The Impact of Compensation Committee Quality and Firm Performance on Management Compensation: Evidence from Taiwan

Mao-Chang Wang[*]
Department of Accounting, Chinese Culture University, Taiwan

Chia-Wei Lin
Department of Accounting, Chinese Culture University, Taiwan

Abstract

The purposes of establishing a compensation committee are to enhance the transparency of management compensation, operate internal and external oversight mechanisms, and render management compensation more reasonable. This paper examines the impact of compensation committee quality and firm performance on management compensation within the Taiwanese electronics industry by regression analysis. The empirical results show firm performance and compensation committee quality are positively related to management compensation. The results provide a reference for promoting and constructing a policy for establishing compensation committees. The results also can provide a reference point for firms in emerging economies that seek to implement compensation committees.

Keywords: Corporate Governance; Management compensation; Firm performance; Compensation committee quality; Agency costs.

1. Introduction

Berle and Means discussed how to design an effective compensation contract for reducing agency costs in 1932, and agency theory has become the core subject. Enterprise ownership and management are increasingly separated because agency costs occur when the potential interests of the enterprise, which pursues overall shareholder-utility maximization, conflict with those of enterprise managers, who pursue self-utility maximization (Jensen and Meckling, 1976). The enterprise applies incentives and constraints (e.g., compensation contracts) to encourage management to make choices that conform to the interests of shareholders. Performance-oriented incentive compensation generally reduces agency costs and eliminates the inconsistency in interests between shareholders and management (Iyengar *et al.,* 2005); (Ozkan, 2011). However, managers who pursue the greatest interests also consider the risk levels that they can withstand. The attitude of management may be conservative when the risk approaches the upper limit that affects managers' decision-making, meaning that when seeking to maximize their own interests, shareholders should consider the upper limit of risk that management can withstand. From the perspective of shareholders, the development of a compensation contract reduces the agency problem, and the exposure risk of shareholders is transferred to management, meaning that management bears the decision-making consequences. According to the management view, the compensation contract should minimize enterprise-specific risks and maximize their own interests (Craighead *et al.,* 2004).

After the global financial crisis, numerous companies in many countries incurred losses, resulting in many interested parties incurring losses. Management still received high salaries in companies operating at a loss, which triggered criticism. The Taiwanese Financial Supervisory Commission introduced the compensation committee system, which has been established for a long time in Western countries. The Taiwanese Financial Supervisory Commission decided that listed companies must establish a compensation committee before the end of 2011. Enhancing management compensation transparency and operating internal and external oversight mechanisms can render management compensation more reasonable. The key points of successful operation of a compensation committee are as follows: a perfect reward and performance management system, effective enforcement and implementation, and the professional level of the compensation committee (Taiwan Stock Exchange, 2013).

This paper examines the impact of compensation committee quality and firm performance on management compensation within the Taiwanese electronics industry by regression analysis. Compensation committee quality is measured by six variables: size of the compensation committee, number of meetings, ratio of directors, ratio of independent directors, professional level ratio of the compensation committee, and whether the compensation committee was voluntarily established. Firm performance is measured by shareholders' return on equity (ROE) and return on assets (ROA). This paper can facilitate clarifying the impact of compensation committee quality and firm performance on management compensation for related government authorities, practitioners, and academics. These results compensate for the lack of research on this topic and provide a reference for promoting and constructing a policy for establishing compensation committees. The results also can provide a reference point for firms in emerging economies that seek to implement compensation committees.

*Corresponding Author

2. Literature Review and Hypothesis Development

2.1. Firm Performance and Management Compensation

In modern enterprises, management is separate from ownership; such an environment results in information asymmetry between the principle and agent, meaning that enterprises develop a moral hazard problem where management may pursue the maximization of its individual interests. Jensen and Meckling (1976) argue that in a company with separation between ownership and management, the shareholders are relatively weakly bound to management and managers allocate and use company resources to maximize their individual utility. This behavior can deviate from shareholders' goal of wealth maximization. This interest conflict causes the agency cost problem to occur in the agency relationship. Companies usually provide certain incentives, such as cash dividends and stock options, to encourage management to enhance corporate performance. Prior studies have found that manager compensation is related to corporate performance (Gomez-Mejia and Tosi, 1987; Hung and Wang, 2005; Kaplan, 1994).

