РАЗДЕЛ 2
КОРПОРАТИВНАЯ СОБСТВЕННОСТЬ

SECTION 2
CORPORATE OWNERSHIP

MANAGERIAL HEDGE (EFFORT) INCENTIVE, OWNERSHIP AND FIRM PERFORMANCE: EVIDENCE FROM FOUNDER-CEOS AND NON FOUNDER-CEOS

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Abstract

This paper tries to test three different hypotheses for the relationship between firm performance and characteristics of founder-CEOs and non founder-CEOs using three econometric techniques: OLS, feasible GLS and piecewise linear regression. They are risk-averse hypothesis, ownership hypothesis and hedge (effort) incentive hypothesis. Firm performance increases as hedge (effort) incentive increases. Founder-CEOs' ownership has positive effect on firm performance when their ownership is between five percent and twenty percent. This is consistent with ownership hypothesis. The risk-aversion level of founder-CEOs is negatively correlated with firm performance which is consistent with risk-averse hypothesis. The ownership and risk-averse level of non founder-CEOs are not statistically correlated with firm performance.

Keywords: ownership, firm performance, founder-CEOs, non founder-ceos

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1. Introduction

There are conflicting literatures of family CEOs (founder CEOs) and firm performance. Given the inherent conflicts of interests between shareholders and outside managers, one stream of agency theory argues that there are significant advantages in appointing family members to top management posts (Anderson & Reeb, 2003; Demsetz, 1983; Demsetz & Lehn, 1985), because "family members have many dimensions of exchange with one another over a long horizon that lead to advantages in monitoring and disciplining the family CEO"(Fama&Jensen, 1983: 306). Resource-based theorist argues that family CEOs may have competitive advantages in getting access to unique resources. Directors with family connections with the CEO may be more motivated to provide resources (Hillman & Dalziel, 2003). A family CEO may have more advantage in accessing resources with wide-ranging family connections, which otherwise would not be available to the local firm (Peng & Jiang, 2004).

Another stream of agency theory argues that despite some benefits such as reduced agency conflicts, concentrating ownership and control of family CEOs is inefficient for large corporations (Fama & Jensen, 1983). Reasons for inefficiencies are unqualified and incompetent descendants (Backman, 1999), risk-averse characteristics (Gomez-Mejia, Larraza-Kintana, & Makri, 2003;

Thomsen & Pederson, 2000), monitoring problem (Schulze, Lubatkin, & Dino, 2003; Schulze et al., 2001) and family squabbles (Gomez-Mejia, Nunez-Nickel, & Gutierrez, 2001; Stark & Falk, 1998; Schulze et al., 2003).

One of the above-mentioned inefficiency arguments, risk-averse characteristics has something to do with ownership of CEOs. Since single owners and families typically invest a disproportionate share of their wealth in the company, family-owned companies may be relatively risk-averse and they are more likely to be capital-rationed than outsider-controlled companies which could detract from their economics performance (Pederson & Thomsen, 2001). However, a family CEO also has larger incentives to put more efforts than a non-family CEO. Family CEOs' incentives might be more aligned with outside shareholders than those of professional managers, not only because founders usually have high ownership stakes, but also because they might have longer investment horizons (Stein, 1989). Because they care about their firms, they may exert more effort for a given incentive structure (Palia and Ravid, 2002).

The objective of incentive compensation is to induce a correlation between managers' compensation and the cash flow of the firms they manage so as to induce them to work diligently and increase firm performance.[1] Managerial hedging undermines incentives in executive pay schemes, significantly alters the executives' effective ownership of the firm, and hence has adverse effects on performance.[2] Managers use financial instruments to hedge the firm specific risk and managerial hedging measure can be the transactions data for these financial instruments. However, transactions data disclosed to the SEC is small.[3] Alternative measure is needed for risk-aversion and hedge (effort) incentive.

As founder-CEOs have more incentives to increase firm value than non founder-CEOs, they might put more effort to exercise their managerial stock options next year and it can increase firm value. As non founder-CEOs have less incentive to increase firm value than founder-CEOs do, they have larger incentive to hedge their managerial stock options next year and it can decrease firm value. This is hedge (effort) incentive hypothesis in this paper.

All agents of any type of firm are more risk-averse than principals. However, as founder-CEOs are relatively more risk-averse than non founder-CEOs, their risk-averseness might be more negatively related to firm performance than non founder-CEOs. As non founder-CEOs are relatively less risk-averse, their risk-averseness might be less negatively related to firm performance than founder-CEOs. This is risk-averse hypothesis in this paper.

