

The Impact of the Cash Compensation Gap between Executives and Employees on Corporate Performance



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ABSTRACT: This study was conducted to analyze the impact of the compensation gap between executives and employees on corporate performance for companies listed on the Korea Exchange from 2010 to 2021. First, it was found that the compensation gap between executives and employees had a significant impact on sales performance and stock performance, suggesting that employees might feel deprived relative to the enormous compensations provided to management and their motivation to work might decline. These psychological factors also appeared to have an effect on subsequent corporate performance. Employees might become less loyal to the organization due to psychological factors and try to compensate for the situation by leaving their jobs. Second, the executive-employee compensation gap and compensation gap squared were found to have a significant impact on sales performance and stock performance, suggesting that the larger the compensation gap, the more it negatively affected corporate performance. In consideration of this, management must develop various compensation systems for employees and actively introduce and maintain employee welfare programs. Third, the compensation gap between executives and employees of *chaebol* (conglomerate) and non-*chaebol* firms was found to have a significant impact on operating performance and stock performance, and the compensation gap between the executives and employees of firms listed on the securities market and KOSDAQ was also found to have a significant impact on operating performance and stock performance. The results showed that the larger the compensation gap between executives and employees, the more it negatively affects corporate performance, regardless of whether the company is a *chaebol* or non-*chaebol* firm or listed on the securities market or KOSDAQ. Management must develop a wide range of compensation systems for employees and actively introduce and maintain employee welfare programs.

KEYWORDS: Cash Compensation Gap, Operating Performance, Stock Performance, Nonlinearity

INTRODUCTION AND LITERATURE REVIEW

In the United States, executives and employees have a strong concept of and demand for adequate compensation for their work. They consider it a right and thus constantly demand stock options, incentives, and employee benefits and seek their right to adequate compensation. Following the global financial crisis, moral hazard, such as the high compensations for the workers at large financial institutions on Wall Street, was raised as a social issue in the United States, and to this day, demands have been made in regard to employee compensation and rights, while maintaining a fine balance between adequate compensation and moral hazard. After the 1997 Asian financial crisis, the compensation system of American companies was introduced to Korean companies, and the compensations for executives increased sharply, resulting in a growing pay gap between executives and employees. This study aims to examine the impact of the compensation gap between executives and employees on the business performance of listed firms in Korea.

Direct and indirect compensations increase employee job satisfaction, loyalty, and engagement, which in turn enhances the value of the company. If the compensation is unreasonable, however, it can lead to wasteful behaviors such as demoralization and reduced motivation to work (Cowherd and Levine, 1992). The relationship between the compensation gap and corporate performance can be explained by the tournament theory and relative deprivation theory based on previous studies. Main et al. (1993) supported the tournament theory from the corporate perspective, explaining that an examination of American companies from 1980 to 1984 showed that pay disparities within management became a motivation, i.e., an incentive, to improve corporate performance. However, they did not find any general evidence that the largest shareholders and management should reduce the

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compensation gap as a means to seek mutual cooperation with employees. Martin (1981) advocated the relative deprivation theory, asserting that when people believe that their compensation is relatively smaller compared to others, they feel deprived, which leads to reduced cohesion and lower job satisfaction, and these factors hinder corporate performance. Bebchuk et al. (2011) found that in the case of listed companies in the United States from 1993 to 2004, the size of the compensation for the CEO among the top five executives was negatively correlated to the corporate performance measured according to Tobin's Q and accounting income. Kale, Reis, and Venkateswaran (2014) analyzed listed companies in the United States from 1993 to 2004 and found that executives were more likely to voluntarily resign if they perceived that their compensation was smaller than those of executives at other firms. Among the studies that reported an inverted U-shaped relationship between compensation gap and corporate performance, Mahy, Rycx, and Volral (2011) found an inverted U-shaped relationship between the pay gap between white-collar and blue-collar employees and productivity in the case of listed companies in Belgium from 1999 to 2006. Meanwhile, Crawford et al. (2016) reported an inverted U-shaped relationship between the compensation gap between management and employees and corporate performance measured based on operating performance in the case of American commercial banks from 1995 to 2013.