Bryan and Hwang (1997) examine the determinants of CEO pay–performance sensitivity, and the results suggest that when corporate earnings are subject to political restrictions and behavioral manipulation of management, the pay–performance sensitivity is relatively weak. Core et al. (1999) investigate general manager compensation related to the characteristics and composition of the shareholder structure and the board of directors, finding that general managers tend to receive higher compensation under the following circumstances: when the chairman of the board is the general manager, when the board is larger, when a higher proportion of independent directors has been assigned by the general manager, and when outside directors are holder and have served as the directors of several companies. These elements can lead to a lower quality of corporate governance. Ozkan (2011) examines the relationship between CEO pay and performance for 390 UK nonfinancial companies and reports that corporate performance and CEO compensation exhibit a positive and significant relationship and that the proportion of institutional ownership has a positive and significant impact on corporate performance and CEO compensation. Lee and Chen (2011) analyze the relationships among corporate governance, firm value, and CEO compensation and determine that CEO pay is interdependent with corporate governance and firm value.

2.2. Studies Related To Compensation Committee Quality

Conyon and Peck (1998) examine whether the presence of a compensation committee under the control of the board of directors can affect management compensation in British companies. The results show that the presence of such as committee has a limited impact on management compensation, but a compensation committee of outside directors is more relevant to corporate performance. Anderson and Bizjakb (2003) study whether higher independence of a compensation committee affects shareholders' interests and the CEO salary structure, finding little evidence that the level of independence of a compensation committee affects management salaries. Kovačevič (2009) reports the results of an empirical study of compensation committee members, and explores issues in the formulation of executive pay from a compensation committee perspective. This study found that requirements for disclosure did little to ensure modest packages were awarded. Indeed, disclosure requirements were often cited as one of the causes of pay escalation.

Zhu et al. (2009) reveal that the CEO compensation system has a major impact on the interactions between independent directors and the compensation committee. Sun et al. (2009) investigate whether the quality of the compensation committee is affected by the relationship between the company's future performance and the CEO-owned equity. A company's future performance is significantly positively related to CEO-owned equity when the quality of the compensation committee is higher. Sun et al. (2009) analyze the effect of compensation committee quality on the association between CEO compensation and accounting earnings for 812 US companies and find that when compensation committee quality is higher, CEO compensation and accounting earnings have a significantly positive relationship. Sun and Cahan (2012) examine the determinants of compensation committee quality, and the results reveal that the quality of the compensation committee is higher when the committee is not affected by the CEO, when the number of institutional shareholders is low, and when a firm has low-growth opportunities and a smaller scale; this means that compensation committee quality varies depending on the economic situation of company.

Mehrabanpour (2014) investigates the relationship between the management compensation plan and the quality of the compensation committee by using a study sample consisting of data collected from 828 companies in Malaysia between 2008 and 2010. The empirical results reveal that the quality of a compensation committee has a significant impact on performance-based management compensation and that performance-based management compensation has a significant impact on a company's performance. Wu et al. (2014) examine whether the establishment of compensation committees and the governance quality of the committees strengthens the association between top executives' cash compensation and accounting performance. The empirical results demonstrate that the establishment of compensation committees has a positive effect on pay–performance sensitivity and that several characteristics of compensation committee quality have a significant impact on corporate governance mechanisms.

The three reasons to have Taiwan enterprises establish a compensation committee are to (a) assist the board of directors in developing a transparent and equitable program to set performance evaluation and compensation structure standards for the firm's management, (b) assist the board of directors in fulfilling the duties of management compensation and reviewing the content of the compensation structure to meet the requirements of laws and regulations, and (c) establish broad principles to enhance the corporate governance framework (Dai, 2011). Because Taiwan is still at the preliminary stages of establishing compensation committees and the compensation committee

systems differ among Taiwan and various American and European countries, determining the effectiveness and quality of compensation committees in Taiwanese firms is the objective of this study.

This paper examines the impact of compensation committee quality and firm performance on management compensation in the Taiwanese electronics industry. Six variables are measured to determine the quality of the compensation committee: compensation committee size, number of meetings, ratio of directors, ratio of independent directors, professional level ratio of the compensation committee, and whether the compensation committee was voluntarily established (Sun and Cahan, 2012). Firm performance is measured by ROE and ROA. This paper proposes the following three hypotheses:

H1: Firm performance has a positive relationship with management compensation.

