

Agency Problems in Family Firms: Evidence from CEO Turnover and Firm Valuation*

Xia Chen

Qiang Cheng

Sauder School of Business
University of British Columbia

Zhonglan Dai

School of Management
University of Texas at Dallas

October 2006

Abstract

This paper investigates the impact of the founding family presence on the extent of agency problems in the setting of CEO turnover and on firm valuation after poor performance. In particular, we examine the variation in CEO turnover-performance sensitivity and firm value after poor performance across three types of firms: family CEO firms, professional CEO family firms (family firms managed by a hired CEO outside the founding family), and non-family firms. We hypothesize that the agency problem arising from the expropriation of small shareholders by large shareholders in family CEO firms and the agency problem arising from the separation of ownership and control in non-family firms lead to a lower CEO turnover-performance sensitivity, compared to professional CEO family firms. Professional CEO family firms are subject to less agency problems due to the separation of family ownership and management as well as the founding family's effective monitoring of management. The empirical findings are consistent with our predictions. We further hypothesize and find that the greater agency problems in family CEO firms and non-family firms manifest themselves in lower firm value after poor performance: both types of firms are valued at a discount relative to professional CEO family firms after the firm has performed poorly. In addition, the well-established family firm valuation premium over non-family firms disappears during such period, consistent with the agency problem in family CEO firms leading to a reduction in firm value.

* We thank Phil Berger, Shuping Chen, Rong Huang, Volkan Muslu, Ram Natarajan, Suresh Radhakrishnan, Scott Schaefer, and Harold Zhang, as well as workshop participants at the 2006 Accounting Research Conference of the Universities of British Columbia, Oregon, and Washington, Cheung Kong Graduate School of Business, IECG Research Symposium at UT Dallas, Simon Fraser University, Tsinghua University, and University of Utah for helpful comments. Please address correspondence to: Qiang Cheng, Sauder School of Business, University of British Columbia, 2053 Main Mall, Vancouver, BC, Canada, V6T 1Z2. E-mail: qiang.cheng@sauder.ubc.ca.

1. Introduction

Family firms are prevalent in U.S. economy, representing 33% of S&P 500 and 46% of S&P 1500 firms. As a unique type of public company, a family firm is likely to face different types of agency problems from a non-family firm. On one hand, family ownership can reduce the agency problem arising from the separation of ownership and management due to the founding family's active involvement in the firm's management and monitoring. On the other hand, family ownership can aggravate the agency problem between large and small shareholders. The founding family, being a large and controlling shareholder, may choose to pursue its own interest at the cost of other shareholders' when their interests are not well aligned. Following prior studies (e.g., Villalonga and Amit 2004), we refer to these two types of agency problems as Type I and Type II agency problems, respectively.

While studies focusing on family firms in East Asian economies (e.g., Faccio, Lang, and Young 2001) provide consistent evidence that family firms suffer severe Type II agency problem, recent studies on U.S. family firms present a different picture. They show that, relative to non-family firms, U.S. family firms exhibit higher earnings quality (Ali, Chen and Radhakrishnan 2005; Wang 2005), incur lower cost of debt (Anderson, Mansi, and Reeb 2003), and most importantly, command a valuation premium (Anderson and Reeb 2003; Villalonga and Amit 2004). These results seem to suggest that U.S. family firms are subject to less agency problems than non-family firms.

To better understand whether U.S. family firms are subject to severe agency problems, and if so, to what extent, this paper singles out one particular time period and focuses on one key corporate decision which can help us to identify the potential agency problems in these firms – CEO retention decision after poor performance. As pointed out by Shleifer and Vishny (1997), poorly performing CEOs who resist to be replaced might be the costliest manifestation of agency problems. Furthermore, not all family firms are the same with respect to the severity of agency problems. In particular, the aggravation of Type II agency problem is more relevant for family

CEO firms (family firms managed by a member from the founding family) and the alleviation of Type I agency problem is more relevant for professional CEO family firms (family firms managed by a hired professional CEO outside the founding family). Thus, we examine the variation of CEO turnover-performance sensitivity across family CEO firms, professional CEO family firms, and non-family firms to evaluate the extent of agency problems in these firms in the CEO turnover setting. As the ultimate manifestation of agency problem is lower firm value, we further investigate how the varying sensitivity over the CEO turnover decision across the above three types of firms affects their firm value.

In a family CEO firm, because the founding family both owns and manages the firm, there is moderate Type I agency problem, but Type II agency problem can be severe as the founding family might be reluctant to remove its family member from the CEO post after poor performance. In contrast, as management and ownership are separated in non-family firms and professional CEO family firms, their Type I agency problem can be severe though their Type II agency problem is moderate. In addition, compared to their counterparts in non-family firms, CEOs in professional CEO family firms are subject to the monitoring by the founding family. Given the founding family's knowledge of the business, as well as its incentives to increase firm value due to its concern with family reputation and a lack of diversification in its investment portfolio (Anderson and Reeb 2003), such monitoring is effective and hence Type I agency problem in professional CEO family firms is mitigated. Accordingly, we hypothesize that the CEO turnover-performance sensitivity is lower in family CEO firms and non-family firms than in professional CEO family firms.

The varying extent of agency problems in the CEO retention decision will ultimately be reflected in firm value. The more severe the agency problem is, the smaller the probability that poor performance will lead to a CEO turnover, and the lower the firm value will be. Accordingly, we further predict that both family CEO firms and non-family firms are valued lower than professional CEO family firms when the firm has performed poorly, *ceteris paribus*.

Using data from 1,113 firms in the S&P 1500 index (i.e., S&P 500, S&P MidCap 400, and S&P SmallCap 600 indices) over the period of 1997-2000, we find that as predicted, the CEO turnover-performance sensitivity is lower for both family CEO firms and non-family firms than for professional CEO family firms. When stock returns decrease from the top 25th percentile to the bottom 25th percentile, the predicted probability of CEO turnover increases by only 0.1% for family CEO firms and 3.6% for non-family firms but by 13.7% for professional CEO family firms. Additional analyses indicate that these results hold after controlling for cross-sectional variation in corporate governance (e.g., institutional holdings, the existence of non-family blockholders) or with the use of alternative performance measures.

Following Morck, Shleifer, and Vishny (1988) and Villalonga and Amit (2004), we use Tobin's Q as a proxy for firm value to test valuation differentials across the three types of firms during the poor performance period. As predicted, we find that after poor performance (i.e., last year's market-adjusted stock returns falling into the bottom quartile of the sample distribution), both family CEO firms and non-family firms are valued at a discount relative to professional CEO family firms (Tobin's Q being 0.252 and 0.171 lower) after controlling for other firm characteristics that might affect firm value. This suggests that the stock market recognizes the difficulty in replacing poorly performing CEOs in the former two types of firms and factors it in when valuing the firms.

In addition, while we confirm the well-established family firm valuation premium over non-family firms for the full sample, we find that the family firm premium disappears during the poor performance period. The disappearance of family firms premium is apparently driven by family CEO firms, not by professional CEO family firms, which actually enjoy a valuation premium over non-family firms in such period, as noted above. Furthermore, we show that among family CEOs, founder CEOs lose their premium (Tobin's Q being 0.038 lower) while descendant CEOs are associated with a significant discount (Tobin's Q being 0.329 lower) during the poor performance period. These results are in sharp contrast to a large founder CEO premium

(Tobin's Q being 0.451 higher) and an insignificant descendant CEO discount (Tobin's Q being 0.138 lower) during other periods. These findings suggest that family CEO firms are subject to severe Type II agency problem over CEO retention decision, leading to a reduction in firm values.

Finally, we also test if the variation of agency problems detected above affects the CEO turnover-age sensitivity. Once a CEO passes his prime, the older he gets, the less competent he will be, and all else equal, the more likely he will be replaced. With Type I agency problem in non-family firms and Type II agency problem in family CEO firms over the CEO turnover decision, we would expect the turnover-age sensitivity for these types of firms to be lower than for professional CEO family firms. However, the CEO retirement policy is likely to play an important role in determining turnover-age sensitivity. Anticipating the difficulty in replacing CEOs upon poor performance, diffused shareholders of non-family firms may adopt an objective retirement policy, whereas family firms are less likely to do so since a retirement policy has its costs and the founding family typically has more power to replace a CEO ex post. If this is the case, we would observe higher turnover-age sensitivity for non-family firms. Our empirical results indicate that the turnover-age sensitivity for family CEO firms is lower than for professional CEO family firms: the change in CEO turnover probability when CEO age increases from its 25th to 75th percentile value is only 3.6% for the former but 16.1% for the latter. The turnover-age sensitivity for non-family firms, however, is higher than for professional CEO family firms (20.2% vs. 16.1%), consistent with more frequent use of the CEO retirement policy in non-family firms.¹

This paper makes contribution to the following two literatures. First, we contribute to the family firm literature by providing insights into the type and extent of agency problems faced by U.S. family firms. By focusing on the CEO retention decision and firm value after poor

¹ Further analysis provides corroborative evidence. We find that of replaced CEOs, the proportion of CEOs at typical retirement ages (64/65) is higher for non-family firms than for family firms.

performance, we are able to identify the potential agency problem, or lack of it, in family firms. We show that among U.S. family firms, family CEO firms are subject to increased Type II agency problem while professional CEO family firms are associated with reduced Type I agency problem, relative to non-family firms. While extant studies find that family firms *on average* command a valuation premium, we show that this premium comes mainly from the period when Type II agency problem in family CEO firms is less severe. In contrast, professional CEO family firms command a premium over non-family firms after poor performance, consistent with their reduced agency problem due to better monitoring by the founding family.