As founder-CEOs have more incentives to increase firm performance than non founder-CEOs, their ownership is more positively related to firm performance. As non founder-CEOs have incentives to increase their ownership by hedging and this activity decreases firm value, CEO ownership is negatively related to firm performance. This is ownership hypothesis in this paper.

The remaining part of the paper is as follows. Data collection and variable construction will be described in section 2. Summary statistics and empirical results will be described in section 3. The paper concludes in section 4.

2. Data Description and Variable Construction

The sample consists of publicly traded companies on Compustat Executive Compensation database from 1993 to 2000.

I put 1 for 'FounderDummy', which is the founder dummy variable if the founder of a firm is the same as the CEO of the same firm and 0 otherwise. I also put 1 for 'ChairmanDummy', which is the chairman dummy variable if the CEO of a firm is the same as the chairman of the same firm and 0 otherwise. Basically, I referenced proxy statements from SEC filings. If I cannot find the information from them, I looked for each company's website. I supplemented founder and chairman information after all these stages by looking at Compact Disclosure database.

If a firm is founded before 70 years ago or more of the initial sample period, I put 0 for 'FounderDummy' because this means that the founder or founders of that firm are at least 90 years old and there is little possibility for them to be the CEO of that firm during the sample period. Even if I cannot find the information of the founder, I put 'FounderDummy' 0 if the CEO of a firm joined the same firm after the foundation of the firm. I assumed the foundation date of the spun-off companies as their spun-off date from parent companies. I also excluded company information after the bankruptcy. If there are multiple founders in a firm and one of them is the CEO of the same company, I put 'FounderDummy' 1. I kept the same rule for 'ChairmanDummy'. I matched the proxy statement filing dates of 'FounderDummy' and 'ChairmanDummy' with fiscal year end dates of other variables.

I assumed efficient CEO ownership level by hedging or by making effort is invariant with respect to changes in his initial total compensation level and it applies both to Founder-CEOs and non Founder-CEOs. So I assumed a narrow power utility function to calculate absolute risk aversion measure. Let's say $u(z) = \frac{B}{B-1} z^{1-\frac{1}{B}}, z > 0, B > 0$. $u(z)$ is a narrow power

[1] See Morck, Sheifer, and Vishny(1988), Jensen and Murphy(1990) and Bisin, Gottardi, and Rampini(2004)

[2] See Easterbrook(2002), Schizer(2000), Bank(1994/5), Economist(1999a,b,c,2002), Ip(1997), Lavelle(2001), Puri(1997), Smith(1999), and Bisin, Gottardi, and Rampini(2004)

[3] See Bisin, Gottardi, and Rampini(2004)

utility function with initial total compensation level is equal to z and B is the CEO ownership level. Then $u'(z) = z^{-\frac{1}{B}}$ and $u''(z) = -\frac{1}{B} z^{-\frac{1}{B}-1}$. Then absolute risk-aversion measure, $R_A(z) = -\frac{u''(z)}{u'(z)}$, is equal to one over the CEO ownership level times initial total compensation level, which is $R_A(z) = \frac{1}{B} z^{-1}$. If the relative risk-aversion measure is $R_R(z)$, then relative risk-aversion measure is $R_R(z) = \frac{1}{B}$. Also, $\frac{dR_A(z)}{dz} = -\frac{1}{B} z^{-2} < 0$ and $\frac{dR_R(z)}{dz} = 0$, which means an individual having a narrow power utility function the proportion of wealth invested in the risky asset(efficient CEO ownership level by hedging or by making effort in this paper) is invariant with respect to changes in his initial wealth level(total compensation in this paper).[4] I assumed this utility function because CEOs are risk-averse and they will keep the efficient CEO ownership level even if their total compensation level increases. I used this risk-aversion measure as one of explanatory variable in my regression model. For the hedge (effort) incentive measure, I calculated it by taking the ratio of the combination of unexercised exercisable option value, unexercised unexercisable option value, and restricted stock for the individual year to the total compensation of CEO for the individual year which is comprised of salary, bonus, other annual, total value of stock options granted using Black-Sholes, long-term incentive payouts, and all other total. Unexercised exercisable option value is the dollar value of unexercised options that the executive held at the fiscal yearend that were vested and it includes both in and out-of-the-money options. Unexercised exercisable option value is the dollar value of unexercised options that the executive held at the fiscal yearend that had not vested and it includes both in and out-of-the-money options. The restricted stock is the dollar value of restricted stock granted during the year. These three categories in the numerator are possible firm specific risks that are exposed to the market and CEOs will show hedge (effort) incentive for the proportion of these categories over the total compensation.[5]

