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Tournament Theory and the Influence of Managerial Power on Corporate Performance

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Abstract: Modern companies generally separate ownership from management rights. High-level professional managers are employed to make adequate decisions for their companies and offered a sizable salary enhance corporate performance. Nevertheless, there consequently, exists agency problem in the company. Seeing this, some scholars propose the application of optimal contraction approach to mitigate the agency problem. From the optimal contraction approach, a company must provide appropriate level of compensation contract to prevent agency problem from happening and to motivate top managers to expand efforts that meet stockholder's value. By applying tournament theory, we research into the links between managerial compensation contract and firm performance. From the theoretical perspectives, we wonder whether compensation differentials is influenced by managerial hierarchy and whether top managers exert crucial influence, through their managerial power, on the company's decisions and accordingly proceed to make an impact on firm performance. Therefore, managerial power factor is added in this study. Empirical result shows positive standpoint toward tournament theory which implies managerial compensation contract exerts assured effect on firm performance. On the other hand, empirical result does not prove any positive significance regarding managerial power toward firm performance, except that there is significant negative relation between manager's tenure and firm performance.

Key words: Tournament theory, managerial power theory, optimal contraction approach, regarding, expand, managerial compensation contract

INTRODUCTION

Modern companies generally separate ownership from management rights. High-level professional managers are employed to make adequate decisions for their companies and offered a sizable salary. Although, such managers can enhance corporate performance, agency problems can still occur for example, any remuneration received directly influences manager's decision-making.

Lazear and Rosen (1981) proposed tournament theory which explains the influence of employee's participation on business performance on the basis of salary differences between different levels of employees, to help understand agency problems. According to this theory, a board of directors determines the remunerations of high-level managers and the salary differences between different levels of employees to prevent managers from making decisions unfavorable to their companies. Jensen and Meckling (1976) considered that a company is a collection of contracts: although, agency costs occur when management rights are separated from ownership, managers can be encouraged to make decisions that maximize shareholder's interests through supervision or self-restraint contracts. Indeed, empirical evidence shows that manager's salary contracts can be used to solve agency problems and enhance business performance (Bebchuk *et al*., 2002). In this study, we adopted tournament theory to explore whether salary differences among high-level managers influences their company's

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business performance. Notably, a company can use a "tournament" to help high-level managers oversee one another and can provide various rewards to different high-level managers according to their performance to enhance the company's business performance.

The power or authority of a high-level manager can indirectly influence his or her company's business performance and shareholder interests. Finkelstein (1992) defined a manager's power as the ability of a manager to influence the board of director's or a remuneration committee's decision-making regarding remunerations. High-level managers may also use their managerial power to influence their company's decision-making and favor their personal interests accordingly, a decision unfavorable to shareholders may be made. Therefore, it is crucial for companies to establish an excellent incentive system for their managers to avoid this problem.

In this study, we used tournament theory to explore the influence of salary differences among high-level managers in over-the-counter and listed companies on their companie's business performance. In addition, we explored whether managerial power influenced salary differences between high-level managers and their companie's business performance. Our review of the literature and details about the research design and subsequent results are described in the following study.

Literature review: Jensen and Meckling (1976) provided the first clear definition of agency costs and related constituent elements. This definition formed the foundation for subsequent researchers who have since, sought to understand agency relationships and develop theories about corporate ownership. According to Jensen and Meckling (1976) when a firm has external stakeholders or creditor's rights, the interests of the operator (agent) and external shareholders or creditors (principals) form an asymmetric relationship. The management authority may also use its decision-making power to advance its own interests or to harm principal's interests. However, to reduce agency costs, an agent can propose a self-control mechanism or principals can supervise their agent. Holmstrom (1979) first explored an optimal sharing mechanism between agents and principals and examined how to add information to incentive contracts in order to reduce information asymmetry and agency costs. Subsequently, numerous studies on optimal incentive contracts and related mechanisms were conducted. According to agency theory because owners and operators may have inconsistent interests and principals cannot directly observe manager's efforts, managers may make decisions that harm the interests of owners or shareholders to advance their own interests; in response, agency problems occur. Therefore, information asymmetry and moral hazards can incite agency problems (Berle and Means, 1932 and Fama and Jensen, 1983).