Second, we contribute to the CEO turnover literature by linking the two types of agency problems to the cross-sectional variation of performance-turnover sensitivity among the three types of U.S. public firms. Extant studies on CEO turnover generally focus on identifying key determinants of CEO turnover, such as past performance, age, founder status, industry competition, and risk without exploring the variation in agency problems across firm types. We pin down the agency problems in each type of firms and examine how they affect the variation of turnover-performance sensitivity. In addition, despite the well-recognized importance of CEO age in explaining CEO turnover (Brickley 2003), our study is the first to examine the cross-sectional variation in turnover-age sensitivity. Our results indicate that the variation in both the extent of agency problems and the use of retirement policy among the three types of firms plays an important role in determining CEO turnover-age sensitivity.

The rest of the paper is organized as follows. Section 2 provides the literature review and hypothesis development. Section 3 covers data description. Section 4 discusses empirical results of CEO turnover and firm valuation, and Section 5 concludes.

2. Literature Review and Hypothesis Development

2.1 Literature review

A public company is a nexus of contracting relationships. Unavoidably, there are all sorts of conflicts of interests among its stakeholders. What has been examined the most in economics, finance, and accounting research is probably the one between management and shareholders. Jensen and Meckling (1976) formally present the reduction in firm value caused by this conflict, that is, when managers appropriate the corporate resources for their personal benefits, such as maximizing resources under control and consuming perquisites. In this paper, we refer to this as Type I agency problem. Shleifer and Vishny (1997) provide an extensive literature review of Type I agency problem.

Given the prevalence of Type I agency problem in a public company, the extant literature also investigates the mechanisms that can be used to alleviate it. In addition to the protection from the legal system, SEC, external/internal auditing, and corporate governance, one common measure that shareholders adopt to align managers' interests with shareholders' is to increase managerial ownership (Jensen and Meckling 1976). Prior empirical evidence provides support for its efficacy. For example, Denis, Denis, and Sarin (1997b) document a negative relation between managerial ownership and diversification, and Heitzman (2006) finds a positive relation between equity grants to target CEOs and acquisition premium.

However, while high managerial ownership can alleviate Type I problem, it can potentially lead to Type II agency problem – the conflict of interests between large and small shareholders (Shleifer and Vishny 1986; La Porta et al. 1999; Gilson and Gordon 2003). Large shareholders can potentially use their influence in the firm to expropriate small shareholders. Using Tobin's Q as a proxy for firm value, Morck, Shleifer, and Vishny (1988) document a nonlinear relation between Tobin's Q and managerial ownership: Tobin's Q increases with managerial ownership when ownership increases from 0% to 5%, but then declines with it when ownership increases

from 5% to 25%, consistent with a high level of managerial ownership leading to costly expropriation. See Holderness (2003) for a literature review of Type II agency problem.

As noted by Jensen and Meckling (1976), the severity of agency problems varies from firm to firm, depending on the ease with which managers can exercise their own preferences in decision making as opposed to firm value maximization and on the cost of monitoring activities. Recent studies start to explore the variation of agency problems across different types of firms, in particular, U.S. family versus non-family firms. Firm type fundamentally affects a firm's ownership structure, which in turn affects the extent of agency problems. Anderson and Reeb (2003) document that family firms outperform non-family firms across various measures: return on assets, return on equity, and Tobin's Q. Villalonga and Amit (2004) further find that the family firm valuation premium over non-family firms mainly comes from family firms run by founder CEOs.

The aforementioned papers attribute higher firm value in family firms to their lack of agency problems.² With the founding family likely being the largest shareholder of the company, it is difficult to imagine that family firms are free of agency problems, especially Type II agency problem.³ Moreover, not all family firms are the same with respect to the severity of agency problems. In particular, family CEO firms are more likely to be subject to Type II agency problem than professional CEO family firms. To provide evidence on agency problems in U.S. family firms and the related impact on firm value, we focus our study on the CEO retention decision when a CEO has performed poorly and the conflict of interests among CEO, small and large shareholders is likely severe. We empirically examine how the two types of agency problems affect CEO retention decisions and ultimately firm valuation across the following three types of firms: family CEO firms, professional CEO family firms, and non-family firms.

² For example, Anderson and Reeb (2003) argue that the legal protection in U.S. has successfully eliminated Type II agency problem in U.S. family firms.

³ Faccio, Lang, and Young (2001) focus on firm dividend policy in East Asian family firms and European family firms and provide evidence of expropriation of other shareholders by the founding family in East Asian family firms, which is consistent with Type II agency problem in family firms.

We choose to analyze the CEO retention decision for two reasons. First, determining whether the incumbent CEO is competent for the job is one of the most significant decisions a board of directors has to make. As pointed out by Shleifer and Vishny (1997), poorly performing managers who resist to be replaced might be the costliest manifestation of agency problems. Accordingly, agency problems manifested in the CEO turnover context likely have a significant impact on firm value. Second, CEO turnover provides us with a setting in which we can examine both Type I and Type II agency problems. This is accomplished by our partition of public firms into family CEO firms, professional CEO family firms, and non-family firms, as explained in detail in the next section.

Our analyses are related to both the recently developed literature on U.S. family firms and the CEO turnover literature. Besides the above-mentioned studies on the valuation of family firms, recent studies also examine the impact of family ownership on earnings quality, CEO compensation, and the cost of debt. Ali, Chen, and Radhakrishnan (2005) and Wang (2005) show that earnings quality is higher for family firms than for non-family firms. Chen (2005) reports that the compensation contracts for hired professional CEOs are more sensitive to firm performance in family firms than in non-family firms. Anderson, Mansi and Reeb (2003) document that family firms enjoy a lower cost of debt financing than non-family firms. Our paper differs from these studies along at least two dimensions. First, we investigate both Type I and Type II problems at the same time, while Chen (2005) only focuses on Type I problem and other prior studies do not distinguish between the two types of problems. Second, we link agency problems to firm value and identify situations when agency problems in family CEO firms lead to reduction in firm value.

Our analysis also complements CEO turnover studies. Prior work on CEO turnover generally focuses on determinants of CEO turnover: past performance (Coughlan and Schmidt 1985; Warner, Watts, and Wruck 1988), industry competition (DeFond and Park 1999; Parrino 1997), composition of the board of directors (Weisbach 1988), insider ownership (Denis, Denis,

and Sarin 1997a), and volatility (Dai 2005). However, there is little research on differences across firm types. In this paper, we take advantage of the variation of agency problems among family CEO firms, professional CEO family firms, and non-family firms to examine how these firms differ in CEO turnover-performance sensitivity and turnover-age sensitivity.

2.2 *Variation of turnover-performance sensitivity across the three types of firms*

Following previous family firm studies, we classify a firm as a family firm if founders or descendants hold top management positions, sit on the board, or are blockholders. To capture the variation in agency problems, we further separate family firms into those run by family members (founders or descendants) and those run by hired professional CEOs. Thus, we explore the differences in agency problems across the following three types of public firms:

- *family CEO firms*: family firms with a member of the founding family (founder or descendant) as CEO,
- *professional CEO family firms*: family firms with a hired professional CEO, and
- *non-family firms*: all other public firms.

In a family CEO firm, since the founding family holds the CEO position, Type I agency problem should be moderate, but with the family having considerable influence over corporate decisions, Type II agency problem is potentially severe, especially over the CEO retention decision when the family CEO has performed poorly.⁴ In contrast, in a professional CEO family firm or a non-family firm, ownership is separated from management and accordingly, Type I agency problem arises. However, what distinguishes a professional CEO family firm from a non-family firm is the direct monitoring of the CEO by the founding family in the former. Such monitoring is effective because the founding family has the expertise, the incentive, as well as the means to do so. First, since the founding family started the business, the family members, generally with representatives sitting on the board, know the business well so that it is easier for them than for other shareholders to judge whether the CEO is competent. Second, the founding

⁴ Observing the recent poor performance at Ford, Business Week (August 21/28, 2006) commented that “CEO Bill Ford would have been fired by now by most boards if his name were Smith.”

family has stronger incentives than other shareholders to monitor the CEO given its less diversified asset holding, family name concern, and long investment horizon (Anderson, Mansi and Reeb 2003). Lastly, with large ownership and usually positions on the board, the founding family is influential in the CEO turnover decision. Consequently, Type I agency problem in professional CEO family firms can be effectively alleviated compared to non-family firms.

Is Type II agency problem present in professional CEO family firms or non-family firms over the CEO retention decision? If the CEOs in these firms hold large percent of shares, these firms are susceptible to Type II agency problem as well. However, such cases are rare. In our sample, only 2.8% of hired CEOs (in professional CEO family firms and non-family firms) hold 5% or more of company stock.⁵ In addition, in a professional CEO family firm, since the CEO is not part of the founding family, it is unlikely that the founding family would protect him from his poor performance.⁶ Similarly, the outside blockholders, if exist, do not have incentives to side with the poorly performing CEO in either professional CEO family firms or non-family firms. Consequently, Type II agency problem over the CEO retention decision is moderate in these two types of firms.⁷

In summary, over the CEO retention decision, if the professional CEO hired by family firms is not a large shareholder himself, as is generally the case, Type II agency problem is moderate. In addition, with effective monitoring of such CEO by the founding family, Type I agency problem is also likely to be moderate. That is, professional CEO family firms face moderate Type I and Type II agency problems. In contrast, family CEO firms are subject to severe Type II agency problem and non-family firms are subject to severe Type I agency

⁵ In an untabulated sensitivity test, we add to the turnover regressions an indicator variable for high level of hired CEOs' ownership (>5%). The results on our variables of interest remain the same. The indicator variable is significantly negative, suggesting that hired CEOs with high stock ownership are less likely to be removed after poor performance.

⁶ One might argue that the founding family may hire an outsider to serve as the CEO to reduce others' suspicion of the founding family's embezzlement of corporate resources (so-called "puppy CEO") and will not fire the person after poor performance. However, this will bias against finding results consistent with our hypotheses.