Unlike previous studies on the impact of compensation for management and the compensation gap between executives and employees on corporate performance, this study is the first to analyze the direct impact of the compensation gap between executives and employees on corporate performance and the first to empirically examine how the competence of management affects the relationship between the compensation gap and corporate performance. The empirical results of this study suggest that the impact of the compensation gap between executives and employees on corporate performance in Korea is explained by the relative deprivation theory, and that there are many aspects that need to be considered when determining compensation for management in order to achieve high corporate performance.

MODELS AND VARIABLES

In this study, in order to analyze the impact of the cash compensation gap between executives and employees on corporate performance, a regression model, as shown in Eq. (1), was set according to the methodology of Rajgopal and Srinivasan (2006), Kale et al. (2009), and Faleye et al. (2013).

$$PERF_{t+1} = \beta_0 + \beta_1 \ln CR_t + \beta_2 MB_t + \beta_3 SIZE_t + \beta_4 LEV_t + \beta_5 RD_t + \beta_6 DY_t + \varepsilon_t \quad (1)$$

Corporate performance ($PERF_{t+1}$), the dependent variable in Eq. (1), is composed of operating performance in the period t+1 (ROA_{t+1}) and stock performance in the period t+1 (RET_{t+1}). The operating performance in t+1 (ROA_{t+1}) is measured as [(net income in t+1)/(total assets in t+1)], and the stock performance in t+1 (RET_{t+1}) is measured as the geometric mean of monthly returns over the year. The compensation gap between executives and employees in year t ($\ln CR_t$), which is the explanatory variable, is measured as the natural logarithm of [Cash compensation for executives in year t]/[Cash compensation for employees in year t], in accordance with the methodology of Rajgopal and Srinivasan (2006), Faleye et al. (2013), and others. Five control variables were set based on the methodology of Rajgopal and Srinivasan (2006), Shin et al. (2015), and others. First, the market-to-book ratio in year t (MB_t) is measured as [(Market capitalization of common stock in year t)+(Market capitalization of preferred stock in year t)+(Total debt in year t)]/(Total assets in year t), and the company size in year t ($SIZE_t$) is measured as the natural logarithm of [(Total assets in year t)], the debt ratio in year t (LEV_t) is measured as [(Total debt in year t)/(Total assets in year t)], R&D expenditure in year t (RD_t) is measured as [(R&D expenses accounted as assets in year t) + (R&D expenses accounted as expenses in year t)], and dividend yield in year t (DY_t) is measured as [(Dividend per share in year t)/(Market price per share in year t)]

DATA

This study analyzed corporations listed on the securities market of the Korea Exchange and KOSDAQ from 2010 to 2021 whose fiscal year ends in December. Financial institutions were excluded from the analysis because their financial statement preparation standards, business methods, and capital structure are different from those of non-financial businesses. Merged or split companies were also excluded due to issues with continuity of financial data. Data on executive and employee compensations were collected from the executive and employee compensation sections in business reports disclosed on the Financial Supervisory Service's electronic disclosure system, while financial data and stock price data of companies were collected from the Korea Listed Companies Association's TS-2000. After excluding data where the compensations for outside directors and auditors were not distinguished, instances where data necessary for variable calculation were unavailable, and data on companies that had not been listed for at least one year, 14,386 samples were ultimately constructed and analyzed.

EMPIRICAL RESULTS

This section presents an empirical analysis of the impact of compensation gap on corporate performance. First, <Table 1> shows

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the basic statistics and correlations of the variables used in this study.¹ The mean (median) operating performance in period t+1 (ROA_{t+1}) was found to be 0.026 (0.032), and the mean (median) stock performance in period t+1 (RET_{t+1}) was 0.180 (0.128), which are not significantly different from the results reported by previous studies in Korea. The mean (median) compensation gap between executives and employees in t ($lnCR_t$) was 1.803, which was much lower than the mean of 36.65 reported by Faleye et al. (2013), who studied American companies. The mean market-to-book ratio in t (MB_t) was 1.255, which was not significantly different from the median of 1.062, while the mean company size in t ($SIZE_t$) was 18.908, which was similar to the mean reported in previous studies on Korean companies. The mean debt ratio in t (LEV_t) was 0.529, which was not significantly different from the median of 0.487, the mean R&D expenditure in t (RD_t) was 0.029, which was larger than the median of 0.010, resulting a right-skewed distribution, and the mean dividend yield in t (DY_t) was 0.031, which was larger than but not statistically significantly different from the median of 0.020.