Watts and Zimmerman (1986) indicated that a company should establish an appropriate incentive system to associate agent's salary with that company's business performance. They argued that this would prevent agents from harming shareholders or creditor's interests in the pursuit of their own interests, protect both principal's and agent's interests and reduce agency costs. To solve agency problems and disperse risks, owners (i.e., the board of directors) and a Chief Executive Officer (CEO) should sign an incentive contract that can be accepted by both parties to ensure that appropriate incentives are provided, align the CEO's and shareholder's interests, minimize agency costs and maximize shareholder's value from the perspective of optimal risk sharing (Gomez-Mejia and Balkin, 1992 and Grossman and Hart, 1983).

Empirical results showed that manager's incentive contracts can reduce agency problems and increase corporate performance (Bebchuk *et al*., 2002). If, the incentive system for managers is designed adequately (e.g., sharing business interests with managers or allowing managers to purchase stock options), they themselves will endeavor to maximize their company's interests. In addition, to the board of directors, an external supervision mechanism can effectively supervise a CEO's behavior. Some researchers have included the characteristics of boards of directors in their empirical studies on CEO's salaries. For example, Jensen and Meckling (1976) asserted that when a board of directors had a higher proportion of shareholding, the associated company executed superior business performance that was closely related to the interests of the board of directors. In other words, boards of directors are motivated to monitor their CEOs.

Lazear and Rosen (1981) pointed out that large salary differences can influence employee's work performance; specifically, these differences motivate high-level managers to achieve excellent business performance and earn a higher level of salary. To facilitate such an environment, Lazear and Rosen (1981) proposed implementing a rank-order salary system. In this system, a company ranks its employees to determine their salary levels the employees thus compete with one another with the winners receiving promotions and higher salaries. The possibility of a high salary prompts healthy competition among employees thereby enhancing the company's business performance. In other words, employees in higher positions can earn much higher salaries through the rank-order salary system.

According to tournament theory, salary increases with position level. Several studies have been conducted on this topic and have demonstrated support for tournament theory. For example, Leonard (1990) and Main *et al.* (1993) analyzed 439 identical companies in the United States as the research samples and their results each confirmed tournament theory. Jensen and Murphy (1990) similarly found that CEO's salaries were positively correlated with their companie's financial performance; they also emphasized the importance of salary structure.

Main *et al.* (1993) found that salary differences between high-level managers were positively correlated with corporate performance. Subsequently, Henderson and Fredrickso (2001) determined that the interaction between long-term salary differences and the number of deputy general managers was positively correlated with corporate performance. Additionally, Lallemand *et al.* (2004) investigated 397 large-scale companies in Belgium and found that a company's internal salary differences were significantly positively correlated with profit per person. By contrast, Leonard (1990) investigated large companies in the United States and found that salary differences were not significantly correlated with corporate performance.

To alternatively explain the relationship between incentive contracts and corporate performance, some researchers have adopted managerial power theory which suggests that remuneration determination processes are parts of agency problems. The following three points summarize the main ideas of managerial power theory: a CEO has the power to influence directors, his or her own incentive contract and business decisions; a CEO who uses managerial power to influence business decisions may gain extra profits and when management authority has high managerial power, principals will be unaware of information asymmetry.