⁷ The outside blockholders in these two types of firms may alleviate Type I agency problem over the CEO retention decision. We control for the existence of outside blockholders in the empirical tests.

problem. Since both types of agency problems will reduce the CEO turnover-performance sensitivity, we predict that the CEO turnover-performance sensitivity for family CEO firms and non-family firms is lower than the sensitivity for professional CEO family firms. Stated formally, our first set of hypotheses is (in alternative forms):⁸

H1: CEO turnover-performance sensitivity is lower for family CEO firms than for professional CEO family firms.

H2: CEO turnover-performance sensitivity is lower for non-family firms than for professional CEO family firms.

Since family CEO firms are subject to Type II agency problem and non-family firms are subject to Type I agency problem, ex ante it is unclear which type of firms is subject to greater agency problems. If over the CEO turnover decision, Type II agency problem in family CEO firms is greater than Type I agency problem in non-family firms, the CEO turnover-performance sensitivity is lower for family CEO firms than for non-family firms, and vice versa.

2.3 Variation of turnover-age sensitivity across the three types of firms

Examining the CEO turnover-performance sensitivity is theoretically appealing. However, as noted by Brickley (2003), CEO age is the most important empirical explanatory variable of CEO turnover. In this section, we analyze how the two types of agency problems as discussed above affect the CEO turnover-age sensitivity in order to provide corroborating evidence and additional insights regarding the agency problems and the CEO turnover decisions across the three types of firms.

⁸ Note that we are not arguing that professional CEO family firm is the best organization form of the three. The above discussion of agency problems is restricted to the CEO turnover decision. The severity of agency problems might be different over other corporate decisions. For example, the founding family in a professional CEO family firm might engage in related party transactions with other family businesses to benefit the family at the expense of small shareholders (i.e., Type II agency problem). As in prior studies (Anderson and Reeb 2003; Anderson, Mansi and Reeb 2003; Villalonga and Amit 2004), we treat firm type as exogenous. Endogenizing firm type is beyond the scope of this paper. See Bebchuk and Roe (1999) for a discussion about the persistence of firm type.

A CEO's competence rises as time goes by when he acquires more experience and more wisdom. However, the rise of competence will eventually take a downturn as the CEO ages and the firm might then find it beneficial to remove the incumbent CEO. The significant positive correlation between CEO age and turnover probability, as documented in prior CEO turnover studies, is consistent with this notion. However, an entrenched CEO might resist leaving the lucrative and prestigious position. Accordingly, the two types of agency problems can also manifest themselves as low turnover-age sensitivity. Since, as discussed above, family CEO firms are subject to severe Type II agency problem and non-family firms are subject to severe Type I agency problem over CEO turnover decision, we expect the CEO turnover-age sensitivity to be lower for family CEO firms and non-family firms than for professional CEO family firms.

Besides agency problems, however, a company's retirement policy also affects the CEO turnover-age sensitivity. Anticipating the difficulty in replacing CEOs, shareholders might put a retirement policy in place to help remove aged and incompetent CEOs. As argued in Murray (2005), "mandatory-retirement rules ... provide a useful crutch. It's easier for the board of directors to tell a CEO to leave because of mandatory retirement than because he or she is doing a mediocre job."⁹ Of course, a mandatory retirement policy has its downsides – it may let go some CEOs who are at retirement age but still competent for the job. In deciding whether to put a retirement policy in place, a firm will weigh the benefits against the costs. If the firm expects that it can replace the CEO upon poor performance, it has a lower demand for, and is less likely to have, a retirement policy.¹⁰ Thus, the use of retirement policy likely varies across firm types. Since relative to family firms, non-family firms lack effective monitoring mechanism to replace

⁹ This argument for a retirement policy is similar to the rationale for the term limit set for the United States presidency by the twenty-second amendment of the United States Constitution. The underlying rationale was the concern that without limits, the presidential position could become too similar to that of a benevolent dictator lasting not just four (or eight) years but a lifetime, and that the position could become too powerful and upset the separation of power, and even become so powerful that elections would become dispensable.

¹⁰ Murray (2005) states that "if you have a strong assessment process for the CEO, you don't need mandatory retirement."

the CEO, they are more likely to adopt retirement policy ex ante to facilitate replacing poorly performing CEOs ex post. In contrast, the founding family in family firms can effectively monitor the CEO and has the means to replace the CEO if it chooses to do so. Thus family firms are less likely to use retirement policy.

In sum, Type II agency problem in family CEO firms will lead to a lower turnover-age sensitivity compared to professional CEO family firms. While Type I agency problem in non-family firms implies a lower turnover-age sensitivity, the likely greater use of retirement policy in these firms leads to a higher turnover-age sensitivity. Accordingly, our prediction of the turnover-age sensitivity comparison between non-family firms and professional CEO family firms is non-directional and which type of firms has higher turnover-age sensitivity is ultimately an empirical question. Stated formally, our second set of hypotheses is (in alternative forms):

H3: CEO turnover-age sensitivity is lower for family CEO firms than for professional CEO family firms.

H4: CEO turnover-age sensitivity is different between non-family firms and professional CEO family firms.

2.4 Firm valuation differentials across the three types of firms

When the incumbent CEO has performed poorly, he is likely to be no longer competent for the job any more. Replacing him could potentially improve firm performance and subsequently firm value. For example, Denis and Denis (1995) and Huson, Malatesta, and Parrino (2004) document substantial improvements in firm performance after the incumbent CEOs were removed after poor performance. However, if agency problems are severe and shareholders cannot replace the poorly performing CEO, firm value will suffer. As argued above, compared to professional CEO family firms, family CEO firms are more likely to be subject to severe Type II agency problem and non-family firms are more likely to be subject to severe Type I agency problem. In the former, the family CEO is entrenched due to the influence of the founding family and in the latter, the CEO is entrenched due to the separation of control and ownership. Both

types of agency problems in these firms imply resistances from the poorly performing CEOs, leading to lower likelihood of replacing those CEOs, and ultimately lower firm value, ceteris paribus. Thus, we expect that all else equal, these firms have lower value than professional CEO family firms after poor performance. Stated formally, our last set of hypotheses is (in alternative form):

H5: Given poor performance, family CEO firms are valued lower than professional CEO family firms.

H6: Given poor performance, non-family firms are valued lower than professional CEO family firm.

The Appendix summarizes the agency problems in each type of firms and our predictions of turnover-performance sensitivity, turnover-age sensitivity, and firm value.

3. Sample and Data

Our sample consists of 3,472 firm-years from 1,113 firms in the S&P 1500 index (S&P 500 LargeCap, S&P MidCap 400, and S&P SmallCap 600 indices) covering the period of 1997-2000. These are the firms that have required data from Compustat (for financial accounting information), CRSP (for stock return information), ExecuComp, and Investor Responsibility Research Center (IRRC) (for CEO turnover and ownership structure information).

Our collection of ownership and the founding family related information involves several steps.¹¹ First, we start with ExecuComp and IRRC databases to identify key insiders (top executives and directors) for each company and to compile ownership for each insider.¹² Second, for each firm-year, we collect information about the founding family: the identity of founders,

¹¹ Our data collection process is similar to Villalonga and Amit (2004). The advantage of this process is that it generates a rich dataset that enables us to examine the impact of various dimensions of ownership structure and founding family involvement (e.g., family management, family ownership) on CEO turnover.

¹² During our data collection, we notice two issues with the ownership data reported in ExecuComp and IRRC databases. (1) The databases often report the total family ownership under each individual family member. (2) For companies with more than one class of voting shares (dual class firms), the databases usually only report ownership in one class of shares (the choice of class seems arbitrary), and occasionally report the combined voting power. When these issues arise, we resort to proxy statements to make corrections. The ownership data for dual class firms in this paper is based on the combined voting power.

whether founders or their family members are actively involved (e.g., holding key executive positions, being directors, or being blockholders), and if they are actively involved, the ownership of the founding family. This step is completed through reading Hoover's company records, company proxy statements and websites. Third, based on proxy statements, we collect the identities and ownership of blockholders who are not insiders or founding family members. Lastly, we merge the above information with firm financial data from Compustat and CRSP. Additional information about corporate governance and institutional ownership is collected from IRRC and CDA Spectrum, respectively.

Panel A of Table 1 reports the composition of our sample. In contrast to prior studies on family firms that focus on S&P 500 or Fortune 500 firms, our sample includes 1,313 firm-years from S&P 500, 925 firm-years from S&P MidCap 400, and 1,201 firm-years from S&P SmallCap 600. Given that family firms are on average smaller, 46% of the firm-years are from family firms, a higher percentage than prior studies. Of the family firm group, 63% are family CEO firms and 37% are professional CEO family firms.

Panel B of Table 1 reports the summary statistics for the full sample and for each of the three types of firms. Family ownership is higher in family CEO firms than in professional CEO family firms (20.7% vs. 15.3%). Overall, 12.5% of the sample experiences CEO turnover. As expected, CEO turnover probability in non-family firms (12.9%) and family CEO firms (8.9%) is significantly lower than in professional CEO family firms (17.4%) (p -value < 0.01). For the full sample, the mean (median) CEO age is 55.4 (55) and the mean (median) CEO tenure is 8.1 (6) years. CEOs in professional CEO family firms are on average slightly younger than their counterparts in family CEO and non-family firms. Average CEO tenure for professional CEO family firms and non-family firms (4.3 and 6 years, respectively) is much shorter than for family CEO firms (14.3 years).