Table 1. Descriptive Statistics Analysis

	Average	Median	Standard deviation	Minimum	Maximum
ROA_{t+1}	0.026	0.032	0.171	-0.683	0.724
RET_{t+1}	0.180	0.128	0.552	-0.872	3.016
$lnCR_t$	1.803	1.176	0.619	0.277	5.509
MB_t	1.255	1.062	0.785	0.424	5.486
$SIZE_t$	18.908	18.765	1.623	16.107	24.104
LEV_t	0.529	0.487	0.239	0.094	1.049
RD_t	0.029	0.010	0.198	0.001	0.628
DY_t	0.031	0.020	0.029	0.001	0.247

Note) All variables are presented by winsorizing 1% extreme values from top and bottom

<Table 2> shows the correlation between variables using Pearson correlation coefficient. The compensation gap between executives and employees in year t ($lnCR_t$) was found to be negatively correlated to both operating performance (ROA_{t+1}) and stock performance (RET_{t+1}) in period t+1 at a significance level of 0.05. This suggests that a larger compensation gap is generally associated with lower operating performance and stock performance, which is consistent with the relative deprivation theory of Martin (1981). The control variables, market-to-book ratio (MB_t), company size ($SIZE_t$), and R&D expenditure (RD_t), showed positive correlations with operating performance and stock performance at a significance level of 0.01 to 0.05, while debt ratio (LEV_t) and dividend yield (DY_t) showed negative correlations with operating performance and stock performance at a significance level of 0.01. The correlation coefficient between the executive-employee compensation gap and the company size was determined to be 0.453, which was somewhat higher compared to the other variables, and this was because the compensation gap is considerably larger in the case of large firms than small and medium-sized enterprises. Also, the correlation coefficient between the control variables did not exceed 0.5, and the variance inflation factor (VIF) did not exceed 10, which is known as a criterion for multicollinearity, based on which it was judged that there was no multicollinearity problem.

Table 2. Correlation Coefficients Analysis

변수	ROA_{t+1}	RET_{t+1}	$lnCR_t$	MB_t	$SIZE_t$	LEV_t	RD_t	DY_t	VIFs
ROA_{t+1}	1								
RET_{t+1}	0.228**	1							2.65
$lnCR_t$	-0.063*	-0.030*	1						2.01
MB_t	0.135**	0.399**	0.028*	1					1.05
$SIZE_t$	0.224**	0.058*	0.453**	-0.120**	1				2.76
LEV_t	-0.268**	-0.008	0.041*	-0.092**	0.306**	1			1.85
RD_t	0.106**	0.195**	0.141**	0.290**	-0.080**	-0.058*	1		1.50
DY_t	-0.118**	-0.127**	-0.002*	0.096**	0.076**	-0.038*	0.003	1	1.76

¹ In the process of analyzing the results, the subscript (i) indicating companies with respect to the variables were omitted for simplicity.

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Note) The above are Pearson's correlation coefficients of major variables, and ** and * indicate significance at 1% and 5% levels (both sides), respectively.

Table 3. Impact of Cash Compensation Gap on Corporate Performance

Classification	Total Samples	
	Operating Performance (ROA_{t+1})	Stock Performance (RET_{t+1})
Constant Term	0.062*** (5.86)	0.543*** (8.29)
$lnCR_t$	-0.019*** (-2.77)	-0.030** (-1.99)
MB_t	0.106** (2.43)	0.368*** (7.54)
$SIZE_t$	0.059*** (5.24)	0.309*** (2.53)
LEV_t	-0.291*** (-2.86)	-0.606*** (-5.34)
RD_t	0.036** (2.05)	0.138*** (3.82)
DY_t	0.038*** (2.63)	0.528*** (2.26)
Firm Effect	included	included
Year Effect	included	included
Industry Effect	included	included
Number of Observations	14,386	14,386
$Adjusted - R^2$	0.1698	0.1462
$F - Value$	342.85***	327.46***

Note) () indicates the t-value to which White-corrected standard errors of White(1980) are applied considering the heteroscedasticity of the White (1980)' errors, and ***, **, and * indicate the significance at the level of 1%, 5%, and 10% levels (both sides), respectively.