Bebchuk *et al.* (2002) indicated that because management authorities can influence the board of directors they cannot independently determine high-level manager's incentive contracts. In addition, management authorities may use their power to earn excess pay, thereby plundering shareholder's interests. Bebchuk *et al.* (2002) and Arye and Fried (2003) have demonstrated that a CEO has the power to control his or her company and influence an incentive system; therefore, the incentive system is advantageous to managers. More recently, Kalyta and Magnan (2008) found that when a CEO has more power than the board of directors, the CEO will use his or her power to build a secure retirement plan for himself or herself. Other researchers have argued that managerial power enhances a company's business performance. For example, Elhagrasey *et al.* (1999) showed that CEO's salary levels were positively correlated with their power levels, the positive correlation between which can be explained using resource dependence theory. In particular when the resources possessed by a person are crucial, scarce and irreplaceable, that person's company will highly rely on the person and the person will hold considerable power (Mintzberg, 1983).

In this study, we adopted tournament theory to explore the influence of managerial power on a firm's business performance.

MATERIALS AND METHODS

Research hypotheses and regression equations: According to tournament theory (Rosen, 1981), large salary differences can motivate employees to deliver an excellent job performance and enhance corporate performance. With reference to Rosen and other previous studies, we thus proposed Hypothesis as follow:

- H_1: large salary differences between management levels can enhance a firm's business performance

However, the various levels of management can have distinct influences on a firm. Therefore, in this study, we considered three management levels, namely general manager, deputy general manager and other managers (assistant managers and managers) and explored whether salary differences among these levels influenced a firm's business performance. We proposed Hypothesis 1a and 1b as follows:

- H_{1a}: salary differences between general managers and other management levels are positively correlated with corporate performance
- H_{1b}: the salary difference between general managers and deputy general managers and the salary difference between deputy general managers and other managers, are positively correlated with corporate performance

To test Hypothesis 1, we established a multiple regression equation:

$$\begin{aligned} PERFORMANCE_i = {} & \alpha_0 + \alpha_1 GAp_i + \\ & \alpha_2 RATE_i + \alpha_3 INV_i + \alpha_4 DFL_i + \alpha_5 \\ & RD_i + \alpha_6 AD_i + \alpha_7 SIZE_i + \varepsilon... \end{aligned} \quad (1)$$

Next, we explored the influence of managerial power on corporate performance. Bebchuk *et al.* (2002) and Arye and Fried (2003) have shown that a CEO has power

over his or her company including influence over the design of his or her own incentive system. Accordingly, incentive systems are generally advantageous for management. After reviewing previous studies, we elected to also examine the influence of managerial power on corporate performance and established Hypothesis 2:

- H_2: managerial power is positively correlated with corporate performance

To test Hypothesis 2, we established a second ultiple regression equation:

$$\begin{aligned} PERFORMANCE_i &= \alpha_0 + \alpha_1 POWER_i + \\ &\alpha_2 RATE_i + \alpha_3 INV_i + \alpha_4 DFL_i + \alpha_5 \\ &RD_i + \alpha_6 AD_i + \alpha_7 SIZE_i + \varepsilon... \end{aligned} \quad (2)$$

Next, to simultaneously examine the influences of salary differences and managerial power on business performance, we added an independent variable (salary differences) to Eq. 2 and reformulated it as follows:

$$\begin{aligned} PERFORMANCE_i &= \alpha_0 + \alpha_1 GAP_i + \\ &\alpha_2 POWER_i + \alpha_3 RATE_i + \alpha_4 INV_i + \alpha_5 \\ &DFL_i + \alpha_6 RD_i + \alpha_7 AD_i + \alpha_8 SIZE_i + \varepsilon... \end{aligned} \quad (3)$$

Where:

ROE = The return on equity/return on net worth
GAP = The salary differences
POWER = The managerial power
RATE = The revenue growth rate
AD = The advertising density
RD = The research and development costs
INV = The inventory level
DFL = The degree of financial leverage
SIZE = The number of employees

Notably, ROE is the dependent variable; GAP is the independent variable; POWER is the experimental variable and RATE, AD, RD, INV, DFL and SIZE are the control variables.

Variable definitions and assessment: The definitions of the variables and related assessment methods used in this study are described the following paragraphs.

