MULTI-FAMILY COFOUNDERS AND FIRM VALUE

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Abstract

The paper shows that higher valuation of family firms occurs only for family firms founded by several non-related people (multi-family cofounding firms). The evidence suggests that having at least two unrelated cofounders involved in management reduces agency problems through mutual monitoring. Relative to single-family founding firms, multi-family cofounding firms are more likely to force out founders and less likely to allow descendants to take control after founders retire.

1. INTRODUCTION

Subsequent to the research conducted by Anderson and Reeb (2003), scholars generally agree that the valuation of family firms is higher than that of non-family firms, and this occurs because of fewer agency problems. Most family owners are both managers and shareholders, and therefore their interests are aligned with those of other shareholders. Thus, managers do their best to maximize shareholder value. However, as DeAngelo and DeAngelo (2000) point out, it is possible that large shareholders such as family shareholders are inclined to pursue both pecuniary and non-pecuniary benefits at the cost of other shareholders. In this paper, we show that higher valuations of family firms occur only for multi-family cofounded firms, and we argue this is because of reduced agency problems.

Even though there are many papers about founding families, few papers consider cofounders separately. For example, Villalonga and Amit

(2006) designate only the family with the largest voting stake as the founding family.

For the purpose of this study, we split family firms into single-family founding firms and multi-family cofounding firms depending on how many families are involved. If one person or his family members found and still manage a firm, there is only one family involved and it is designated as a single-family founding firm. On the other hand, if unrelated friends or coworkers found a firm together and at least one of the cofounders continues managing the firm, there is more than one family involved, so this firm is a multi-family cofounding firm. If none of the founding families currently manages the firm, the firm is a non-family firm. Therefore, there is no transition from a single-family founding firm to a multi-family cofounding firm. In the sample used by this study, about one-third of family firms are actually multi-family cofounding firms.

We would argue that cofounders act like large shareholders, reducing conflicts between family shareholders and non-family shareholders by monitoring and assessing the top executive, no matter cofounders assume the management positions or not. Of course, it is possible that cofounders pursue their personal interests together. However, the private benefits of cofounders are not always the same, and even if they are, cofounders should share these benefits and consider the accompanying costs of firm devaluation. In this sense, corporate governance under several cofounders can reduce the behavior of expropriating non-family shareholders.

Focusing on low agency problems in multi-family cofounding firms, we run several tests pertaining to the cofounders who manage the firm together. Labeling this case as direct monitoring, we denote direct monitoring as: 1) designating one of the cofounders as a chief executive officer (CEO) and another as a chairman of the board, or 2) one of the cofounders as a chairman and another/other cofounder(s) as a director(s). This direct monitoring contributes to a firm valuation which is even higher than other multi-family cofounding firms.

One of the most important decisions in the firm is assessing the CEO and inadequate CEO and hiring a competent CEO. Unfortunately, the power of a founder with extensive ownership is so strong in family firms that the board cannot easily force the founder-CEO to resign. As a result, founder-CEOs are rarely fired. In my sample, there is only one such case in a single-family founding firm. On the other hand, in multi-family cofounding firms, whether other cofounders are involved in the management or not, cofounders can insist resignation more easily. In fact, we find more founder-CEOs being forced out in multi-family cofounding firms than single-family founding firms. This indicates firing incompetent CEO works well in multi-family cofounding firms.

Bequeathing the company to the founder's descendants is the most distinctive characteristic of family firms. However, this limits the labor pool and the descendant may not be a capable manager. Prior studies show negative influences of descendant-CEO (Morck, Shleifer, & Vishny,

1988; Anderson & Reeb, 2003; Perez-Gonzalez, 2006; Villalonga & Amit, 2006). If the assessment role works well in a multi-family cofounding firm, cofounders do not allow other cofounders' incompetent descendants to manage the firm. Consistent with this, the results show that descendants of multi-family cofounding firms are less likely to take on the role of CEO, chairman, or director than are descendants of single-family founding firms.

