEO (VPs). CEO (VP) *Compensation Delta* is measured as the sum (median sum) of delta of annual stock grants and option grants for the CEO (VPs). The instruments used in the treatment equation include the industry-median adjusted firm age and a dummy to indicate if the firm was incorporated in Delaware. *Lambda* is the inverse Mills ratio from the treatment equation. Compensation and accounting variables are winsorized at the 1st and 99th percentile levels. The standard errors are robust and adjusted for firm-level clustering. The symbols ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively.

	<u>Tournament Incentives</u>		<u>Pay for Performance</u>				<u>Risk-Taking Incentives</u>			
			<u>CEO Delta</u>		<u>VP Delta</u>		<u>CEO Vega</u>		<u>VP Vega</u>	
	1st Stage	2nd Stage	1st Stage	2nd Stage	1st Stage	2nd Stage	1st Stage	2nd Stage	1st Stage	2nd Stage
Family Firm (0/1)		-1.603*** (0.00)		-1.277*** (0.00)		-0.593*** (0.00)		-0.714** (0.02)		-0.273 (0.15)
<u>Control Variables</u>										
CEO or VP Port. Delta			0.204*** (0.00)	0.102*** (0.00)	0.084*** (0.00)	0.212*** (0.00)				
CEO or VP Port. Vega							-0.062*** (0.00)	0.296*** (0.00)	0.035* (0.09)	0.328*** (0.00)
Ln(CEO age)	-0.851*** (0.00)	-0.611*** (0.00)	-0.791*** (0.00)	-1.244*** (0.00)	-0.772*** (0.00)	-0.373*** (0.00)	-0.834*** (0.00)	-1.066*** (0.00)	-0.785*** (0.00)	-0.251** (0.04)
Ln(CEO tenure)	0.462*** (0.00)	0.250*** (0.00)	0.325*** (0.00)	-0.045 (0.38)	0.444*** (0.00)	0.059 (0.11)	0.469*** (0.00)	-0.041 (0.49)	0.455*** (0.00)	0.024 (0.51)
ROA	-0.181 (0.48)	1.226*** (0.00)	-0.675** (0.01)	1.660*** (0.00)	-0.408 (0.13)	1.093*** (0.00)	-0.088 (0.73)	1.282*** (0.00)	-0.208 (0.43)	1.047*** (0.00)
Sales Growth	0.074 (0.44)	0.105 (0.23)	0.035 (0.73)	0.187 (0.10)	0.036 (0.72)	0.163** (0.02)	0.029 (0.77)	0.156 (0.15)	0.053 (0.59)	0.134** (0.05)
Leverage	-0.355*** (0.01)	-0.193 (0.14)	-0.017 (0.91)	-1.124*** (0.00)	-0.218 (0.12)	-1.046*** (0.00)	-0.407*** (0.00)	-1.043*** (0.00)	-0.309** (0.03)	-0.746*** (0.00)
Std. of Previous 60-month Returns	0.053 (0.61)	0.199** (0.04)	0.109 (0.32)	0.272** (0.04)	0.063 (0.56)	0.358*** (0.00)	-0.047 (0.67)	-0.703*** (0.00)	0.083 (0.46)	-0.377*** (0.00)
Ln(Assets)	-0.135*** (0.00)	0.178*** (0.00)	-0.266*** (0.00)	0.478*** (0.00)	-0.182*** (0.00)	0.372*** (0.00)	-0.092*** (0.00)	0.307*** (0.00)	-0.151*** (0.00)	0.240*** (0.00)
Capital /Sales	0.078* (0.06)	0.017 (0.73)	0.144*** (0.00)	-0.017 (0.80)	0.092** (0.03)	-0.083** (0.04)	0.064 (0.14)	-0.135** (0.03)	0.087** (0.04)	-0.133*** (0.00)

(Continued)

Table 11 Firm Fixed Effects Analysis of Firm Performance and Compensation Incentives