I collected other data from executive compensation data in Compustat database using Wharton Research Data Services and Compact Disclosure database. CEO ownership variable is constructed by dividing shares owned by CEO with common shares outstanding. CEO tenure variable is calculated by taking natural log of the number of years since the CEO was appointed CEO. CEO pay variable is the dollar value of CEO remuneration in Compact Disclosure database which is the sum of salary, bonus, other annual, options granted and all other total in the proxy statement. I divided this by 100000 for the scale adjustment. (CEO ownership)^2 variable is the square value of CEO ownership. CEO age variable is the natural logarithmic value of CEO age. Board Size variable is the natural logarithmic value of the board size of firms. Financial control variables are as follows. Total Assets variable is constructed by taking natural log of annual total asset of each company as a size control for each firm. Book-to-market ratio variable is calculated by taking natural log of the ratio of firm's book value of equity to market value of equity as a value control (whether the firm is overvalued or undervalued) for each firm. Research variable is calculated by dividing research and development expenses with net sales. CAPEX variable is the ratio of capital expenditure to net sales. Advertisement variable is constructed by dividing advertising expenses with net sales.

3. Summary Statistics and Empirical Results

Table II provides summary statistics for the sample. There are three columns for Table I which are mean and standard deviation of all firms, founder-CEO firms and non founder-CEO firms. The column of all firms is the combination of that of founder-CEO firms and non founder-CEO firms. All firms have 1456 firm year observations from 1993 to 2000. Founder-CEO firms have 435 firm year observations from 1993 to 2000. Non founder-CEO firms have 1021 firm year observations from 1993 to 2000. The number of firms in each column is 366, 118 and 248, respectively. Average ln_Q, which is the performance measure, of all firms is 0.839. This figure is lower than founder-CEO firms (1.044) and higher than non founder-CEO firms (0.751). Thus, the average performance of founder-CEO firms is higher than that of non founder-CEO firms. The average CEO ownership, which can be either negatively or positively correlated with firm performance for founder-CEO firms, of founder-CEO firms (0.066) is greater than that of non founder-CEO firms (0.011). The average hedge (effort) incentive, which can be positively correlated with firm performance for founder-CEO firms or negatively correlated with firm performance for non founder-CEO firms, are not greatly different between them. Founder-CEO firms average hedge (effort) incentive (0.006) is slightly greater than that (0.005) of all firms and non founder-CEO firms. However, the variation of these incentives is greater for non founder-CEO firms (0.040) than for founder-CEO firms (0.016). The average risk-aversion level, which can be more negatively correlated with firm performance for founder-CEO firms than for non founder-CEO firms, is two times greater for non founder-CEO firms than for founder-CEO firms. Founder-CEO firms' average risk-aversion level

[4] See "Foundations of Financial Economics" written by Huang and Litzenberger page 27 and Pratt(1964)
[5] See Henderson(2002) and Ozerturk(2004)

(0.002) is less than that (0.004) of non founder-CEO firms. The variation of average risk-aversion level is greater for non founder-CEO firms (0.022) than for founder-CEO firms (0.016). This is the opposite result of my expectation. However, it is because the average CEO pay of non founder-CEO firms is higher than that of founder CEO firms and I used total compensation, which is proportional to CEO pay, as part of the measure for risk-aversion level. The average CEO tenure is greater for non founder-CEO firms (0.969) than for founder-CEO firms (0.879). Average board size is greater for non founder-CEO firms (2.207) than for founder-CEO firms (1.891). Average total assets value of non founder-CEO firms (7.321) is greater than that of founder-CEO firms (5.950), which mean that the average size of non founder-CEO firms is greater than that of founder-CEO firms. As the average size of non founder-CEO firms is greater than that of founder-CEO firms, it is naturally understood that the average CEO pay of non founder-CEO firms (19.499) is greater than that of founder-CEO firms (8.758). For other variables, the research variable, CAPEX (capital expenditure) variable and advertisement variable are greater for founder-CEO firms than for non founder-CEO firms.

