

## **CEO Compensation and US High-tech and Low-tech Firms' Corporate Performance**

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### **ABSTRACT**

Many factors contribute to the determination of top executive compensation. This paper explores and examines the systematic difference of high-tech and low-tech CEO pays. It examines the relationship between top executive compensation and an Organizational factor, a Market factor and an Accounting factor. It tests CEO's salary, bonus, and long-term compensation with respect to corporate reputation, ROE, Tobin's Q, CEO shareholding and firm size.

The results show that CEOs' Salaries at high-tech firms shows a significantly positive relationship with ROE, Tobin's Q, and corporate reputation, while only corporate reputation shows a significant relationship with CEOs' salaries at low-tech firms. In addition, both the high-tech and low-tech firm executives' total compensation are significantly and positively related to Tobin's Q, and corporate reputation. Similar results are reported with Long-term compensation. In general, high-tech firms tend to use more sophisticated performance measures for the determination of CEO compensation, while low-tech firms seem to use a simple performance measure such as corporate reputation.

**Keywords:** US CEO Compensation, Corporate Reputation, Accounting Performance, Market Performance

## INTRODUCTION

Managers in high-tech firms are faced with different sets of performance expectations such as innovation, new product development, integration of technology and research and development management. Agency theory in accounting and finance suggests that firms should design incentive compensation system such that agent's (manager) interest is in line with principal's (shareholder) interest. Shareholders design the CEO compensation package in order to motivate and monitor managers and align managers' objectives with shareholders' objectives. Shareholders attempt to insure that CEOs act in a manner that maximizes the value of organization, its owners and other stakeholders.

As compared to low-tech firms, the success of high-tech firms depends more upon managing intangible assets such as technology innovation, continuous improvement, software development and knowledge-based management. High tech firms must continuously innovate to survive and to sustain growth in increasingly competitive and global markets. Balkin et al. (2000) have shown that "CEO compensation was related to innovation as measured by number of patents and R&D spending." Their findings are very interesting and show an important change in CEO compensation which in the past has been heavily tied to accounting and stock performance measures. Balkin et al. (2000) study reports an important change and a new trend in managerial compensation, relies more on process (innovation) rather than financial results such as accounting and market performance measures.

In today's competitive market, managers should focus more on managing processes which will yield financial results such as accounting and stock performance. Kaplan and Norton (1992, 1996, 1997) have long been argued in favor of a balance of various performance measures not a single performance induce goal-congruent behavior. They have argued that, to align performance with company's mission and strategies, performance should be measured with a combination of four different perspectives; Financial perspective, Customer perspective, Learning and Growth perspective and Business and Production Process perspective. Kaplan and Norton proposed to use a Balanced Scorecard in evaluating corporate performance. They argue that employees' learning and growth improve organization's production and quality of services. Organizational and production efficiency increase customer satisfaction and therefore financial results. Henderson and Fredrickson (1996) have shown that CEOs are "paid for the level of information processing that their jobs requires." Their findings showed that "CEO compensation was higher in firms whose diversification strategy, approaches to technology, and top management team structure

placed particularly high information-processing demands on their CEOs.”

This study explores the determinants of the high-tech and low-tech CEO pays. This paper attempts to examine how high-tech and low-tech CEO pays are related to various performance measures such as corporate reputation, firm size, CEO's stock ownership, ROE and Tobin's Q. It also attempts to examine the systematic difference in CEO pays and the performance expectations of high-tech firms and low-tech firms.

The results in general exhibit that high-tech firms tend to use a comprehensive and a more sophisticated performance measures than those of low-tech firms. The salaries of high-tech firm executives show a significantly positive relationship with ROE, Tobin's Q and corporate reputation, while corporate reputation shows a significantly positive relationship with that of low-tech firms. For the CEOs' total compensation, Tobin's Q and corporate reputation show a significantly positive relationship with both high-tech and low-tech firms. Similar results are exhibited for the long-term compensation.