Prior studies about family firms show a high valuation of family firms and suggest that this high firm value arises from low agency problems. However, few studies directly examine how family control relieves agency problems. By dividing family firms into single-family firms and multi-family cofounding firms, this study specifically investigates cofounders who can actually enhance firm value by reducing conflicts between family shareholders and non-family shareholders through monitoring and assessing top executives. In addition, multi-family cofounders share firm control, thereby allowing us to empirically test unique corporate governance under the leadership of several influential people.

The rest of this paper is organized as follows. In Section 2, we describe data and variables and show the main results that multi-family cofounding firms have a higher valuation than other firms in Section 3. We provide plausible explanations about the high valuation of multi-family cofounding firms in Section 4 and show cofounders' assessment role in Section 5. Finally, we conclude in Section 6.

2. DATA

2.1. Base sample of family firms

We use the family ownership data of Anderson, Duru, and Reeb (2009) and Anderson, Reeb, and Zhao (2012) as a base sample. They begin with all firms from Compustat for data-year 2001 and then exclude regulated public utilities (SIC codes 4812, 4813, and 4911 through 4991), financial firms (SIC codes 6020 through 6799), foreign firms, firms listed as master limited partnerships, and firms with a share price less than $0.25. The authors select the 2,000 largest firms based on total assets for data-year 2001 and extend the sample from 2001 to 2010.

2.2. Cofounders

We manually collect data about the founder in the base sample firms from Wikipedia, Encyclopedia, FundingUniverse.com, and individual company websites. Similar to Villalonga and Amit (2006), we require the founder to be identified in at least two sources and to be a human being. Therefore, we do not count the founder when firms are founded through combinations of companies, spin-offs, leverage buy-outs, or by another company.

We classify family firms that are still under the founding family's control into two groups depending on how many families found the firm. To do this, we also gather management information. The SEC corporate proxy statements say whether the CEO, the chairman or the director is the founder or the descendant every year.

3. MULTI-FAMILY COFOUNDING FIRMS AND FIRM VALUATION

3.1. Univariate analysis

Table 1 describes the data used in this paper. Panel A provides means and standard deviations of all variables and difference of means tests between family firms under the founding families and other firms.

Panel B of Table 1 focuses on family firms. Of all 2,052 family firm observations, 1,070 (52%) observations come from family firms founded by one person, 205 (10%) observations are about single-family cofounding firms, and 777 (38%) observations belong to multi-family cofounding firms.

3.2. Multivariate analysis

The univariate analysis in the previous section suggests a high valuation of multi-family cofounding firms. To confirm this, we run multivariate OLS regressions. Our sample covers 1,159 firms with 7,109 firm-year observations. The dependent variables are Tobin's q and industry-adjusted q to proxy for firm valuation. Control variables are governance or firm characteristics, industry, and year, as discussed. When we use industry-adjusted q as a dependent variable, we drop industry dummies. In all regressions, the standard errors are clustered by firm.

Panel A of Table 2 shows the results. The coefficients of multi-family cofounder are significantly positive in Column (1) and Column (2), confirming the high valuation of multi-family cofounding firms. Based on the mean Tobin's q, multi-family cofounding firms' valuations are 14 percent higher than non-family firms[1].

On the other hand, the value of single-family founding firms is not significantly different from non-family firms. Previous studies assert all family firms have a high valuation, but results in this paper suggest it may not necessarily be true. As we mentioned in the introduction, family control can be good for the firm by reducing the agency problem, but it can also cause managerial entrenchment. It is possible that the advantage of family control is offset by the disadvantage of family control in single-family founding firms, emphasizing the importance of multi-family cofounders' role.

Panel B of Table 2 is the results of propensity score matching as a robustness check. The treatment indicator is one for multi-family

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[1] The mean Tobin's q of the entire sample is 1.92 and the coefficient of multi-family cofounding firms in Column 1 of Table 2 is 0.266. Thus 0.266 divided by 1.92 gives 0.14.

cofounding firms, and zero for other firms. The outcome variable is Tobin's q. First, we estimate logit models including the same control variables as in the OLS regression of Panel A. And then we use four matching algorithms to get the outcome results in the second-stage models: 1:1 nearest-neighbor matching with replacement, 1:1 nearest-neighbor matching without replacement, 4:1 nearest-neighbor matching with replacement and caliper (0.2), and Kernel matching. All coefficients are significantly positive, confirming that the value of multi-family cofounding firms is higher than other firms.