Panel B also reports firm characteristics and corporate governance variables. Stock performance, measured as annual market-adjusted stock returns, is insignificantly different across

the three types of firms – the median is similar and the mean is higher for family CEO firms due to some right-tail outliers.¹³ Non-family firms are on average larger than professional CEO family firms, which are larger than family CEO firms. On average, family CEO firms have the highest Tobin's Q, followed by professional CEO family firms and then by non-family firms. Also, family firms are less likely to use leverage and equity compensation than non-family firms. Non-family firms on average have better corporate governance than professional CEO family firms and family CEO firms (more independent boards, higher institutional ownership, higher outside blockholding, and fewer instances of dual class share structures), except for G-score, the ordering on which is opposite (i.e., family firms have fewer anti-takeover measures in place).¹⁴ The three types of firms are not statistically different from each other in other firm characteristics, such as industry competition and volatility.

4. Empirical Results

4.1 Tests of H1 and H2: CEO turnover-performance sensitivity

We use the following logit regression to test whether CEO turnover-performance sensitivity varies across firm types as predicted in H1 and H2:

$$\begin{aligned}
 Pr(CEO_turnover = 1) = & \alpha_0 + \alpha_1 Performance \\
 & + \alpha_{1a} Performance \times D_FamilyCEO \\
 & + \alpha_{1b} Performance \times D_NonFamily \\
 & + \alpha_2 D_FamilyCEO + \alpha_3 D_NonFamily \\
 & + \alpha_4 CEO_age + \alpha_5 CEO_tenure + \alpha_6 Size + \alpha_7 N_firm + \varepsilon,
 \end{aligned} \tag{1}$$

where:

- CEO_turnover* = 1 for firm-years with CEO turnover in the next year, and 0 otherwise;
- Performance* = annual market-adjusted stock returns;
- D_FamilyCEO* = 1 for family CEO firms, and 0 otherwise;
- D_NonFamily* = 1 for non-family firms, and 0 otherwise;

¹³ The negative means/medians of market-adjusted returns are caused by the inclusion in the market index of NASDAQ stocks, which experienced high stock returns during the sample period.

¹⁴ These statistics are consistent with non-family firms being more likely to use objective measures in their corporate governance structure, providing an indirect verification of our conjecture that non-family firms are more likely to adopt a CEO retirement policy.

CEO_age = CEO's age in years;
CEO_tenure = the number of years the CEO has been at the current position;
Size = firm size, measured as log transformation of total assets (in millions);
N_firm = the number of firms in the same industry (defined based on 3-digit SIC codes).

Firm and year subscripts are omitted for brevity. All independent variables are measured in the year before CEO turnover.

The parameters of interest are the interactions between the performance measure and the two dummy variables indicating family CEO firms (*D_FamilyCEO*) and non-family firms (*D_NonFamily*). The coefficient on the performance measure, α_1 , captures the CEO turnover-performance sensitivity for professional CEO family firms – the benchmark group in the turnover analysis. The coefficient on the interaction between the performance measure and *D_FamilyCEO*, α_{1a} , captures the incremental sensitivity for family CEO firms, and the coefficient on the interaction between the performance measure and *D_NonFamily*, α_{1b} , captures the incremental sensitivity for non-family firms. Since turnover-performance sensitivity is negative, H1 and H2 imply that both coefficients are positive. The net performance sensitivity for family CEO firms (non-family firms) is thus $\alpha_1 + \alpha_{1a}$ ($\alpha_1 + \alpha_{1b}$), and the difference between family CEO firms and non-family firms is $\alpha_{1a} - \alpha_{1b}$. We also include the two firm type dummy variables in the model to capture the difference in the CEO turnover probability independent of firm performance across firm types.

Following prior empirical research on CEO turnover (e.g., Denis et al. 1997a), we control for CEO age, CEO tenure, firm size, and industry competition. Older CEOs are more likely to leave the position due to health or other reasons. Prior research finds that after controlling for CEO age, CEO turnover probability decreases with CEO tenure, which likely reflects CEO's power accumulated over time in the CEO position. Prior research also finds that CEO turnover probability is lower for large firms than for small firms. Another important determinant of CEO turnover is industry competition. Both DeFond and Park (1999) and Parrino (1997) find a positive

relation between CEO turnover probability and industry competition. Following Dai (2005), we use the number of firms in the same 3-digit SIC industry to measure industry competition.¹⁵

Table 2 reports the regression results. We compute the marginal effect for each variable in order to assess the economic significance of our estimates. As in prior research, we calculate the change in implied CEO turnover probability when the variable of interest changes from its 25th to 75th percentile value if the variable is continuous or from 0 to 1 if it is a dummy variable, with all other explanatory variables remaining constant at their respective means.

Before discussing variables of interest, we would like to note that the results for all the control variables (except CEO tenure) are consistent with prior literature. CEO age has a strong positive impact on CEO turnover: the older a CEO gets, the more likely he is going to leave the firm. Firm size is negatively correlated with turnover probability: the smaller the firm is, the more likely the firm is to experience CEO turnover. Finally, industry competition has a positive effect on CEO turnover: the larger the competition (or the larger the pool of CEO candidates), the more likely the CEO turnover is going to occur.

As reported in the table, the turnover-performance sensitivity is significantly negative for professional CEO family firms, and consistent with our predictions in H1 and H2, the incremental sensitivity is positive, i.e., CEO turnover is less sensitive to performance, for both family CEO firms and non-family firms. Both incremental effects are significant at the 0.01 level. The increase in CEO turnover probability when stock returns decrease from its 75th to 25th percentile value is 13.7% for professional CEO family firms, but it is 13.6% lower for family CEO firms and 10.1% lower for non-family firms. These magnitudes are economically significant, given that the sample average CEO turnover probability is about 13% and that the implied change in CEO turnover probability for age, which has been regarded as the most important explanatory variable for CEO turnover, is 9.6%.

¹⁵ Another commonly used proxy for industry competition is Herfindahl index. In our sample, Herfindahl index is highly correlated with the number of firms in the same industry: the correlation coefficient is -0.66. Including Herfindahl index as an additional control does not affect results on other variables.

The bottom of Table 2 reports the net turnover-performance sensitivity for family CEO firms and for non-family firms. While the marginal effect of performance is as high as 13.7% for professional CEO family firms, it is only 3.6% (statistically significant) for non-family firms and it is indistinguishable from zero (both statistically and economically) for family CEO firms. Apparently, the CEO succession decision in family CEO firms is insensitive to firm performance. Furthermore, compared with non-family firms, family CEO firms have significantly lower turnover-performance sensitivity. This indicates that over the CEO turnover decision, Type II agency problem in family CEO firms is greater than Type I agency problem in non-family firms.

To investigate whether our results are robust, we conduct the following sensitivity tests. First, since family firms differ from non-family firms in corporate governance, we test whether the difference in corporate governance drives our results. To this end, we add the following control variables that could potentially affect CEO turnover decision: board independence (Weisbach 1988), institutional ownership, the existence of blockholders other than the founding family (Holderness 2003), G-score, and dual class structure (Gompers, Ishii, and Metrick 2003; Gompers, Ishii, and Metrick 2004). The measurement of these variables follows prior studies. The results are reported in column (1) of Table 3. Three out of the five corporate governance variables (board independence, institutional ownership, and G-score) are statistically significant in predicted directions: firms with stronger corporate governance have higher CEO turnover probability. Interestingly, the existence of outside blockholders does not increase CEO turnover probability. Additional analyses, not tabulated for the sake of brevity, indicate that the existence of outside blockholders does not increase turnover-performance sensitivity either. Last and more importantly, our estimates of turnover-performance sensitivities for the three types of firms are similar to those reported in Table 2 when these controls are excluded. That is, the variation in corporate governance across firm types does not drive our results.¹⁶

¹⁶ In untabulated tests, we also add to the regression the interaction of performance and corporate governance variables. The coefficients on our variables of interest remain similar.

Second, to investigate whether our results are robust to alternative performance measures, we use the following two alternative measures: average market-adjusted stock returns in the past three years (column (2)) and volatility-adjusted stock returns (column (3)). These two measures capture the persistence of poor performance and control for noise in stock returns. If a CEO happens to have a poor performance in a year due to bad luck, the board might not consider replacing him with a new CEO. However, persistent poor performance is more likely to prompt the board to take action. Following Dai (2005), we control for return volatility in column (3) when using the volatility-adjusted stock return measure.

As reported in column (2), the results on turnover-performance sensitivities remain similar when average return in the past three years is used. The sensitivity is significantly negative in professional CEO family firms and it becomes significantly weaker (i.e., more positive) in family CEO firms and non-family firms. In column (3), the results remain qualitatively similar (note that the magnitudes of the coefficients are not comparable with other specifications due to the use of volatility-adjusted stock returns). Thus, our inferences are robust to these alternative performance measures.

Lastly, we examine whether the level of family ownership in family firms have any additional impact on the CEO turnover-performance sensitivity. Given that the increase in Type II agency problem in family CEO firms and the alleviation of Type I agency problem in professional CEO family firms result from the founding family presence, we expect that the effect of the family presence is stronger when the level of family ownership is higher. To test whether this is the case, we partition family firms into high family ownership and low family ownership using 25% as the cutoff. As expected, in family CEO firms, high family ownership weakens the CEO turnover-performance sensitivity; whereas in professional CEO family firms, high family ownership strengthens the turnover-performance sensitivity. These results reinforce the inferences from the main analyses: family ownership, when separated from management, leads to effective monitoring of CEOs, but when combined with management, leads to Type II agency problem.