This paper makes two important contributions. First, it provides a better classification of high-technology firms. Most previous studies (Balkin et al., 2000; Barkema & Gomez-Mejia, 1998; Shim and Lee, 1995) classify high-technology industry as an industry with Research and Development expenditure greater than 5% of total sales. This classification is based on the industry R&D expenditure rather than a firm's proportional R&D expenditure and can be misleading. Because, with this classification, a firm would be classified as a high-tech firm as long as it belongs to an industry with average R&D expenditure greater than 5% of sales, even though this firm's R&D expenditure may be less than 5% of total sales. This paper refines the high-tech classification. It is not only based on industry-average R&D expenditures but based on a firm's proportional R&D expenditures. That is, in order to be classified as a high-tech firm, a firm's R&D expenditure should be more than 5% of total sales. The results of this study would be robust with the refined high-tech classification. Baruch survey (1997) showed that a set of 3 criteria were used most often for high-technology company: (1) percentage of employees with a university degree (more than 10%), (2) Percentage of investment in research and development (more than 5%) and (3) the area of activity of the organization (industry sector). Second, this paper examines a more comprehensive relationship between top executive compensation and corporate performance. It specifically incorporates corporate reputation as a possible explanatory variable to the executive compensation in addition to accounting and market-based performance. Previous studies overlooked this important variable. This paper will help in filling gap and provide better understanding on compensation

and performance relationship.

The paper is organized as follows. The second section presents a literature review and the testable hypotheses. The third section describes the methodology: sample, data collection and research methods. The fourth section provides results and analyses. The final section presents summary, conclusions and further research issues.

### **LITERATURE REVIEW AND HYPOTHESES**

Balkin, Markman and Gomez-Mejia (2000) investigated CEO pay in high-technology firms. They compared the CEO pays of 90 high-technology firms with 74 low-technology firms (control sample). By using the number of patents and R&D spending as surrogates for innovation, they found that CEO short-term compensation was related to innovation and the relationship was 'less consistent temporal' for the long-term compensation in high-technology firms. For the low-tech firms, no relationship was found between innovation and either short- or long-term compensation. Their study provides important evidence that ties CEO compensation with process and innovation rather than accounting and stock performance. Finkelstein and Boyd (1998) have examined a very comprehensive relationship between CEO compensation and managerial discretion for the Fortune 1,000 firms. Their study showed that "CEO compensation was positively related to managerial discretion such as market growth, R&D intensity, Advertising intensity and Concentration. They also showed that ROE, firm size and CEO tenure are significantly related to CEO compensation. Other studies have shown that other factors contribute to the determination of the CEO pays such as internationalization (Sanders and Carpenter, 1998), governance structure, ownership structure (David et. al., 1998), CEO power and managerial discretion (Finkelstein and Boyd, 1998).

Barkema and Gomez-Mejia (1998) argues that the relationship between CEO pays and firm performance is limited because many other variables influence the CEO pays. Many previous studies suggest that the explanatory power of the pay-for-performance sensitivity is relatively low (Jensen and Murphy, 1990). This paper attempts to enhance understanding of the determinants of CEO pays in high-tech and low-tech industry. This paper fills the gap and extends the Balkin et al. (2000) and previous studies by empirically investigating a more comprehensive relationship. It specifically examines the relationship between a set of CEO compensation variables and a set of performance variables. Most previous studies are missing an important determinant of the CEO compensation, corporate reputation. The Balkin et al. (2000) study is missing a number of important determinant variables of CEO compensation such as stock performance and corporate reputation. This paper is an attempt to

provide additional evidence and to examine a comprehensive relationship for high-tech and low-tech firms using relatively recent data, 1999-2001. Since high-tech firms seem to rely more on stock-based performance measures for the determination of CEO compensation, the followings are the proposed hypotheses:

- H1: High-tech CEO's compensation is positively related to the market performance.
- H2: High-tech CEO's compensation is positively related to corporate reputation.
- H3: High-tech CEO's compensation is positively related to accounting performance.

