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경영학석사학위논문

The Implementation of RPE in Korean Business
Environment: Controlling Shareholder
and Conglomerate Group Effect

한국 기업의 지배주주 및 재벌효과가
상대적 성과평가 실행여부에 미치는 영향

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경영학과 회계학전공

강 동 창

The Implementation of RPE in Korean Business
Environment: Controlling Shareholder
and Conglomerate Group Effect

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ABSTRACT

The Implementation of RPE in Korean Business Environment: Controlling Shareholder and Conglomerate Group Effect

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Using Korean listed firms from 2001 to 2008, this paper examines whether Korean firms have used RPE (Relative Performance Evaluation) in deciding executive's compensation. Overall, I find executive's compensation is affected by peer performance, meaning that RPE is implemented in Korean business environment. In light of testing for implementation of RPE in Korean firms, I also focus on unique characteristics of Korean board of director's structure and conglomerate effects. The existence of controlling shareholder in board of directors (BOD) especially in conglomerate group (chaebol) has significantly influence on the process of executive's compensation. Accordingly, the implementation of RPE would be decreased in controlling shareholder firms

affiliated with big conglomerate group as controlling shareholder has a large discretionary power to change the compensation level. An analysis suggests that controlling shareholders do not want to evaluate their performance based on peer performance when they actively participate in administration. Further study shows that controlling shareholder's firms use RPE in asymmetric way based on relative performance results compared to peer performance. These results support the discretionary implementation of RPE in controlling shareholder firm's hypothesis that RPE is not used on regular basis in executive's compensation design.

Keywords: RPE; Controlling shareholder firms; Conglomerate group; Executive's compensation; BOD

Data availability: The data used in this study are publicly available

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1. Introduction

The use of relative performance evaluation (hereafter, RPE) in compensation contracts for chief executive officer (CEO) is largely investigated in academics but does not provide consistent empirical evidence supporting the hypothesis of RPE. RPE in CEO compensation provides insurance against external shocks and yields a more informative measure of CEO actions. Agency theory suggests that the compensation of CEOs should be linked to firm performance to motivate CEOs to maximize shareholder value. However, many Korean firms still do not hold principle of separation between capital and administrations, so many Korean firms have experienced deep intervention of controlling shareholder in business administration. Accordingly, the design of executive compensation would be highly influenced by controlling shareholder, especially registered in board of directors (hereafter, BOD). If controlling shareholder is registered in BOD and he or she may have strong voice over compensation contracts, the level of CEO compensation would be decided not by objective performance measures but by subjective manners. Further, the necessity of linking the compensation of CEOs to firm performance to motivate CEOs to maximize shareholder value is relatively low since controlling shareholders usually is in charge of CEOs spontaneously. That means CEOs in controlling shareholder firms are not necessarily insulated against external shocks. Contrary to firms that do not have

controlling shareholders registered in BOD, the firms having controlling shareholder registered in BODs would have tendency of less dependence on RPE when they decide the level of executive compensation.

Early empirical studies infer the use of RPE implicitly from a negative coefficient on peer performance when regressing executive compensation on both firm and peer performance (Antle and Smith, 1986). Several studies (Gibbons and Murphy, 1990; Janakiraman et al., 1992) find support for the use of RPE while (Jensen and Murphy, 1990; Garvey and Milbourn, 2003) find no such support. To demonstrate the inconsistent result of prior researches, recent studies point out the specific characteristics of business environment or data discrepancies from other research. Taking advantage of SEC's 2006 executive compensation disclosure rules which require detailed information on how executive compensation is determined including information on the use of RPE and the composition of the peer group, Gong et al.(2011) found the use of RPE in executive compensation is relatively low (about 25%). Considering the benefits of using RPE, Holmstrom (1979, 1982) and others show that the optimal compensation for a risk-averse executive should depend exclusively on the firm's performance that is unrelated to exogenous peer performance. Hence RPE usage is more beneficial for firms that are more exposed to common exogenous risks. Albuquerque (2013) shows that CEOs of high growth option firms tend to

bear more risk than CEOs of low growth option firms because growth option firms have more idiosyncratic variance and use less RPE. For that reason, the level of RPE in CEO compensation contracts varies negatively with a firm's level of growth options.

Meanwhile, the implicit approach to examine RPE implementation could be affected by peer group composition and peer performance aggregation. Black et al. (2011) provide evidence on the completeness of explicit disclosures by conducting implicit tests for RPE to detect if RPE-disclosing firms indeed filter out systematic risk from CEO compensation while RPE-non-disclosers do not. The results prove that relying on explicit disclosures of RPE may understate the prevalence of RPE in practice and implicit tests for RPE remain important in detecting RPE.

These studies imply that the use of RPE in compensation policies can vary according to the ability to find an adequate peer group whose performance is subject to the same external shocks. The usefulness of RPE for firms can be limited due to a lack of peers facing common shocks, specific business environment (e.g. growth option), or composition of peer group.

In this paper, I examine whether RPE is implemented in listed Korean firms from fiscal year 2001 to 2008. Unlike the U.S. where explicit RPE usage information and executive compensation data are available, Korea has limited to

get information about performance measure and CEO compensation data. Since Korean firms have not developed well in terms of performance based compensation in the executive compensation, and the unavailability of information about executive compensation and performance measures, we have not enough studies to investigate the implementation of RPE in Korean business environment. Few studies examining Korean firms using implicit approach do not support the hypothesis about the implementation of RPE. However, since these studies are done in late 80's and early 90's, when performance based compensation is not frequently used in many Korean firms and CEOs' compensation is not disclosed, the reliability of the result is considerably low. Although the CEO compensation and per capita compensation for directors are still not available, the performance based compensation is more pronounced in many Korean firms these days, and an average director's compensation can be obtained by dividing director's aggregated compensation with the total number of directors.

My test is based on implicit approach to examine whether Korean firms implement RPE in executive's compensation design by regressing director's average compensation on peer firms' performance measured by stock return and ROA. I find the evidence of RPE with ROA in listed Korean firms within the same industry. When peer groups consist of firms within the same industry, my

empirical results show systematic evidence supporting RPE usage in director's pay. This result is contrary to the prior research showing a lack of RPE usage in Korean firms. Additionally, I try to demonstrate this discrepancy in the perspective of BOD structure. Korean firms have a high tendency of controlling shareholder interruption in business administration. For firms with a controlling shareholder registered in BOD would be affected by controlling shareholder power not only in terms of general business procedures, but also in terms of director's compensation contract. Relying on more subjective manners rather than objective performance measures, controlling shareholder firms would not decide director's payment including controlling shareholder's pay based on peer's relative performance. Another unique characteristic of Korean business is a conglomerate group. Especially, big conglomerate groups (chaebol) are highly influenced by controlling shareholders in many ways. In this sense, I expect the implementation of RPE is not prevalent in controlling shareholder firms especially affiliated with conglomerate groups. The result is consistent with my hypothesis that controlling shareholder firms affiliated with conglomerate groups is negatively related with the implementation of RPE.

Finally, I take a further step to examine the reason for less use of RPE in controlling shareholder firms affiliated with conglomerate groups by investigating incentive of controlling shareholders when they implement RPE for

deciding executive's compensation level. First, I differentiate controlling shareholder firms whether they have a president who is not related with controlling shareholder and his relatives or not. Without a professional CEO, I assume that controlling shareholder firms should be administered by controlling shareholder himself, implying that controlling shareholders have a strong power to influence overall business as well as compensation contracts. Controlling shareholders deemed to be deeply involved in administration would not want to evaluate their performance compared to peers group performance especially if they are in charge of big conglomerate. Alternative explanation of less use of RPE in controlling shareholder firms affiliated with conglomerate groups is that controlling shareholder can easily observe executive's performance by actively participating BOD. If controlling shareholder firms with professional CEOs show less use of RPE, then I can expect controlling shareholders does not necessarily need to use RPE because they already have a knowledge about executive's performance. The result shows that controlling shareholders who've involved in business running are relatively less depending on RPE for their performance evaluation. Secondly, when firm's performance is better than peer firms' performance, the controlling shareholder firms would likely to rely more on RPE to award executives. In contrast, if firm's performance is worse than peer firms' performance, the controlling shareholder firms will have motivation to

avert from using RPE to compensate executive's performance. Consistent with hypothesis, the superior performance firms are more depending upon RPE but not when they have inferior performance compared to peers group. This result can be interpreted as asymmetric implementation of RPE for controlling shareholder firms affiliated with conglomerate group. It is consistent with the fact that strong influence of controlling shareholder in a conglomerate group plays an important role in implementing RPE for Korean business environment.

This study contributes to the RPE literatures in several ways. First, by having different perspective as to the reason why RPE research has mixed results, this study provides a possible alternative rationale to demonstrate the discrepancies in implicit RPE studies. Korean business environment has unique characteristics from that of western countries. Strong power of the controlling shareholders especially in conglomerate group would have also influence on the implementation RPE. Secondly, I shed light on the governance role in the implementation of RPE. Asymmetric use of RPE can be explained by the existence of controlling shareholders registered in BOD. By associating the governance structure of firms (Controlling shareholder power and conglomerate group effect) with one of performance measures (RPE), this paper will extend the mechanism of implementation of performance measure in different perspectives.