This table presents firm fixed effects regressions of firm's Q and ROA on incentives provided by executive compensation packages. The sample period is from 2003 to 2006. The dependant variables are firm Q measured as the market value of equity plus the book value of debt divided by the book value of total assets, and ROA measured as operating income before depreciation over total asset. The industry adjusted Q (ROA) is the difference between the firm's Q (ROA) and the industry median Q (ROA) using Fama-French 48 industry classifications. A firm is defined as a *Family Firm* if its founder or a member of the family is an officer or director, or owns at least 5% of the firm's equity, either individually or as a group. Refer to Table 1 and Appendix for variable definitions. Compensation and accounting variables are winsorized at the 1st and 99th percentile levels. All regressions include year fixed effect. The standard errors are robust and adjusted for firm-level clustering. The symbols ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively.

	Non-family Firms		Family Firms with Family Executives		Family Firms without Family Executives		Non-family Firms		Family Firms with Family Executives		Family Firms without Family Executives	
	Q	Adj. Q	Q	Adj. Q	Q	Adj. Q	ROA	Adj. ROA	ROA	Adj. ROA	ROA	Adj. ROA
Compensation Gap	0.026** (0.01)	0.030*** (0.01)	-0.018 (0.23)	-0.016 (0.32)	0.051* (0.06)	0.048* (0.07)	0.002** (0.02)	0.002* (0.07)	0.001 (0.52)	0.001 (0.37)	0.004** (0.03)	0.004** (0.04)
CEO Portfolio Delta	0.026* (0.07)	0.030** (0.04)	0.001 (0.95)	0.008 (0.71)	-0.078** (0.04)	-0.073* (0.05)	0.002* (0.07)	0.004*** (0.01)	0.001 (0.61)	0.001 (0.44)	0.000 (0.88)	-0.001 (0.67)
VP Portfolio Delta	-0.009 (0.61)	0.002 (0.90)	0.052* (0.06)	0.055* (0.06)	0.118** (0.03)	0.123** (0.03)	0.002 (0.36)	0.001 (0.67)	0.001 (0.73)	0.001 (0.68)	0.008* (0.06)	0.005 (0.22)
<i>Control Variables</i>												
Ln(CEO age)	-0.171 (0.29)	-0.045 (0.79)	0.065 (0.83)	0.148 (0.65)	0.051 (0.92)	-0.138 (0.80)	-0.002 (0.87)	-0.016 (0.33)	0.027 (0.26)	0.037 (0.15)	0.018 (0.64)	0.004 (0.92)
Ln(CEO tenure)	0.019 (0.46)	0.018 (0.48)	0.057 (0.21)	0.039 (0.41)	0.051 (0.51)	0.074 (0.35)	0.002 (0.42)	0.003 (0.23)	-0.003 (0.46)	-0.003 (0.47)	0.009 (0.13)	0.008 (0.18)
Leverage	-1.716*** (0.00)	-1.359*** (0.00)	-1.663*** (0.00)	-1.420*** (0.00)	-1.289*** (0.00)	-0.706** (0.05)	-0.176*** (0.00)	-0.148*** (0.00)	-0.155*** (0.00)	-0.172*** (0.00)	-0.124*** (0.00)	-0.093*** (0.00)
Std. of Previous 60-month Returns	0.261* (0.05)	0.063 (0.65)	-0.324 (0.22)	-0.726*** (0.01)	0.431 (0.17)	0.257 (0.42)	0.033*** (0.01)	0.037*** (0.01)	-0.030 (0.14)	-0.074*** (0.00)	-0.020 (0.37)	-0.007 (0.79)
Ln(Assets)	-0.949*** (0.00)	-0.901*** (0.00)	-0.034 (0.93)	0.085 (0.85)	1.280* (0.05)	0.773 (0.24)	0.063*** (0.00)	0.059*** (0.01)	0.122*** (0.00)	0.152*** (0.00)	-0.050 (0.29)	-0.090* (0.07)
Ln(Assets) Squared	0.042*** (0.01)	0.034** (0.03)	-0.011 (0.70)	-0.026 (0.40)	-0.146*** (0.00)	-0.109** (0.02)	-0.004*** (0.00)	-0.004*** (0.00)	-0.007*** (0.00)	-0.010*** (0.00)	0.000 (0.94)	0.003 (0.40)

(Continued)

Table 11 Continued.

