# Director Optimal Pay against Fat Cats in Taiwan

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**Abstract**

Due to the overcompensation phenomenon that exists in Taiwan, the "fat cat " issue continues to persist; therefore, vast reforms in regards to director compensation have been prompted in recent years. This investigation assessed 665 Taiwanese firms listed on the Taiwanese Stock exchange over a 10-year period (2002-2011). The main purpose is to test whether there is an optimal level of director compensation, which maximizes firm value. This study adopts Tobin's Q as the proxy for firm value and finds that director compensation between 0.0283 percent and 2.3077 percent is an optimal level to maximize firm value. These results show that when control-affiliated directors have incentives to increase firm value, they serve as reliable monitors due to their individual financial gains.

**Keywords:** Nonlinear, Firm value, Fat cat, Director compensation, Optimal level

JEL classification: G31,G32, G34, G35,G38

## 1. Introduction

Director compensations are effective in aligning managerial objectives with shareholders' goals and are deemed as motivators with the ultimate goal of raising the firm's value. The remuneration committees are concerned with the setting up of shareholder-serving compensation schemes and the 'challenging and stretching' of performance conditions. If the compensation schemes provided directors with incentives to give insufficient weight to the possibility of large losses, then motivated directors may extract and take control of private benefits. To address this distortion, the payoffs allotted to the board of directors should be tied not to the short-term performance but to the long-term value of the firms. Such compensation schemes would provide incentives to take risks that are closer to the optimal level. Reforming pay arrangements in ways such as those proposed here would help ensure that firms and the economy do not suffer in the future from the excessive risk-taking that has contributed to the financial crisis. A thorough overhaul of compensation schemes is recommended as an important element of the new financial order.

Due to the financial crisis, which was partially a result of corporate scandals, vast reforms regarding director compensation were prompted in Taiwan. Compensation disclosure is much different in Taiwan when compared to the United States. The Securities and Exchange Law specifies the regulations and requires the disclosure and transparency of director compensation schemes. Previous regulation did not require listed firms to disclose complete executive compensation information in their annual reports. Nevertheless, some firms did provide this information voluntarily. In this respect, compensation disclosure was not required separately for each individual; however, since 2008 publicly traded firms are required to report the sum of total compensation for the highest paid board members. Chen et al. (2013) stated that the American Securities and Exchange Commission (SEC) required listed firms to have compensation committees that only consisted of outside directors in 2013. Similarly, in Taiwan, a new legislation in 2010 required that all listed firms should associate a compensation committee that included at least three independent board members. However, the findings of Chen et al. (2013) suggest that investors do not trust the implementation of compensation committee helps to guard shareholders benefits. The director compensation is positively related to the abnormal returns, whereas board independence has a negative impact on market reaction in Taiwan. The critical issue is that those firms' performance was lower than that of the same industry, but the directors' compensation was higher than that of the same industry. If the overcompensation phenomenon still exists and the "fat cat" issue cannot be eliminated, the publicly traded firms will be required to report each individual board member's total compensation as the sum of salary, bonus, stipends, and any additional benefits. The Securities and Exchange Law contends that the transparency of director compensation may be indicative of a company that seeks openly to promote the alignment of interests between directors and shareholders through its pay arrangements.

Therefore, the main issue is as follows: Is it the competitive market for managerial talent that sets the compensation contract or do the directors hijack the contracting process? In order to provide a solution to this problem, we conducted a study to determine an optimal level of director compensation in order to maximize firm value and meet the goal of the Securities and Exchange Act.

The remainder of this study is organized into four sections. Section 2 reviews the results of previous empirical research. Section 3 provides the methodology, the sample data and the variables we use in our empirical analysis. Section 4 discusses the empirical results. Section 5 concludes and presents the implications that emerge from the findings.