## **METHODOLOGY**

### **Sample Selection**

Sample firms were initially selected from the "Fortune's 500 America's Most Admired Companies." The Fortune provides rankings of the corporate reputation according to 6 attributes: (1) Ability to Attract, (2) Quality of product or services, (3) Increase in market share (4) Quality of Management, (5) Innovativeness, and (6) Develop and keep talented people. The sample, "Fortune's 500 America Most Admired Companies," is matched with the Forbes "1999-2001 Top 800 CEO Paychecks." This matching resulted in 313 firms that both corporate reputation and compensation data are available. The corresponding financial data were gathered from Compustat. The 37 firms were excluded from the sample due to lack of data on financial performance variables and other variables. Finally 276 firms were chosen and utilized for this study, divided into 111 high-tech firms and 165 low-tech firms.

The majority of total sample firms are in the Financial Services (SIC, 6000-6999) industry, 38 firms or 14%, in the Wholesale, Retailers & Food services industry, 24 firms or 9%. The majority of the sample, 88% of the total sample, 244 firms, comes from large corporations with over \$2 billion of assets.

Table 1-A Number of Firms in Samples by Type of Industry:  
High-techa vs. Low-tech

<b>Industry</b>	<b>High-tech</b>	<b>Low-tech</b>	<b>Total</b>	<b>SIC</b>
Mining & Drilling	3	15	18	1000-1499, 2900-2999
Construction	0	4	4	1500-1799
Food, Drink, & Tobacco	0	12	12	0-999, 2000-2199
Textile & Apparel	0	3	3	2200-2399
Lumber & Wood Products	1	11	12	2400-2699
Drugs & Chemicals	20	0	20	2800-2899
Rubber, Plastic, & Leather	1	3	4	3000-3199
Prime & Fabric Metals	13	3	16	3300-3499
Machinery & Computer	17	0	17	3500-3599
Electric & Electronic Equip.	14	0	14	3600-3699
Transportation Equipments	15	0	15	3700-3799
Measurement Instruments	12	0	12	3800-3899
Computer Related Sevices	15	2	17	7370-7399
Transportation & Leisure Serv.	0	15	15	4000-4700, 7000-7099
Publishing & Communication	0	18	18	2700-2799, 4800-4899
Wholesale, Retailer, & Food Serv.	0	24	24	5000-5999
Financial Services	0	38	38	6000-6999
Other Business Services	0	17	17	4900-4999, 7500-8999
<b>Total</b>	<b>111</b>	<b>165</b>	<b>276</b>	

a. High-tech counts are firms with more than 5% in R&D intensity

### Variable Definition

Executive compensation is normally separated into salary (SALA), bonus (BONU) and long-term (LCOM) compensations. Total compensation (TCOM) is measured by the sum of salary, bonus and long-term compensation.

For the independent variables, a set of proxies for Accounting Factor, Market (Stock-based) factor, and Organizational factor has been selected. For the accounting factor, Return On Equity (ROE) was utilized for the proxy for an accounting performance measure, while Tobin's Q (TBQ) were used as a surrogate for market factor. The ROE is calculated by dividing net income by average balance of common stockholder's equity. Tobin's Q is used as a proxy for the book-to-market value. Tobin's Q3 =  $[MVE + PS + DEBT] / [TA]$ . Where MVE is the market value of shareholder equity (product of a firm's closing stock price and the number of common stock shares outstanding), PS is the liquidating value of the firm's outstanding preferred stock, DEBT is the value of the firm's short-term liabilities net of its short-term assets, plus the book value of the firm's long term debt, and TA is the book value

of the total assets of the firm. We employed the approximation of Tobin's Q as in Chung and Pruitt (1994), because it only requires data from COMPUSTAT. The Chung and Pruitt (1994) study revealed that this approximation of Tobin's Q has an extremely high predictive accuracy when compared to the original formulation (Finkelstein and Boyd, 1998).