<Table 3> shows the results of analyzing the impact of the cash compensation gap on corporate performance. The compensation gap between executives and employees ($lnCR_t$) was found to have a significant negative effect on operating performance (ROA_{t+1}) at a significance level of 0.01 and a significant negative effect on stock performance (RET_{t+1}) at a significance level of 0.05. As such, the relative deprivation theory advocated by Martin (1981) is supported in the case of listed companies in Korea, as employees tend to experience relative deprivation with respect to the enormous compensations for executives and feel less motivated to work, and these physiological factors have an impact on subsequent corporate performance. This is similar to the findings reported by Cowherd and Levine (1992) that employees' loyalty to the company gets weakened by such psychological factors and they try to compensate for this situation by leaving the organization. The results of the control variables were also similar to the expected results of this study. Market-to-book ratio (MB_t) was found to have a positive effect on operating performance (ROA_{t+1}) and stock performance (RET_{t+1}) at a significance level of 0.01 to 0.05, which was consistent with the findings of Shin et al. (2015). Company size ($SIZE_t$) was found to have a positive effect on operating performance (ROA_{t+1}) and stock performance (RET_{t+1}) at a significance level of 0.01. This suggests that the larger the company, the more credibility they have, based on which they exert a positive impact on the market, and it also has a positive impact on corporate performance because such large companies have many assets, resulting in a low risk of bankruptcy, and have the ability to secure human resources and growth opportunities to preoccupy future growth engines. Debt ratio (LEV_t) was found to have a negative impact on operating performance (ROA_{t+1}) and stock performance (RET_{t+1}) at a significance level of 0.01, while R&D expenditure (RD_t) and dividend yield (DY_t) had a positive impact on operating performance (ROA_{t+1}) and stock performance (RET_{t+1}) at a significance level of 0.01 to 0.05. This suggests that high debt ratio has an adverse impact on corporate performance due to increased capital costs such as interest expenses.

<Table 4> shows the results of analyzing the impact of the cash compensation gap on corporate performance as a non-linear relationship. The compensation gap between executives and employees ($lnCR_t$) has a negative effect on operating performance (ROA_{t+1}) at a significance level of 0.05 and a negative effect on stock performance (RET_{t+1}) at a significance level of 0.10. The compensation gap between executives and employees squared ($lnCR_t$)² has a negative effect on operating performance (ROA_{t+1})

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at a significance level of 0.05 and a negative effect on stock performance (RET_{t+1}) at a significance level of 0.05. This means that the larger the compensation gap between executives and employees, the more negatively it affects corporate performance. This suggests that it is necessary for management to develop various compensation systems for employees and actively introduce and maintain employee welfare programs.

Table 4. Impact of Cash Compensation Gap on Corporate Performance: Nonlinear Relationship Analysis

Classification	Total Samples	
	Operating Performance (ROA_{t+1})	Stock Performance (RET_{t+1})
$\ln CR_t$	-0.029** (-2.37)	-0.038* (-1.75)
$(\ln CR_t)^2$	-0.014** (-2.50)	-0.016** (-2.04)
Control variables	Included	Included
Firm Effect	Included	Included
Year Effect	Included	Included
Industry Effect	Included	Included
Number of Observations	14,386	14,386
Adjusted – R^2	0.1869	0.1675
F – Value	364.13***	336.73***

Note) () indicates the t-value to which White-corrected standard errors of White(1980) are applied considering the heteroscedasticity of the White (1980)' errors, and ***, **, and * indicate the significance at the level of 1%, 5%, and 10% levels (both sides), respectively.

<Table 5> shows the results of analyzing the impact of the cash compensation gap on corporate performance of *chaebol* and non-*chaebol* companies. The compensation gap between executives and employees of *chaebol* and non-*chaebol* firms ($\ln CR_t$) was found to have a negative effect on operating performance (ROA_{t+1}) at a significance level of 0.01 to 0.10 and a negative effect on stock performance (RET_{t+1}) at a significance level of 0.01 to 0.10.