## 2. Optimal Incentive Structure of Director Compensation

Agency problems exist when managers fail to operate firms with a focus on maximizing shareholder wealth. An executive compensation package requires that managers be rewarded in the form of stock related compensation so that they have an incentive to make decisions that will enhance stock value. Despite the seemingly positive relation between director pay and performance, the pay-for-performance equation remains controversial. At present, academic studies on the relation between pay and performance have not reached consistent conclusions. Morgan and Poulsen (2001) find that compensation plan announcements that align managerial compensation to shareholder interests are associated with positive abnormal returns. Conyon and He (2011) find that executive compensation is positively correlated to firm performance but executive pay and CEO incentives are lower in China State controlled firms and firms with concentrated ownership structures. Thus, designing a compensation plan that aligns executives interests with that of shareholders is a good way to mitigate agency problems.

However, when insiders are on the compensation committee (Westphal and Zajac, 1994) and CEO or insiders dominate the board (Boyd, 1994), managerial compensation is not as closely linked to shareholder wealth (Newman &Mozes, 1999). Oxelheim and Randøy (2005) attribute the exertion of an upwards effect on the CEO and director compensation to be more closely linked to the concept of the self-rewarding behaviour of executives and company directors. Owing to insider domination of recruitment, monitoring board level decision making processes that would otherwise reign in managerial excesses empowers insiders and facilitates self-rewarding behaviour.

Several U.S. studies indicate that the link between cash compensation and performance tends to be rather weak. Toyne et al. (2000) show that entrenched CEOs bias their compensation structure towards low-risk components that are not influenced by performance. Bertrand and Mullainathan (2001) documented that managers were rewarded for the favorable impact of regional developments such as oil price rises or exchange rate variations. In addition, some CEOs received a bonus worth several millions of dollars even when their firms were in distress (Bebchuk and Fried, 2004). Some acquiring-company CEOs received deal completion bonuses, even when their shareholders lost money (Grinstein and Hribar, 2004). Therefore, when the bonus was higher, the shareholders suffered a greater loss. Urzúa I. (2009) shows that, for group-affiliated companies in Chile, controllers' presence on the board of directors is associated with a strong negative relation between chair and board compensation and controllers' cash-flow rights. Furthermore, controllers of group-affiliated companies prefer to increase chair and board compensation rather than dividends as their cash-flow rights decrease. Amoako-Adu et al. (2011) compare executive compensation in dual class firms with that in single class companies with concentrated control in Canada. They find that family members in executive positions in dual class companies are paid significantly more than those of single class companies with concentrated control. Renneboog and Zhao (2011) find that in UK companies with strong networks and hence busy board members, the directors' monitoring effectiveness is reduced which leads to higher and less performance-sensitive CEO compensation. They confirm that there are marked conflicts of interest when CEOs increase their influence by being members of board and remuneration committees. In result, their compensations are significantly higher. Hence, designing an incentive plan that motivates the board directors to maximize shareholder wealth is difficult, and if poorly designed, it may entice motivated board directors to extract and take control of private benefits.

## 3. Data and Methodology

### *3.1 Sample set*

This investigation utilized balanced panel data for a sample of 665 selected Taiwan Stock Exchange (TSE)-listed firms from 2002 to 2011. All data were obtained from the Taiwan Economic Journal database. Financial and insurance firms were excluded due to the fact that the nature of capital and investment in these industries is not comparable to non-financial firms. The final sample consisted of 665 publicly traded firms and were distributed across the nineteen industry sectors as follows: Electronics (266), Textiles (49), Construction (47), Other (46), Chemical (42), Electric Machinery (38), Iron and Steel (33), Plastics (24), Food (22), Transportation (21), Electrical and Cable (13), Oil, Gas and Electricity (11), Department Store (11), Rubber (10), Tourism (10), Paper, Pulp (7), Cement (7), Glass and Ceramics (4), and Automobile (4). The electronics industries account for about 40 percent of the sample while the remaining industries make up less than 10 percent each.

*3.2 Variables*

The calculations of this study remain in line with La Porta et al. (2002) by defining Tobin's Q as the book value of assets, minus the book value of equity, minus deferred taxes, plus the market value of common stock, divided by the book value of total assets. We adopt Tobin's Q as the proxy for firm value because Q considers risk and the contribution of intangible assets. When considering variable measures such as return on assets or return on equity, the results are likely to be distorted by the effects of growth options and human capital as stated by La Porta et al., (2002), Cronqvist and Nilsson (2003) and Maury (2006).