We begin in Section 2 with background information, prior literature and hypothesis development. Section 3 reports the sample and measures used in the study. Section 4 provides empirical models and results on implicit RPE test and controlling shareholder firm's effect on the implementation of RPE, and Section 5 concludes.

2. Prior Literature and Hypothesis Development

2.1 Prior literature about RPE

Empirical evidence on the use of RPE is mixed in many prior literatures. Several empirical studies regress compensation on firm performance and peer performance and infer the use of RPE from a negative coefficient on peer performance (Implicit approach). Regressing total compensation on both accounting and stock returns, Antle and Smith (1986) find support for RPE in only 16 out of 39 firms. Gibbons and Murphy (1990) find the evidence supporting RPE using stock returns as the performance measure in the compensation contract. Barro and Barro (1990) study the largest US commercial banks and find that CEOs are compensated based on average regional bank performance, contradicting RPE. Finally, Bertrand and Mullainathan (2001) argue that CEOs are rewarded for luck, changes in firm performance that are

beyond the CEO's control. Their findings suggest that pay for luck is more relevant for poorly governed firms. In contrast, Garvey and Milbourn (2003) use a market-wide peer performance measure and they find evidence of RPE for younger and less wealthy managers, but no evidence for the average firms. Aggarwal and Samwick (1999b) shows that RPE is used less in more concentrated industries.

Recent studies examine the explicit use of RPE relying on SEC's new disclosure requirements. Gong et al. (2011) find about 25% of the S&P 1500 firms and Black et al. (2011) find 18% of the S&P 500 firms explicitly use peer performance in setting compensation in 2006. In both studies, a firm is defined as a RPE firm if it mentions that at least one component of executive compensation is determined based on firm performance relative to a group of peers in compensation disclosure.

Another stream of studies regarding RPE is the examining the factors to strengthen or weaken the relation of CEO compensation and peer performance. Albuquerque (2013) present the growth option firms' reliance on RPE and finds that the use of RPE in CEO compensation contracts varies negatively with a firm's level of growth options. Meanwhile, Stephanie Tsui (2013) finds that the use of RPE is most pronounced for firms that allow little or no scope for ex post discretionary adjustments to annual bonuses. Unlike prior literatures which study

the only implementation of RPE, these studies examine the driving forces that underlying RPE process. My research is in line with this approach.

2.2 RPE in Korean Business Environment

There are not enough evidences to verify the implementation of RPE in prior Korean research. Due to data limitation and a lack of interest in RPE, prior research in Korea does not provide the concrete results whether Korean firms employ RPE in executive compensation design. Furthermore, the performance based compensation has not been developed well as much as many western countries do. Although some Korean firms deploy performance based compensation as their performance measurements, it has been relatively rare to consider peer performance to decide executive compensation. As various industries have been developed during past decades, many firms encounter competition within market and similar peers which have bear on common risks and shocks. The increase of peer groups which have similar operating environment shall provide sound opportunities for risk avert management to insulate themselves from uncontrollable market variations.

Given the fact that empirical evidence on the use of RPE is mixed in many prior literatures which are mainly focused on US business environment, it would be meaningful attempt to test whether Korean firms have been relied on RPE in

executive compensation.

H1: The performance of peer groups has significantly negative relation with the director's compensation if RPE has been implemented in Korean business environment.

2.3 Controlling shareholder and Conglomerate Group effect on the implementation of RPE

Although the size of Korean market has grown enough to implement the RPE to have peer groups within the industry, the characteristics of BOD in Korea would have negative effects on implementation of RPE. Since the implementation of RPE is not known explicitly in executive compensation design, RPE can be exploited to compensate directors based on their performance compared to peer performance when BOD is controlled by strong power director. Many Korean firms have such a characteristic in terms of BOD structure and this strong figure would often be found in big conglomerate group which has substantial effect on mechanism of deciding director's compensation. Specifically, controlling shareholders firms affiliated with conglomerate group have a different incentive when it comes to compensate directors pay if controlling shareholder's payment also would be affected by performance measure.

Controlling shareholders in conglomerate group would not eager to depend upon RPE when firm's performance is not relatively good compared to peer's performance. Several analytical models in the agency literature analyze the residual claimants have incentives to under-report when subjectively assessing performance in order to keep compensation costs down. However, since most companies are multi-layered, the principals in most principal-agent relationships are not residual claimants (Prendergast, 1999). Controlling shareholder firms have a registered largest shareholder in their BOD, implying that the agency problem between shareholders and executives is reduced especially in the matters of compensation contract. That means controlling shareholders have a strong incentive to avoid detrimental effect of better peer performance which leads to worsen the compensation of directors including controlling shareholders themselves. Conversely, controlling shareholders prefer to use RPE when their performance is better than the peer performance. RPE will provide a high level of compensation to the directors when they are compensated by relative evaluation based on peer performance. To sum up, controlling shareholder firms which have low level of agency problem between shareholders and executives would like to implement RPE in subjectively by reflecting peer performance on controlling shareholder's compensation. In this sense, I argue that RPE will not play a significant role in director's compensation design as controlling

shareholders tend to rely more on subjective way in deciding their payment.

H2 : The extent to which the implementation of RPE will have significantly negative relation with controlling shareholder firms affiliated with conglomerate group.

There are two possible explanations of less use of RPE for controlling shareholder firms affiliated with conglomerate group. First, controlling shareholders would not want to rely on peer group performance if it is used for evaluation of their own performance. Second, if controlling shareholders are already easily observing executives, they would not need to reference peer group performance to decide their executive compensation. I assume that there are two alternative controlling shareholder types based on whether controlling shareholders are directly involved in administration or not. Without having professional CEOs who are not directly related with controlling shareholders and do not any or have a small number of shares, controlling shareholders with title 'President' or 'CEO' are assumed to be deeply involved in firm's business administration. That means controlling shareholders evaluate their own performance to decide compensation level. On the contrary, controlling shareholder firms with having professional CEO's and/or titled with only 'inside director' are regarded as being oriented toward supervisory role. To verify the

effect of role of controlling shareholders on the implementation of RPE, I set up the following hypotheses.

H3a : Controlling shareholder firms actively involved in business administrations will have negative relation with the implementation of RPE.

H3b : Controlling shareholder firms having supervisory stance on executive performance will have negative relation with the implementation of RPE.

Finally, in order to verify the effects of controlling shareholders on the implementation of RPE, I investigate the controlling shareholder's motivation to use RPE in subjective manner by differentiating firms based on relative performance. If a firm shows better performance than the peer performance, the controlling shareholders have an incentive to use RPE when it comes to decide director's compensation. On the contrary, for firms with having inferior performance compared to peer group would like to avoid RPE, since controlling shareholders would be influenced negatively by implementing RPE. Hence, I expect controlling shareholder firms to deploy RPE in asymmetric way depending on whether a firm has superior performance compared to peer performance or not.

H4 : Controlling shareholders firms would implement RPE in asymmetric ways depending on the peer group performance.

3. Sample selection and variable measurement

3.1 Sample

I sample all Korean firms, listed on KOSPI(Korea Composite Stock Price Index) and KOSDAQ(Korea Securities Dealers Automated Quotation), from 2001 to 2008. The mandatory adoption of IFRS increases the comparability of accounting information in executive information(Ozkan et al. 2012), thereby I exclude after fiscal year 2009 information in my sample to rule out the IFRS effect. I select the firms including non-financial Korean firms and firms for which financial data are available from Total Solution 2000(TS2000). I restrict my sample to the firms that have a December fiscal year-end. I obtain financial statement data from the Korea Listed Companies Association(KLCA) TS2000, which provides annual and quarterly financial data for all firms listed in the KSE (equivalent to Compustat in the US). Stock returns and price data are taken from Data Guide Pro(equivalent to CRSP in the US). All variables other than stock returns are winsorized at the top and bottom 1% levels each year. Our final sample contains 1,766 firm year observations between 2001 and 2008. With initial sample (22,889) from fiscal year from 1981 to 2012, 20,163 observations are deducted for missing data and 509 observations are deducted due to director's pay disclosure type. Hyun et al. (2013) provides 6 different director's

pay disclosure type for Korean firms.¹ Because this paper hinges on average director's pay for executive compensation proxy, it is necessary to define director's pay more accurately. Among 6 different types, I only focus on 1 and 3 disclosure type, which exclude part time directors' and outside director's compensation from total amount of pay. Finally, 451 observations are more deducted because Korean Fair Trade Commission provides conglomerate group firm disclosure from fiscal year 2001 to 2008. Among total samples of 1,766, 1,321 firms have controlling shareholders registered in their BOD, 450 firms belong to the conglomerate group, and 235 observations are categorized as controlling shareholder firms affiliated with conglomerate group. Lastly, 230 firms are neither controlling shareholder firms nor conglomerate group affiliated firms.