Table 1-B Number of Firms in Total Sample by Asset Size

<b>Asset Size</b>	<b>Count</b>
Less than \$ 2,000 mil.	32
\$ 2,001 - 3,000	30
3,001 - 5,000	42
5,001 - 7,000	32
7,001 - 10,000	17
10,001 - 15,000	35
15,001 - 25,000	28
25,001 - 40,000	21
40,001 - 100,000	24
Larger than \$100,000 mil.	15
<b>Total</b>	<b>111</b>

For the organizational factor, Company reputation (CORU) was utilized. Company Reputation is the average score of company reputation composed by eight attributes: quality of management; quality of products or services; innovativeness; long-term investment value; financial soundness; ability to attract, develop, and keep talented people; responsibility to the community and the environment; and wise use of corporate assets. In addition, two control variables were used for the analysis. Firm size is well documented and researched to have a significant positive relationship with CEO compensation in many studies. In addition, the CEO stock ownership is also included as a control variable. The CEO Stock Ownership (OCEO) was measured by the percentage of outstanding stockholdings by the CEO.

For the data analysis, descriptive statistics for each variable were computed first. Then, Pearson's Product Moment Coefficient of Correlation was utilized to identify the intercorrelation among the various measures. Finally, lagged regression analysis was employed to determine the significance and magnitude of the relationships between CEO compensation and various organizational and financial performance measures. The Ordinary Least Square (OLS) method was used to estimate the regression parameters.

The lagged regression models are as follows;

$$\text{Ln (SALt)} = a + b1 \text{ TBQt-1} + b2 \text{ ROEt-1} + b3 \text{ CORUt-1} + b4 \text{ FSIZt-1} + b5 \text{ OCEOt-1} + e$$

$$\text{Ln (LCOMt)} = a + b1 \text{ TBQt-1} + b2 \text{ ROEt-1} + b3 \text{ CORUt-1} + b4 \text{ FSIZt-1} + b5 \text{ OCEOt-1} + e$$

$$\text{Ln (TCOMt)} = a + b1 \text{ TBQt-1} + b2 \text{ ROEt-1} + b3 \text{ CORUt-1} + b4 \text{ FSIZt-1} + b5 \text{ OCEOt-1} + e$$

### **RESULTS AND ANALYSIS**

The descriptive statistics of the variables for high-tech firms are presented in the Table 2-A and Low-tech firms are in the Table 2-B. Mean total compensation for the high-tech CEO in 2000 and in 2001 was about \$16.4 million and \$13.3 million, while the low-tech firms' mean total compensation is \$7.5 million and \$8.4 million respectively. This indicates that high-tech firms' executives are receiving substantially higher total compensation than that of the low-tech counterparts. In addition, high-tech firms' CEO pays rely heavily on long-term compensation, represented 86% of its total compensation in 2000 and 83% of its total compensation in 2001. On the contrary, only 70% of low-tech executives' total compensation was in the form of long-term compensation in 2000 and 68% in 2001. High-tech executives' cash compensation, Salary and Bonus, accounts for only about 14% of total compensation in 2000 and about 17% of total compensation in 2001. This means that almost all of the CEOs' compensation is in the form of stock.

As Table 3-A, 3-B, 4-A and 4-B Indicate, CEO Compensation is highly correlated with Firm size in both high-tech and low-tech companies. On the contrary high-tech companies' CEO compensation exhibits a high correlation with CEO share ownership, while low-tech companies' CEO compensation is highly correlated with Company reputation. This difference is would be investigated further.