We utilized one dependent variable in this study, Return On Equity (ROE) as the indicator of business profitability and share price performance. Zhang and Zhang (2014) discussed managerial power, capital structure and corporation value and similarly used ROE to assess corporate performance:

ROE = Return on equity/return on net
Worth = Net profit after tax/stockholder's equity

Because this study explored the influences of salary differences and managerial power on corporate performance, the main experimental (independent) variables were salary differences (GAP) and managerial power (POWER).

Managers at different management levels have unique incentive contracts which have unique effects on managers at corresponding levels. In this study, we considered three management levels: general manager, deputy general manager and other managers. After reviewing the Taiwan Economic Journal (TEJ), we obtained data about the salaries of various high-level managers and calculated the average salary of each level of management. The variables (GAP1, 2 and 3) denote the three types of salary differences:

GAP1 = The difference between the average salary of general managers and the average salary of deputy general managers and other managers
GAP2 = The difference between the average salary of general managers and deputy general managers
GAP3 = The difference between the average salary of deputy general managers and the average salary of other managers

According to previous studies, managerial power may influence business performance. Therefore, we adopted four proxy variables to assess manager's managerial power: DUAL (whether a general manager serves the chairperson of the board), TENURE (the term of office for a general manager), OWNERSHIP DISPERSION and BOARD (board size).

DUAL is a dummy variable (i.e., if a general manager serves as the chairperson of the board, then DUAL = 1; otherwise, DUAL = 0). General managers who serve as chairperson of the board have the power to operate their companies. However, previous research has offered varying views on whether a general manager serving as a director or chairperson of the board influences corporate performance. For example, Patton and Baker (1987) contended that when a high-level manager serves as both the chairperson of the board and a general manager (i.e., is both a supervisor and an executive), embezzlement may occur and the board of directors cannot properly supervise the high-level manager. Conversely, Wong and Yek (1991) suggested that a company in which the chairperson of the board also serves as the general manager often delivered excellent business performance. The is because in a company where the chairperson of the board is also the general manager, the directors typically have a high proportion of shareholding; a high-level manager who has both ownership and the power to

operate the company will endeavor to maximize the company's interests and enhance the company's business performance.

TENURE denotes the term of office for a general manager. Hwang and Kim (2009) indicated that when directors are highly independent, the salary level for a high-level manager is low, salary is highly associated with performance and term of office for the high-level manager is determined according to his or her performance. Therefore, longer terms of office for general managers is associated with higher corporate performance.

If the proportion of shareholding for a general manager is lower than that for the top ten shareholders of a company then OWNERSHIP DISPERSION = 1; otherwise, OWNERSHIP DISPERSION = 0. Finkelstein and Hambrick (1989) indicated that a high-level manager at a high position has substantial power to determine a company's remuneration structure.

Finally, BOARD asrefers to the size of a company's board of directors. Bacon (1973) considered board size to be positively correlated with board efficiency because a board with numerous directors that are experts from various fields can make high-quality decisions through brainstorming. By contrast, Lipton and Lorsch (1992) argued that a large board size is disadvantageous to free discussion and instead leads to numerous problems that must be solved, thereby reducing supervision efficiency. Thus, although previous studies have agreed that board size influences corporate performance, it remains unclear whether board size is negatively or positively correlated with corporate performance.

Several control variables were also included in this study, namely revenue growth rate (RATE), Advertising Density (AD), Research and Development costs (RD), Inventory level (INV), Degree of Financial Leverage (DFL) and company Size (SIZE).

Smith and Watts (1992) considered a company's growth opportunity to be a crucial variable that influenced the incentive strength of manager's salaries. After also reviewing Kaplan and Norton (1996), we set RATE asas a proxy variable for a company's future growth opportunity.