Overall, the empirical tests provide strong support to our first set of hypotheses (H1 and H2) that both family CEO firms and non-family firms suffer severe agency problems so that they have lower turnover-performance sensitivity than professional CEO family firms. The differences in sensitivities are both statistically and economically significant.¹⁷

4.2 Tests of H3 and H4: CEO turnover-age sensitivity

We use the following regression to test whether the CEO turnover-age sensitivity varies with firm types as predicted in H3 and H4:

$$\begin{aligned}
 Pr(CEO_turnover = 1) = & \alpha_0 + \alpha_1 Performance \\
 & + \alpha_{1a} Performance \times D_FamilyCEO + \alpha_{1b} Performance \times D_NonFamily \\
 & + \alpha_2 D_FamilyCEO + \alpha_3 D_NonFamily + \alpha_4 CEO_age \\
 & + \alpha_{4a} CEO_age \times D_FamilyCEO + \alpha_{4b} CEO_age \times D_NonFamily \\
 & + \alpha_5 CEO_tenure + \alpha_6 Size + \alpha_7 N_firm + \varepsilon,
 \end{aligned} \tag{2}$$

As in the CEO turnover-performance sensitivity regression, we interact CEO age with the two firm type dummy variables. The coefficient on CEO age, α_4 , captures the CEO turnover-age sensitivity for professional CEO family firms. The coefficient on the interaction between CEO age and $D_FamilyCEO$, α_{4a} , captures the incremental sensitivity for family CEO firms, and the coefficient on the interaction between CEO age and $D_NonFamily$, α_{4b} , captures the incremental sensitivity for non-family firms. H3 predicts α_{4a} to be negative and H4 implies that α_{4b} can be either positive or negative. The CEO turnover-age sensitivity for family CEO firms (for non-family firms) is thus $\alpha_4 + \alpha_{4a}$ ($\alpha_4 + \alpha_{4b}$), and the difference between family CEO firms and non-family firms is $\alpha_{4a} - \alpha_{4b}$.

Table 4 reports the regression results. In column (1), we exclude the interactions between firm type dummies and performance and focus on CEO turnover-age sensitivity. As expected,

¹⁷ We also identify and examine forced CEO turnover in a sensitivity test. We find that the probability of forced CEO turnover is the highest in professional CEO family firms, followed by non-family firms and then by family CEO firms. However, the number of forced CEO turnover for family CEO firms in our sample is so small that our estimation of the logit regression (1) fails to converge. Due to this limitation and the inherent subjectivity in classifying forced CEO turnover, we choose not to report the results.

relative to professional CEO family firms, family CEO firms have lower turnover-age sensitivity, consistent with Type II agency problem in family CEO firms and the performance insensitiveness evidence for family CEO firms documented in the last section. In contrast, the incremental sensitivity of non-family firms over professional CEO family firms is positive, suggesting that the turnover-age sensitivity is higher for non-family firms. While this result appears to be at odds with the results on turnover-performance sensitivity, it does not imply that the agency problem is less severe in non-family firms. Rather, it is consistent with non-family firms relying more on retirement policy to mitigate agency problems *ex ante*.

If non-family firms are more likely to use retirement policy to replace CEOs, we should observe that a higher proportion of replaced CEOs are at the retirement age in non-family firms than in family firms. Since retirement age is unobservable and can vary across firms, we focus on typical retirement ages – 64/65 (Murphy and Zimmerman 1993). In an untabulated analysis, we compare the proportion of replaced CEOs who are 64 or 65 in the turnover year across the three types of firms. Of the 242 CEOs replaced in non-family firms, 51 were 64 or 65, a proportion of 21.1%. In contrast, of the 104 CEOs replaced in professional CEO family firms, 15 were 64 or 65, a proportion of 14.4%. The proportion is even lower in family CEO firms: only 6.7% of the 89 replaced CEOs were 64 or 65. The differences across firm types are significant at the 0.01 level based on Chi-square tests. This is consistent with our argument that non-family firms are more likely to resort to retirement policy to replace CEOs than family firms.

Column (2) presents tests of both turnover-performance sensitivity and turnover-age sensitivity in the same model. The results are similar to those when they are tested separately, suggesting that agency problems manifest themselves through both turnover-performance and turnover-age sensitivities.

As in Table 2, we report the implied change in CEO turnover probability for each variable, based on results in column (2). The increase in implied CEO turnover probability due to the change in CEO age from its 25th to 75th percentile value is 16.1% for professional CEO family

firms, is 4.1% higher for non-family firms, but is 12.5% lower for family CEO firms. These changes in CEO turnover probability are apparently economically significant.

To summarize, tests of turnover-age sensitivity provide additional support for our predictions relating the two types of agency problems faced by different types of firms to the CEO turnover decision. Type II agency problem in family CEO firms leads to low turnover-age sensitivity and weak turnover-performance sensitivity. At the same time, compared to professional CEO family firms, Type I agency problem in non-family firms leads to lower turnover-performance sensitivity ex post, but higher turnover-age sensitivity, due to their more frequent use of retirement policy to mitigate agency problems ex ante.

4.3 Tests of H5 and H6: firm valuation

In this section, we first test our hypotheses H5 and H6 by estimating the differences in firm value across the three types of firms during the poor performance period. To contrast our findings with prior literature, we then examine the overall family firm premium (over non-family firms) as well as the founder CEO premium and the descendant CEO discount. For each of the analyses, we also extend the analysis to other periods (i.e., periods other than the poor performance period). Note that this design is in contrast to prior studies (Anderson and Reeb 2003; Villalonga and Amit 2004), which only focus on cross-sectional partition (family firms vs. non-family firms, or founder CEOs vs. descendant CEOs vs. non-family firms).

Following Morck et al. (1988), Anderson and Reeb (2003), and Villalonga and Amit (2004), we use Tobin's Q as proxy for firm value and regress Tobin's Q at the end of the year on firm type dummies, control variables, and industry and year indicators as follows:

$$\begin{aligned} \text{Tobin's } Q = & \alpha_0 + \alpha_1 D_{\text{FamilyCEO}} + \alpha_2 D_{\text{NonFamily}} \\ & + \beta \text{ControlVariables} + \gamma \text{Industry Dummies} + \delta \text{Year Dummies} + \varepsilon \end{aligned} \quad (3)$$

Tobin's Q is measured as the ratio of a firm's market value of assets to its book value of assets.

The choice and measurement of control variables (i.e., firm size, growth, return volatility,

leverage, board independence, blockholding, and CEO equity compensation) are the same as in prior research to facilitate comparisons. H5 and H6 imply that $\alpha_1 < 0$ and $\alpha_2 < 0$, respectively, during the poor performance period. In our empirical tests, the poor performance period refers to those firm-years when the market-adjusted return falls in the bottom quartile of the sample distribution.¹⁸ Note that β , γ , and δ are vectors.

Table 5, Panel A presents the empirical results. Column (1) reports the results for the poor performance period. As predicted in H5 and H6, we find that professional CEO family firms are valued at a premium over both family CEO firms and non-family firms after the firm has performed poorly. Relative to professional CEO family firms, Tobin's Q is 0.252 lower for family CEO firms and 0.171 lower for non-family firms. Both differences are statistically significant, with p-value of 0.004 and 0.035, respectively. The bottom of Panel A also compares the value of family CEO firms and that of non-family firms and the result indicates that the difference between the two types of firms is insignificantly different from zero.

These results are consistent with our hypotheses and the CEO turnover results reported above. Relative to a professional CEO family firm, replacing a poorly performing CEO is more difficult in a family CEO firm due to its severe Type II agency problem or in a non-family firm due to its severe Type I agency problem. Expecting these, the stock market assigns these two types of firms lower value than professional CEO family firms after the firm has performed poorly.

Column (2) reports the results for other periods, i.e., periods with average or above-average performance. The empirical findings show that family CEO firms actually outperform both non-family firms and professional CEO family firms during these periods. This out-performance is likely attributable to founder CEO expertise and/or the alleviation of Type I agency problem, as suggested in prior research (Fahlenbrach 2005; Villalonga and Amit 2004).

¹⁸ The inferences are the same when we use alternative cutoff points (e.g., the bottom 20% or 30% of the sample distribution).

Results for the full sample, in column (3), are basically weighted averages of the results in the previous two columns.

Does the disappearance of valuation premium shown above for family CEO firms (relative to non-family firms) during the poor performance period contradict the well-established family firm premium and founder CEO premium? To reconcile our results with prior studies and to highlight the importance of conditioning valuation analyses on past firm performance, we adopt the design in prior studies and estimate the following two regressions:

$$\begin{aligned} \text{Tobin's } Q = \alpha_0 + \alpha_1 D_FamilyFirm \\ + \beta \text{ControlVariables} + \gamma \text{IndustryDummies} + \delta \text{YearDummies} + \varepsilon \end{aligned} \quad (4)$$

$$\begin{aligned} \text{Tobin's } Q = \alpha_0 + \alpha_1 D_FounderCEO + \alpha_2 D_DescendantCEO + \alpha_3 D_ProfessionalCEO \\ + \beta \text{ControlVariables} + \gamma \text{IndustryDummies} + \delta \text{YearDummies} + \varepsilon \end{aligned} \quad (5)$$

We now use non-family firms as the benchmark group and investigate the average family firm premium (including both family CEO firms and professional CEO family firms) in the first specification and the premium/discount of each type of family firms – founder CEO, descendant CEO, and professional CEO family firms – in the second specification. The regression results are reported in Panel B and Panel C of Table 5, respectively. The results for the control variables are similar to Panel A and are therefore omitted for brevity. Because Panel A already compares professional CEO family firms with non-family firms, the following discussion focuses first on family firms as a group, then on founder CEO firms and descendant CEO firms.

Consistent with prior literature, Panel B, column (3) reports that family firms on average command higher value than non-family firms; Tobin's Q is 0.202 higher. However, when we separate the poor performance period from other periods, we find that family firm premium disappears for the poor performance period. This is apparently driven by family CEO firms, not by professional CEO family firms, because as shown in Panel A (as well as in Panel C), professional CEO family firms enjoy a premium over non-family firms in such period. On the

other hand, family firm premium is significant in other periods; Tobin's Q is 0.263 higher than non-family firms.

Consistent with Villilonga and Amit (2004), Panel C, column (3) shows that on average founder CEOs are associated with a significant premium (0.321) and descendant CEOs are associated with a significant discount (-0.243). When we partition the full sample into the two periods, we find that during the poor performance period, founder premium disappears and descendant CEOs are associated with a significant discount. In contrast, during other periods, founder CEOs enjoy premium, and descendant CEOs are associated with an insignificant discount.