The threshold variable, compensation, is the percentage of compensation owned by the board directors and supervisors to net income after tax and is the key variable used to examine whether there is an asymmetric threshold effect of director compensation on firm value. Additionally, this study incorporates control variables commonly used in analyzing firm value (e.g., Maury, 2006), namely, the natural log of the book value of total assets (Size); the ratio of total liabilities to total assets (Leverage); and according to Pedersen and Elmer (2003), the actual growth of the GDP represents the economic cycle. Consistent with Dushnitsky and Lenox (2006), the measures of the average industry Q are employed to control time-variants and industry-specific variations. Industry Q is measured as the arithmetic average of all the firms in the same industry and the same year as the firm under consideration.

The descriptive statistics for the pooled sample from 2002 to 2011 are illustrated in Table 1. There are 665 firms and a total of 6,650 firm-year observations. The average (median) value of Tobin's Q is 1.35 (1.12). The average (median) director compensation is 8.72 million NTD (1.29 million NTD). In regards to the control variables, the size distribution of the sample firm is also skewed due to the large differences between the mean (16,578.90 million NTD) and median (4,310.20 million NTD) of total assets for the pooled sample. The ratio for leverage is 38.70 percent, the actual growth of the GDP is 4.50 percent, and the pooled mean of Industry Q is 1.34 percent. Based on the Jarque-Bera test results, we reject the normality of all the variables.

Table 1. Sample descriptive statistics

| Variables | Average | Max | Min. | Std. Dev. | Median | Jarque-Bera |
|---|---|---|---|---|---|---|
| Compensation ($millions) | 8.72 | 362.64 | 0.00 | 24.77 | 1.29 | 901524.5*** |
| Leverage | 38.70 | 99.13 | 1.27 | 17.02 | 38.23 | 151.0642*** |
| GDP | 4.50 | 10.76 | -1.81 | 3.17 | 4.98 | 51.88693*** |
| IQ | 1.34 | 2.68 | 0.62 | 32.22 | 1.33 | 70.70312*** |
| Size ($millions) | 16,578.90 | 1,181,868.33 | 125.79 | 50,863.84 | 4310.20 | 2892291.0*** |

*Notes*: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively. The Jarque-Bera test for normality is used to present the results. The sample size is 665 firms for each of the 2002-2011 periods and is a total of 6650 firm-year observations results. Tobin's Q is measured as the book value of assets minus the book value of equity minus deferred taxes plus the market value of common stock divided by the book value of total assets. Compensation is defined as the compensation owned by the board directors and supervisors. Leverage is measured as the ratio of total liabilities to total assets. The GDP captures the economic cycle. The IQ is measured as the arithmetic average of the all the firms in the same industry and the same year as the firm under consideration.

*3.3 Panel unit-root models*

In order to avoid spurious regressions, the panel smooth transition regression model stipulates that the variables must remain stationary. Thus, we implement the Levin–Lin–Chu (LLC) (2002), the Augmented Dickey–Fuller (ADF) (Dickey and Fuller, 1979), and the PP–Fisher Chi-square (Phillips and Perron, 1988) for the panel data in this investigation. The evidence from Table 2 demonstrates that all the variables are compliant to the model due to their stationary characteristics and the rejection of the nulls of the unit root.

Table 2. Panel unit root test results

| Method | LLC | p-values | ADF - Fisher Chi-square | p-values | PP - Fisher Chi-square | p-values |
|---|---|---|---|---|---|---|
| Tobin's Q | 36.9080 | [ 0*** ] | 2365.45 | [ 0*** ] | 3381.53 | [ 0*** ] |
| Compensation | -6.51583 | [ 0*** ] | 1463.54 | [ 0*** ] | 2087.49 | [ 0*** ] |
| Size | 24.9336 | [ 0*** ] | 1533.24 | [ 0*** ] | 2358.19 | [ 0*** ] |
| Leverage | 38.8660 | [ 0*** ] | 1776.21 | [ 0*** ] | 2148.73 | [ 0*** ] |
| GDP | 59.9725 | [ 0*** ] | 3127.08 | [ 0*** ] | 7663.47 | [ 0*** ] |
| IQ | 53.4222 | [ 0*** ] | 3027.76 | [ 0*** ] | 3984.29 | [ 0*** ] |

*Notes*: The numbers in brackets indicate p-values. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively. Tobin's Q is measured as the book value of assets minus the book value of equity minus deferred taxes plus the market value of common stock divided by the book value of total assets. Compensation is defined as the compensation owned by the board of directors and supervisors. Size is measured as the logarithm of the book value of total assets. Leverage is measured as the ratio of total liabilities to total assets. The GDP is captures the economic cycle. The IQ is measured as the arithmetic average of the all the firms in the same industry and the same year as the firm under consideration.