Table III provide multiple regression results of firm performance on ownership, risk-aversion level, hedge (effort) incentive and other variables for all firms, founder-CEO firms and non founder-CEO firms. I set up a following OLS multiple regression equation. <Linear Equation>

$$\log Q = \beta_0 + \beta_1 * Owner + \beta_2 * H/E + \beta_3 * Averse + \beta_4 * Tenure + \beta_5 * (Owner)^2 + \beta_6 * Age + \beta_7 * lbsize + \beta_8 * Pay + \beta_9 * TA + \beta_{10} * B/M + \beta_{11} * R/S + \beta_{12} * (F - Dum) + \beta_{13} * (C - Dum) + \beta_{14} * C/S + \beta_{15} * A/S + \varepsilon$$

where, $Owner$ =CEO ownership, H/E =hedge (effort) incentive, $Averse$ =risk aversion level, $Tenure$=CEO tenure, Pay =CEO pay, Age =natural logarithmic value of CEO age, $lbsize$ =natural logarithmic value of firm's board size, TA =natural logarithmic value of total assets, B/M =natural logarithmic value of book to market ratio, R/S =research expenditure over net sales, $F-Dum$ =dummy variable which is equal to 1 if the founder and CEO are equal and 0 otherwise, $C-Dum$= dummy variable which is equal to 1 if the chairman and CEO are equal and 0 otherwise, C/S =capital expenditure over net sales and A/S =advertising expenditure over net sales.

The effect of CEO ownership on firm performance is insignificant for non founder-CEO firms and significant for all firms and founder-CEO firms. However the sign of non founder-CEO firms is negative which is different from that of founder-CEO firms. The effect of risk-aversion level on firm performance is insignificant for all firms, founder-CEO firms and non founder-CEO firms. The sign of risk-aversion level is negative both for founder-CEO firms and non founder-CEO firms. Hedge (effort) incentive affects firm performance positively which is significant for all firms, founder-CEO firms and non founder-CEO firms. The significance level of hedge (effort) incentive for non founder-CEO firms is greater than that of founder-CEO firms. CEO tenure has positive effect on firm performance for founder-CEO firms only and CEO pay has also positive effect on firm performance for all firms and non founder-CEO firms. I included squared CEO ownership in the OLS regression to test for a roof-shaped relation.[6] Board size is positively related to firm performance for non founder-CEO firms and is negatively related to firm performance for founder-CEO firms. However, only founder-CEO firms are statistically significant. The result is pretty intuitive because founder-CEO firms are usually smaller in size compared with non founder-CEO firms and it is more efficient for them to run smaller size board. CEO age is negatively related to firm performance for non founder-CEO firms and all firms, and it is statistically significant. Total assets and book-to-market ratio for all three subgroups have negative effects on firm performance. Generally, research and capital expenditure affects firm performance positively while advertising expenditure affects firm performance negatively. The coefficient of founder dummy is 0.122 in the regression and it is statistically significant within the 1 percent significance level while the coefficient of chairman dummy are -0.123 for all firms and -0.127 for non founder-CEO firms and they are statistically significant within the 1% significance level. It is interesting to see the result that 'ChairmanDummy' for non founder-CEO firms has statistically significant negative coefficient. Overall, ownership hypothesis is supported for founder-CEO firms by this regression analysis, and the hedge (effort) incentive hypothesis is supported for founder-CEO firms by the regression analysis. The interesting fact is that hedge (effort) incentive for non founder-CEO firms has positive effects on the firm performance which is the opposite of the hedge (effort) incentive hypothesis. Risk-averse hypothesis is not supported by the regression analysis.

Table IV provides a feasible GLS regression results for all firms, founder-CEO firms and non founder-CEO firms. I performed the Breusch-Pagan test to see the possible heteroskedasticity in the OLS regression and corrected the regression for heteroskedasticity by using a feasible GLS procedure. The Breusch-Pagan test fits a linear regression model to the residuals of a linear regression model (by default the same explanatory variables are taken as in the main regression model) and rejects if too much of the variance is explained by the additional explanatory variables.[7] The chi-squared test statistic of Breusch-Pagan test for all

[6] See Agrawal and Knoeber(1996), Himmelberg, Hubbard, and Palia(1999) and McConnell and Servaes(1995)

[7] See Breusch and Pagan (1979)

firms, founder-CEO firms and non founder-CEO firms is 1630.965, 62.915 and 62.915, respectively and they are all significant within one percent significance level. Thus, the OLS regression standard errors for all three subgroups have heteroskedasticity. The feasible GLS regression results are similar, comparing with OLS regression results except for a few things. The risk-averse level of founder-CEO firms is negatively correlated with firm performance and statistically significant within ten percent significance level. The result is consistent with risk-averse hypothesis. CEO pay of founder-CEO firms has negative effect on firm performance and became statistically significant within the one percent significance level which is not the case for OLS regression results. CEO pay of non founder-CEO firms became insignificant. CEO age of founder-CEO firms became significant. This is also pretty intuitive because founder-CEO firms have higher probability of staying in the CEO position for a long time and contribute on the firm performance by consistently managing the long-term project while non founder-CEO firms do not. The chairman dummy for all three subgroups became insignificant while founder dummy stays the same.