Comanor and Wilson (1974) showed that advertising density positively influences profitability; in other words, high advertising expenses enhances profits. Therefore, whether high-level managers can improve advertising effectiveness influences a firm's profitability. In this study, we set Advertising Density (AD) as a control variable for corporate performance and defined it as follows:

AD = (advertising costs out of operating costs+ advertising costs out of manufacturing costs)/net operating revenue

Smith and Watts (1992) used research and development costs as a proxy variable to assess the opportunity for a company to grow. In the present study, Research and Development costs (RD) was set as a control variable for corporate performance and defined as follows:

RD = Research and Development costs/Net operating revenue

Fullerton *et al.* (2003) showed that inventory management performance is significantly correlated with corporate financial performance. In this study, Inventory level (INV) was considered a control variable that influenced corporate performance.

The Degree of Financial Leverage (DFL) is utilized to assess the influence of corporate financing behavior on business profitability. He (2009) indicated that company size, financial leverage, high-level manager's salaries and performance were related to one another. Therefore, in this study, the DFL was considered a control variable of corporate performance.

Finally, after reviewing Ittner *et al.* (2002), the natural logarithm of the number of employees (SIZE) was used as a proxy variable for company size.

Sample selection and data collection: This study examined data spanning over 5 years (2010-2014) and utilized listed and over the counter companies as the research targets. To enhance research reliability, we selected samples according to the following criteria: companies in which general manager's salaries were not disclosed or equaled zero were excluded because salary differences could not be calculated without information about general manager's salaries; companies in which deputy general manager's and other manager's salaries were not disclosed were excluded because salary differences could not be calculated without information about deputy general managers and other manager's salaries; companies with incomplete data were excluded and companies that showed negative salary differences or no salary differences were excluded.

Companie's annual financial information was obtained from the TEJ finance database for general industries. Additionally, information about high-level manager's salaries, whether the chairperson of the board also served as a company's general manager and board size was obtained from the TEJ finance database for corporate governance.

Companies can utilize two methods to disclose information about high-level manager's salaries: disclosure of overall information and disclosure of individual's information. For companies that disclose individual's information, information about individual manager's salaries can be obtained from the TEJ finance database. However, for companies that only disclose overall information, no information about individual manager's salaries can be obtained thus, for the present study, total salaries were evenly allocated to each manager in a fiscal year. Currently, disclosing high-level manager's salaries is not mandatory for listed companies and little information about individual manager's salaries is available. We, therefore only selected sample companies that disclosed overall information about manager's salaries which was used to calculate salary differences among various levels of managers.

RESULTS AND DISCUSSION

Descriptive statistical analysis: We performed a basic statistical analysis on the variables. In total, 182 companies were sampled for this study. According to Table 1, the minimum, maximum and average ROE values were -179, 66 and 8%, respectively. The average ROE of sample companies was 8.6%.

To understand the influence of various incentive contracts for different levels of management on corporate performance, we examined salary differences among various management levels in three stages. First, the difference between the average salary of general managers and that of deputy general managers and other managers (GAP1) was calculated. The results showed that the minimum, maximum and average GAP1 were 65,000, 85,512,000 and NT$4,013,590, respectively.

Next, the difference between the average salaries of general managers and deputy general managers (GAP2) was calculated. The results indicated that the minimum, maximum and average GAP2 were 15,000, 82,962,000 and NT$2,762,540, respectively. Finally, the difference between the average salaries of deputy general managers and other managers (GAP3 as) was calculated. The results revealed that the minimum, maximum and average GAP3 were 1,000, 12,641,000 and NT$2,144,680, respectively. That the average GAP2 and GAP3 was 2,762,000 and NT$2,144,000, respectively, indicates that these results accorded with tournament theory which states that larger salary differences are observed at higher management levels.