Table 2-A Descriptive Statistics: High-tech vs. Low-techa (Year 1999-2000)

Variables	High-tech		Low-tech	
	Mean	Std. Dev.	Mean	Std. Dev.
Salary <sup>b</sup>	878.13	345.82	860.58	305.27
Salary & Bonus <sup>b</sup>	2,132.31	1,411.09	2,280.14	2,029.87
Long-term Comp. <sup>b</sup>	14,278.33	63,245.05	5,206.31	15,989.93
Total Compensation <sup>b</sup>	16,410.64	63,633.00	7,486.45	17,026.40
ROE	19.62	31.79	9.59	74.44
Tobin's Q	3.13	3.46	1.55	1.81
Company Reputation	6.41	0.99	6.32	0.94
Ownership (%)	1.03	3.27	1.88	5.37
Firm Size: Ln (Sales)	8.89	1.00	9.04	1.04

Table 2-B Descriptive Statistics: High-tech vs. Low-techa (Year 2000-2001)

Variables	High-tech		Low-tech	
	Mean	Std. Dev.	Mean	Std. Dev.
Salary <sup>b</sup>	884.64	326.16	900.92	338.10
Salary & Bonus <sup>b</sup>	2,165.23	1,501.14	2,750.05	2,803.71
Long-term Comp. <sup>b</sup>	11,125.90	30,488.45	5,694.23	18,277.29
Total Compensation <sup>b</sup>	13,291.13	30,870.35	8,444.28	20,306.54
ROE	12.35	37.34	15.15	25.33
Tobin's Q	2.54	2.44	1.40	1.73
Company Reputation	6.20	0.96	6.12	1.03
Ownership (%)	0.86	3.08	1.74	5.27
Firm Size: Ln (Sales)	8.98	1.01	9.18	1.08

<sup>a</sup> High-tech (n = 111) vs. Low-tech (n = 165)

<sup>b</sup> In thousands of dollars

Table 3-A Descriptive Statistics and Correlations: High-techa  
(Samples for 1999 and 2000 Analysis)

Variable	Mean	Std. Dev.	1	2	3	4	5	6	7	8
1. Salary <sup>b</sup> , 2000	878.13	345.82								
2. Salary & Bonus <sup>b</sup> , 2000	2,132.31	1,411.09	0.639***							
3. Long-term Compensation <sup>b</sup> , 2000	14,278.33	63,245.05	0.087	0.264**						
4. Total Compensation <sup>b</sup> , 2000	16,410.64	63,633.00	0.185*	0.285**	0.734***					
5. ROE, 1999	19.62	31.79	-0.030	0.182*	0.023	0.027				
6. Tobin's Q, 1999	3.13	3.46	0.169*	0.187*	0.179*	0.029	0.092			
7. Company Reputation, 1999	6.41	0.99	0.163	0.250**	0.226*	0.230*	0.140	0.523***		
8. Ownership, 1999	1.03	3.27	-0.115	0.021	0.090	0.090	0.187*	0.191*	0.186*	
9. Firm Size: Ln(Sales), 1999	8.89	1.00	0.572***	0.565***	0.032	0.044	0.069	-0.042	0.407***	-0.053

Table 3-B Descriptive Statistics and Correlations: Low-techa  
(Samples for 1999 and 2000 Analysis)

Variable	Mean	Std. Dev	1	2	3	4	5	6	7	8
1. Salary <sup>b</sup> , 2001	860.58	305.27								
2. Salary & Bonus <sup>b</sup> , 2001	2,280.14	2,029.87	0.587***							
3. Long-term Compensation <sup>b</sup> , 2001	5,206.31	15,989.93	-0.058	0.231**						
4. Total Compensation <sup>b</sup> , 2001	7,486.45	17,026.40	-0.028	0.277**	0.897***					
5. ROE, 2000	9.59	74.44	0.147	0.184*	0.245**	0.176*				
6. Tobin's Q, 2000	1.55	1.81	0.199*	0.176*	0.179*	0.182*	0.194*			
7. Company Reputation, 2000	6.32	0.94	0.063	0.183*	0.168*	0.257**	0.321***	0.541***		
8. Ownership, 2000	1.88	5.37	0.174*	-0.168	0.229**	0.216**	0.098	0.238*	0.002	
9. Firm Size: Ln(Sales), 2000	9.04	1.04	0.419***	0.452***	0.206**	0.226**	0.209**	0.065	0.416***	-0.010