Table V shows a piecewise linear regression technique to see the CEO ownership effect on the firm performance for different CEO ownership stages. I calculated C1, C2 and C3 variables by making three categories out of CEO ownership according to Morck et al.(1988).[8] The calculation is as follows.

C1=CEO ownership if CEO ownership<0.05,
C1=0.05 if CEO ownership≥0.05;
C2=0 if CEO ownership<0.05,
C2=CEO ownership -0.05 if 0.05≤CEO ownership<0.25,
C2=0.20 if CEO ownership≥0.25;
C3=0 if CEO ownership<0.25,
C3=CEO ownership-0.25 if CEO ownership≥0.25

C1 is negatively related with firm performance, but it is insignificant for all three subgroups. C2 is positively correlated with firm performance for all firms and founder-CEO firms and negatively correlated with firm performance for non founder-CEO firms. C2 is significant within one percent significance level for all firms and founder-CEO firms while it is insignificant for non founder-CEO firms. C3 is negatively correlated with firm performance for all three subgroups and it is significant for all firms and founder-CEO firms while it is insignificant for non founder-CEO firms. If the CEO ownership is between five percent and twenty percent for founder-CEO firms, it has positive relationship with firm performance for founder-CEO firms. If the CEO ownership is more than twenty percent for founder-CEO firms, it has negative relationship with firm performance for founder-CEO firms. So, it sheds light on the efficient CEO ownership (between five and twenty percent) for the founder-CEO firms. However, the result does not show the efficient CEO ownership for non founder-CEO firms. Hedge (effort) incentive has positive effect on the firm performance for all three subgroups and they are all statistically significant. CEO tenure is insignificant for all three subgroups. CEO pay and CEO age is significant for all firms and non founder-CEO firms while board size is significant only for founder-CEO firms. Other financial variables and dummy variables produce similar results with OLS and GLS regression results. Overall C2 has positive effect on firm performance for founder-CEO firms which is consistent with ownership hypothesis. However, C3 has negative effect on firm performance for founder-CEO firms which is not consistent with ownership hypothesis. C1, C2 and C3 are negatively correlated with firm performance for non founder-CEO firms even though they are insignificant. The sign for non founder-CEO firms is consistent with ownership hypothesis. Hedge (effort) incentive is positively correlated with firm performance for all three subgroups which is consistent for founder-CEO firms but it is not consistent for non founder-CEO firms. The risk-averse level has negative effect on firm performance for founder-CEO firms which is consistent with risk-averse hypothesis.

4. Conclusion

This paper examined three different hypotheses: hedge (effort) hypothesis, risk-averse hypothesis and ownership hypothesis. Multiple OLS regression shows that founder-CEOs are both driven by ownership hypothesis and hedge (effort) incentive hypothesis. However they are not driven by risk-averse hypothesis. A feasible GLS regression shows that founder-CEOs are driven by ownership hypothesis, hedge (effort) incentive hypothesis and risk-averse hypothesis. A piecewise linear regression shows that founder-CEOs are both driven by risk-averse hypothesis and hedge (effort) incentive hypothesis. However, founder-CEOs are driven by ownership hypothesis only if their ownership range is between five percent and twenty percent. I also examined whether non founder-CEOs have more incentives to increase their ownership by hedging managerial compensation and it causes decreasing firm value or not using the same measure. Multiple OLS regression shows that non founder-CEOs also have incentives to increase firm value rather than have incentives to hedge their compensation and decrease firm value. This result is not consistent with hedge (effort) incentive hypothesis. Hedge (effort) incentive has positive relationship with firm performance and it is significant within one percent significance level while CEO ownership and risk-aversion level have negative relationships with firm performance which are not statistically significant. A feasible GLS regression analysis produces the