¹ Hyun et al.(2013) provides 6 different director's pay disclosure types for the following group standards

·Type 1: Firms with no part time directors, and no aggregation of inside executive director pay and outside director pay· Type 2: Firms with no part time directors, and aggregation of inside executive director pay and outside director pay· Type 3: Firms with part time directors, and no aggregation of inside executive director pay, outside director pay, and part time director pay· Type 4: Firms with part time directors, and aggregation of inside executive director pay and outside director pay only(excluding part time director pay)· Type 5: Firms with part time directors, and inclusion of part time directors only· Type 6: Firms with part time directors, and aggregation of inside executive director pay and outside director pay and inclusion of part time director pay

[Insert Table 1 About Here]

3.2 Variables

Director's Pay

Since executive compensation is not disclosed explicitly like the US, I have to depend upon disclosed information about director's pay in annual report. Corporate annual reports in Korea only provide information on total salaries and total bonuses earned by all directors in an aggregate amount without compensation data on individual directors. In addition, firms are required to report detailed contractual terms regarding stock options granted, if any, to individual executives, but are not required to disclose other compensation components such as the actuarial value of executive pension plans and other benefits plans. While the disclosure rules strongly recommend that firms, when reporting the pay level of directors, should distinguish between inside directors who are the top management team and outside directors, the rules do not explicitly mandate firms to follow the instruction.² Since I get the director's pay by dividing the aggregate amount of director's compensation with the number of directors registered in BOD, I have to specify the way of disclosure for director's

² Hyun, J., H, Kim, B, J, Shin, J, Y, The Effects of Corporate Governance, Competition, and Political Costs on Strategic Executive Pay Disclosure: Evidence from Korea, working paper(2013)

payment. First, I measure the director's compensation without considering such a difference in director's compensation disclosure. I have 2,726 data in this case. Secondly, I specify the way of disclosure for director's compensation and just focus on firms with no part-time directors and no aggregation of inside executive director pay and outside director pay, and firms with part-time directors but no aggregation of inside executive director pay with outside director and part time director. I have 2,217 data for second case. To obtain as much accurate information regarding director's compensation as possible under limited disclosure circumstance, I exclude the firms with disclosure having aggregation of outside director and part time director.

Controlling Shareholder Firms and Conglomerate Group Affiliated Firms

A dummy variable *Controlling* takes the value of one if the controlling shareholder or his/her relatives are registered in the BOD. I define 'controlling shareholder firms' in this paper when *Controlling* takes the value of one. A *Group* takes the value of one if the firm is corresponded to the conglomerate group controlled by the 'Same Person' as defined in the presidential decree, falls

into one of the categories disclosed in Korean Fair Trade Commission³ Korean Trade Commission puts many restrictions on firms affiliated with conglomerate group aiming to prevent concentration of economic power.⁴ Affiliated company means each of companies affiliated with the same Corporate Group. Top 30 largest business groups belong to the conglomerate group firms (Bae et al. 2002) so a firm affiliated with conglomerate group which is disclosed in Korean Fair Trade Commission system represents chaebol which account for a significant portion of Korean economy (41 percent in 1995, Larcker and Tayan 2011).

Performance measure

Following Albuquerque (2009), the performance of firm for each year is measured by its annual stock return and return on assets (ROA). It is not clear what performance measure is preferred to evaluate executives in Korea, I include

³ If the Same Person is a company, the group of the Same Person and one or more companies controlled by the Same Person. And if the Same Person is not a company, the group of companies controlled by the Same Person.

⁴ Any company belonging to a Corporate Group falling under the criteria, e.g. total assets in excess of a specified amount, set forth in the Presidential Decree and consequently designated under the criteria specified in "Corporate Group Subject to the Limitations on Cross-Shareholding" shall not acquire or own stocks of an affiliated company that has acquired or owns stocks of the relevant company and has restrictions on total amount of shareholding of other companies

both of them in my research design. Peer group performance for firm is measured by the mean annual stock return or return on asset of the firms in the same industry formed based on code number.

Control variables

A set of control variables is included to capture any variation in the level of director's pay that is unrelated to firm or peer performance. I included year and industry dummies to control for differences in pay levels across time and industries (Murphy 1999). The main hypothesis tested in this paper is whether the pay-for-peer-performance sensitivity is associated with controlling shareholder and/or conglomerate group firm effect on BOD. To control the other associated effects, I follow Albuquerque (2013) with regard to the firm characteristic interaction term variables. First, I use one of growth option variables used in Albuquerque (2013), a market to book ratio which is the ratio of the market value of the firm to book value of assets. Second, correlation is the slope coefficient from regressing firm stock return on the firm's peer group stock return. The peer group is constructed by matching the firm's industry to the other firms in the same industry excluding the firm itself. Third, the idiosyncratic risk is measured as the error variance from regressing stock return on the firm's peer group stock return. Firms with higher idiosyncratic risk might use relatively less

incentive pay because that imposes higher unwanted risks on their executives. Finally, I include Herfindahl index that is calculated as the sum of the squared market shares of all the firms in the same industry groups of the firm.

Following the literature, I control for firm size (Smith and Watts, 1992; Rosen, 1982) and several measures of corporate governance (Core et al. 1999). I control for size of assets, the number of directors sitting on the board (Board_size), the proportion of outside directors (Board_ind) and the number of board meetings (Board_meet).

[Insert Table 2 About Here]

3.3 Descriptive Statistics

Table 3 provides descriptive statistics for the variables including compensation, performance and other control variables. An average of the natural logarithm of average director's compensation in Korea is KRW 5.27 million and median is KRW 5.11 million. Director's average compensation (KRW 283.06 million) is almost 30 times higher than average employee payment (KRW 10.5 million; untabulated). The severe discrepancy is also existed between the compensation of director and that of employee. The relative high amount of director's compensation implicate that it is decided by the influence of BOD. We can expect controlling shareholder firms affiliated with conglomerate group

would be more influenced by BOD in compensation design, and thus performance measure such as RPE will also be shown in different ways compared to non-controlling shareholder firms or small firms. The average of firm's performance for ROA is 3% and the median is 4%. On the other hand, the peer performance for ROA is -2% and the median is 1%. The growth option shows relatively high than the US case. We have 6.49 for MVA/BVA but the US has shown 1.9 for MVA/BVA according to Albuquerque (2013). Korean BOD has an average 36% of outside directors in the BOD.

[Insert Table 3 About Here]

Table 4 presents the Pearson correlation between the variables used in the multivariate tests. The correlation between firm and peer ROA is 0.18 ($p < 0.01$), describing the extent to which ROA reflects external shocks outside the executives' control. Director's compensation is negatively associated with *controlling* (correlation of -0.13; $p < 0.01$) and positively correlated with *Group* (correlation of 0.54; $p < 0.01$). The correlation between firm and peer ROA (Correlation) is negatively related to the firm's level of growth option, as reflected in the correlation of -0.06 ($p < 0.01$). As expected, group dummy is significantly correlated with the level of size_asset (correlation of 0.64; $p < 0.01$) as a firm is categorized as group affiliation if the total amount of asset is above KRW 5 trillion.

[Insert Table 4 About Here]

4. Research Design and Results

4.1 Implicit test of RPE

SEC's 2006 executive compensation disclosure rules require detailed information on how executive compensation is determined including information on the use relative peer performance and the composition of the peer group in the US. These additional requirements provide an opportunity to examine the explicit use of RPE. Since 2006, many studies regarding the RPE rely on this disclosure requirement to identify the implementation of RPE or the effect of peer groups. However, there is no such a requirement mandating firms to disclose the use of RPE and the composition of peer groups if applicable. In spite of the appealing theoretical logic to investigate the incorporation of RPE in Korean business environment where the performance based compensation has been developed, I have to follow the implicit approach whether the director's pay is negatively associated with peer performance. I follow the Albuquerque (2009) to examine hypothesis 1 associating the average director's compensation with peer performance, where negative coefficient demonstrate the incorporation of RPE in Korean firms.

$$\ln(\text{dirpay})_{i,t} = \beta_0 + \beta_1 \text{Stock return}_{i,t} + \beta_2 \text{Ind_stock return}_{p,t} + \beta_3 \text{ROA}_{i,t} + \beta_4 \text{Ind_ROA}_{p,t} + \beta_5 \text{Controlling}_{i,t} + \beta_6 \text{Group}_{i,t} + \beta_7 \text{Growthoption}_{i,t} + \beta_8 \text{Id. Variance}_{i,t} + \beta_9 \text{Size_Asset}_{i,t} + \beta_{10} \text{Board_meet}_{i,t} + \beta_{11} \text{Board_ind}_{i,t} + \beta_{12} \text{Board_size}_{i,t} + \text{Year}_t + \text{Ind}_t + \varepsilon_{i,t}$$

Column 1 of table 5 presents the result from regression in equation 1. Column 1 shows the result using director's average compensation focusing only on firms with no part-time directors and no aggregation of inside executive director and outside director pay, and firms with part-time directors but no aggregation of inside executive director pay with outside director and part time director. The result shows that director's compensation is negatively associated with peer performance (Ind_ROA) supporting the evidence for the implementation of RPE in Korean firms. Following the many of the RPE literatures that assume the executive compensation is primarily determined by stock returns and accounting returns, I include those two performance measures in equation. Both the results of stock returns and ROA are consistent with performance based compensation as the average director's compensation is highly positively related with firm's own performance. However, the peer performance of stock returns does not show the evidence of relative performance evaluation. Overall, consistent with implicit assumption of RPE, the findings in this result suggest that Korean firms are using performance based compensation and relying on relative peer evaluation for director's compensation.