H2: Compensation committee quality has a positive or negative relationship with management compensation.

H3: Compensation committee quality has a moderation effect on the positive relationship between firm performance and management compensation.

3. Research Methods

This section consists of four subsections that describe the research methods, specifically the research period, sample selection, variable definitions, and research models.

3.1. Research Period and Sample Selection

The sample is derived from listed firms in the Taiwanese electronics industry in 2013. After the removal of incomplete observations, the final sample consists of 347 observations with complete data for analysis. Data are obtained from the databases of the *Taiwan Economic Journal* and the Market Observation Post System.

3.2. Variable Definitions
3.2.1. Dependent Variables: Management Compensation (TOTALCOMP)

Management compensation is the sum of salaries, severance pay, bonuses, cash and stock dividends, and rewards distribution of earnings, divided by the number of directors, general managers, and vice general managers, after taking the natural logarithm of quotient.

3.2.2. Independent Variables
a. Firm Performance (Perf)

Ozkan (2011) argues that management compensation has a positive relationship with firm performance; therefore, ROE and ROA are used to measure firm performance in this study. These variables are defined as follows:

ROE = [(net income after tax − stock dividends)/average shareholders' equity] × 100

ROA = (net income before tax, interest, and depreciation/average total assets) × 100%

b. Compensation Committee Quality Score (CCQ)

Sun and Cahan (2009) argue that a higher-quality compensation committee strengthens corporate governance effectively. Accordingly, the following six variables are used to measure the compensation committee quality:

(a) Compensation committee size: According to the law, a compensation committee must have at least three members. Compensation committee size is defined as

Size of the compensation committee = number of members of the compensation committee divided by 3.

(b) Number of meetings: According to the law, compensation committees must hold at least two meetings per year. A higher number of meetings indicate a higher-quality compensation committee, and the number of meetings is defined as

Number of meetings = number of meetings per year divided by 2.

(c) Ratio of directors: In the United States and Europe, compensation committee members are required to be independent directors, whereas in Taiwan, no requirement that the members of a compensation committee be independent directors exists. Compensation committee quality may be affected by the presence of nonindependent directors as compensation committee members such that the higher the proportion of nonindependent directors is, the lower the quality of the compensation committee. The formula is Ratio of directors = number of nonindependent directors in the compensation committee multiplied by −1 and then divided by the number of members of the compensation committee.

(d) Ratio of independent directors: The ratio of independent directors serving as members of the compensation committee is defined as follows: Ratio of independent directors = number of independent directors in the compensation committee divided by the number of members of the compensation committee.

(e) Professional level ratio of the compensation committee

The professional levels of the compensation committee members can be classified as follows:

(i) university lecturers in subjects such as business, law, finance, accounting, and other fields relevant to the company,

(ii) judges, prosecutors, lawyers, accountants, and people in fields relevant to the company who have passed the state exam for specialized vocational and technical personnel, and

(iii) people with work experience required for the business, legal, financial, accounting, and other related affairs of the company.

The professional level ratio of the compensation committee is defined as follows:

professional level ratio of the compensation committee = number of compensation committee members who meet only one of qualifications (i), (ii), or (iii) /number of members of the compensation committee.

(f) Whether the compensation committee was voluntarily established: The Taiwanese Financial Supervisory Commission required that listed companies establish compensation committees by March 18, 2011. Therefore, a company that had established an audit committee before March 18, 2011 is ranked as one. Otherwise, the company is ranked as zero.

The CCQ score is defined as follows:

CCQ＝compensation committee size + number of meetings + ratio of directors + ratio of independent directors + professional level ratio of the compensation committee + whether the compensation committee was voluntarily established.