4. EXPLANATIONS FOR MULTI-FAMILY COFOUNDING FIRMS' VALUE

The board is responsible for monitoring management by observing the manager's behavior and correcting it if it can hurt shareholders. However, the board's monitoring ability is limited if the CEO also holds the position of the chairman of the board. For this reason, some authors argue the roles of the CEO and the board chair should be separated (Fama & Jensen, 1983; Lipton & Lorsch, 1992; Jensen, 1993). In the case of multi-family cofounding firms, the CEO can be separated from the chairman if one of the cofounders is a CEO and another cofounder is a chairman. Therefore, we treat this as the first case of cofounders' direct monitoring.

It is possible that one of the cofounders appoints non-family CEO and serves as a chairman. In this case, it can harm the firm value if the CEO and the chairman are connected and try to do something that maximizes their utility. If another cofounder director is on the board as the director, he can check whether the chairman fulfills his monitoring responsibility. We regard this as the second case of cofounders' direct monitoring.

Table 3 is the result of testing cofounders' direct monitoring hypothesis. In the Panel A of Table 3, monitoring dummy equals to one if: 1) one of the cofounders is the CEO, and another cofounder is the chairman of the board, or 2) one of the cofounders is the chairman and another cofounder(s) is (are) the director(s). Other variables, including control variables, are the same as in Table 2. In the sample, there are 42 firm-year observations that meet the first case conditions and 199 firm-year observations that satisfy the second case conditions.

The focus of this paper is the interaction term of monitoring and multi-family cofounders. As predicted, it is significantly positive in Column (2) and Column (4) of Table 3. The coefficient of the interaction term is 0.463 and the mean Tobin's q is 1.92, so we can interpret this as the firm value of multi-family cofounding firms under cofounders' direct monitoring is 24 percent higher than other multi-family cofounding firms.

In addition, the monitoring variable in Column (2) of Table 3 is significantly negative. It indicates that if there are several single-family

members on the board, the monitoring does not function well, destroying the firm value.

Panel B of Table 3 shows the propensity score matching results that compare the cofounders' direct monitoring in two kinds of family firms, single-family founding firms and multi-family cofounding firms. The treatment indicator is one for multi-family cofounding firms and zero for single-family founding firms, and the outcome variable is Tobin's q. First, we estimate logit models including the same control variables as OLS regression. And then we use four matching algorithms to get the outcome results in the second-stage models, same as Table 2.

If the firm is the single-family founding firm, the cofounder who is the family member of other cofounders' does not have any incentive to monitor each other. However, cofounders in the multi-family cofounding firms are inclined to monitor each other. Consistent with the expectation, firm value is much higher in the multi-family cofounding firm than in the single-family founding firm because of cofounders' different monitoring incentive.

5. ASSESSMENT

5.1. Founder CEOs' forced turnover

As Naveen (2006) mentions, the founder is hardly forced out, but we sometimes witness it happens. For example, Chipmaker Atmel Corporation fired its founder after an investigation into alleged misuse of corporate travel funds. We hypothesize that the founder-CEO is forced out more in a multi-family cofounding firm than in a single-family founding firm because cofounders assess the founder-CEO and replace the CEO if the assessment is not good.

We hand-collect information about all founder-CEO transitions in the sample. Following Parrino's (1997) forced departure definition, We identify forced turnover: 1) when the press release announces that the CEO is "fired, forced from the position, or departs due to unspecified policy differences"; 2) if the CEO is under age 60, the reason should not be related to death, health problem, or other opportunity; 3) when the retirement is not announced at least six months before the turnover.

Panel A of Table 4 describes the sample. Of all 65 founder CEO turnovers in the sample, there are 31 cases in single-family firms and 34 cases in multi-family cofounding firms, and forced turnovers account for 3 percent and 29 percent of each group. We cannot run the regression because there is only one observation in the single-family firm, but apparently, the CEO of multi-family cofounding firms is more likely to be forced out than that of single-family founding firms.