[8] See also Himmelberg, Hubbard, and Palia(1999)

similar results except for the risk-averse level which is statistically insignificant. A piecewise linear regression analysis shows that hedge (effort) incentive has positive effect on the firm performance for non founder-CEO firms while CEO ownership has negative effect on firm performance even though it is not significant. Non founder-CEOs are not driven by any of the hypotheses given in this paper. The hedge (effort) incentive of non founder-CEO firms has consistently positive effect on the firm performance for all three different empirical methods. Overall, both founder-CEOs and non founder-CEOs have incentives to increase their firm value when their hedge (effort) incentive portion of stock options is exposed to market risk. Founder-CEOs' ownership has positive effect on firm performance and more specifically when their ownership is between five percent and twenty percent. This is consistent with ownership hypothesis. The risk-aversion level of founder-CEOs has negative effect on firm performance which is consistent with risk-averse hypothesis. The ownership and risk-averse level of non founder-CEOs are negatively related to firm performance even though they are not significant which implies that the inefficient ownership and risk-averse level of non founder-CEOs might cause negative effect on firm performance

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Appendices

Table I. Variable Description Below are the variable descriptions that are used in the univariate and multivariate analyses

Variables	Description
LogQ	natural logarithmic value of (book value of asset -book value of equity + market value of equity)/book value of asset
CEO ownership	(share owned by CEO)/(common shares outstanding)
Hedge(Effort) Incentive	(unexercised exercisable option value+unexercised unexercised option value+restricted stock option value) /the total compensation
	total compensation=salary+bonus+other annual+total value of stock options granted using Black-Scholes+long-term incentive payouts+all other total
Risk-aversion level	the Arrow-Pratt relative risk-aversion measure with narrow power utility function
CEO tenure	natural logarithmic value of the number of years since the CEO was appointed
CEO pay	the dollar value of CEO total compensation
	total compensation=salary+bonus+other annual+total value of stock options granted using Black-Scholes+long-term incentive payouts+all other total
(CEO ownership)2	the squared value of CEO ownership
Log(CEO age)	natural logarithmic value of CEO age
Log(Board Size)	natural logarithmic value of the board size of firms
Log(Total Assets)	natural logarithmic value of annual total asset
Log(Book-to-Market ratio)	natural logarithmic value of (book value of equity)/(market value of equity)
FounderDummy	the value of 1 if Firms are FounderCEO firms and 0 otherwise
ChairmanDummy	the value of 1 if Founder is equal to chairman for all firms
Research	(R&D expenses)/(net sales)
CAPEX	(capital expenditure)/(net sales)
Advertisement	(advertising expenditure)/(net sales)

Table II. Summary Statistics

Sample consists of 366 publicly traded firms from Compustat Executive Compensation database from 1993 to 2000. FounderCEO Firms are the firms that FounderDummy values are equal to 1, and Non-FounderCEO Firms are the firms that FounderDummy values are equal to 0. ln_Q variable is the natural logarithmic value of the ratio of book value of asset minus book value of equity plus market value of equity to book value of asset. The hedge(effort) incentive variable of CEO is calculated by taking the ratio of the combination of unexercised exercisable option value, unexercised unexercised option value and restricted stock option value for the individual year to the total compensation of CEO for the individual year which is comprised of salary, bonus, other annual, total value of stock options granted using Black-Scholes, long-term incentive payouts, and all other total. Risk-aversion level is calculated by using the Arrow-Pratt relative risk-aversion measure and narrow power utility function. CEO ownership variable is constructed by dividing shares owned by CEO with common shares outstanding. CEO tenure variable is calculated by taking natural log of the number of years since the CEO was appointed CEO. CEO pay variable is the dollar value of CEO remuneration in Compact Disclosure database which is the sum of salary, bonus, other annual, options granted and all other total in the proxy statement. I divided this by 100000 for the scale adjustment. $(\text{CEO ownership})^2$ variable is the square value of CEO ownership. CEO age variable is the natural logarithmic value of CEO age. Board Size variable is the natural logarithmic value of the board size of firms. Financial control variables are as follows. Total Assets variable is constructed by taking natural log of annual total asset of each company as a size control for each firm. Book-to-market ratio variable is calculated by taking natural log of the ratio of firm's book value of equity to market value of equity as a value control (whether the firm is overvalued or undervalued) for each firm. Research variable is calculated by dividing research and development expenses with net sales. CAPEX variable is the ratio of capital expenditure to net sales. Advertisement variable is constructed by dividing advertising expenses with net sales.