### *3.4 Panel Smooth Transition Regression Model*

We utilized the previous research of González, Teräsvirta and Dijk (2004, 2005) to calculate the panel smooth transition regression model as follows:

$$Q_{i,t} = \mu_i + \sum_{m=0}^{M} \sum_{k=1}^{K} \alpha_{m,k} \beta_{i,t,k} g\left(Comp_{i,t}; \delta, \theta_m\right) + \varepsilon_{i,t} \tag{1}$$

The variables $\beta_{i,t,k}$ are $Comp_{i,t}, Size_{i,t}$, $Leverage_{i,t}$, $GDP_{i,t}$, and $IQ_{i,t}$ for k=1 to 5, respectively. The symbol, $g\left(Comp_{i,t}; \delta, \theta_m\right)$ for firm i at time t, illustrates a transition function which relies on the variables formerly explained and in which δ determines the slope of the transition function and θ is the threshold parameter. The values of $\theta_m$ are acquired from the regression with $\theta_0 = 0$ and $h\left(Comp_{i,t}, \theta_m\right)$ is one if $\theta_m \le Copm_{i,t}$. The value of $Copm_{i,t}$ decides the value of $g\left(Comp_{i,t}; \delta, \theta_m\right)$ and accordingly the effective regression coefficients $\alpha_0+\alpha_1$. The transition function $g\left(Comp_{i,t}; \delta, \theta_m\right)$ is a continuous and bounded function of the threshold variable $\left(Comp_{i,t}\right)$ and is normalized to be bounded between 0 and 1. These extreme values are connected to the regression coefficients $\alpha_0$ and $\alpha_0+\alpha_1$. Based on Granger and Teräsvirta (1993), Teräsvirta (1994) and Jansen and Teräsvirta (1996), we assess this function via the logistic transition function as follows:

$$g(Comp_{i,t} : \delta, \theta) = (1 + \exp(-\delta \prod_{j=1}^{m} (Comp_{it} - \theta_j))^{-1}, \delta > 0, \theta_1 \le \theta_2 \le \ldots \theta_m \tag{2}$$

Where $\theta = \theta_1, \theta_2, \ldots \theta_M$, is an M-dimensional vector of location parameters and the parameter δ determines the smoothness of the transitions. The m = 1 and $\delta \to \infty$, the PSTR model resembles the panel threshold model by Hansen (1999). When the m = 2 and $\delta \to \infty$, the model turns into a three-regime threshold model where the external regimes are equal and distinct from the middle regime. When m > 1 and $\delta \to \infty$, the number of diverse regimes remain on two, with the transition function switching back and forth between zero and one at $\theta_{1,\ldots} \theta_m$.

Ultimately, for any value of m the transition function (2) becomes constant when $\delta \to \infty$, in which case the model is broken down into a homogenous or linear panel regression model with fixed effects. When this is the case, it is generally appropriate to determine that m = 1 or m = 2, as these values are commonly accepted to confront varying types of the parameters.