a. n = 111

b. In thousand of dollars

\* p < 0.05; \*\* p < 0.01; \*\*\* p < 0.001

The results of OLS lagged regression analysis are presented in the Table 5-A, 5-B and 5-C. In high-technology firms, salary shows a significantly positive relationship with all of the tested variables; ROE, Tobin's Q and corporate reputation. On the other hand, only corporate reputation shows a significantly positive relationship in low-technology firms in 2000-2001. Long-term compensation shows somewhat different results as compared to that of salary. Both high-tech and low-tech CEO pays show a significantly positive relationship with Tobin's Q and corporate reputation. The results of total compensation are almost identical to that of the long-term compensation. Given that salary accounts for less than 20% of total compensation, it is not surprising that the results of long-term compensation and the results of total compensation are identical. The results are consistent with and confirm Hypotheses 1, 2, and 3.

The results indicate that high-tech firms tend to use a more sophisticated compensation package and rely more on stock based compensation, while low-tech firms adopt a compensation package that relies more on a single variable, reputation. For the high tech firms, ROE, Tobin's Q, and reputation show a significant relationship with CEO salary, while only reputation shows a significant positive relationship in low-tech firms.

Table 4-A Descriptive Statistics and Correlations: High-techa  
(Samples for 2000 and 2001 Analysis)

Variable	Mean	Std. Dev	1	2	3	4	5	6	7	8
1. Salary <sup>b</sup> , 2000	884.64	326.16								
2. Salary & Bonus <sup>b</sup> , 2000	2,165.23	1,501.14	0.328***							
3. Long-term Compensation <sup>b</sup> , 2000	11,125.90	30,488.45	0.306***	0.463***						
4. Total Compensation <sup>b</sup> , 2000	13,291.13	30,870.35	0.327***	0.554***	0.994***					
5. ROE, 1999	12.35	37.34	-0.069	0.065	0.073	0.077				
6. Tobin's Q, 1999	2.54	2.44	0.036	-0.017	0.175*	0.173*	0.097			
7. Company Reputation, 1999	6.20	0.96	0.068	0.261***	0.297***	0.312***	0.345***	0.171*		
8. Ownership, 1999	0.86	3.08	-0.105	0.012	0.042	0.167*	0.027	0.093	0.199*	
9. Firm Size: Ln(Sales), 1999	8.98	1.01	0.394***	0.342***	0.164*	0.195*	-0.036	-0.043	0.169*	-0.050

Table 4-B Descriptive Statistics and Correlations: Low-techa  
(Samples for 2000 and 2001 Analysis)

Variable	Mean	Std. Dev	1	2	3	4	5	6	7	8
1. Salary <sup>b</sup> , 2001	900.92	338.10								
2. Salary & Bonus <sup>b</sup> , 2001	2,750.05	2,803.71	0.271***							
3. Long-term Compensation <sup>b</sup> , 2001	5,694.23	18,277.29	0.093	0.687***						
4. Total Compensation <sup>b</sup> , 2001	8,444.28	20,306.54	0.122	0.756***	0.994***					
5. ROE, 2000	15.15	25.33	0.076	0.073	0.061	0.165*				
6. Tobin's Q, 2000	1.40	1.73	0.080	0.001	0.168*	0.243**	0.141			
7. Company Reputation, 2000	6.12	1.03	0.139	0.284***	0.256***	0.269***	-0.011	0.128		
8. Ownership, 2000	1.74	5.27	-0.059	-0.007	-0.015	-0.014	-0.018	0.031	0.207**	
9. Firm Size: Ln(Sales), 2000	9.18	1.08	0.331***	0.404***	0.264***	0.293***	-0.046	-0.083	0.238**	-0.038