4.2. RPE implementation in controlling shareholder firms affiliated with conglomerate group

Since I have found the evidence of implementation of RPE in Korean business environment, I estimate controlling shareholders registered in the BOD will have a significant influence on the implementation of RPE. Controlling shareholder firms would have different incentives to use RPE, because those firms have less incentive to filter out common shocks or noise facing a group of peers (Holmstrom, 1982). To examine hypothesis 2, I estimate the following regression model:

$$\begin{aligned} \ln(\text{dirpay})_{i,t} = & \beta_0 + \beta_1 \text{Stock return}_{i,t} + \beta_2 \text{Stock return}_{i,t} * \text{Firm Characteristic Variables}_{i,t} + \\ & \beta_3 \text{Ind_stockreturn}_{i,t} * \text{Firm Characteristic Variables}_{i,t} + \beta_4 \text{Ind_stockreturn}_{i,t} * \text{Controlling}_{i,t} + \\ & \beta_5 \text{Ind_stockreturn}_{i,t} * \text{Group}_{i,t} + \beta_6 \text{Ind_stockreturn}_{i,t} * \text{controlling}_{i,t} * \text{Group}_{i,t} + \beta_7 \text{ROA}_{i,t} + \\ & \beta_8 \text{ROA}_{i,t} * \text{Firm Characteristic Variables}_{i,t} + \beta_9 \text{Ind_ROA}_{p,t} + \beta_{10} \text{Ind_ROA}_{p,t} * \text{Firm Characteristic Variables}_{p,t} \\ & + \beta_{11} \text{Ind_ROA}_{p,t} * \text{Controlling}_{p,t} + \beta_{12} \text{Ind_ROA}_{p,t} * \text{Group}_{p,t} + \beta_{13} \text{Ind_ROA}_{p,t} * \text{Controlling}_{p,t} * \text{Group}_{p,t} + \\ & \beta_{14} \text{Controlling}_{i,t} + \beta_{15} \text{Group}_{i,t} + \beta_{16} \text{Controlling}_{i,t} * \text{Group}_{i,t} + \beta_{17} \text{Growthoption}_{i,t} + \beta_{18} \text{Id.Variance}_{i,t} + \\ & \beta_{19} \text{Size_Asset}_{i,t} + \beta_{20} \text{Board_meet}_{i,t} + \beta_{21} \text{Board_ind}_{i,t} + \beta_{22} \text{Board_size}_{i,t} + \text{Year}_t + \text{Ind}_t + \epsilon_{i,t} \end{aligned}$$

(Where: Firm Characteristic Variables is Growthoption, Id.Variance, Correlation, and Herfindahl)

Regressing results are presented in column (2), (3), and (4) of table 5. Column 2 presents the result of the implementation of RPE whether a firm is controlling shareholder firm or not. Unlike my hypothesis, controlling shareholder effect on the implementation of RPE is not statistically significant.

On the contrary, non-controlling shareholder firms are still shown to use RPE for executive compensation ($\beta = -0.9855$, $t=2.15$). Column 3 is the result of interaction between peer ROA and Group, and shows significant negative coefficient ($\beta = -1.6507$, $t=-2.14$) indicating that only conglomerate group firms are using RPE for director's compensation. However, these two results are somewhat misleading due to mixed effects in Controlling and Group dummy variables. As shown in the figure of table 1, only 235 firms are both controlling shareholder firms affiliated with conglomerate group. To identify the exact effect of controlling shareholder and group dummy variable, I include triple interaction term in the model. This result is shown in the column 4 of table 5. Interestingly, although only controlling shareholder firms and only conglomerate group firms seem to rely on RPE, controlling shareholder firms affiliated with conglomerate group have statistically significant positive coefficient ($\beta=2.8275$, $t=2.26$), indicating that those firms have an incentive to take away from the RPE. Considering the strong influence of conglomerate group in Korea, controlling shareholder firms affiliated with conglomerate group would not be engaged in RPE for executive compensation.

The interaction between peer performance and the firm's idiosyncratic variance is positive implicating that it captures the lower need for RPE. RPE for

firms with idiosyncratic variance is not useful since they have not enough peer groups that have common risk. However, the interaction between peer performance and the growthoption does not show significant result which is not consistent with the Albuquerque (2013). Growthoption has conflicting effects with regard to the implementation of RPE. The usefulness of RPE for high growthoption firms can be limited because of the lack of peers facing common shocks. Firms that have higher proportion of assets represented by growth options expect to earn future abnormal economic rents through the existence of firm specific know-how, barriers to entry, or other proprietary information that is not available to other firms. On the contrary, firms with more growth option firms have higher systematic risk, and that they benefit more from using RPE. With the results that show controlling shareholder firms affiliated with conglomerate group have less depend upon RPE and growth option firms does not significant effect, we can conclude that controlling shareholder firms affiliated with conglomerate group in Korea have much more idiosyncratic effects by having their own performance measure not considering peer performance, but growthoption does not have a strong effect enough to make RPE less useful.

[Insert Table 5 About Here]

4.3. Possible explanations for less use of RPE; Two different roles of controlling shareholders registered in BOD

There might be two possible explanations for previous result. First, controlling shareholders would not want to rely on peer group performance if it is used for evaluation of their own performance. Second, if controlling shareholders are easily observe the performance of the executive, they also would not need to reference peer group performance to decide their executives' compensation. I further examine the effect of controlling shareholder role on the implementation of RPE as a possible explanation of less use of RPE in controlling shareholder firms affiliated with conglomerate group. Basically, I assume that there are two possible controlling shareholder types based on whether controlling shareholders are directly involved in administration or not. With the initial controlling shareholder dummy variable that is used in previous main test, I examine every observation having controlling shareholder to identify the extent to which controlling shareholders are actively involved in business administration. Without having professional CEOs who are not directly related with controlling shareholder and do not have or have a small number of shares, controlling shareholders with title 'President' or 'CEO' are assumed to be deeply involved in firm's business administration. That means controlling shareholders evaluate their own performance to decide compensation level. On the contrary,

controlling shareholder firms with having professional CEO's and/or titled with only 'inside director' are regarded as being oriented toward supervisory role. Among 1,321 controlling shareholders, 506 observations are categorized as active controlling shareholders. I reclassify the original controlling shareholder dummy into two different roles and retest the main model.

Table 6 presents the result of testing the role of controlling shareholder. The first column is the result of controlling shareholder dummy regarded as directly involved in business administration. Consistent with hypothesis that controlling shareholders are avert with RPE when they have to evaluate their own performance, the coefficient for triple interaction between Ind_ROA, Controlling, and Group shows a statistically significant positive($\beta=3.5500$). Controlling shareholders which are deemed not actively involved in business administration, however, do not have statistically significant result for that triple interaction term($\beta=1.7777$). This result support the evidence, once again, the reason for the less use of RPE for controlling shareholder firm affiliated with conglomerate group is not because they can easily observe the performance of executives but because they want to avoid RPE for their own performance evaluation based on peer performance. It is accompanied with strong power of controlling shareholder affiliated with conglomerate group in Korea. Overall, the result

demonstrates the implementation of RPE in Korea is highly associated with the role of controlling shareholder in a way that controlling shareholders would avoid RPE as they are directly engaged in business administration due to possibility of reducing their compensation level.

[Insert Table 6 About Here]

4.4. An asymmetric implementation of RPE in controlling shareholder firms

Controlling shareholders registered in BOD usually have strong voice over policy making process. This is also the case when they have to decide the director's compensation based on the firm's performance. I expect that controlling shareholders will take different stance on considering the peer group's performance if they can implement RPE discretionarily. Considering the strong power of controlling shareholder and the magnitude of conglomerate group affiliation, RPE could be exploited depending on the performance of peer group. Specifically, firms with relative poor performance compared to peer groups have an incentive to avoid RPE as it would harm executive compensation. With the concern that relative poor performance compared to peers group will have negative effects on their compensation, controlling shareholders especially

in conglomerate group would exploit their power as to the implementation of RPE. Relative superior performance compared to peer group, however, makes controlling shareholders rely more on RPE. Controlling shareholder firms, accordingly, are more likely to implement RPE in asymmetric way based on the relative performance. So, I try to examine hypothesis 4 with following equation.

$$\ln(\text{dirpay})_{i,t} = \beta_0 + \beta_1 \text{Stock return}_{i,t} + \beta_2 \text{stock return}_{i,t} * \text{Poor}_{i,t} + \beta_3 \text{Ind_stockreturn}_{p,t} + \beta_4 \text{Ind_stockreturn}_{p,t} * \text{Poor}_{i,t} + \beta_5 \text{ROA}_{i,t} + \beta_6 \text{ROA}_{p,t} * \text{Poor}_{i,t} + \beta_7 \text{Ind_ROA}_{p,t} + \beta_8 \text{Ind_ROA}_{p,t} * \text{Poor}_{i,t} + \beta_9 \text{Poor}_{i,t} + \beta_{10} \text{Growthoption}_{i,t} + \beta_{11} \text{IdVar}_{i,t} + \beta_{12} \text{Size_asset}_{i,t} + \beta_{13} \text{Board_meet}_{i,t} + \beta_{14} \text{Board_ind}_{i,t} + \beta_{15} \text{Board_size}_{i,t} + \text{Year}_t + \text{Ind}_t + \varepsilon_{i,t}$$