Capex/Sales	-0.222*** (0.00)	-0.238*** (0.00)	-0.611*** (0.00)	-0.643*** (0.00)	-0.100 (0.71)	0.057 (0.83)	-0.077*** (0.00)	-0.072*** (0.00)	-0.161*** (0.00)	-0.130*** (0.00)	-0.040** (0.04)	-0.061*** (0.00)
Advertising/Sales	2.686 (0.10)	2.531 (0.14)	-3.782* (0.06)	-2.874 (0.17)	-0.567 (0.86)	-1.105 (0.73)	-0.806*** (0.00)	-0.990*** (0.00)	-0.730*** (0.00)	-0.482*** (0.00)	0.032 (0.89)	0.120 (0.63)
RD/Sales	-0.065 (0.83)	0.158 (0.60)	-0.139 (0.81)	-0.078 (0.90)	-0.939 (0.25)	-1.775** (0.03)	-0.205*** (0.00)	-0.232*** (0.00)	-0.357*** (0.00)	-0.313*** (0.00)	-0.235*** (0.00)	-0.179*** (0.00)
Non-family Block Ownership	-0.653*** (0.00)	-0.618*** (0.00)	-0.972*** (0.00)	-0.956*** (0.00)	-0.913*** (0.00)	-0.931*** (0.00)	-0.038*** (0.00)	-0.038*** (0.00)	-0.048*** (0.00)	-0.045*** (0.00)	-0.073*** (0.00)	-0.069*** (0.00)
Board Size	-0.067 (0.46)	0.004 (0.97)	-0.081 (0.64)	-0.101 (0.58)	-0.054 (0.84)	-0.018 (0.95)	-0.007 (0.41)	-0.012 (0.21)	0.009 (0.51)	-0.002 (0.92)	0.002 (0.90)	0.000 (0.98)
Classified Board (0/1)	0.053 (0.39)	0.039 (0.53)	-0.146 (0.33)	-0.092 (0.56)	0.229 (0.23)	0.193 (0.32)	0.008 (0.16)	0.001 (0.86)	-0.010 (0.38)	-0.010 (0.43)	0.014 (0.31)	0.008 (0.60)
# of SIC Codes	-0.033 (0.16)	-0.015 (0.54)	-0.009 (0.86)	0.033 (0.55)	-0.034 (0.54)	-0.057 (0.31)	-0.004* (0.05)	-0.004 (0.11)	-0.001 (0.88)	0.002 (0.67)	0.003 (0.44)	0.001 (0.84)
Dividend Yield	-0.001 (0.94)	-0.002 (0.91)	-0.067 (0.16)	-0.070 (0.17)	-0.049 (0.33)	-0.019 (0.71)	-0.005*** (0.00)	-0.001 (0.47)	0.011*** (0.00)	0.008* (0.06)	0.001 (0.79)	0.001 (0.82)
Intercept	7.598*** (0.00)	5.201*** (0.00)	3.549* (0.08)	1.336 (0.53)	0.619 (0.86)	1.159 (0.74)	-0.038 (0.69)	0.007 (0.95)	-0.362** (0.02)	-0.543*** (0.00)	0.382 (0.13)	0.546** (0.04)
Firm Fixed Effects	Yes											
Year Fixed Effects	Yes											
Observations	2,944	2,944	1,356	1,356	667	667	2,944	2,944	1,356	1,356	667	667
R-squared	0.184	0.158	0.168	0.151	0.281	0.252	0.265	0.199	0.358	0.291	0.300	0.225
<i>p</i> -value for an F-test that the coefficients on CEO and VP portfolio deltas are jointly positive	0.32	0.05**	0.05**	0.02**	0.47	0.37	0.01***	0.01***	0.45	0.31	0.05**	0.35