a. n = 165

b. In thousand of dollars

\* p < 0.05; \*\* p < 0.01; \*\*\* p < 0.001

Table 5-A Results of OLS Lagged Regression Analysis for Salarya

Variables	Year (1999-2000)		Year (2000-2001)	
	High-tech <sup>b</sup>	Low-tech <sup>c</sup>	High-tech <sup>b</sup>	Low-tech <sup>c</sup>
ROE	-0.012(.003)	-0.092(.132)	0.208(.087)*	0.068(.048)
Tobin's Q	0.020(.015)	0.013(.035)	0.158(.042)*	0.018(.012)*
Reputation	0.214(.009)**	0.212(.042)**	0.147(.038)*	0.159(.042)**
CEO Ownership	-0.137(.045)*	-0.175(.063)*	-0.234(.101)*	-0.153(.013)*
Firm Size	0.452(.120)***	0.303(.102)***	0.441(.102)***	0.280(.027)**
Adjusted R <sup>2</sup>	0.242	0.219	0.327	0.264
F-Ratio	4.210***	3.569**	6.682***	4.258***

Table 5-B Results of OLS Lagged Regression Analysis for Long-term Compensationa

Variables	Year (1999-2000)		Year (2000-2001)	
	High-tech <sup>b</sup>	Low-tech <sup>c</sup>	High-tech <sup>b</sup>	Low-tech <sup>c</sup>
ROE	-0.014(.012)	-0.041(.010)	0.091(.048)	0.083(.051)
Tobin's Q	0.198(.082)*	0.198(.082)*	0.188(.043)*	0.148(.052)*
Reputation	0.270(.052)**	0.212(.042)**	0.125(.033)*	0.244(.073)**
CEO Ownership	-0.154(.071)*	0.021(.013)	-0.238(.058)*	-0.102(.086)
Firm Size	0.228(.178)**	0.187(.079)*	0.186(.078)*	0.264(.102)**
Adjusted R <sup>2</sup>	0.319	0.220	0.304	0.235
F-Ratio	5.025***	4.433***	6.114***	5.612***

Table 5-C Results of OLS Lagged Regression Analysis for Total Compensationa

Variables	Year (1999-2000)		Year (2000-2001)	
	High-tech <sup>b</sup>	Low-tech <sup>c</sup>	High-tech <sup>b</sup>	Low-tech <sup>c</sup>
ROE	0.081(.037)	0.039(.010)	0.102(.081)	0.070(.043)
Tobin's Q	0.182(.074)**	0.176(.073)*	0.271(.058)**	0.185(.087)*
Reputation	0.329(.112)***	0.212(.042)**	0.246(.065)**	0.249(.102)**
CEO Ownership	-0.104(.075)	-0.022(.018)	0.198(.051)	0.069(.038)
Firm Size	0.301(.151)**	0.143(.052)*	0.298(.101)**	0.286(.021)**
Adjusted R <sup>2</sup>	0.287	0.225	0.328	0.219
F-Ratio	4.819***	4.012**	6.856***	5.120**

a. Cell entries are standardized regression coefficients; Standard error s are in parentheses.

\* P < 0.05 \*\* P < 0.01 \*\*\* P < 0.001

b. High-tech industry (n=111)

c. Low-tech industry (n=165)

d. Total sample including High-tech and Low-tech industry (n=276)

## SUMMARY, CONCLUSIONS AND FURTHER RESEARCH ISSUES

This paper reports the results of a recent empirical study of the determinants of CEO compensation in high-tech and low-tech firms. This paper finds that CEO compensation at high-tech firms relies more on corporate reputation and use a more sophisticated performance measures for the determination of the CEO compensation. This line of research can be extended to include other countries' sample and can also be conducted with an industry-specific sample. The examination of the performance and compensation relationship with a specific industry would add to the understanding of the relationship. Comparative studies with other countries, such as Germany and Japan, would enlighten the linkage of compensation and a set of performance variables in different economic environments, since companies compete globally. It would be a new and important line of research, if we examine the relationship for other countries such as Japan and Germany (Barkema and Gomex-Mejia, 1998). In

addition, other performance indicators should be examined in order to better understand the determinants of CEO compensation. For example, is CEO compensation tied to Customer satisfaction measures or Employee productivity and efficiency? Are Production and organization effectiveness and efficiency matter for CEO compensation? A more comprehensive examination will increase the understanding of the performance and compensation relationship.

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