<Table 6> shows the results of analyzing the impact of the cash compensation gap on the corporate performance of companies categorized into the securities market and KOSDAQ. It was found that the compensation gap between executives and employees of companies listed on the securities market or KOSDAQ had a negative effect on operating performance (ROA_{t+1}) at a significance level of 0.01 to 0.05 and a negative effect on stock performance (RET_{t+1}) at a significance level of 0.05. This suggests that regardless of whether a company is *chaebol* and non-*chaebol* firm or listed on the securities market or KOSDAQ, there was a negative correlation between the compensation gap between executives and employees and the corporate performance. In other words, it is necessary for management to develop a wide variety of compensation systems for employees and to actively introduce and maintain employee welfare programs.

Table 5. Impact of Cash Compensation Gap on Corporate Performance: Chaebol and Non-chaebol Companies

	Chaebol company	Non-chaebol company
Dependent Variable = Operating Performance (ROA_{t+1})		
$\ln CR_t$	-0.020* (-2.09)	-0.047*** (-3.62)
Number of Observations	2,005	12,381
MB_t	0.1273	0.1840
Stock Performance (RET_{t+1})		
$\ln CR_t$	-0.026* (-1.95)	-0.060*** (-3.59)
Number of Observations	2,005	12,381
ROA_{t+1}	0.1218	0.1570

Table 6. Impact of Cash Compensation Gap on Corporate Performance: Securities Market and KOSDAQ

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	Securities Market	KOSDAQ
Dependent Variable = Operating Performance (ROA_{t+1})		
$\ln CR_t$	-0.030*** (-2.75)	-0.022** (-2.16)
Number of Observations	6,128	8,258
$PEFT_{t+1}$	0.1573	0.1705
Dependent Variable = Stock Performance (RET_{t+1})		
$\ln CR_t$	-0.035** (-2.06)	-0.034** (-1.98)
Number of Observations	6,128	8,258
R^2	0.1413	0.1286

Note) () indicates the t-value and ***, **, and * indicate the significance at the level of 1%, 5%, and 10% levels (both sides), respectively.

CONCLUSIONS AND DISCUSSION

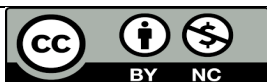
In this study, the impact of the compensation gap between executives and employees on corporate performance for companies listed on the Korea Exchange from 2010 to 2021 was analyzed. The results of the analysis were as follows: First, it was found that the compensation gap between executives and employees had a significant impact on sales performance and stock performance. This suggested that employees might feel deprived relative to the enormous compensations provided to management and their motivation to work might decline, and that these psychological factors had an effect on subsequent corporate performance. These findings about Korean companies were consistent with the relative deprivation theory of Martin (1981). In other words, these results were similar to the findings reported by Cowherd and Levine (1992) who suggested such psychological factors weaken employees' loyalty to the company and they try to compensate for the situation by leaving their jobs. Second, the executive-employee compensation gap and compensation gap squared were found to have a significant impact on sales performance and stock performance, suggesting that the larger the compensation gap, the more it negatively affected corporate performance. In consideration of this, management must develop various compensation systems for employees and actively introduce and maintain employee welfare programs. Third, the compensation gap between executives and employees of *chaebol* (conglomerate) and non-*chaebol* firms was found to have a significant impact on operating performance and stock performance, and the compensation gap between the executives and employees of firms listed on the securities market and KOSDAQ was also found to have a significant impact on operating performance and stock performance. The results showed that the larger the compensation gap between executives and employees, the more it negatively affects corporate performance, regardless of whether the company is a *chaebol* or non-*chaebol* firm or listed on the securities market or KOSDAQ. Accordingly, management must develop a wide range of compensation systems for employees and actively introduce and maintain employee welfare programs. The empirical findings of this study provide a number of implications that should be taken into consideration when determining the compensation for executives in order to achieve high corporate performance. Due to the limited sample size and the unavailability of data on the individual compensation amounts of corporate members, it was not possible to carry out detailed analyses such as the compensation gap between executives and between employees and the calculation of the Gini coefficient within companies. However, it can be said that this study has significance in that it analyzed the impact of the compensation gap between executives and employees on corporate performance, which has been conducted rarely in Korean studies, and examined whether the level of compensation for executives is reasonable. In the future, if detailed data can be additionally acquired, it will be possible to perform various studies on the relationship between compensation gap and corporate performance.

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