The initial specification stage of the modeling cycle consists of testing homogeneity against the panel smooth transition regression (PSTR) alternative. The PSTR model (1) with (2) can be reduced to a homogenous model by imposing $H_0^2: \alpha_1 = 0$ or $H_1^2: \delta_1 = 0$ . However, due to the unrecognized parameters of the PSTR model under the null hypothesis, the associated tests are considered to be nonstandard. In order to solve this problem, we refer to Luukkonen, Saikkonen, and Teräsvirta (1988), where these unrecognized parameters are deciphered. Therefore, the first-order Taylor expansion around δ=0 is used. The homogeneity test applies the null hypothesis $H_0: \delta = 0$ and the auxiliary regression is as follows:

$$Q_{i,t} = \mu_i + \alpha_0^{'*}\beta_{i,t} + \alpha_1^{'*}\beta_{i,t}Comp_{i,t} + ... + \alpha_m^{'*}\beta_{i,t}Comp_{i,t}^m + \varepsilon_{i,t}^* \quad (3)$$

In result, the assessment $H_0: \delta = 0$ in (1) corresponds to and examines the null hypothesis $H_0: \alpha_0^* = ... = \alpha_m^* = 0$ in (3). Under the null hypothesis$\{\varepsilon_{it}^*\} = \{\varepsilon_{it}\}$, the Taylor series approximation does not consequently influence the asymptotic distribution theory.

When following the suggestions of Granger and Teräsvirta (1993) and Teräsvirta (1994) a series of tests are chosen between m = 1 and m = 2. The homogeneity test decides the correct order m of the logistic transition function in (2). Applying the auxiliary regression (3) with m = 3, we examine the null hypothesis $H_0: \alpha_2 = \alpha_1 = \alpha_0 = 0$. A separate linear test may be used if the previous regression is not accepted. This test is as follows:

$$H_{04}: \alpha_2 = 0; H_{03}: \alpha_1 = 0, \alpha_2 = 0; H_{02}: \alpha_0 = 0, \alpha_2 = \alpha_1 = 0$$

The selection of m =1 or m =2 depends whether or not the rejection of $H_{03}$ is the strongest. When the PSTR model establishes alternative types of parameters, we then use the model parameter estimation. The PSTR model (1) is a fairly simple simulation of the fixed effects estimator and nonlinear least squares.

## 4. Empirical Results

The LM (chi-square statistic), LMF (F statistic), and LRT (T statistic) tests of homogeneity are employed to determine whether the model has a linear or non-linear relationship. Due to the rejection of the homogeneity test for the transition variable, and since the p-values are all significant at the 1 percent level, it is evident to see from Table 3 that this model is non-linear. Therefore, in order to determine the logistic function of m order, we apply the homogeneity test sequence. The results of the F-Test for m indicate that the strongest rejection occurred when m = 1 and this does not occur for the null hypotheses ($H_{02}$). In result, we are able to see a rejection of the testing results of the number of regimes for the null hypotheses (δ=1), and the p-values are all significant at the 1 percent level. Therefore, the results of the number of regimes for the null hypotheses is δ=2 because rejection does not exist in this situation. Based on the robust test, there are two threshold effects of director compensation on firm value.

Table 3. Homogeneity tests results

| Transition variable $Comp_{it}$ | Test | *p*-value |
|---|---|---|
| Wald Tests(LM) | 49.353*** | 0.000 |
| Fisher Tests(LMF) | 2.976*** | 0.000 |
| LRT Tests(LRT) | 49.537*** | 0.000 |

*Notes*: ***, **, and * indicate significance at the1%, 5%, and 10% levels, respectively.

Table 4 presents the regression slope estimates along with the t-value for two regimes. When there is a double threshold effect of director compensation on firm value, all observations are split into three regimes.

Table 4. Estimation results of two-regime by PSTAR model

| Variables | 0.0283% ≦Compensation | 0.0283% <Compensation≦2.3077% | Compensation >2.3077% |
|---|---|---|---|
| Compensation | -0.1285 | 7.6111* | -7.77263* |
| T-value | -0.4319 | 1.7694 | 1.8276 |
| Threshold value θ | $\theta_1$=0.0283% | $\theta_2$=2.3077% | |
| Slopes Parameters | $\delta_1$=3.3573 | $\delta_2$=0.0002 | |

*Notes*: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

The estimated model from the empirical results is represented as follows:

$$Q_{it} = \mu_i - (0.1285\ Comp_{it})(-51.2537\ Size_{it} + 0.3655\ Leverage_{it} + 0.0324\ GDP_{it} + 0.6424\ \mathrm{IQ}_{it})H_1$$
$$+ (7.6111\ Comp_{it}, 3.3573, 0.0283\ \%)(-5.1751\ Size_{it} + 0.4043\ Leverage_{it} - 0.6739\ GDP_{it} - 0.6423\mathrm{IQ}_{it})H_2$$
$$-(7.7263\ Comp_{it}, 0.0002, 2.3077\ \%)(+6.2291\ Size_{it} - 0.5175\ Leverage_{it} + 0.1423\ GDP_{it} - 0.6988\mathrm{IQ}_{it})H_3 + \varepsilon_{it}$$

Where $H_i = 1$ if compensation is greater than $\theta_i$.