Poor takes the value of one if a firm's ROA minus *Ind_roa* is negative and 0 otherwise. Coefficient β_8 represents firms with relative poor performance. Whether RPE is implemented in asymmetric way for different firm characteristic, I divide the total samples into 4 different groups. They are group, non-group, controlling, and non-controlling samples. Group samples consist of observations affiliated with conglomerate group and non-group samples do not. Controlling samples have observations with controlling shareholders registered in their BOD and non-controlling samples do not. Regressing result is shown in table 7. While $\text{Ind_ROA}_{p,t}$ captures the relative superior performance when firms have better performance compared to their peer groups, $\text{Ind_ROA}_{p,t} * \text{Poor}_{i,t}$ captures the relative inferior performance compared to their peer groups. Group and

Controlling samples show that the coefficients for $\text{Ind_ROA}_{p,t}$ are -1.5688 and -0.9187 respectively, implying that if firms have superior performance compared to their peer groups, they would implement RPE for executive compensation. In the case of relative poor performance, however, controlling shareholder firm samples demonstrate statistically significant positive coefficient (1.9633; $t=3.43$). Coefficient for non-controlling shareholder samples is 1.2677, but not statistically significant. On the other hand, both group and non-group samples do not have statistically significant coefficient suggesting that in conglomerate group do not implement RPE in asymmetric way. Generally, only controlling shareholder firms represent small firms having controlling shareholder registered in BOD. Controlling shareholders in such a small firms would be able to implement RPE discretionary way more easily than big conglomerate group firms which are required to have many internal controls by government.

Meanwhile, RPE is most pronounced for firms that allow little or no scope for ex post discretionary adjustment to annual bonuses. Conversely, firms grant mainly discretionary bonuses exhibit little use of relative performance evaluation. (Stehphanie Tsui, 2013). Thus controlling shareholder firms can be regarded as having much scope for ex post discretionary adjustment to director's compensation compared to non-controlling shareholder firms. If controlling shareholder firms' performance is better than the peer group performance,

controlling shareholders try to make discretionary adjustment to increase their payment. Conversely, if controlling shareholder firms' performance is worse than the peer group performance, the benefits of RPE would be decreased for relative inferior controlling shareholder firms.

[Insert Table 7 About Here]

5. Conclusion

This paper empirically examines the implicit test of RPE and the controlling shareholder and conglomerate group (chaebol) effects on the implementation in Korean business environment. Specifically, I find strong association between executive's compensation and peer performance suggesting that generally many Korean firms rely on RPE for executive's compensation design. Further, I investigate the unique characteristics of BOD and conglomerate group in terms of controlling shareholder firms affiliated with conglomerate group effect on the implementation of RPE. The result suggests that controlling shareholder firms affiliated with conglomerate group do not rely on RPE as much as non-controlling shareholder firms or small businesses do. I investigate the reason for less use of RPE in controlling shareholder firms affiliated with conglomerate group further by dividing controlling shareholders into actively participant and supervisor in business and test whether each different controlling shareholder is

relying on RPE. The result shows that actively participant controlling shareholder firms deploy less RPE for executive's pay, but does not support the hypothesis that controlling shareholder is easily observe the executive's performance. This result provides another possible rationale for less use of RPE that controlling shareholder has an incentive to avert implementing RPE when they evaluate their own performance. Additionally, I also investigate the way of implementing RPE by dividing the sample into relative superior and inferior performance firms and test whether controlling shareholders exploit RPE in discretionary way to compensate executives including controlling shareholders themselves. The result shows that superior controlling shareholder firms deploy RPE for director's pay but inferior controlling shareholder firms purposely take away from RPE since it would deteriorate their compensation level. Accordingly, controlling shareholder firms affiliated with conglomerate group have a strong incentive to use RPE in asymmetric way depending on relative performance compared to their peer groups.

This paper shed light on the RPE literatures by providing new perspective in terms of BOD and governance characteristics in Korean firms. Many prior literatures have just focused on the firm characteristics such as growth option or peer group selection to justify the mixed empirical results on the use of RPE. The results of this paper, however, demonstrate the implementation of RPE can be

influenced by strong figure registered in BOD especially affiliated in big conglomerate group since it might have conflict interest when it comes to compensating executive's payment based on peer group performance especially for inferior performance situation. Controlling shareholder firms affiliated with conglomerate group are known to have strong power on BOD decisions in Korean business environment, and this fact is also applied to the implementation of RPE as well.

This study has several limitations. First, due to disclosure limitation, I have to use implicit test for investigating RPE implementation in Korean business environment. Since Korean firms are not required to disclose information regarding their performance measures, I could not specify the peer groups or peer selecting process. Secondly, executive compensation information is also hard to get under Korean circumstance. Thus I have to use director's average compensation by dividing the aggregate amount of compensation paid to the directors with total numbers of directors in BOD. In addition, the compensation of directors only includes cash payment and not includes other compensation components. Future research can examine asymmetric use of RPE for controlling shareholder firms affiliated with conglomerate group more accurately after passing the regulation which requires firms to disclose directors' compensation that are paid above KRW 500 million starting 2014. And the other firm

characteristics such as export driven policy, which many Korean firms have adopted for a long time, will provide different peer groups other than firms only focusing on domestic business. I believe that the uniqueness of Korean business environment provides many interesting grounds to test RPE from different point of view.

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TABLE 1
Sample Selection

Sample Selection Stage	Firm-Year Observation
<i>Initial sample from TS2000 for Fiscal Year 1981 to 2012</i>	22,889
2nd stage for Fiscal Year 2000 to 2009	2,726
<i>3rd stage : Drop 2,4,5,6 type of director's pay disclosure</i>	2,217
<i>4th stage :</i>	
<i>Firms where Korean Fair Trade Commission provides conglomerate group firm disclosure</i>	1,766*
<i>(Fiscal Year 2001 to 2008)</i>	

*1,766 samples consist of different firm characteristics as described in the following figure