The minimum, maximum and average values of DUAL as were 0, 1 and 0.40, respectively. Therefore, in 40% of sample companies, the general managers served as chairperson of the board. The minimum, maximum and average values of BOARD were 4, 15 and 6.91, respectively, indicating that the minimum board size was 4 people, the maximum board size was 15 people and the average board size was 6.9 people. The minimum, maximum and average values of OWNERSHIP DISPERSION were 0, 1 and 0.14, respectively; therefore, in 14% of sample companies, the general managers held fewer numbers of shares than their top ten shareholders did. Most general managers at sample companies were the largest shareholders. Finally, the minimum, maximum, average values of TENURE were 0, 40 and 11.06; therefore, some general manager's term of office was shorter than 1 year while others was up to 40 years the average length of general manager's term of office was 11.06 years.

Table 1: Descriptive statistics

Variables	Sample size	Mean	Minimum value	Maximum value	SD
ROE	179	12.662570	-41.940	66.440	13.0
GAP1	179	4013.59	65	85512	9800.588
GAP2	179	2762.54	15	82962	9561.705
GAP3	179	2144.86	1	12641	1685.357
DUAL	179	0.40	0	1	0.492
BOARD	179	6.91	4	15	1.804
S1	179	0.14	0	1	0.348
TENURE	179	11.06	0	40	9.510
RATE	179	23.1797	-41.20	678.94	67.55984
AD	179	0.0045281	0.00000	0.11310	0.01344360
RD	179	0.564712	0.00000	1.21394	0.11843397
INV	179	0.3494015	0.00000	5.52760	0.70369395
DFL	179	0.9735179	0.02193	11.05174	1.01641174
SIZE	179	2493.06	27	93443	8706.225

ROE, Return on Equity; GAP1, the difference between the average salary of general managers and that of deputy general managers and other managers; GAP2, the difference between the average salaries of general managers and deputy general managers; GAP3, the difference between the average salaries of deputy general managers and other managers; DUAL, whether a general manager also serves as chairperson of the board; BOARD, board size; S1, ownership dispersion, TENURE, the term of office for a general manager; RATE, revenue growth rate; INV,inventory level; DFL, Degree Financial Leverage; RD, Research and Development costs; AD, Advertising Density; SIZE, the number of employees

Table 2: Regression results on salary differences and managerial power

Variables	(1)	(2)	(3)	(4)	(5)	(6)
GAP1	-	0.000	-	-	0.000***	-
	-	(0.000)***			(0.000)	
GAP2	-	-	0.000***	-	-	0.000***
	-	-	(0.002)	-	-	(0.002)
GAP3	-	-	0.001***	-	-	0.001***
	-	-	(0.014)	-	-	(0.007)
DUAL	-	-	-	-1.678	-0.503	-0.109
	-	-	-	(0.404)	(0.796)	(0.955)
BOARD	-	-	-	0.108	0.067	0.299
	-	-	-	(0.839)	(0.895)	(0.560)
S1	-	-	-	1.771	2.650	2.039
	-	-	-	(0.513)	(0.310)	(0.432)
TENURE	-	-	-	-0.221	-0.248***	-0.268***
	-	-	-	(0.350)	(0.014)	(0.007)
RATE	0.053***	0.053***	0.050***	0.051***	0.051***	0.048***
	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)
AD	9.423	19.639	31.048	50.425	57.593	71.183
	(0.896)	(0.778)	(0.654)	(0.494)	(0.415)	(0.310)
RD	-7.268	-6.384	-6.320	-6.966	-7.019	-7.270
	(0.381)	(0.425)	(0.425)	(0.406)	(0.384)	(0.360)
INV	1.381	1.589	1.541	1.011	1.302	1.249
	(0.322)	(0.237)	(0.247)	(0.469)	(0.332)	(0.347)
DFL	-4.201***	-4.214***	-4.205***	-3.703***	-3.783***	-3.806***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
SIZE	-1.570E-005	0.000	0.000	-2.805E-005	0.000	0.000
	(0.886)	(0.296)	(0.224)	(0.797)	(0.237)	(0.175)
Adjusted-R	0.136	0.199	0.212	0.149	0.128	0.235
F-statistic	5.666***	7.306***	6.991***	4.121***	5.500***	5.556***