	All Firms		FounderCEO Firms		Non-FounderCEO Firms	
Variable	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
LogQ	0.839	0.621	1.044	0.660	0.751	0.583
CEO ownership	0.027	0.068	0.066	0.100	0.011	0.038
Hedge(Effort) Incentive	0.005	0.034	0.006	0.016	0.005	0.040
Risk-aversion level	0.003	0.021	0.002	0.016	0.004	0.022
CEO tenure	0.942	0.667	0.879	0.645	0.969	0.675
CEO pay	16.375	21.852	8.758	11.183	19.499	24.266
$(\text{CEO ownership})^2$	0.005	0.030	0.014	0.048	0.002	0.014
CEO age(log)	3.972	0.146	3.931	0.164	3.989	0.134
Board Size(log)	2.110	0.473	1.891	0.429	2.207	0.460
Total Assets(log)	6.908	1.710	5.950	1.266	7.321	1.711
Book-to-Market ratio(log)	-1.240	0.736	-1.316	0.755	-1.206	0.726
FounderDummy	0.301	0.460				
ChairmanDummy	0.780	0.415	0.911	0.286	0.726	0.446
Research	0.124	0.530	0.185	0.499	0.098	0.541
CAPEX	0.085	0.194	0.106	0.113	0.076	0.220
Advertisement	0.307	0.720	0.323	0.308	0.300	0.830
Number of Observations	1456		435		1021	
Number of Firms	366		118		248	

Table III. OLS Regressions of Firm Performance on Ownership and Hedge(Effort) Incentive

This table reports results of regressing firm performance (logQ) on ownership, hedge (effort) incentive, risk-aversion level and other variables for three different subgroups: all firms, founder-CEO firms and non founder-CEO firms. Multiple OLS regression analysis is performed using <Linear Equation> in the text. All variables are described in Table I. The estimation period is from 1993 to 2000 and the data is from Compustat Executive Compensation database. t-stats are in parentheses and ***, **, * indicate statistical significance at 1%, 5%, and 10% (two-tail) test levels, respectively.

Dependent Variable: logQ			
Variable	All Firms	Founder-CEO Firms	Non Founder-CEO Firms
intercept	1.305*** (4.64)	-0.076 (-0.24)	2.076*** (5.72)
CEO ownership	0.791** (2.11)	0.688** (2.53)	-1.041 (-1.22)
Hedge(Effort) Incentive	4.584*** (5.00)	1.544** (2.57)	11.736*** (5.48)
Risk-aversion level	0.089 (0.10)	-2.307 (-1.39)	-0.437 (-0.43)
CEO tenure(log)	0.016 (1.06)	0.052*** (2.85)	0.005 (0.27)
CEO pay	0.001** (2.14)	-0.0006 (-0.46)	0.001** (2.08)
(CEO ownership)^2	-1.692** (-1.95)	-1.414** (-2.36)	1.321 (0.70)
CEO age(log)	-0.197*** (-2.77)	0.081 (1.09)	-0.383*** (-4.10)
Board Size(log)	-0.005 (-0.23)	-0.058** (-2.25)	0.040** (1.31)
Total Assets(log)	-0.072*** (-8.45)	-0.056*** (-4.65)	-0.074*** (-7.24)
Book-to-Market ratio(log)	-0.703*** (-51.87)	-0.897*** (-55.89)	-0.631*** (-37.05)
Research	0.818*** (5.96)	0.476** (2.20)	0.928*** (5.11)
FounderDummy	0.122*** (4.62)		
ChairmanDummy	-0.123*** (-5.12)	-0.042 (-1.05)	-0.127*** (-4.71)
CAPEX	0.305** (2.41)	0.443*** (3.45)	0.047 (0.26)
Advertisement	-0.455*** (-5.80)	-0.106 (-1.34)	-0.519*** (-4.98)
Number of Observations	1456	435	1021
Adj-R2	0.82	0.95	0.78

Table IV. GLS Regressions of Firm Performance on Ownership and Hedge(Effort) Incentive

This table reports results of regressing firm performance (logQ) on ownership, hedge (effort) incentive, risk-aversion level and other variables for three different subgroups: all firms, founder-CEO firms and non founder-CEO firms. A feasible GLS regression analysis is performed using <Linear Equation> in the text. All variables are described in Table I. The estimation period is from 1993 to 2000 and the data is from Compustat Executive Compensation database. t-stats are in parentheses and ***, **, * indicate statistical significance at 1%, 5%, and 10% (two-tail) test levels, respectively. Breusch-Pagan test statistic is at the bottom of the table.