In sum, while we confirm the well-established family firm premium (including founder CEO premium and descendant CEO discount) for the full sample, we show that the premium disappears and the discount increases when the agency problems in family CEO firms are severe. Specifically, during the poor performance period when agency problems over the CEO retention decision are likely to be severe, family firms no longer command value premium (over non-family firms). Furthermore, among family firms, founder CEOs no longer enjoy premium, descendant CEOs are associated with a large discount, and only professional CEO family firms have a valuation premium, consistent with the former two types of family firms being subject to severe agency problems and the latter being subject to less agency problems during such period.

5. Conclusion

Agency problems over the CEO retention decision are likely to be severe when a CEO has performed poorly. Such agency problems can reduce the CEO turnover-performance sensitivity, turnover-age sensitivity, and ultimately firm value. In this paper, we examine how the CEO turnover-performance sensitivity and the turnover-CEO age sensitivity vary across three types of firms – family CEO firms, professional CEO family firms, and non-family firms – in order to shed light on the impact of the founding family presence on the severity of agency problems.

Furthermore, we investigate how the agency problems manifested over the CEO turnover decision affect firm value during the poor performance period.

In a family CEO firm, because the founding family both owns and manages the firm, there is moderate Type I agency problem, but Type II agency problem can be severe. In contrast, as management and ownership are separated in non-family firms and professional CEO family firms, their Type I agency problem can be severe though their Type II agency problem is moderate. In addition, compared to their counterparts in non-family firms, CEOs in professional CEO family firms are subject to the monitoring by the founding family, and hence Type I agency problem in professional CEO family firms can be effectively mitigated. Accordingly, we hypothesize that the CEO turnover-performance sensitivity is lower in family CEO firms and non-family firms than in professional CEO family firms. The empirical results are consistent with our predictions and our analyses of the CEO turnover-age sensitivity provide collaborative evidence.

The valuation analyses indicate that agency problems over the CEO retention decision lead to lower firm value. During the poor performance period, professional CEO family firms, which are subject to less agency problems, are valued at a premium over both family CEO firms and non-family firms.

In addition, relative to non-family firms, family firms as a whole do not enjoy valuation premium in the poor performance period. Founder CEOs are associated with no valuation premium, descendant CEOs are associated with a significant valuation discount, and only professional CEO family firms enjoy a valuation premium. These results are in sharp contrast to the family firm valuation premium documented in prior studies. We find that the finding in prior studies is driven by other periods, when agency problems in family CEO firms are not as great as during the poor performance period.

Overall, our analyses indicate that in the CEO turnover setting, the presence of founding family has a significant impact on the agency problems. While it reduces the agency problems

between shareholders and managers when the family does not serve as the CEO, i.e., in the case of professional CEO family firms, it aggravates agency problem between small and large shareholders when a family member serves as the CEO. Such impact systematically affects CEO turnover-performance sensitivity and firm value after poor performance.

References

- Ali, Ashiq, Tai-Yuan Chen, and Suresh Radhakrishnan, 2005, Corporate disclosures by family firms, University of Texas at Dallas working paper.
- Anderson, Ronald, and David Reeb, 2003, Founding-family ownership and firm performance: evidence from the S&P 500, *Journal of Finance* 58, 1301-1328.
- Anderson, Ronald, Sattar Mansi, and David Reeb, 2003, Founding-family ownership and the agency cost of debt, *Journal of Financial Economics* 68, 263-285.
- Bebchuk, Lucian, and Mark Roe, 1999, A theory of path dependence in corporate governance and ownership, *Stanford Law Review* 52, 127-170.
- Brickley, James, 2003, Empirical research on CEO turnover and firm-performance: a discussion, *Journal of Accounting and Economics* 36, 227-233.
- Chen, Tai-Yuan, 2005, CEO compensation contract of family firms, University of Texas at Dallas working paper.
- Coughlan, Anne, and Ronald Schmidt, 1985, Executive compensation, management turnover, and firm performance: an empirical investigation, *Journal of Accounting and Economics* 7, 43-66.
- Dai, Zhonglan, 2005, What matters more for CEO turnover: performance or risk? Unpublished Dissertation, University of North Carolina at Chapel Hill.
- DeFond, Mark, and Chul Park, 1999, The effect of competition on CEO turnover, *Journal of Accounting and Economics* 27, 35-56.
- Denis, David, and Diana Denis, 1995, Performance changes following top management dismissals, *Journal of Finance* 50, 1029-1058.
- Denis, David, Diana Denis, and Atulya Sarin, 1997a, Ownership structure and top executive turnover, *Journal of Financial Economics* 45, 194-221.
- Denis, David, Diana Denis, and Atulya Sarin, 1997b, Agency problems, equity ownership, and corporate diversification, *Journal of Finance* 52, 135-160.
- Faccio, Mara, Larry Lang, and Leslie Young, 2001, Dividends and expropriation, *American Economic Review* 91(1): 54-78.
- Fahlenbrach, Rudiger, 2005, Founder-CEOs and Stock Market Performance, Ohio State University working paper.
- Gilson, Ronald, and Jeffrey Gordon, 2003, Controlling shareholders, Stanford University working paper.
- Gompers, Paul, Joy Ishii, and Andrew Metrick, 2003, Corporate governance and equity prices, *Quarterly Journal of Economics*, 107-155.
- Gompers, Paul, Joy Ishii, and Andrew Metrick, 2004, Incentive vs. control: an analysis of U.S. dual-class companies, Unpublished NBER working paper 10240.
- Heitzman, Shane, 2006, Equity grants to target CEOs prior to acquisitions, University of Arizona working paper.
- Holderiness, Clifford, 2003, A survey of blockholders and corporate control, *FRBNY Economic Policy Review*, 51-64.

- Huson, Mark, Paul Malatesta, and Robert Parrino, 2004, Managerial succession and firm performance, *Journal of Financial Economics* 74, 237-275.
- Jensen, Michael, and William Meckling, 1976, Theory of the firm: managerial behavior, agency costs and ownership structure, *Journal of Financial Economics* 3, 305-360.
- La Porta, Rafael, Florencio Lopez-De-Silanes, and Andrei Shleifer, 1999, Corporate ownership around the world, *Journal of Finance* 52, 471-518.
- Morck, Randall, Andrei Shleifer, and Robert Vishny, 1988, Management ownership and market valuation: an empirical analysis, *Journal of Financial Economics* 20, 293-315.
- Murphy, Kevin, and Jerry Zimmerman, 1993, Financial performance surrounding CEO turnover, *Journal of Accounting and Economics* 16, 273-315.
- Murray, Alan, 2005, For CEOs, policy forcing retirement at 65 is outdated, *The Wall Street Journal Online*, April 5.
- Parrino, Robert, 1997, CEO turnover and outside succession: a cross-sectional analysis, *Journal of Financial Economics* 46, 165-197.
- Shleifer, Andrei, and Robert Vishny, 1986, Large shareholders and corporate control, *Journal of Political Economy* 94, 461-488.
- Shleifer, Andrei, and Robert Vishny, 1997, A survey of corporate governance, *Journal of Finance* 52, 737-783.
- Villalonga, Belen, and Raphael Amit, 2004, How do family ownership, control and management affect firm value? *Journal of Financial Economics*, forthcoming.
- Wang, Dechun, 2005, Founding family ownership and earnings quality, *Journal of Accounting Research*, forthcoming.
- Warner, Jerold, Ross Watts, and Karen Wruck, 1988, Stock prices and top management changes, *Journal of Financial Economics* 20 (1-2): 461-492.
- Weisbach, M, 1988, Outside directors and CEO turnover, *Journal of Financial Economics* 20, 431-460.

Appendix Agency problems and predictions

This appendix summarizes the agency problems faced by each type of firms over the CEO turnover decision and the implications for CEO turnover-performance sensitivity, turnover-age sensitivity, and firm value after poor performance.

	Type I agency problem	Type II agency problem	<i>Turnover- performance sensitivity</i>	<i>Turnover-age sensitivity</i>	<i>Firm value (after poor performance)</i>
Family CEO firms	Moderate	Severe	<i>Low</i>	<i>Low</i>	<i>Low</i>
Professional CEO family firms	Moderate ¹	Moderate ^{2,3}	<i>High</i>	<i>High</i>	<i>High</i>
Non-family firms	Severe	Moderate ³	<i>Low</i>	<i>Low/High</i> ⁴	<i>Low</i>

Notes:

1. Type I agency problem is effectively alleviated in professional CEO family firms since the founding family can better monitor the CEO with better business knowledge and stronger incentives than other shareholders.
2. A professional CEO is not part of the founding family and will not be protected from poor performance.
3. In our sample, only 2.8% of professional CEOs in professional CEO family firms and non-family firms hold 5% or more of company stocks. Hence Type II agency problem in such firms is likely moderate.
4. If non-family firms use retirement policy more frequently to mitigate Type I agency problem ex ante, CEO turnover-age sensitivity in non-family firms is higher.

Table 1 Sample composition and descriptive statistics

This table reports the composition and characteristics of our sample, which consists of 3,472 firm-years from 1,113 firms in the S&P 1500 index (S&P 500, S&P MidCap 400, and S&P Small-Cap 600 indices) covering the period 1997-2000.

Panel A Sample composition

	Number of observations	Percent of the full sample
Total	3,472	100%
<i>Composition by S&P index*</i>		
S&P 500	1,313	38%
S&P MidCap 400	925	27%
S&P SmallCap 600	1,201	35%
<i>Composition by firm type</i>		
Family firms	1,601	46%
Family CEOs	1,002	29%
Professional CEOs	599	17%
Non-family firms	1,871	54%

* 33 firm-years have missing value in the index classification in Compustat.