3.2.3. Control Variables

a. Debt ratio (LEV): The debt ratio is often used as a measure of a company's financial risks. Agrawal and Knoeber (1996) argue that the debt ratio has a negative relationship with corporate performance. Therefore, debt ratio is a control variable in this study. It is defined as follows:

Debt ratio = (total liabilities/total assets) × 100%

b. Percentage of shareholding directors (SH_DAS): Jensen and Meckling (1976) and Yongli (2012) argue that a higher percentage of shareholding directors indicates that the shares and interests of the company have connectivity and that directors are more motivated to influence the business management performance. It is defined as follows:

SH_DAS ＝ (number of shares held by directors/the number of shares outstanding at the end of the year) × 100%

c. Percentage of legal shareholders (SH_L): The shareholding by legal shareholders is divided by the number of shares outstanding at the end of the year. Legal shareholders are defined as government agencies, financial institutions, trust funds, and corporations.

d. Manager as concurrent director (DUAL): Firms with the manager serving concurrently as a director are ranked as one. Otherwise, they are ranked as zero.

e. Ratio of independent directors (IND): The establishment of independent directors can enhance a firm's performance. IND is defined as the number of independent directors divided by the total number of directors.

f. Size of the board of directors (BOARD_SEAT): The size of the board of directors has a positive relationship with a firm's value and financial performance (Gang, 2013). BOARD_SEAT is defined as the total number of board seats.

g. Firm size (SIZE): Firm size has a positive relationship with financial performance(Demsetz and Lehn, 1985). SIZE is defined as the beginning market value by taking a logarithmic value.

h. Firm growth (Growth): A firm's growth opportunities are a critical variable affecting managers' remuneration incentive intensity (Smith and Watts, 1992). Growth is defined as [(net operating income in the present year − net operating income in the previous year)/net operating income in the previous year] × 100%.

i. Ratio of research and development expenditure (RD): CEO compensation is related to research and development expenditure, and the action of research and development can enhance a firm's profitability and maintain a firm's competitive advantage (Lee and Chen, 2011);(Artz *et al.,* 2010). RD is defined as (research and development expenditure/net operating income) × 100%.

j. Ratio of incentive compensation (IP): Incentive compensation in the Taiwanese electronics industry is mainly bonuses and is defined as:
IP = cash bonus and dividend/total annual cash compensation

k. Operation duration (AVG): Companies that have been in business for a long time have accumulated much experience that can help them remain in business (Ittner *et al.,* 2002). AVG was defined as the number of years between the founding of a company and the research period.

3.3. Research Models

This paper examines the impact of compensation committee quality and firm performance on management compensation, and provides a research model to test the hypotheses. The research model is as follows:

TOTALCOMP

$$
\begin{aligned}
= \gamma 0 \ + \ & \gamma 1 \mathrm{Perf}_{i,t} \ + \ \gamma 2 \mathrm{CCQ}_{i,t} \ + \ \gamma 3 \mathrm{Perf}_{i,t} * \mathrm{CCQ}_{i,t} \\
+ \ & \gamma 4 \mathrm{LEV}_{i,t} \ + \ \gamma 5 \mathrm{SH\_DAS}_{i,t} \ + \ \gamma 6 \mathrm{SH\_L}_{i,t} \\
+ \ & \gamma 7 \mathrm{DUAL}_{i,t} + \gamma 8 \mathrm{IND}_{i,t} + \gamma 9 \mathrm{BOARD\_SEAT}_{i,t} \\
+ \ & \gamma 10 \mathrm{SIZE}_{i,t} \ + \ \gamma 11 \mathrm{GROWTH}_{i,t} \ + \ \gamma 12 \mathrm{RD}_{i,t} \\
+ & \gamma 13 \mathrm{IP}_{i,t} + \gamma 14 \mathrm{AVG}_{i,t} \ + \ \varepsilon_{i,t}
\end{aligned}
$$

4. Results and Discussion

This section details the empirical analysis in three subsections: descriptive statistics analysis, correlation analysis, and a discussion on regression analysis.

4.1. Descriptive Statistics Analysis

Table 1 shows the descriptive statistics of the sample. The TOTALCOMP of sampled firms ranges from 6.19 to 11.10, with a mean of 8.40. ROE ranges from −93.92% to 137.35%, with a mean of 5.58%. ROA ranges from −34.70% to 46.72%, with a mean of 8.92%. The variance of TOTALCOMP, ROE, and ROA is caused by different degrees of competitive advantage and differences in business type among the sampled firms. CCQ scores range from 2 to 9, with a mean of 4.33.