N = 179; DUAL, whether a general manager also serves as chairperson of the board; BOARD, board size; S1, Ownership dispersion, TENURE, The term of office for a general manager; RATE, Revenue growth rate; INV, Inventory level; DFL, Degree of Financial Leverage; RD, Research and Development costs; AD, Advertising Density; SIZE, the number of employees; GAP1, the difference between the average salary of general managers and that of deputy general managers and other managers; GAP2, The difference between the average salaries of general managers and deputy general managers; GAP3, The difference between the average salaries of deputy general managers and other managers; *, **, *** indicate significance at the 10, 5, and 1% levels respectively; (1) $ROE_i = \alpha_0+\alpha_1\ RATE_i+\alpha_2\ AD_i+\alpha_3\ RD_i+\alpha_4\ INV_i+\alpha_5\ DFL_i+\alpha_6\ SIZE_i+\varepsilon$..., (2) $ROE_i = \alpha_0+\alpha_1\ GAP1_i+\alpha_2\ RATE_i+\alpha_3\ AD_i+\alpha_4\ RD_i+\alpha_5\ INV_i+\alpha_6\ DFL_i+\alpha_7\ SIZE_i+\varepsilon$..., (3) $ROE_i = \alpha_0+\alpha_1\ GAP2_i+\alpha_2\ GAP3_i+\alpha_3\ RATE_i+\alpha_4\ AD_i+\alpha_5\ RD_i+\alpha_6\ INV_i+\alpha_7\ DFL_i+\alpha_8\ SIZE_i+\varepsilon$...., (4) $ROE_i = \alpha_0+\alpha_1\ DUAL_i+\alpha_2\ BOARD_i+\alpha_3\ S1_i+\alpha_4\ TENURE_i+\alpha_5\ RATE_i+\alpha_6\ Ad_i+\alpha_7\ RD_i+\alpha_8\ INV_i+\alpha_9\ DFL_i+\alpha_{10}\ SIZE_i+\varepsilon$.,.; (5) $ROE_i = \alpha_0+\alpha_1\ GAP1_i+\alpha_2\ DUAL_i+\alpha_3\ BOARD_i+\alpha_4 S1_i+\alpha_5 TENURE_i+\alpha_6 RATE_i+\alpha_7 AD_i+\alpha_8\ RD_i+\alpha_9\ INV_i+\alpha_{10}\ DFL_i+\alpha_{11}\ SIZE_i+\varepsilon$... (6) $ROE_i = \alpha_0+\alpha_1\ GAP2_i+\alpha_2\ GAP3_i+\alpha_3\ DUAL_i+\alpha_4\ BOARD_i+\alpha_5\ S1_i+\alpha_6\ TENURE_i+\alpha_7\ RATE_i+\alpha_8\ AD_i+\alpha_9\ RD_i+\alpha_{10}\ INV_i+\alpha_{11}\ DFL_i+\alpha_{12}\ SIZE_i+\varepsilon$...

Regression analysis results: As shown in Table 2, only the control variables that influenced corporate performance were included in Eq. 1, namely RATE, INV, DFL, RD, AD and SIZE. Equation 1 was then utilized to determine the influence that these control variables had on ROE as and corporate performance.

Subsequently, Eq. 2 and 3 were employed to examine whether salary differences among high-level managers influenced corporate performance as assessed by ROE. The results are presented in Table 2. Notably, the difference between the average salary of general managers and the average salary of deputy general managers and other managers (GAP1) was significantly positively correlated with ROE (β = 0.000, t = 3.806, $p \leq$ = 0.01). Similarly, the difference between the average salaries of general managers and deputy general managers (GAP2) was significantly positively correlated with ROE (β = 0.000, t = 3.083, $p \leq 0.01$). Finally, the difference between the average salaries of general managers and other managers (GAP3) was also significantly positively correlated with ROE (β = 0.001, t = 2.480, $p \leq 0.05$). Overall, we determined that a larger salary difference between general managers and deputy general managers (GAP1) enhanced corporate performance hence, H_{1a} was supported.