Furthermore, the percentage of the founder-CEO forced a turnover in multi-family cofounding firms seems to be higher than that of normal-CEO forced turnover. There are 24 percent forced-CEO turnovers in Guo and Masulis's (2015) sample, and 26 percent in Jenter and Kanaan's

(2015) sample[2]. This indicates that even though many people believe that the founder-CEO is scarcely forced out, it is only true for the single-family founding firm. In multi-family cofounding firms, the founder CEO can be replaced because cofounders assess top executives and remove incapable ones.

We describe all ten founder-CEO forced turnovers and two special founder-CEO voluntary turnovers in multi-family cofounding firms in Panel B of Table 4. The parenthesis indicates the ownership of each person just before the turnover happens. In most cases, we can observe founder-CEO forced turnovers when at least one of the cofounders are in the management and/or the founder-CEO holds less than 5 percent of ownership.

In terms of voluntary turnovers, cofounders tend to serve as interim CEO when predecessor abruptly resign the CEO. As a very special case, the two cofounders of Bed Bath & Beyond INC served as co-chairman and co-CEO and then retired together.

Panel C of Table 4 shows the probability of founder-CEO turnover along with firm performance. The measurements for firm performance are mean of past three years' pre-tax operating income to total assets in Columns (1) and (3), and a negative income dummy that equals one if the mean of past three years' pre-tax operating income is negative in Columns (2) and (4). All control variables are the same as previously.

As expected, firm performance over the prior three years has a significant impact on the founder-CEO forced turnover. The coefficient of return on assets is negative; meaning that bad firm performance is closely associated with CEO forced turnover and the coefficient of negative income dummy is positive, meaning that negative firm performance is closely associated with CEO forced turnover. However, we cannot see any significant results in the CEO voluntary turnover. Therefore, we can conclude that even a founder-CEO can be forced out from the firm if he fails to run the firm successfully, especially in multi-family cofounding firms.

5.2. Descendant-controlled firms

Succession is one of the most peculiar characteristics of family firms because departing founder-CEO has a huge impact on naming his successor and he may want to appoint his offspring as his successor regardless of capacity.

Things can be complicated in multi-family cofounding firms because all cofounders may try to bequeath their control to their descendants. However, as previous studies show, incapable descendants can destroy the firm value if they do not manage the firm well. Cofounders who assess the qualified leader do not let this happen. Therefore, we predict

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[2] Guo and Masulis's (2015) sample comprises 406 forced turnovers and 1,261 voluntary turnovers between 1996 and 2010, and Jenter and Kanaan's (2015) sample consists of 875 forced turnovers and 2,490 voluntary turnovers from 1993 to 2009.

that descendants are less likely to enter management in multi-family cofounding firms as compared to single-family cofounding firms.

Table 5 shows the results of the test of this hypothesis. This test is about founders' descendants, so the sample consists of 366 family firms (single-family founding firms and multi-family cofounding firms) during 2001-2010. We run a logit model of multi-family cofounder variable on the descendant-controlled dummy, using the same control variables as Table 2.

Consistent with the expectation, the coefficient of multi-family cofounder variable is significantly negative, -0.957. This fitted model says that holding all control variables at a fixed value, the odds of descendants assuming the management position for multi-family cofounding firms over those for single-family founding firms is 0.38. We can interpret this as the descendant in multi-family cofounding firms is less likely to be in management than the descendant in single-family founding firms because cofounders really care about hiring the competent manager.

6. CONCLUSION

It is widely known that family firms' valuations are higher than non-family firms'. Just as concentrated ownership is very effective corporate governance structure, family ownership can motivate the family manager to work hard for the firm. However, family ownership can hurt other shareholders when controlling shareholders try to pursue their own benefits.