Table-1. Descriptive statistics

	Smallest	Largest	Median	Average	Standard Deviation
TOTALCOMP	6.1924	11.0982	8.357	8.4036	0.7307
ROE	-93.92	137.35	6.26	5.5793	17.69654
ROA	-34.70	46.72	8.3	8.9208	8.73326
CCQ	2	9	4.08	4.33	1.142
ROE*CCQ	-297.41	549.40	27.03	26.5391	74.09539
ROA*CCQ	-109.88	251.93	33.7333	39.9552	40.25166
LEV	1.68	89.35	40.76	40.9979	17.39907
SH_DAS	0.36	94.56	14.71	18.4644	12.33479
SH_L	0.16	97.35	33.43	36.5460	21.63044
DUAL	0	1	0	0.33	0.472
IND	0	1	0.29	0.22	0.172
BOARD_SEAT	4	17	7	7.02	1.883
SIZE	5.30	9.36	6.85	7.58	2.19
GROWTH	-84.85	548.88	0.35	5.2148	43.92552
RD	0.00	65.97	2.92	4.9512	6.51486
IP	10.4%	36.23%	25.87%	27.37%	9.239%
AVG	6	60	25	25.73	9.329

Note: Total COMP: management compensation, ROE: return on equity, ROA: return on assets, CCQ: compensation committee quality score, ROE*CCQ: the interaction of ROE with CCQ, ROA*CCQ: the interaction of ROA with CCQ, LEV: debt ratio, SH_DAS: percentage of shareholding directors, SH_L: percentage of legal shareholders, DUAL: manager as concurrent director, IND: ratio of independent directors, BOARD_SEAT: size of the board of directors, SIZE: firm size, Growth: firm growth, RD: ratio of research and development expenditure, IP: ratio of incentive compensation, AVG: operation duration.

The interaction of ROE with CCQ (ROE*CCQ) ranges from −297.41% to 549.40%, with a mean of 26.54%. The interaction of ROA with CCQ (ROA*CCQ) ranges from −109.88% to 251.93%, with a mean of 39.96%. The variance of CCQ, ROE*CCQ, and ROA*CCQ is caused by the dissimilar degrees of compensation committee quality and the interaction of a firm's performance with compensation committee quality for the sampled firms. The variance of the control variables is caused by the different operational and financing features of the sampled firms.

4.2. Correlation Analysis

Table 2 provides the Pearson correlation coefficient matrix of variables. TOTALCOMP has a positive correlation with ROE and ROA, CCQ, the interaction of ROE with CCQ (ROE*CCQ), the interaction of ROA with CCQ (ROA*CCQ), LEV, SH_L, IND, BOARD_SEAT, SIZE, and IP, with the statistical significance being 1%. TOTALCOMP has a negative correlation with SH_DAS and DUAL, with the statistical significance being 1%. TOTALCOMP exhibits no significant correlation with Growth, RD, or AVG.

4.3. Regression Analysis

The empirical results indicate that the adjusted R^2 of the research models are approximately 0.483 with ROE as an independent variable and 0.501 with ROA as independent variable. The F-test yields statistically significant results ($p < 0.01$). Therefore, the research models are suitable for examining the impact of compensation committee quality and firm performance on management compensation. The variance inflation factors of each independent variable estimated in the research model are smaller than 10; the collinearity problems among independent variables are not significant (Greene, 2008). Table 3 presents a summary of the regression analysis.

ROE and ROA are positively related to TOTALCOMP, with the statistical significance being 5% and 1%, respectively. Therefore, firms with stronger performance have higher management compensation, thus conforming to the conclusions of Ozkan (2011) and Hung and Wang (2008). Therefore, the empirical results support H1. The CCQ score is positively related to TOTALCOMP with a statistical significance of 5%, meaning that compensation committee quality can affect management salary level, which conforms to the conclusions of Sun et al. (2009). Therefore, the empirical results support H2.

The interaction of ROE with CCQ (ROE*CCQ) and the interaction of ROA with CCQ (ROA*CCQ) do not have a significant correlation with TOTALCOMP. This means that compensation committee quality does not have a significant effect on the positive relationship between firm performance and management compensation. Therefore, the empirical results do not support H3. This lack of support might be because the system for establishing

compensation committees is at the early stages of development in Taiwan; firm management may therefore not be highly concerned with the quality of compensation committees.