Dependent Variable: logQ			
Variable	All Firms	Founder-CEO Firms	Non Founder-CEO Firms
intercept	0.626*** (4.03)	-0.330 (-1.45)	0.883*** (4.67)
CEO ownership	0.416** (2.03)	0.453* (1.69)	-0.075 (-0.13)
Hedge(Effort) Incentive	4.172*** (4.49)	0.796*** (2.84)	6.789 (4.34)
Risk-averse level	-0.137 (-0.20)	-2.776* (-1.66)	0.258 (0.27)
CEO tenure	-0.004 (-0.52)	0.040*** (2.96)	-0.013 (-1.44)
CEO pay	0.0001 (0.38)	-0.002*** (-3.52)	-0.0004 (-1.04)
(CEO ownership)^2	-0.980* (-1.88)	-0.167 (-0.18)	-0.807 (-0.76)
CEO age(log)	-0.078** (-2.02)	0.106** (2.06)	-0.151*** (-3.20)
Board Size(log)	-0.004 (-0.26)	-0.047*** (-2.62)	0.019 (1.39)
Total Assets(log)	-0.056*** (-11.40)	-0.047*** (-4.86)	-0.050*** (-9.11)
Book-to-Market ratio(log)	-0.711*** (-68.83)	-0.925*** (-90.73)	-0.647*** (-52.52)
Research	0.283** (3.27)	0.549*** (4.26)	0.166 (1.62)
FounderDummy	0.048*** (3.17)		
ChairmanDummy	-0.015 (-1.09)	0.047 (0.88)	-0.003 (-0.26)
CAPEX	0.175** (2.46)	0.261*** (3.43)	0.009 (0.11)
Advertisement	-0.091** (-2.16)	-0.108** (-2.50)	-0.040 (-0.70)
Number of Observations	1456	435	1021
Adj-R2	0.88	0.98	0.90
Breusch-Pagan Test	1630.965***	62.915***	62.915***

Table V. Piecewise Linear Regressions of Firm Performance on Ownership and Hedge(Effort) Incentive

This table reports results of regressing firm performance (logQ) on ownership, hedge (effort) incentive, risk-aversion level and other variables for three different subgroups: all firms, founder-CEO firms and non founder-CEO firms. A piecewise linear regression analysis is performed by adding C1, C2, and C3 to and by excluding ceoownership and $(ceoownership)^2$ from <Linear Equation> in the text. C1, C2, and C3 variables are calculated according to Morck et. al.(1988). All variables are described in Table I. year dummy variables are included but not reported. The estimation period is from 1993 to 2000 and the data is from Compustat Executive Compensation database. t-stats are in parentheses and ***, **, * indicate statistical significance at 1%, 5%, and 10% (two-tail) test levels, respectively.

Dependent Variable: logQ			
Variable	All Firms	Founder-CEO Firms	Non Founder-CEO Firms
intercept	1.451*** (5.12)	0.088 (0.27)	2.071*** (5.68)
C1	-0.684 (-0.89)	-0.378 (-0.56)	-1.103 (-0.91)
C2	1.102*** (3.05)	0.750*** (3.09)	-0.458 (-0.25)
C3	-1.273** (-2.54)	-0.857** (-2.58)	-0.184 (-0.12)
Hedge(Effort) Incentive	4.299*** (4.72)	1.409** (2.38)	11.363*** (5.27)
Risk-averse level	-0.011 (-0.01)	-3.253* (-1.95)	-0.452 (-0.44)
CEO tenure	0.010 (0.59)	0.024 (1.16)	0.014 (0.64)
CEO pay	0.001* (1.87)	-0.0006 (-0.44)	0.001** (2.03)
CEO age(log)	-0.213*** (-3.01)	0.052 (0.69)	-0.372*** (-3.96)
Board Size(log)	-0.022 (-0.92)	-0.071*** (-2.76)	0.021 (0.67)
Total Assets(log)	-0.071*** (-8.12)	-0.049*** (-4.00)	-0.073*** (-7.02)
Book-to-Market ratio(log)	-0.698*** (-50.74)	-0.884*** (-51.79)	-0.634*** (-36.57)
Research	0.863*** (6.28)	0.467** (2.18)	0.959*** (5.25)
FounderDummy	0.124*** (4.71)		
ChairmanDummy	-0.117*** (-4.89)	-0.039 (-0.97)	-0.129*** (-4.75)
CAPEX	0.362*** (2.86)	0.482*** (3.77)	0.081 (0.45)
Advertisement	-0.481*** (-6.13)	-0.128 (-1.60)	-0.537*** (-5.11)
Number of Observations	1456	435	1021
Adj-R2	0.82	0.95	0.77