Therefore, restricting the disadvantage of family ownership is important. This paper shows that only multi-family cofounding firms have a higher valuation than non-family firms. In this paper, however, we interpret this phenomenon from the perspective of corporate governance. We suggest one of the plausible reasons why multi-family cofounding firms have high firm valuation is cofounders' mutual monitoring. If it is true, the firm valuation is high when at least one of cofounders still manages the firm. The monitoring effect can be maximized when cofounders are closely monitoring other cofounders as the board members.

Cofounders also pay attention to fire and hire capable executives. To support this argument, we show that the founder-CEO is more likely to be forced out and the descendants of cofounders are less likely to be in the management in multi-family cofounding firms than in single-family founding firms.

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APPENDIX

Table 1. Descriptive data (Part 1)

Panel A. Differences between family firms and non-family firms							
	[a] All firms		[b] Family firms		[c] Non-family firms		
	Mean	*Std Dev*	*Mean*	*Std Dev*	*Mean*	*Std Dev*	*t-stat.*
Tobin's q	1.92	1.07	2.06	1.15	1.87	1.02	7.01***
Industry-adjusted q	0.00	1.02	0.13	1.09	-0.04	0.98	6.62***
Assets ($ millions)	6,572	27,905	4,390	13,487	7,455	31,898	-4.19***
Sales ($ millions)	5,643	12,729	4,022	9643	6,299	13,730	-6.85***
Firm age	25.51	19.15	19.89	13.05	27.79	20.70	-16.02***
Sales growth	0.08	0.35	0.10	0.54	0.07	0.22	3.63***
Governance index	9.21	2.54	8.38	2.32	9.55	2.54	-18.04***
Non-family blockholdings	0.23	0.15	0.21	0.14	0.24	0.15	-6.93***
Non-family outside directors	0.71	0.15	0.63	0.15	0.75	0.14	-31.10***
Dividends/book equity	0.04	0.60	0.02	0.13	0.04	0.71	-1.31
Debt/market value of equity	0.83	2.93	0.65	1.52	0.90	3.33	-3.21***
Market risk (beta)	1.17	0.54	1.15	0.54	1.18	0.54	-2.39**
Diversification dummy	0.65	0.47	0.60	0.49	0.67	0.47	-5.43***
R&D/sales	0.08	0.52	0.09	0.43	0.07	0.55	1.63
CAPX/PPE	0.22	0.15	0.24	0.19	0.21	0.14	8.06***
Number of observations	7,109		2,052		5,057		

Table 1. Descriptive data (Part 2)

Panel B. Differences among family firms								
	[a] Single founder		[b] Family cofounders		[c] Multi-family cofounders			
	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	t-stat.	
							[a] vs. [b]	[a] vs. [c]
Tobin's q	1.90	1.01	1.84	0.98	2.34	1.32	-0.80	8.05***
Industry-adjusted q	0.06	1.00	-0.05	0.89	0.28	1.24	-1.50	4.23***
Assets ($ millions)	3,194	12,991	3,316	5,971	6,314	15,266	0.14	4.72***
Sales ($ millions)	3,387	9,376	3,496	3,992	5,033	10,905	0.18	3.47**
Firm age	21.52	14.08	21.79	12.79	17.14	11.04	0.33	-7.20***
Sales growth	0.08	0.20	0.19	1.57	0.11	0.27	2.12**	2.75***
Governance index	8.40	2.47	8.24	2.36	8.38	2.08	-0.77	-0.15
Non-family blockholdings	0.21	0.13	0.20	0.15	0.22	0.13	-1.15	0.82
Non-family outside directors	0.62	0.15	0.57	0.14	0.66	0.14	-4.34***	5.13***
Dividends/book equity	0.02	0.07	0.02	0.03	0.02	0.19	-0.71	-0.18
Debt/market value of equity	0.75	1.91	0.77	1.28	0.48	0.76	0.15	-3.66***
Market risk (beta)	1.09	0.54	1.20	0.54	1.21	0.52	2.79***	4.78***
Diversification dummy	0.65	0.47	0.53	0.50	0.54	0.49	-3.57***	-4.82***
R&D/sales	0.06	0.48	0.05	0.24	0.14	0.39	-0.41	3.73***
CAPX/PPE	0.21	0.15	0.27	0.29	0.28	0.20	4.08***	7.51***
Number of observations	1,070		205		777			

Note: Panel A reports means, standard deviations, and tests of differences in means between family and non-family firms. Panel B analyzes family firms into three groups depending on the number of the founding family. The sample is from Anderson, Duru, and Reeb (2009) and Anderson, Reeb, and Zhao (2012) and the period is 2001-2010. Asterisks denote statistical significance at 1% (***), 5% (**), or 10% (*).