Regarding the control variables, LEV, SH_L, SIZE, and IP have a positive correlation with TOTALCOMP. This means that a higher debt ratio, percentage of legal shareholders, firm size, and ratio of incentive compensation indicate higher management compensation. SH_DAS, DUAL, IND, and Growth have a negative correlation with TOTALCOMP. This means that a smaller percentage of shareholding directors, managers as concurrent directors, a lower ratio of independent directors, and lower firm growth indicate higher management compensation. BOARD_SEAT, RD, and AVG do not have a significant correlation with TOTALCOMP.

5. Conclusion

Enterprise ownership and management are increasingly separated because agency costs occur when the interests of the enterprise, which pursues overall shareholder-utility maximization, conflict with those of enterprise managers, who pursue self-utility maximization. The enterprise applies performance-oriented incentive compensation, which generally can reduce agency costs and eliminates the inconsistency in interests between shareholders and management. After the global financial crisis, the Taiwanese Financial Supervisory Commission introduced the compensation committee system from Western countries develop an improved corporate governance system. The Taiwanese Financial Supervisory Commission decided that listed companies must establish a compensation committee before the end of 2011.

Table-2. Pearson correlation coefficient matrix

	TOTALCOMP	ROE	ROA	CCQ	ROE*CCQ	ROA*CCQ	LEV	SH_DAS	SH_L	DUAL	IND	BOARD_SEAT	SIZE	GROWTH	RD	IP	AVG
TOTALCOMP	1																
ROE	.316**	1															
ROA	.378**	.768**	1														
CCQ	.212**	.118*	.132*	1													
ROE*CCQ	.334**	.967**	.740**	.247**	1												
ROA*CCQ	.408**	.692**	.929**	.410**	.744**	1											
LEV	.141**	-0.041	-.183**	0.047	-0.016	-.163**	1										
SH_DAS	-.256**	0.012	0.009	-0.038	-0.002	-0.006	-0.095	1									
SH_L	.416**	.258**	.335**	.188**	.276**	.374**	0.05	.260**	1								
DUAL	-.214**	-0.072	-0.095	-.156**	-0.088	-.137*	-0.036	-0.096	-.215**	1							
IND	.146**	-0.003	0.033	.515**	0.064	.181**	0.011	-0.076	.214**	-.201**	1						
BOARD_SEAT	.220**	0.012	0.039	.231**	0.038	0.104	0.068	0.029	.276**	-.206**	.213**	1					
SIZE	.382**	0.072	.113*	0.04	0.08	.139**	.159**	-.107*	.273**	-0.004	.134*	.127*	1				
GROWTH	-0.076	.365**	.364**	0.025	.305**	.286**	0.092	0.057	0.049	0.033	-0.09	-0.074	-0.009	1			
RD	-0.044	-.118*	-.144**	0.04	-.106*	-0.102	-.346**	-.110*	-0.059	0.008	0.103	-0.01	-0.046	-.126*	1		
IP	.207**	.194**	.225**	0.096	.210**	.240**	-0.077	-0.063	0.021	-0.009	-0.001	-0.069	0.026	-0.015	0.054	1	
AVG	-0.006	0.026	0.047	-.289**	-0.016	-0.045	0.074	-0.017	-.147**	.118*	-.363**	-.197**	0.044	-0.007	-.178**	0.013	1

Note: TOTALCOMP: management compensation, ROE: return on equity, ROA: return on assets, CCQ: compensation committee quality score, ROE*CCQ: the interaction of ROE with CCQ, ROA*CCQ: the interaction of ROA with CCQ, LEV: debt ratio, SH_DAS: percentage of shareholding directors, SH_L: percentage of legal shareholders, DUAL: manager as concurrent director, IND: ratio of independent directors, BOARD_SEAT: size of the board of directors, SIZE: firm size, Growth: firm growth, RD: ratio of research and development expenditure, IP: ratio of incentive compensation, AVG: operation duration.
*significant level at 5%, **significant level at 1%.