Next, the four managerial power variables (DUAL, BOARD, OWNERSHIP DISPERSION and TENURE) were included in Eq. 4. The results showed that TENURE was significantly negatively correlated with ROE (β = 0.014, t = 2.488, $p \leq 0.01$) all of the other variables had no significant influence on ROE, indicating that managerial power did not significantly influence corporate performance (Table 2). These results did not support H_2.

Finally, salary differences and managerial power variables were added to Eq. 5 and 6. The regression analysis results were similar to the results from Eq. 2-4.

CONCLUSION

For this study, 5 years of data (from 2010-2014) on the salaries of managers from 179 listed companies were obtained from TEJ databases and were organized into three levels: salaries of general managers, salaries of deputy general managers and salaries of other managers. Salary differences among the managerial levels were then calculated to examine whether tournament theory could be supported. The results showed that the values of GAP1, 2 and 3 all validated the tournament theory: in short, larger salary differences between high levels of management are associated with superior corporate performance.

Notably, managerial power only limitedly influences manager's decision-making about their companies and thus minimally influences companie's incentive contracts and corporate performance. Specifically, the results showed that only TENURE was significantly negatively correlated with corporate performance: in short, general managers with a shorter term of office had less managerial power and performed more poorly on various business operations. The other proxy variables for managerial power (DUAL, OWNERSHIP, DISPERSION and BOARD) were not significantly correlated with corporate performance. Therefore, we conclude that managerial power only slightly influences corporate performance.

LIMITATIONS

Few corporations are willing to disclose the compensation information regarding high-ranking managers, so the related data which can be obtained from public observation post system in Taiwan are limited. If, we are able to get access to the information of a larger scale of samples this study results may be different. Moreover, business environment and compensation contraction among different industries are not unanimous, but we do not conduct empirical research toward respective industries. If the followers are able to collect more samples and categorize the industries, the study results may not be the same. This is the first limitation of the study.

At present, it is legal for a corporation to voluntarily disclose the information of high-ranking executive's compensations and most of the corporations which adopt voluntary disclosure do not expose compensation information toward every single manager but average compensation of all managers. As the result of it when exploring whether corporate operating performance was significantly affected by compensation differentials among high-ranking executives this study was not able to conduct empirical research on individual high-ranking executive related to compensation differentials. The question whether compensation differentials toward every single high-ranking executive makes an impact on corporate operating performance remains unanswered. This is the second limitation of the study.

Finally, the corporations exposing the compensation information of high-ranking executives by voluntary disclosure are generally the ones receiving recognition for corporate governance. High-ranking executives in these corporations usually have little influence of their managerial power on compensation contraction, business policy and performance which leads to the empirical result of this study that managerial power is not significantly related with corporate operating performance. If all public companies are compulsorily required to disclose the compensation contracts of high-ranking executives, it may affect the study result. There are more alternative agency variables to measure managerial power in the previous related researches nevertheless, we do not deal with more tests due to the limitations in data collection and research session. If other variables are adopted to measure the influence of managerial power, it may affect the research results. This is the third limitation of the study.

SUGGESTIONS

This study shall make some practical suggestions for subsequent researchers: objective results of this study may not be attained due to fewer samples. We, suggest subsequent researchers prolong the research session and collect more samples to conduct tests. In addition, compensation contractual devices toward high-ranking executives may vary among respective industries, so further tests may be carried out on specific industries. This study divided high-ranking executives into three ranks of managers and then computed their average compensation separately. Provided subsequent researchers are able to get access to more sample corporations which are willing to disclose the information regarding the compensation of the individual manager and proceed to test compensation differentials on the individual manager, it may affect research results which may become better empirical proofs with respect to the effect of managerial power on compensation contracts of management authority and corporate operating performance.

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