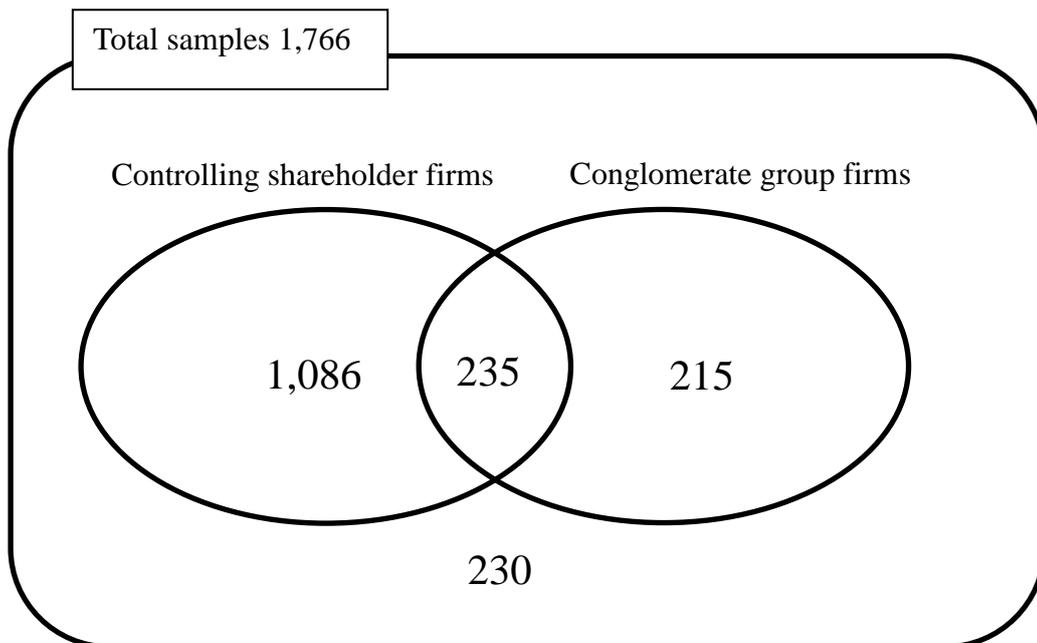


TABLE 2
Variable Definitions

Variables	Definitions
<i>Log(dirpay)_D</i>	The natural logarithm of average pay per director for firms excluding type 2, 4, 5, 6 group disclosure defined in Hyun et al.(forthcoming)*
<i>Log(dirpay)_T</i>	The natural logarithm of average pay per director for firms from all type of disclosure*
<i>Stockreturn</i>	Stockreturns are computed as twelve month buy-and –hold returns starting on the first day of the fourth month following the fiscal year-end.
<i>Ind_stockreturn</i>	The equal-weighted stock return portfolio of the peer firms in the same KSIC code, excluding the own-firm stock return
<i>Roa</i>	Return on asset for each firm
<i>Ind_roa</i>	The equal-weighted ROA portfolio of the peer firms in the same KSIC code, excluding the own-firm stock return
<i>Controlling</i>	A dummy that takes the value of one if the controlling shareholder or his/her relatives are involved in board of directors disclosed in DART program.
<i>Group</i>	A dummy that takes the value of one if the firm is corresponded to the group controlled by the Same person as defined in the Presidential Decree, falls into one of the categories disclosed in Korean Fair Trade Commission.
<i>Growthoption</i>	The ratio of the market value of the firm to the book value of assets (MVA/BVA). The market value of the firm is calculated as the sum of number of common shares outstanding multiplied by the price at the fiscal year-end and the value of debt. This proxy is one of the growth options measures used in Albuquerque(2013).
<i>Id.Variance</i>	The idiosyncratic risk is measured as the error variance from regressing firm stock return on the firm’s peer group stock return. The idiosyncratic variance is defined in terms of its cumulative distribution function so that it ranges between 0 to 1.
<i>Correlation</i>	Correlation is the slope coefficient from regressing firm stock return on the firm’s peer group stock return. The peer group is constructed by matching the firm’s industry to the other firms in the same industry (excluding the firm itself).These regressions are run annually for each firm and the corresponding peer group using the last 24 months of data starting from fiscal year 1998.
<i>Herfindahl</i>	Calculated as the sum of the squared market shares of all the firms in the same

	industry groups of the firm. Industry is defined by the KSIC code.
<i>Size_asset</i>	The natural logarithm of assets for each firm
<i>Poor</i>	A dummy that takes the value of one if ROA minus Ind_roa is negative and 0 otherwise
<i>Board_meet</i>	Board meeting is the natural logarithm of the board meetings held for each fiscal year.
<i>Board_ind</i>	Board independence is the number of outside directors divided by the number of the entire board members.
<i>Board_size</i>	Board size is the sum of inside and outside directors.

* Hyun et al.(forthcoming) provides 6 different director's pay disclosure type for the following group standards

- Type 1 : Firms with no part time directors, and no aggregation of inside executive director pay and outside director pay
- Type 2 : Firms with no part time directors, and aggregation of inside executive director pay and outside director pay
- Type 3 : Firms with part time directors, and no aggregation of inside executive director pay, outside director pay, and part time director pay
- Type 4 : Firms with part time directors, and aggregation of inside executive director pay and outside director pay only(excluding part time director pay)
- Type 5 : Firms with part time directors, and inclusion of part time directors only
- Type 6 : Firms with part time directors, and aggregation of inside executive director pay and outside director pay and inclusion of part time director pay

Log(dirpay)_D includes only group 1 and 3 disclosure type

Log(dirpay)_T includes all the group disclosure type

TABLE 3
Descriptive Statistics

Variables	N	Mean	Standard Deviation	Min	Q1	Median	Q3	Max
Compensation								
<i>Log(dirpay)_D</i>	1766	5.27	0.79	3.93	4.67	5.11	5.75	7.69
<i>Log(dirpay)_T</i>	1766	5.27	0.78	3.95	4.68	5.12	5.76	7.56
Performance								
<i>Stockreturn</i>	1766	0.26	0.71	-0.75	-0.19	0.09	0.52	3.10
<i>Indstockreturn</i>	1766	0.24	0.50	-0.58	-0.06	0.15	0.51	1.81
<i>Roa</i>	1766	0.03	0.07	-0.34	0.01	0.04	0.07	0.19
<i>Indroa</i>	1766	-0.02	0.08	-0.39	-0.03	0.01	0.03	0.07
Firm Characteristics								
<i>Controlling</i>	1766	0.75	0.43	0.00	0.00	1.00	1.00	1.00
<i>Group</i>	1766	0.25	0.43	0.00	0.00	0.00	1.00	1.00
<i>Growthoption</i>	1766	6.49	0.83	4.41	5.91	6.46	7.06	8.44
<i>Id.Variance</i>	1766	0.03	0.05	0.00	0.01	0.02	0.03	0.77
<i>Correlation</i>	1766	0.02	0.09	-0,16	-0.01	0.00	0.01	1.00
<i>Herfindahl</i>	1766	0.09	0.11	0.03	0.04	0.04	0.09	1.00
<i>Size_asset</i>	1766	19.71	1.56	17.17	18.56	19.36	20.61	23.94
BOD Characteristics								
<i>Board_meet</i>	1766	2.65	0.60	1.09	2.19	2.63	2.99	4.98
<i>Board_ind</i>	1766	0.36	0.13	0.00	0.25	0.33	0.50	0.88
<i>Board_size</i>	1766	6.11	2.36	2.00	4.00	6.00	7.00	19.00

TABLE 4
Pearson Correlation Matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1)Log(dirpay)	1														
(2)Stockreturn	-0.01	1													
(3)Indstockreturn	-0.03	0.63***	1												
(4)Roa	0.23***	0.23***	0.13***	1											
(5)Indroa	-0.05*	0.18***	0.26***	0.18***	1										
(6)Controlling	-0.13***	0.02	0.01	0.04	0.09***	1									
(7)Group	0.54***	0.04*	0.00	0.14***	0.02	-0.30***	1								
(8)Growthoption	0.34***	-0.24***	-0.19***	0.15***	-0.12***	-0.24***	0.26***	1							
(9)Id.Variance	-0.14***	-0.09***	-0.07***	-0.25***	-0.12***	-0.13***	-0.09***	0.08***	1						
(10)Herfindahl	0.03	-0.04	-0.04*	-0.01	-0.05**	-0.07***	0.01	0.05*	-0.05**	1					
(11)Correlation	-0.09***	-0.04	-0.03	-0.15***	-0.04*	-0.07***	-0.06***	0.01	0.28***	0.46***	1				
(12)Size_asset	0.66***	0.06**	0.01	0.20***	0.11***	-0.29***	0.64***	0.21***	-0.16***	0.09***	-0.06**	1			
(13)Board_meet	-0.04*	0.06***	0.02	-0.05**	0.02	0.04	-0.03	0.06***	-0.07***	-0.01	-0.01	0.09***	1		
(14)Board_ind	0.45***	0.00	-0.01	0.07***	-0.01	-0.36***	0.45***	0.26***	0.03	0.05**	-0.01	0.59***	-0.07***	1	
(15)Board_size	0.30***	0.07***	0.03	0.15***	0.12***	-0.03	0.33***	0.13***	-0.12***	0.08***	-0.07**	0.61***	0.05**	0.39***	1

The symbols *, **, and *** correspond to 10 percent, 5 percent, and 1 percent significance levels, respectively.

TABLE 5

Implementation of RPE in listed Korea Firms for different firm characteristics

Independent Variables	Predicted Sign	Firm Characteristic Dummy			
		(1) Basic	(2) Controlling	(3) Group	(4) Controlling & Group
<i>Intercept</i>		-2.4149 *** (<.0001)	-2.1266 ** (<.0001)	-0.5919 (0.1697)	-1.1313** (0.0207)
<i>Stock Return</i>		0.0372 (0.1778)	-0.0124 (0.7925)	-0.0349 (0.4491)	-0.0171 (0.7198)
<i>Stockreturn*Growthoption</i>			0.0000 *** (0.0010)	0.0000 *** (0.0019)	0.0000*** (0.0011)
<i>Stockreturn*Id.Variance</i>			-0.7743 (0.1151)	-0.5218 (0.2212)	-0.8202* (0.0978)
<i>Stockreturn*Herfindahl Index</i>			0.0733 (0.8489)	0.1290 (0.7426)	0.0172 (0.9622)
<i>Ind_stockreturn</i>		-0.0357 (0.6050)	0.0087 (0.9420)	-0.0469 (0.4070)	-0.0688 (0.4210)
<i>Ind_stockreturn* Controlling</i>			-0.0664 (0.4050)		-0.0049 (0.9233)
<i>Ind_stockreturn* Group</i>				0.0853** (0.0449)	0.1498 (0.1343)
<i>Ind_stockreturn* Controlling*Group</i>					-0.1236 (0.3299)
<i>Ind_stockreturn* Growthoption</i>			0.0000 (0.1419)	0.0000 (0.3868)	0.0000 (0.1834)
<i>Ind_stockreturn*Id.Variance</i>			-0.0478 (0.9610)	-0.1926 (0.8427)	0.0334 (0.9759)
<i>Ind_stockreturn*Herfindahl Index</i>			-0.5645 (0.2766)	-0.5668 (0.3035)	-0.3222 (0.4757)
<i>Ind_stockreturn*Correlation</i>			0.5824 (0.1338)	0.6414 (0.1252)	0.4897 (0.1895)
<i>ROA</i>	(+)	0.6762 *** (0.0056)	1.0687 *** (0.0059)	1.0719 *** (0.0082)	0.9667*** (0.0045)
<i>ROA*Growthoption</i>			0.0002 (0.0985)*	0.0003* (0.0873)	0.0003** (0.0451)
<i>ROA*Id.Variance</i>			-6.2588 *** (<.0001)	-5.5931*** (0.0013)	-5.7091*** (0.0001)