Table-3. Regression analysis of research models

	ROE			ROA		
variable	coefficient	*t*-statistics	p-value	coefficient	*t*-statistics	p-value
INTERCEPT		32.580	0.000***		28.503	0.000***
ROE	0.463	2.458	0.014**			
ROA				0.506	3.076	0.002***
CCQ	0.135	2.483	0.014**	0.162	2.310	0.021**
ROE*CCQ	-0.239	-1.271	0.204			
ROA*CCQ				-0.221	-1.263	0.207
LEV	0.080	1.817	0.070*	0.140	3.074	0.002***
SH_DAS	-0.315	-7.341	0.000***	-0.294	-6.920	0.000***
SH_L	0.335	7.058	0.000***	0.295	6.114	0.000***
DUAL	-0.134	-3.223	0.001***	-0.129	-3.137	0.002**
IND	-0.073	-1.481	0.140	-0.081	-1.661	0.098*
BOARD_SEAT	0.068	1.585	0.114	0.065	1.541	0.124
SIZE	0.218	5.092	0.000***	0.212	5.010	0.000***
GROWTH	-0.175	-3.914	0.000***	-0.203	-4.567	0.000***
RD	-0.010	-0.227	0.820	0.025	0.582	0.561

IP	0.129	3.141	0.002***	0.110	2.697	0.007***
AVG	0.043	0.979	0.328	0.026	0.587	0.558
F test of model	22.143***			23.785***		
R^2	0.695			0.708		
Adj-R^2	0.483			0.501		

Note:1. ROE: return on equity, ROA: return on assets, CCQ: compensation committee quality score, ROE*CCQ: the interaction of ROE with CCQ, ROA*CCQ: the interaction of ROA with CCQ, LEV: debt ratio, SH_DAS: percentage of shareholding directors, SH_L: percentage of legal shareholders, DUAL: manager as concurrent director, IND: ratio of independent directors, BOARD_SEAT: size of the board of directors, SIZE: firm size, Growth: firm growth, RD: ratio of research and development expenditure, IP: ratio of incentive compensation, AVG: operation duration.
2. *significant level at 10%, **significant level at 5%, ***significant level at 1%.

The purposes of establishing compensation committees are to enhance management compensation transparency, operate internal and external oversight mechanisms, and render management compensation more reasonable. To understand the effectiveness of the implementation of compensation committees in Taiwan, this paper examines the impact of compensation committee quality and firm performance on management compensation in the Taiwanese electronics industry.

The sample for this paper is derived from listed firms in the Taiwanese electronics industry in 2013. The empirical results show that ROE and ROA are positively related to management compensation, meaning that firms demonstrating higher performance also have higher management compensation. Compensation committee quality is positively related to management compensation, meaning that compensation committee quality can affect management salary levels. However, the interaction between firm performance and compensation committee quality does not have a significant correlation with management compensation, meaning that compensation committee quality does not have a significant effect on the positive relationship between firm performance and management compensation. This might occur because the system of establishing compensation committees is at the early stages of development in Taiwan. Therefore, firm management is not highly concerned with compensation committee quality. The results are helpful for related government authorities, practitioners, and academia in understanding the impact of compensation committee quality and firm performance on management compensation. These results compensate for the lack of research on this topic and provide a reference for promoting and constructing a policy for establishing compensation committees. The results also can provide a reference point for firms in emerging economies that seek to implement compensation committees.

Reference

Agrawal, A. and Knoeber, C. R. (1996). Firm performance and mechanisms to control agency problems between managers and shareholders. *Journal of Financial and Quantitative,* 31(3): 377-97.

Anderson, R. and Bizjakb, J. (2003). An empirical examination of the role of the CEO and the compensation committee in structuring executive pay. *Journal of Banking & Finance,* 27(7): 1323-42.

Artz, W. K., Norman, M. P., Hatfield, E. D. and Cardinal, B. L. (2010). A longitudinal study of the impact of R&D patents, and product innovation on firm performance. *Journal of Product Innovation Management,* 27(5): 725-40.

Bryan, S. and Hwang, L. (1997). *The economic determinants of the CEO compensation-performance sensitivity Working paper.* Baruch College, CUNY.

Conyon, M. J. and Peck, I. S. (1998). Board control, remuneration committees, and top management compensation. *Academy of Management Journal,* 41(2): 146-57.

Core, E. J., Holthausen, W. R. and Larcker, F. D. (1999). Corporate governance, chief executive officer compensation, and firm performance. *Journal of Financial Economics,* 51(3): 371-406.