Panel B Descriptive statistics

This panel reports the descriptive statistics of CEO and firm characteristics for the full sample and for each type of firms.

	Full sample (N=3,472)		Family CEO firms (N=1,002)		Professional CEO family firms (N=599)		Non-family firms (N=1,871)	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Family ownership (%)	8.60	0	20.68	13.10	15.26	8.00	0	0
<i>CEO information</i>								
CEO_turnover	0.125	0	0.089	0	0.174	0	0.129	0
CEO_age	55.4	55	55.8	56	54.5	55	55.4	56
CEO_tenure	8.1	6	14.3	13	4.3	3	6.0	5
<i>Firm characteristics</i>								
Stock performance	-0.035	-0.103	0.013	-0.103	-0.047	-0.106	-0.058	-0.104
Size (\$ million)	10,002	1,472	2,840	732	5,940	1,278	15,138	2,514
N_firm	166	56	180	55	159	42	160	64
Tobin's Q	2.469	1.769	2.810	1.889	2.615	1.839	2.306	1.708
Growth	0.046	0.005	0.065	0.000	0.026	0.000	0.042	0.008
Return volatility	0.107	0.097	0.120	0.114	0.099	0.089	0.103	0.093
Leverage	0.184	0.170	0.154	0.098	0.180	0.161	0.197	0.186
CEO equity comp. (%)	40.04	40.75	33.62	28.75	34.90	31.43	43.41	44.33
<i>Corporate governance variables</i>								
Board independence	0.612	0.625	0.509	0.500	0.560	0.583	0.684	0.706
Inst. ownership (%)	58.22	59.37	54.47	53.80	55.44	56.36	61.14	63.09
Blockholding (%)	14.82	12.80	13.17	11.45	13.62	10.40	16.09	14.46
G-score	9.242	9.000	8.179	8.000	9.340	9.000	9.693	10.000
Dual class	0.057	0.000	0.123	0.000	0.073	0.000	0.016	0.000

The variables are measured one year before CEO turnover and are defined as follows:

- Family ownership* = percentage of shares held by the founding family;
- CEO_turnover* = 1 for firm-years with CEO turnover in the next year, and 0 otherwise;
- CEO_age* = CEO's age in years;
- CEO_tenure* = the number of years the CEO has been CEO;
- Stock performance* = annual market-adjusted stock returns;
- Size* = firm size, measured as total assets (in millions);
- N_firm* = the number of firms in the same industry (defined based on 3-digit SIC codes);
- Tobin's Q* = the ratio of a firm's market value of assets to its book value of assets at year-end;
- Growth* = R&D/total assets;
- Return volatility* = the standard deviation of monthly market-adjusted stock returns;
- Leverage* = long-term debt/total assets;
- CEO equity comp.* = the value of annual stock and option grants divided by total CEO annual pay;
- Board independence* = the proportion of independent directors sitting on the board of directors;
- Inst. ownership* = percentage of outstanding shares held by institutional investors;
- Blockholding* = percentage of outstanding shares held by blockholders other than the founding family;
- G-score* = count of anti-takeover measures developed by Gompers, Ishii, and Metrick (2003);
- Dual class* = 1 if the company has dual class share structure, and 0 otherwise.

Table 2 Tests of H1 and H2: CEO turnover – performance sensitivity

This table reports results from the following regression:

$$\begin{aligned}
 Pr(CEO_turnover = 1) = & \alpha_0 + \alpha_1 Performance \\
 & + \alpha_{1a} Performance \times D_FamilyCEO \\
 & + \alpha_{1b} Performance \times D_NonFamily \\
 & + \alpha_2 D_FamilyCEO + \alpha_3 D_NonFamily \\
 & + \alpha_4 CEO_age + \alpha_5 CEO_tenure + \alpha_6 Size + \alpha_7 N_firm + \varepsilon,
 \end{aligned}
 \tag{1}$$

The sample includes 3,472 firm-years in the period 1997-2000. The p-values (in the parentheses) are based on one-sided tests for directional predictions and on two-sided tests otherwise. The last column reports the implied change in probability of CEO turnover due to a change in the corresponding variable.

	Predicted signs	Coefficient (p-value)	Marginal effect *
Intercept	?	-15.82 (0.001)	
Performance	-	-2.99 (0.001)	-0.137
Performance×D_FamilyCEO	+	2.77 (0.001)	0.136
Performance×D_NonFamily	+	1.38 (0.013)	0.101
D_FamilyCEO	-	-2.94 (0.001)	-0.107
D_NonFamily	-	-0.73 (0.001)	-0.058
CEO_age	+	0.25 (0.001)	0.096
CEO_tenure	-	0.01 (0.793)	0.003
Size	-	-0.16 (0.001)	-0.012
N_firm	+	0.19 (0.001)	0.014
Likelihood ratio (p-value)		560.5 (0.001)	
<i>Additional tests</i>			
Turnover-performance sensitivity for family CEO firms ($\alpha_1 + \alpha_{1a}$)		-0.22 (0.632)	-0.001
Turnover-performance sensitivity for non-family firms ($\alpha_1 + \alpha_{1b}$)		-1.61 (0.001)	-0.036
Difference in sensitivity between family CEO and non-family firms ($\alpha_{1a} - \alpha_{1b}$)		1.39 (0.007)	0.035

The variables are defined as follows:

- CEO_turnover* = 1 for firm-years with CEO turnover in the next year, and 0 otherwise;
- Performance* = annual market-adjusted stock returns;
- D_FamilyCEO* = 1 for family firms with a member from the founding family as the CEO, and 0 otherwise;
- D_NonFamily* = 1 for non-family firms, and 0 otherwise;
- CEO_age* = CEO's age in years;
- CEO_tenure* = the number of years the CEO has been CEO;
- Size* = firm size, measured as log transformation of total assets (in millions);
- N_firm* = the number of firms in the same industry (defined based on 3-digit SIC codes).

All explanatory variables are measured in the year before CEO turnover is measured.

* Implied change in probability of CEO turnover is calculated as follows:

- For *Performance*, it is calculated as the change in CEO turnover probability for professional CEO family firms, due to a change in performance from its 25th to its 75th percentile value, with the control variables taking their respective means. For *Performance* × *D_FamilyCEO* (*Performance* × *D_NonFamily*), it is calculated as the difference in the implied change in CEO turnover probability due to the change in performance between family CEO firms (non-family firms) and professional CEO family firms.
- For *D_FamilyCEO* (*D_NonFamily*), it is calculated as the difference in CEO turnover probability between family CEO firms (non-family firms) and professional CEO family firms, with *Performance* and control variables taking their respective means.
- For control variables (*CEO_age*, *CEO_tenure*, *Size*, *N_firm*), it is calculated as the change in CEO turnover probability when the given variable changes from its 25th to its 75th percentile value, with all other independent variables taking their respective means.

Table 3 CEO turnover – performance sensitivity: Robustness check

This table reports three sensitivity tests of the CEO turnover-performance sensitivity with additional controls (column (1)) or using different performance measures (columns (2) and (3)). Performance is measured as market-adjusted stock returns in the last year in column (1), the average market-adjusted stock returns in the last three years in column (2), and market-adjusted stock returns in the last year, deflated by the volatility of monthly market-adjusted returns, in column (3). The sample includes 3,472 firm-years (2,948 firm-years in column (1)) in the period 1997-2000. The p-values (in the parentheses) are based on one-sided tests for directional predictions and on two-sided tests otherwise.

	Predicted Signs	(1) Governance measures	(2) 3-year average returns	(3) Risk-adj. returns
Intercept	?	-15.34 (0.001)	-16.05 (0.001)	-19.17 (0.001)
Performance	-	-2.90 (0.001)	-4.93 (0.001)	-0.20 (0.001)
Performance ×D_FamilyCEO	+	3.58 (0.001)	4.19 (0.003)	0.20 (0.002)
Performance ×D_NonFamily	+	1.53 (0.008)	1.95 (0.056)	0.11 (0.035)
D_FamilyCEO	-	-3.47 (0.001)	-2.85 (0.001)	-3.23 (0.001)
D_NonFamily	-	-0.86 (0.001)	-0.72 (0.003)	-0.77 (0.001)
CEO_age	+	0.25 (0.001)	0.25 (0.001)	0.27 (0.001)
CEO_tenure	-	0.03 (0.992)	0.01 (0.224)	0.00 (0.852)
Size	-	-0.17 (0.001)	-0.13 (0.003)	-0.02 (0.645)
N_firm	+	0.16 (0.002)	0.19 (0.001)	0.09 (0.074)
D_Board indep.	+	0.38 (0.040)		
Inst. Ownership	+	0.01 (0.009)		
D_Blockholder	+	-0.11 (0.732)		
G-score	-	-0.15 (0.001)		
Dual class	-	-0.00 (0.497)		
Return volatility	+			17.72 (0.001)
Likelihood ratio (p-value)		477.5 (0.001)	567.6 (0.0001)	600.4 (0.0001)
<i>Additional tests</i>				
Turnover-performance sensitivity for family CEO firms ($\alpha_1 + \alpha_{1a}$)		0.68 (0.273)	-0.74 (0.310)	0.00 (0.993)
Turnover-performance sensitivity for non-family firms ($\alpha_1 + \alpha_{1b}$)		-1.37 (0.001)	-2.98 (0.001)	-0.09 (0.001)
Difference in sensitivity between family CEO and non-family firms ($\alpha_{1a} - \alpha_{1b}$)		2.05 (0.001)	2.24 (0.012)	0.09 (0.102)

The variables are defined as follows:

- D_Board indep.* = 1 if independent board members make up of 60% of the board, and 0 otherwise;
- Inst. ownership* = percentage of outstanding shares held by institutional investors;
- D_Blockholder* = 1 if there is at least one blockholder other than the founding family;
- G-score* = count of anti-takeover measures developed by Gompers, Ishii, and Metrick (2003);
- Dual class* = 1 if the company has dual class share structure, and 0 otherwise;
- Return volatility* = the standard deviation of monthly market-adjusted stock returns.