<i>ROA*Herfindahl Index</i>			-0.0871 (0.9561)	-0.3129 (0.8459)	0.1608 (0.9146)
<i>Ind_ROA</i>	(-)	-0.7416 *** (0.0016)	-0.9855 ** (0.0282)	-0.3374 (0.5063)	0.0141 (0.9681)
<i>Ind_ROA* Controlling</i>	(+)		-0.0005 (0.9990)		-0.4279** (0.0394)
<i>Ind_ROA* Group</i>	(+)			-1.6507* (0.0553)	-2.3875** (0.0244)
<i>Ind_ROA* Controlling*Group</i>	(+)				2.8275** (0.0450)
<i>Ind_ROA* Growthoption</i>			0.0001 (0.5955)	0.0001 (0.4920)	0.0001 (0.5585)
<i>Ind_ROA*Id.Variance</i>			2.0005 (0.3867)	3.8544 (0.0880)*	5.8438** (0.0352)
<i>Ind_ROA*Herfindahl Index</i>			-0.0506 (0.9838)	-0.7843 (0.8027)	-0.4364 (0.8577)
<i>Ind_ROA*Correlation</i>			3.3099 (0.1972)	3.6105 (0.1388)	4.3399** (0.0450)
<i>Controlling</i>		0.2969 *** (0.0001)	0.2798 *** (0.0003)		0.2431*** (0.0006)
<i>Group</i>		0.2779 *** (<.0004)		0.2065 *** (0.0039)	0.1610 (0.1240)
<i>Controlling*Group</i>					0.1285 (0.4270)
<i>Growthoption</i>		0.1933 *** (<.0001)	0.0001 *** (0.0003)	0.0001 *** (0.0009)	0.0001*** (0.0005)
<i>Id.Variance</i>		-0.3751 ** (0.0493)	-0.3719 (0.1231)	-0.5387* (0.0671)	-0.3979 (0.1817)
<i>Herfindahl Index</i>			-0.1824 (0.5006)	-0.1837 (0.6109)	-0.1048 (0.6985)
<i>Correlation</i>			-0.2087 (0.4825)	-0.1784 (0.5932)	-0.2266 (0.4508)
<i>Size_asset</i>		0.3139 *** (<.0001)	0.3592 *** (<.0001)	0.2887 (<.0001)	0.3062 (<.0001)
<i>Board_meet</i>		-0.0044 *** (0.0014)	-0.0049 *** (0.0055)	-0.0040 ** (0.0314)	-0.0039*** (0.0065)
<i>Board_ind</i>		0.3727 (0.1458)	0.4667* (0.0506)	0.1966 (0.4730)	0.4174 (0.1096)
<i>Board_size</i>		-0.0553 *** (0.0028)	-0.0595 *** (0.0007)	-0.0408 ** (0.0081)	-0.0546*** (0.0007)
Number of Observations		1766	1766	1766	1766
R ²		0.5831	0.5732	0.5715	0.5145

This table estimates the equation

$$\begin{aligned} \ln(\text{dirpay})_{i,t} = & \beta_0 + \beta_1 \text{Stock return}_{i,t} + \beta_2 \text{Stock return}_{i,t} * \text{Firm Characteristic Variables}_{i,t} + \\ & \beta_3 \text{Ind_stockreturn}_{i,t} * \text{Firm Characteristic Variables}_{i,t} + \beta_4 \text{Ind_stockreturn}_{i,t} * \text{Controlling}_{i,t} + \\ & \beta_5 \text{Ind_stockreturn}_{i,t} * \text{Group}_{i,t} + \beta_6 \text{Ind_stockreturn}_{i,t} * \text{controlling}_{i,t} * \text{Group}_{i,t} + \beta_7 \text{ROA}_{i,t} + \\ & \beta_8 \text{ROA}_{i,t} * \text{Firm Characteristic Variables}_{i,t} + \beta_9 \text{Ind_ROA}_{p,t} + \beta_{10} \text{Ind_ROA}_{p,t} * \text{Firm Characteristic Variables}_{p,t} \\ & + \beta_{11} \text{Ind_ROA}_{p,t} * \text{Controlling}_{p,t} + \beta_{12} \text{Ind_ROA}_{p,t} * \text{Group}_{p,t} + \beta_{13} \text{Ind_ROA}_{p,t} * \text{Controlling}_{p,t} * \text{Group}_{p,t} + \\ & \beta_{14} \text{Controlling}_{i,t} + \beta_{15} \text{Group}_{i,t} + \beta_{16} \text{Controlling}_{i,t} * \text{Group}_{i,t} + \beta_{17} \text{Growthoption}_{i,t} + \beta_{18} \text{Id.Variance}_{i,t} + \\ & \beta_{19} \text{Size_Asset}_{i,t} + \beta_{20} \text{Board_meet}_{i,t} + \beta_{21} \text{Board_ind}_{i,t} + \beta_{22} \text{Board_size}_{i,t} + \text{Year}_t + \text{Ind}_t + \varepsilon_{i,t} \end{aligned}$$

P-values are reported in parentheses under each estimated coefficient. The standard errors are corrected for heteroskedasticity by using the Huber-White correction and clustered by firm. The symbols *, **, and *** correspond to 10 percent, 5 percent, and 1 percent significance levels, respectively, for two-tailed tests. Please refer to the paper for a detailed explanation of these tests.

TABLE 6

Implementation of RPE for firms with different controlling shareholder types

Independent Variables	Predicted Sign	Among Controlling Firms	
		(1) Directly Running	(2) Supervisory Role
<i>Intercept</i>		-0.2496 (0.7051)	-1.3417*** (0.0025)
<i>Stock Return</i>		0.0292 (0.7026)	-0.0526 (0.2300)
<i>Stockreturn*Growthoption</i>		0.0000* (0.0734)	0.0001*** (0.0013)
<i>Stockreturn*Id.Variance</i>		-0.8617*** (0.0032)	-0.6900 (0.2935)
<i>Stockreturn*Herfindahl Index</i>		0.1664 (0.5556)	-0.0702 (0.8958)
<i>Ind_stockreturn</i>		-0.2033** (0.0389)	0.0048 (0.9679)
<i>Ind_stockreturn* Controlling</i>		-0.0055 (0.9164)	0.0227 (0.7304)
<i>Ind_stockreturn* Group</i>		0.1392 (0.1387)	0.1513 (0.1466)
<i>Ind_stockreturn* Controlling*Group</i>		0.0168 (0.8344)	-0.1638 (0.2605)
<i>Ind_stockreturn* Growthoption</i>		0.0000* (0.0561)	-0.0000 (0.5748)
<i>Ind_stockreturn*Id.Variance</i>		0.3318 (0.6714)	-0.1908 (0.8880)
<i>Ind_stockreturn*Herfindahl Index</i>		-0.2278 (0.6230)	-0.2596 (0.6258)
<i>Ind_stockreturn*Correlation</i>		0.3414 (0.5187)	1.2322 (0.0916)
<i>ROA</i>	(+)	0.8683*** (0.0042)	1.1662*** (0.0078)
<i>ROA*Growthoption</i>		0.0003 (0.1010)	0.0003* (0.0666)
<i>ROA*Id.Variance</i>		-5.2684***	-6.4259***

		(0.0062)	(<.0001)
<i>ROA*Herfindahl Index</i>		-1.1439	-0.1574
		(0.5607)	(0.9124)
<i>Ind_ROA</i>		0.7463	-0.5969
		(0.3245)	(0.1654)
<i>Ind_ROA* Controlling</i>		-0.8779	-0.4734
		(0.1959)	(0.2661)
<i>Ind_ROA* Group</i>		-2.9062***	-2.7541**
		(0.0080)	(0.0490)
<i>Ind_ROA* Controlling*Group</i>	(+)	3.5500***	1.7777
		(0.0011)	(0.1326)
<i>Ind_ROA* Growthoption</i>		-0.0000	0.0002
		(0.9089)	(0.2336)
<i>Ind_ROA*Id.Variance</i>		-9.1336**	-5.9377
		(0.0380)	(0.1111)
<i>Ind_ROA*Herfindahl Index</i>		-3.0751	2.4291
		(0.3411)	(0.4672)
<i>Ind_ROA*Correlation</i>		7.3667	3.8280*
		(0.1541)	(0.0902)
<i>Controlling</i>		0.1673	0.2597***
		(0.1583)	(0.0004)
<i>Group</i>		0.2920***	0.1532
		(0.0014)	(0.1527)
<i>Controlling*Group</i>		0.0242	0.1298
		(0.8438)	(0.4020)
<i>Growthoption</i>		0.0001**	0.0001***
		(0.0128)	(0.0030)
<i>Id.Variance</i>		-0.7168	-0.0716
		(0.2061)	(0.8052)
<i>Herfindahl Index</i>		-0.5037	-0.0917
		(0.1615)	(0.7945)
<i>Correlation</i>		-0.0589	-0.3935
		(0.9199)	(0.1324)
<i>Size_asset</i>		0.2703	0.3189
		(<.0001)	(<.0001)
<i>Board_meet</i>		-0.0052	-0.0055***
		(0.1078)	(0.0015)
<i>Board_ind</i>		0.2014	0.3718
		(0.3773)	(0.2086)