Craighead, J. A., Magnan, L. M. and Thorne, L. (2004). The impact of mandated disclosure on performance-based CEO compensation. *Contemporary Accounting Research,* 21(2): 369-98.

Dai, M. S. (2011). The organization and competence of compensation committee comment on the article 14 of the 6 of securities exchange act of 2010 updated, securities and exchange information. 585: 31-55.

Demsetz, H. and Lehn, K. (1985). The structure of corporate ownership, causes and consequences. *Journal of Political Economy,* 93: 1155-77.

Gang, B. (2013). Bank holding company governance, opacity and risk. *Temple University*: 1-133.

Gomez-Mejia, L. R. and Tosi, H. (1987). The decoupling of CEO pay and performance: an agency theory perspective. *Administrative Science Quarterly,* 34: 169-89.

Greene, W. H. (2008). *Econometric analysis.* 6th ednPrentice Hill Publishing.

Hung, Y. S. and Wang, T. C. (2005). An analysis of the relative importance of performance measures in executive cash compensation contracts. *Review of Securities & Futures Markets,* 17(2): 35-100.

Hung, Y. S. and Wang, T. C. (2008). An analysis of the relative importance of performance measures in top executive stock-based compensation contract. *The International Journal of Accounting Studies,* 46: 1-29.

Ittner, C. D., Lanen, N. W. and Larcker, F. D. (2002). The association between activity-based costing and manufacturing performance. *Journal of Accounting Research,* 40(3): 711-26.

Iyengar, R. J., Williams, J. H. and Zampelli, M. E. (2005). Sensitivity of executive pay to accounting performance measures in all-equity firms. *Accounting and Finance,* 45: 577-95.

Jensen, M. C. and Meckling, W. H. (1976). Theory of the firm: managerial behavior, agency costs and ownership structure. *Journal of Financial Economics,* 3(4): 305-60.

Kaplan, S. N. (1994). Top executive rewards and firm performance, a comparison of Japan and the United States. *Journal of Political Economy,* 102: 510-46.

Kovačevič, S. (2009). Disclosed: an exploration of board remuneration committee challenges. *Asia Pacific Journal of Human Resources,* 47(2): 201-18.

Lee, S. P. and Chen, J. H. (2011). Corporate governance and firm value as determinants of CEO compensation in Taiwan. *Management Research Review,* 34(3): 252-65.

Mehrabanpour, M., 2014. "Influence of the quality of remuneration committee on management compensation plan design and performance." In *Proceedings of 28th International Business Research Conference 8.*

Ozkan, N. (2011). CEO compensation and firm performance: an empirical investigation of UK panel data. *European Financial Management,* 17(2): 260-85.

Smith, C. W. and Watts, L. R. (1992). The investment opportunity set and corporate financing, dividend, and compensation policies. *Journal of Financial Economics,* 32(3): 263-92.

Sun, J. and Cahan, S. (2009). The effect of compensation committee quality on the association between CEO cash compensation and accounting performance. *Corporate Governance, An International Review,* 17(2): 193-207.

Sun, J. and Cahan, F. S. (2012). The economic determinants of compensation committee quality. *Managerial Finance,* 38(2): 188-205.

Sun, J., Cahan, F. S. and Emanuel, D. (2009). Compensation committee governance quality, chief executive officer stock option grants, and future firm performance. *Journal of Banking & Finance,* 33(8): 1507-19.

Taiwan Stock Exchange (2013). The assessment report of operational effectiveness on compensation committee. Available: http://www.hrfun.com.tw/news_updetail.php%3FNews_No%3D2013121800[2013,May

Wu, S. J., Hsieh, C. C. and Liang, S. W. (2014). The effect of the establishment and the quality of compensation committee on top executives pay-performance Sensitivity. *Taiwan Accounting Review,* 10(2): 135-88.

Yongli, L. (2012). Executive compensation, firm performance and liquidity under imperfect corporate governance. *The University of Texas - Pan American*: 1-374.

Zhu, Y., Tian, G. and Ma, S., 2009. "Executive compensation, board characteristics and firm performance in China, the impact of compensation committee." In *Paper read at 22nd Australasian Finance and Banking Conference.*