The regimes are distinguished by the different regression slopes, $\alpha_0$, $\alpha_1$ and$\alpha_2$. In the first regime, where the director compensation is less than 0.0283 percent, the estimate of coefficient$\alpha_0$ is -0.1285; however, it is insignificant. This indicates that there is no relationship between director compensation and firm value when the director compensation is less than 0.0283 percent. In the second regime, where the director compensation is greater than 0.0283 percent but less than 2.3077 percent, the estimate of coefficient$\alpha_1+\alpha_2$ is 7.4826, is significant at the 10 percent level and indicates that Tobin's Q increases by 7.4826 with an increase of 1 percent in director compensation. In the third regime, where the director compensation is greater than 2.3077 percent, the estimate of coefficient$\alpha_0+\alpha_1+\alpha_2$ is -0.29003, is significant at the 10 percent level and indicates that Tobin's Q decreases by 0.29003 with an increase of 1 percent in director compensation. The estimates 0.0283 percent and 2.3077 percent are respectively larger and smaller values are evident in the empirical distribution of the director compensation threshold variable. Thus, the three classes of firms shown by the point estimates are those with ''low-compensation'' (director compensation ≦0.0283 percent), ''median-compensation" (0.0283 percent director compensation ≦ 2.3077 percent) and "high-compensation" (director compensation＞2.3011 percent).

When comparing the median-compensation regime with the high-compensation regime, we find that the median-compensation regime increases Tobin's Q 7.7263 (7.4826/-0.29003) times more than does the high-compensation regime. The slope of the panel threshold does not have a fixed value; in the median-compensation regime, it is 7.4826, whereas in the high-compensation regimes, the slope is -0.29003, respectively. Therefore, the results clearly show that the relationship between director compensation and Tobin's Q (i.e. the slope value) varies in accordance with different changes in director compensation, and there is a decreasing trend. Therefore, we conclude that there is optimal director compensation between 0.0283 percent and 2.3077 percent, where firm value is sharply increasing. The director compensation, by contrast, increases firm value in the median-compensation regime but decreases in the high-compensation regime. This lends support to both the alignment effect and the entrenchment effect, respectively. These results are consistent with results obtained by previous studies such as Renneboog and Zhao (2011) who found that firms with strong networks entail busy directors whose monitoring effectiveness is reduced which leads to higher and less performance-sensitive CEO compensation.

Table 5 presents the percentages of firms that fall into each of the three regimes each year. We find that the percentage in the ''low-compensation'' category ranges from 34 percent to 49 percent of the sample over the sample period. Approximately 40 percent of the firms fall in the low-compensation regime. The firms in the median-compensation regime range from 34 percent to 49 percent of the sample over the same period, and 41 percent of the firms fall in the median-compensation regime. The regimes in the high-compensation regime range from 15 percent to 22 percent of the sample, and 19 percent of the firms fall in the high-compensation regime. Yeh and Woidtke (2005) found that ultimate controllers in Taiwan have power in selecting both directors and supervisors and can strengthen their control by selecting family members or people they trust. Therefore, it could be said that group affiliation increases board members' compensations in countries such as Korea, India, Hong Kong and Italy (Urzúa I., 2009).