Table 2. Founding family firms and firm valuation

Panel A. OLS regression		
	Tobin's q (1)	Industry-adjusted q (2)
Single-family founder	0.011 (0.067)	0.030 (0.070)
Multi-family cofounders	0.266*** (0.098)	0.188** (0.097)
Governance index	-0.012 (0.009)	-0.007 (0.009)
Non-family blockholder ownership	-0.385*** (0.114)	-0.390*** (0.116)
Non-family outside directors	-0.054 (0.163)	-0.001 (0.162)
Dividends/book value of equity	0.069** (0.032)	0.085** (0.036)
Debt/market value of equity	-0.036*** (0.013)	-0.032*** (0.012)
Market risk (beta)	-0.145*** (0.033)	-0.169*** (0.034)
Diversification dummy	-0.284*** (0.060)	-0.261*** (0.058)
R&D/sales	0.116 (0.077)	0.117 (0.074)
CAPX/PPE	1.197*** (0.204)	0.914*** (0.185)
Ln (assets)	0.051*** (0.020)	0.053*** (0.018)
Sales growth	0.299*** (0.084)	0.324*** (0.094)
Ln (age)	-0.005 (0.036)	0.006 (0.034)
Constant	0.837*** (0.311)	-0.242 (0.202)
Industry effects	Yes	No
Year effects	Yes	Yes
R²	0.251	0.123
Number of observations	7,109	7,109
Panel B. Propensity score matching		
(a) Nearest neighbor matching		
1:1 with replacement	0.228*** (0.068)	
1:1 without replacement	0.226*** (0.063)	
4:1 with replacement and caliper	0.244*** (0.056)	
(b) Kernel matching		
Kernel	0.274*** (0.051)	
Number of observations	7,109	

Note: Panel A is OLS regressions of founding family firms on Tobin's q (industry-adjusted q). Single-family founder dummy is one if one person or his family members found and still manage a firm, and multi-family cofounders dummy equals to one if unrelated persons found a firm together and at least one of the cofounders continues to manage the firm. Tobin's q is calculated as the ratio of the firm's market value to total assets, winsorized at 0.5% level. Industry-adjusted q is the difference between the firm's q and the asset-weighted average of two-digit SIC industry q. Following Villalonga and Amit (2006), I include several control variables. The sample consists of 1,159 firms in U.S. stock markets during 2001-2010. Panel B is the results of propensity score matching. The treatment indicator is one for multi-family cofounding firms, and zero for other firms. The outcome variable is Tobin's q. First, I estimate logit models including the same control variables as OLS regression. And then I use four matching algorithms in the second-stage models. Robust standard errors are clustered by the firm and asterisks denote statistical significance at 1% (***), 5% (**), or 10% (*).

Table 3. Cofounders' direct monitoring

Panel A. OLS regression				
	Tobin's q		Industry-adjusted q	
	(1)	(2)	(3)	(4)
Monitoring	0.164	-0.380*	0.216	-0.367*
	(0.165)	(0.203)	(0.173)	(0.222)
Single-family founders		0.014		0.037
		(0.068)		(0.071)
Multi-family cofounders		0.251**		0.133
		(0.108)		(0.104)
Monitoring×Multi-family cofounders		0.463*		0.630**
		(0.280)		(0.308)
Control Variables	Yes	Yes	Yes	Yes
R²	0.246	0.249	0.121	0.121
Number of observations	7,109	7,109	7,109	7,109
Panel B. Propensity score matching				
(a) Nearest Neighbor Matching				
1:1 with replacement	0.897***			
	(0.241)			
1:1 without replacement	0.570***			
	(0.190)			
4:1 with replacement and caliper	0.926***			
	(0.212)			
(b) Kernel matching				
Kernel	0.843***			
	(0.287)			
Number of observations	241			