<i>Board_size</i>	-0.0647***	-0.0549***
	(0.0016)	(0.0067)
Number of Observations	951	1,260
R ²	0.5986	0.6111

This table estimates the equation

$$\begin{aligned} \ln(\text{dirpay})_{D_{i,t}} = & \beta_0 + \beta_1 \text{Stock return}_{i,t} + \beta_2 \text{Stock return}_{i,t} * \text{Firm Characteristic Variables}_{i,t} + \\ & \beta_3 \text{Ind_stockreturn}_{i,t} * \text{Firm Characteristic Variables}_{i,t} + \beta_4 \text{Ind_stockreturn}_{i,t} * \text{Controlling}_{i,t} + \\ & \beta_5 \text{Ind_stocokreturn}_{i,t} * \text{Group}_{i,t} + \beta_6 \text{Ind_stockreturn}_{i,t} * \text{controlling}_{i,t} * \text{Group}_{i,t} + \beta_7 \text{ROA}_{i,t} + \\ & \beta_8 \text{ROA}_{i,t} * \text{Firm Characteristic Variables}_{i,t} + \beta_9 \text{Ind_ROA}_{p,t} + \beta_{10} \text{Ind_ROA}_{p,t} * \text{Firm Characteristic Variables}_{p,t} \\ & + \beta_{11} \text{Ind_ROA}_{p,t} * \text{Controlling}_{p,t} + \beta_{12} \text{Ind_ROA}_{p,t} * \text{Group}_{p,t} + \beta_{13} \text{Ind_ROA}_{p,t} * \text{Controlling}_{p,t} * \text{Group}_{p,t} + \\ & \beta_{14} \text{Controlling}_{i,t} + \beta_{15} \text{Group}_{i,t} + \beta_{16} \text{Controlling}_{i,t} * \text{Group}_{i,t} + \beta_{17} \text{Growthoption}_{i,t} + \beta_{18} \text{Id.Variance}_{i,t} + \\ & \beta_{19} \text{Size_Asset}_{i,t} + \beta_{20} \text{Board_meet}_{i,t} + \beta_{21} \text{Board_ind}_{i,t} + \beta_{22} \text{Board_size}_{i,t} + \text{Year}_t + \text{Ind}_t + \varepsilon_{i,t} \end{aligned}$$

I reclassify the original controlling shareholder dummy into two different roles and retest the main model. P-values are reported in parentheses under each estimated coefficient. The standard errors are corrected for heteroskedasticity by using the Huber-White correction and clustered by firm. The symbols *, **, and *** correspond to 10 percent, 5 percent, and 1 percent significance levels, respectively, for two-tailed tests. Please refer to the paper for a detailed explanation of these tests.

TABLE 7

Asymmetric Implementation of RPE for different firm characteristics

Independent Variables	Predicted Sign	Firm Characteristics			
		Group	None Group	Controlling	None Controlling
<i>Intercept</i>		-2.6171*** (0.0054)	-0.8352* (0.0580)	-3.1010*** (<.0001)	-3.1885*** (<.0001)
<i>Stockreturn</i>		0.0193 (0.7158)	-0.0010 (0.9605)	0.0154 (0.5348)	0.0519 (0.4786)
<i>Stockreturn*poor</i>		-0.0390 (0.4308)	0.0683* (0.0693)	0.0298 (0.5034)	0.1227 (0.3376)
<i>Ind_stockreturn</i>		0.0804 (0.4830)	-0.0320 (0.5916)	-0.0348 (0.3259)	0.0182 (0.9149)
<i>Ind_stockreturn*poor</i>		0.1166 (0.3029)	-0.0762 (0.2354)	-0.0891* (0.0251)	0.0608 (0.5391)
<i>Roa</i>		1.6828** (0.0240)	1.1141** (0.0166)	1.2154*** (0.0070)	1.3963 (0.1211)
<i>Roa*poor</i>		0.3594 (0.8111)	-1.8598*** (0.0001)	-1.8615*** (0.0005)	-2.7057** (0.0411)
<i>Indroa</i>	(-)	-1.5688*** (0.0070)	-0.2199 (0.5643)	-0.9187*** (0.0063)	-0.7785 (0.2012)
<i>Indroa*poor</i>	(+)	-1.2107 (0.5261)	2.1849 (0.1171)	1.9633** (0.0436)	1.2677 (0.4860)
<i>poor</i>		-0.0307 (0.7932)	-0.1094** (0.0249)	-0.0628* (0.0906)	-0.1200 (0.1768)
<i>Growthoption</i>		0.2155*** (0.0047)	0.1243 (<.0001)	0.1745*** (<.0001)	0.2222** (0.0117)
<i>Id.Variance</i>		1.1718 (0.3879)	-0.9661*** (0.0014)	-1.3251*** (0.0031)	-0.5350 (0.1005)
<i>Size_asset</i>		0.3578*** (0.0002)	0.2553*** (<.0001)	0.3638*** (<.0001)	0.3718*** (<.0001)
<i>Board_meet</i>		-0.0172**	0.0007	-0.0029**	-0.0129***

	(0.0247)	(0.5469)	(0.0137)	(0.0001)
<i>Board_ind</i>	-0.5611	0.4174	0.6378	0.1401
	(0.1609)	(0.2281)	(0.1545)	(0.7437)
<i>Board_size</i>	-0.0440*	-0.0356*	-0.0469***	-0.0984**
	(0.0893)	(0.0621)	(<.0001)	(0.0151)
Number of Observations	450	1,316	1,321	445
R ²	0.5052	0.3642	0.5701	0.6057

This table estimates the equation

$$\ln(\text{dirpay})_{i,t} = \beta_0 + \beta_1 \text{Stock return}_{i,t} + \beta_2 \text{stock return}_{i,t} * \text{Poor}_{i,t} + \beta_3 \text{Ind_stockreturn}_{p,t} + \beta_4 \text{Ind_stockreturn}_{p,t} * \text{Poor}_{i,t} + \beta_5 \text{ROA}_{i,t} + \beta_6 \text{ROA}_{p,t} * \text{Poor}_{i,t} + \beta_7 \text{Ind_ROA}_{p,t} + \beta_8 \text{Ind_ROA}_{p,t} * \text{Poor}_{i,t} + \beta_9 \text{Poor}_{i,t} + \beta_{10} \text{Growthoption}_{i,t} + \beta_{11} \text{IdVar}_{i,t} + \beta_{12} \text{Size_asset}_{i,t} + \beta_{13} \text{Board_meet}_{i,t} + \beta_{14} \text{Board_ind}_{i,t} + \beta_{15} \text{Board_size}_{i,t} + \text{Year}_t + \text{Ind}_t + \varepsilon_{i,t}$$

P-values are reported in parentheses under each estimated coefficient. The standard errors are corrected for heteroskedasticity by using the Huber-White correction and clustered by firm. The symbols *, **, and *** correspond to 10 percent, 5 percent, and 1 percent significance levels, respectively, for two-tailed tests. Please refer to the paper for a detailed explanation of these tests.

국문초록

본 연구는 우리나라의 2001년부터 2008년까지의 상장회사를 관찰하여 경영자보수 결정에 상대적 성과평가가 사용되는지 여부를 살펴보았다. 전체적으로 한국의 경영자 보수는 경쟁집단의 성과에 영향을 받는 것으로 관측되어 상대적 성과평가가 사용된다고 볼 수 있다. 상대적 성과평가의 실행여부에 더하여 본 연구는 한국 기업의 이사회 구조와 재벌 그룹 효과에 초점을 맞춰 상대적 성과평가를 재조명 하였다. 일반적으로 지배주주가 이사회에 등록된 재벌그룹에 속하는 기업의 경우 지배주주는 경영자의 보수 산정 과정에 막강한 영향력을 행사한다. 따라서 지배주주가 이사회에 등록된 재벌그룹 기업의 경우 상대적 성과평가의 실행여부는 지배주주가 재량적 영향력을 행사함에 따라 상당히 줄어들 것으로 예측할 수 있다. 연구결과 지배주주가 회사 경영에 적극적으로 참여하는 경우 상대적 성과평가를 통해 자신들의 성과가 평가되는 것을 원하지 않아 이를 회피하는 것으로 밝혀졌다. 또한 추가적인 연구를 통해 지배주주는 경쟁집단의 성과가 우월한 경우 상대적 성과평가를 회피하고 열위한 경우에는 상대적 성과평가에 의존하는 것으로 관측되어 성과평가를 비대칭적으로 사용하는 것으로 관측되었다. 이러한 연구결과는 지배주주가 재량적 영향력을 통해 경영자의 보수 산정 시 상대적 성과평가를 임의적으로 사용한다는 가설을 지지한다고 볼 수 있다.

주요어: 상대적 성과평가; 지배주주 기업; 재벌 그룹; 경영자 보수; 이사회

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