In order to measure the extent of involvement by management ultimate controllers under different director compensation regimes, this study further defined control-affiliated directors as the number of directors affiliated with ultimate controllers divided by the total number of directors. Comparing the control-affiliated directors with different ownership in the median-compensation regime and high-compensation regime, we find that approximately 31 percent of the control-affiliated directors with at least 20 percent ownership fall in the median-compensation regime. Approximately 22 percent of the control-affiliated directors with at least 20 percent ownership fall in the high-compensation regime. The control-affiliated directors with at least 20 percent ownership in the median-compensation regime are 1.4 (31%/22%) times more than that of the high-compensation regime. The control-affiliated directors with at least 30 percent ownership in the median-compensation regime are 1.7 (17%/10%) times more than that of the high-compensation regime. The control-affiliated directors with at least 40 percent ownership in the median-compensation regime are 2.67 (8%/3%) times more than that of the high-compensation regime. The control-affiliated directors with at least 50 percent ownership in the median-compensation regime are 3 (3%/1%) times more than that of the high-compensation regime. Therefore, control-affiliated directors result in the difference between the median-compensation and the high-compensation regime.

This data reveals that control-affiliated directors involved in management leads to operational efficiencies and increases firm value when director compensation is between 0.0283 percent and 2.3077 percent. The control-affiliated director who holds a large portion of equity generally has an incentive to align outside shareholder interests by contributing to firm value. However, the relationship between director compensation and firm value results in a decreasing effect when director compensation is substantial (exceeding 2.3077 percent), and this will lead to operational inefficiencies and ultimately decrease the firm value.

Table 5. Number [percentage] of firms in each regime by year

| Firm class | Year | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | Average |
| 0.0283%≦ | 292 | 272 | 262 | 272 | 246 | 227 | 325 | 274 | 225 | 258 | 265 |
| Compensation | [44] | [41] | [39] | [41] | [37] | [34] | [49] | [41] | [34] | [39] | [40] |
| 0.0283% < | 226 | 257 | 283 | 258 | 280 | 304 | 243 | 270 | 326 | 284 | 273 |
| Compensation ≦2.3077% | [34] | [39] | [43] | [39] | [42] | [46] | [37] | [41] | [49] | [43] | [41] |
| Compensation | 147 | 136 | 120 | 135 | 139 | 134 | 97 | 121 | 114 | 123 | 127 |
| >2.3077% | [22] | [20] | [18] | [20] | [21] | [20] | [15] | [18] | [17] | [18] | [19] |

*Notes*: The numbers in brackets indicate the percentage of firms in each regime

In the coefficient estimations of the control variables shown in Table 6, firm size is significantly negatively related to Tobin's Q. In addition, leverage is significantly and positively related to Tobin's Q in the ''low-compensation'' regime. When the director compensation is low, this can exert the function of their professional supervisory managers, and meanwhile obtain the confidence of creditors. Therefore, the company can easily obtain liabilities to finance, illustrating that the firm value is stable which results in a higher firm value (Hung et al, 2005). The GDP is insignificantly related to Tobin's Q in all regimes while the IQ are significantly and positively related to Tobin's Q in the ''low-compensation'' and ''median-compensation'' regime, but significantly and negatively related to Tobin's Q in the ''high-compensation'' regime.

Table 6. Estimation results of control variables

| Variables | 0.0283% ≦Compensation | 0.0283% <Compensation≦2.3077% | Compensation >2.3077% |
|---|---|---|---|
| | $\beta_0$ | $\beta_1$ | $\beta_2$ |
| Size | -51.2537*** | -5.1751*** | 6.2291*** |
| Leverage | 0.3655*** | 0.4043* | -0.5175* |
| GDP | 0.0324 | -0.6739 | 0.1423 |
| IQ | 0.6423*** | 0.7432*** | -0.6988*** |

*Notes*: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

## 5. Conclusions

Due to the financial crisis and the occurrence of corporate scandals, vast reforms regarding director compensation have been established in Taiwan. The Securities and Exchange Law contends that the transparency of director compensation may be indicative of a company that seeks openly to promote the alignment of interests between directors and shareholders through its pay arrangements.

The results of this study substantiate this contention and maintain there must be an optimal level of director compensation between 0.0283 percent and 2.3077 percent, which maximizes firm value, lending strong support to alignment effects. These results illustrate that when control-affiliated directors have incentives to increase firm value, they can serve as reliable monitors due to their financial gains. However, when director compensation exceeds

2.3077 percent, it will lead to operational inefficiencies and decrease the firm value. The results substantiate an optimal level of director compensation for an adequate regulatory standard.

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