See the notes to Table 2 for measurement of other variables. All explanatory variables are measured in the year before CEO turnover is measured.

Table 4 Tests of H3 and H4: CEO turnover-age sensitivity

This table reports results from the following regression:

$$Pr(CEO_turnover = 1) = \alpha_0 + \alpha_1 Performance + \alpha_{1a} Performance \times D_FamilyCEO + \alpha_{1b} Performance \times D_NonFamily + \alpha_2 D_FamilyCEO + \alpha_3 D_NonFamily + \alpha_4 CEO_age + \alpha_{4a} CEO_age \times D_FamilyCEO + \alpha_{4b} CEO_age \times D_NonFamily + \alpha_5 CEO_tenure + \alpha_6 Size + \alpha_7 N_firm + \varepsilon, \quad (2)$$

The sample includes 3,472 firm-years in the period 1997-2000. The p-values (in the parentheses) are based on one-sided tests for directional predictions and on two-sided tests otherwise. See the notes to Table 2 for variable measurement.

	Predicted signs	(1)	(2)	Marginal effect *
Intercept	?	-12.76 (0.001)	-13.89 (0.001)	
Performance	-	-1.53 (0.001)	-2.63 (0.001)	-0.135
Performance × D_FamilyCEO	+		2.25 (0.001)	0.133
Performance × D_NonFamily	+		0.94 (0.068)	0.108
D_FamilyCEO	-	0.94 (0.681)	1.51 (0.759)	0.018
D_NonFamily	-	-10.40 (0.001)	-8.46 (0.001)	-0.095
CEO_age	+	0.20 (0.001)	0.22 (0.001)	0.161
CEO_age × D_FamilyCEO	-	-0.06 (0.033)	-0.07 (0.029)	-0.125
CEO_age × D_NonFamily	?	0.16 (0.001)	0.13 (0.001)	0.041
CEO_tenure	-	0.01 (0.855)	0.01 (0.892)	0.004
Size	-	-0.15 (0.001)	-0.14 (0.001)	-0.011
N_firm	+	0.20 (0.001)	0.1805 (0.001)	0.015
Likelihood ratio (p-value)		579.6 (0.001)	585.1 (0.001)	
<i>Additional tests</i>				
Turnover-age sensitivity for family CEO firms ($\alpha_4 + \alpha_{4a}$)		0.14 (0.001)	0.15 (0.001)	0.036
Turnover-age sensitivity for non-family firms ($\alpha_4 + \alpha_{4b}$)		0.36 (0.001)	0.35 (0.001)	0.202
Difference in sensitivity between family CEO and non-family firms ($\alpha_{4a} - \alpha_{4b}$)		-0.22 (0.001)	-0.20 (0.001)	-0.166

- * Implied change in probability of CEO turnover based on results in column (2) is calculated as follows:
- For *Performance*, it is calculated as the change in CEO turnover probability for professional CEO family firms, due to a change in stock returns from its 25th to its 75th percentile value, with *CEO_age* and the control variables taking their respective means. For *Performance × D_FamilyCEO* (*Performance × D_NonFamily*), it is calculated as the difference in the implied change in CEO turnover probability due to the change in performance between family CEO firms (non-family firms) and professional CEO family firms.
 - For *CEO_age*, it is calculated as the change in CEO turnover probability for professional CEO family firms, due to a change in CEO age from its 25th to its 75th percentile value, with *Performance* and the control variables taking their respective means. For *CEO_age × D_FamilyCEO* (*CEO_age × D_NonFamily*), it is calculated as the difference in the implied change in CEO turnover probability due to the change in CEO age between family CEO firms (non-family firms) and professional CEO family firms.
 - For *D_FamilyCEO* (*D_NonFamily*), it is calculated as the difference in CEO turnover probability between family CEO firms (non-family firms) and professional CEO family firms, assuming *Performance*, *CEO_age*, and control variables taking their respective means.
 - For control variables (*CEO_tenure*, *Size*, *N_firm*), it is calculated as the change in CEO turnover probability when the given variable changes from its 25th to its 75th percentile value, with all other independent variables taking their respective means.

Table 5 Tests of H5 and H6: firm valuation

This table reports the difference in firm value across firm types. Panel A tests H5 and H6 and reports the difference in firm value between professional CEO family firms and both family CEO firms and non-family firms. Panel B compares family firms and non-family firms, while Panel C decomposes family firms into founder CEO firms, descendant CEO firms, and professional CEO family firms, and compares them with non-family firms. In each panel, we report results for poor performance period, other periods, and the full sample. Poor performance period refers to firm-years with market-adjusted return falling into the bottom quartile of the sample distribution, and other periods include all other firm-years. The results for industry and year dummies are not reported for the sake of brevity.

The full sample includes 2,734 firm-years in the period 1997-2000. The sample size is smaller than in other tables because financial and utility companies are excluded following prior research (Anderson and Reeb 2003). The p-values (in the parentheses) are based on one-sided tests for the coefficients on $D_FamilyCEO$ and $D_NonFamily$ in column (1) of Panel A, which are predicted to be negative by H5 and H6, and are based on two-sided tests otherwise.

Panel A Tests of H5 and H6

This panel reports results from the following regression:

$$Tobin's\ Q = \alpha_0 + \alpha_1 D_FamilyCEO + \alpha_2 D_NonFamily + \beta ControlVariables + \gamma Industry\ Dummies + \delta Year\ Dummies + \varepsilon \quad (3)$$

	(1) Poor performance period	(2) Other periods	(3) Full sample
Intercept	1.534 (0.001)	2.413 (0.001)	2.387 (0.001)
D_FamilyCEO	-0.252 (0.004)	0.234 (0.073)	0.080 (0.435)
D_NonFamily	-0.171 (0.035)	-0.096 (0.447)	-0.143 (0.147)
Size	0.022 (0.308)	-0.010 (0.734)	0.014 (0.542)
Growth	1.064 (0.001)	2.022 (0.001)	1.684 (0.001)
Return volatility	-0.828 (0.099)	-0.669 (0.503)	-3.403 (0.001)
Leverage	-0.816 (0.001)	-2.932 (0.001)	-2.429 (0.001)
D_Board Indep.	0.018 (0.897)	-0.081 (0.711)	-0.146 (0.384)
Blockholding	-0.006 (0.004)	-0.016 (0.001)	-0.011 (0.001)
CEO equity comp.	0.003 (0.001)	0.008 (0.001)	0.007 (0.001)
Number of observations	684	2,050	2,734
Adj. R ²	0.367	0.356	0.323

Additional tests:

Difference in Tobin's Q between family CEO firms and non-family firms ($\alpha_1 - \alpha_2$)	-0.081 (0.174)	0.330 (0.001)	0.223 (0.001)
---	-------------------	------------------	------------------

Panel B Reconciliation with prior studies – Family firm premium over non-family firms

This panel reports results from the following regression:

$$Tobin's\ Q = \alpha_0 + \alpha_1 D_FamilyFirm + \beta ControlVariables + \gamma IndustryDummies + \delta YearDummies + \varepsilon \quad (4)$$

	(1)	(2)	(3)
	Poor performance period	Other periods	Full sample
Intercept	1.554 (0.001)	2.438 (0.001)	2.391 (0.001)
D_FamilyFirm	-0.030 (0.603)	0.263 (0.002)	0.202 (0.002)
Control variables	Yes	Yes	Yes
Number of observations	684	2,050	2,734
Adj. R ²	0.361	0.355	0.323

Panel C Reconciliation with prior studies – Founder CEO premium and descendant CEO discount over non-family firms

This panel reports results from the following regression:

$$Tobin's\ Q = \alpha_0 + \alpha_1 D_FounderCEO + \alpha_2 D_DescendantCEO + \alpha_3 D_ProfessionalCEO + \beta ControlVariables + \gamma IndustryDummies + \delta YearDummies + \varepsilon \quad (5)$$

	(1)	(2)	(3)
	Poor performance period	Other periods	Full sample
Intercept	1.592 (0.001)	2.515 (0.001)	2.495 (0.001)
D_FounderCEO	-0.038 (0.542)	0.451 (0.001)	0.321 (0.001)
D_DescendantCEO	-0.329 (0.006)	-0.138 (0.407)	-0.243 (0.062)
D_ProfessionalCEO	0.151 (0.047)	0.072 (0.562)	0.112 (0.126)
Control variables	Yes	Yes	Yes
Number of observations	684	2,050	2,734
Adj. R ²	0.372	0.359	0.327

The variables are measured as follows:

- Tobin's Q* = the ratio of a firm's market value of assets to its book value of assets at year-end;
- D_FamilyCEO* = 1 for family firms with a member from the founding family as the CEO, and 0 otherwise;
- D_NonFamily* = 1 for non-family firms, and 0 otherwise;
- D_FamilyFirm* = 1 for family firms, and 0 otherwise;
- D_FounderCEO* = 1 for family firms run by founders, and 0 otherwise;
- D_DescendantCEO* = 1 for family firms run by descendants, and 0 otherwise;
- D_ProfessionalCEO* = 1 for family firms run by professional CEOs, and 0 otherwise;
- Size* = firm size, measured as log transformation of total assets (in millions);
- Growth* = R&D/total assets;
- Return volatility* = the standard deviation of monthly market-adjusted stock returns;
- Leverage* = long-term debt/total assets;
- D_Board indep.* = 1 if independent board members make up of over 60% of the board and 0 otherwise;
- Blockholding* = percentage of outstanding shares held by blockholders other than the founding family;
- CEO equity comp.* = the value of annual stock and option grants divided by total CEO annual pay.