*Note: Panel A presents OLS regression results. Monitoring dummy equals one if (1) one of the cofounders is the CEO, and another cofounder is the chairman of the board, or (2) one of the cofounders is the chairman and another cofounder(s) is (are) director(s). Other variables are the same as variables in Table 2. The sample consists of 1,159 firms in U.S. stock markets during 2001-2010. Panel B shows propensity score matching results with samples under cofounders' direct monitoring. The treatment indicator is one for multi-family cofounding firms, and zero for single-family founding firms and the outcome variable is Tobin's q. First, I estimate logit models including the same control variables as OLS regression. And then I use four matching algorithms to get the outcome results in the second-stage models, just as Table 2. I cluster robust standard errors reported in the parentheses by the firm. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.*

Table 4. Founder CEO forced turnover (Part 1)

Panel A. Statistics				
	Single-family founder		Multi-family cofounder	
	Number of observations	%	Number of observations	%
Forced turnover	1	3.2	10	29.4
Voluntary turnover	30	96.7	24	70.6
Total turnover	31	100	34	100
Panel B. Description				
MENTOR CORP	Mentor Corporation was founded in 1969 by Christopher Conway, Eugene Glover, and Thomas Hauser. Mr. Conway (4.1%) was chief executive officer from 1969 to 1999 and from 2000 to 2004 when Mr. Glover (2.2%) was a president and private investor.			
SUN MICROSYSTEMS INC	Vinod Khosla, Andy Bechtolsheim, and Scott McNealy, all Stanford graduate students, founded Sun Microsystems in 1982 and one more cofounder Bill Joy, a primary developer of the Berkeley Software Distribution, joined soon. When Mr. Khosla left the company in 1984 (voluntary turnover), the board asked Mr. McNealy to take the interim CEO but failed to find the new CEO, so he became the permanent CEO. However, Sun eventually appointed new CEO instead of Mr. McNealy (2.2%) in 2006 (forced turnover).			

Table 4. Founder CEO forced turnover (Part 2)

Panel B. Description	
CREE INC	Cree was founded in 1987 by six cofounders. Neal Hunter (1.4%) resigned from the chairman and CEO in 2001 when one of the cofounders Calvin Carter (1.4%) was an executive vice president and John Palmour (1.6%) was a director.
CARMAX INC	Carmax was founded in 1993 by Austin Ligon and Richard Sharp. On May 23, 2006, The board decided that Mr. Ligon (1.8 %) would terminate the president and CEO on June 20, 2006. On May 24, 2006, Mr. Ligon expressed his intention to retire as president, CEO, and director effective June 20, 2006. At that time, Mr. Sharp, (less than 1%) was a chairman of the board and private investor.
FASTENAL CO	Fastenal was founded in 1968 by several coworkers and high school buddies. When Robert Kierlin (10.31%) resigned from the CEO in 2002, cofounders were in the management: Stephen Slaggie (5.11%) was a secretary, and Michael Gostomski (1.69%), Henry McConnon (2.15%), and John Remick (3.24%) were directors.
VERTEX PHARMACEUTICALS INC	Vertex was founded in 1989 by Joshua Boger (1.7%) and Kevin Kinsella. On February 5, 2009, the company announced new CEO and chairman of the board, so Dr. Boger resigned as the president on that day and resigned as CEO on May 23, 2009.
BROADCOM CORP	Broadcom Corporation was founded in 1991 by Henry Nicholas and Henry Samueli. Mr. Nicholas (34.4%) served as its president, CEO, and co-chairman from the company's inception until January 2003, when he resigned as President and CEO, expressing his intention to devote more time to his family. At that time, Mr. Samueli (34.4%) had served as its CTO and cochairman since the company's inception.
PROGRESS SOFTWARE CORP	Progress Software was founded in 1981 by three MIT graduates - Joseph Alsop, Charles Clyde, and Ziering Kessel. On March 30, 2009, the company announced that the board appointed the new president and CEO of the Company and Mr. Alsop (4.4%) resigned as CEO, effective as of March 29, 2009.
RADISYS CORP	RadiSys was founded in 1987 as Radix Microsystems by former Intel engineers Dave Budde and Glen Myers. On May 3, 2002, the company announced that Dr. Myers (3.02%) stepped down as president, CEO and chairman of the board and the board initiated a search for a new president and CEO.
LINEAR TECHNOLOGY CORP	The company was founded in 1981 by Robert Swanson, Jr. and Robert Dobkin. When Mr. Swanson resigned from the position of CEO, Mr. Dobkin was a vice president, Engineering and CTO. Both held less than one percent of the outstanding common stocks.
HOLOGIC INC	On June 21, 2001, S. David Ellenbogen (3.7%), the company's founder, chairman, and CEO passed away. After cofounder's death, Dr. Stein (2.6%), a cofounder, executive vice president, and CTO served as the company's interim CEO for about a month. On July 31, 2001, the Board of Directors announced a new CEO and president.
BED BATH & BEYOND INC	In 1971, Warren Eisenberg and Leonard Feinstein founded the company together and served as cochairman from 1999 and as co-CEO from 1971 to April 2003. Mr. Eisenberg (2.8%) and Mr. Feinstein (2.9%) retired together in 2003.

Panel C. Logit regression				
	Forced turnover		Voluntary turnover	
	(1) Return on assets	(2) Negative income dummy	(3) Return on assets	(4) Negative income dummy
Firm performance	-14.866* (8.494)	1.906* (1.078)	-0.837 (3.322)	0.711 (0.697)
Control variables	Yes	Yes	Yes	Yes
Pseudo R²	0.416	0.196	0.134	0.096
Number of observations	451	845	951	1483

Note: Panel A presents statistics about founder CEO turnovers. There are 65 founder-CEO turnovers in total during 2001-2010. Following Parrino (1997), I identify forced CEO turnover: 1) when the press release announces that the CEO is "fired, forced from the position, or departs due to unspecified policy differences"; 2) if the CEO is under age 60, the reason

should not be related to death, health problem, or other opportunity; 3) if the retirement is not announced at least six months before the turnover. Panel B describes all ten founder-CEO forced turnovers and two special founder-CEO voluntary turnovers in multi-family cofounding firms. The parenthesis indicates the ownership of each person just before the turnover happens. Panel C estimates the probability of founder-CEO turnover along with firm performance. The measurements for firm performance are mean of past three years' pre-tax operating income to total assets in Columns (1) and (3), and a negative income dummy that equals one if the mean of past three years' pre-tax operating income is negative. All control variables are the same as previously and standard errors reported in the parentheses are robust and clustered by firm. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 5. The probability of descendant-controlled

	Descendant-controlled
Multi-family cofounder	-0.957***
	(0.403)
Governance index	0.024
	(0.089)
Non-family blockholder ownership	1.213
	(0.749)
Non-family outside directors	-1.117
	(0.945)
Dividends/book value of equity	0.683
	(0.484)
Debt/market value of equity	0.019
	(0.069)
Market risk (beta)	-0.041
	(0.216)
Diversification dummy	-0.038
	(0.366)
R&D/sales	-25.542***
	(6.165)
CAPX/PPE	-0.541
	(0.943)
Ln (assets)	0.154
	(0.161)
Sales growth	-1.111***
	(0.441)
Ln (age)	1.732***
	(0.406)
Constant	3.480
	(2.383)
Industry effects	Yes
Year effects	Yes
Pseudo R²	0.415
Number of observations	1,889

Note: This table shows a logit model of multi-family cofounder variable on the descendant-controlled dummy. Descendant-controlled dummy equals one if the descendant takes a position such as the CEO, Chairman, or director in that year. Multi-family cofounder dummy equals one if there are more than two cofounders without any family ties. I include same control variables and year and industry dummies as Table 2. The sample consists of 366 founding family firms (single-family founding firms and multi-family cofounding firms) during 2001-2010. Robust standard errors reported in the parentheses are clustered on the firm. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.