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Approved Rent Extraction?
Evidence from Executives' Pay Cap in Korea

임원 보수 한도에 관한 고찰

- 한국 기업을 중심으로 -

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Approved Rent Extraction?

Evidence from Executives' Pay Cap in Korea

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Abstract

This study provides archival evidence on what the executives' pay cap really captures in the Korean setting. Using a unique data from Korea, where firms are required to receive shareholders' approval on the maximum amount of executive compensation, I examine the determinants that influence the level and the revision of the pay cap and document that the pay cap deviates from its original purpose and serves as a justification device for opportunistic executives to reap greater pay. The empirical results suggest that the use of the pay cap as an anchor in the pay-setting process provide executives with a greater incentive to manipulate the pay cap upward when the corporate governance system is weak. The study contributes to the better understanding on the role of the executives' pay cap employed in Korean firms and sheds light on the importance of firm-level monitoring systems to enhance the efficacy of the regulation.

Keyword : *Executive pay cap in Korea, Pay cap, Executive pay*

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Chapter 1. Introduction

1.1. Study Background

Executives' pay cap specifies the regulatory upper bound of the compensation granted to executives. Since unreasonable compensation packages for executives provoked huge outrage after the economic crisis in 2008, prohibiting the excessive compensation though executives' pay cap has drawn public attention around the world including the U.S.^① Even though the pay cap has been regarded as a feasible government regulation to restrict executive compensation, however, the pay cap has not been explored as a research topic in the accounting literature.

To better understand the nature of the executives' pay cap, South Korea provides a good institutional setting. In South Korea, firms are required to receive a formal approval from shareholders

^① In 2009, the Financial Stability Board of G-20 nations recommended that variable compensation be limited as a percentage of total net revenue and that CEO compensation for troubled financial institutions be subject to independent review and approval. In the U.S., Obama administration announced that firms that received funds from the Troubled Asset Relief Program (TARP), such as Citigroup, should limit the executive compensation as a condition of the bail-out from the distress in 2008. Following this announcement, all TARP recipients are subject to the executive compensation restrictions under EESA and Treasury's Interim Final Rule for TARP Standards for Compensation and Corporate Governance (IFR) until they have fully satisfied their obligations to the Treasury and exited the program.

about the maximum amount of total compensation for all executives, directors, and auditors (hereinafter, executives) unless the amount is set by the corporate charter. The obvious purpose of the regulation is to avoid granting excess compensation to executives. In practice, however, executives are deeply involved in the cap-setting process. Given this practical restriction, the pay cap may deviate from its original purpose and assume other roles than limiting executive pay. Therefore, the first question to be answered about the executives' pay cap is what it really captures in the Korean corporate setting. By answering this basic question, my paper is expected to establish a foothold for future research on further topics regarding the executives' pay cap.

1.2. Purpose of Research

In this paper, I propose three different possibilities as a practical role of the executives' pay cap. First, it may fulfill the intended duty and mean nothing but the upper limit of executive compensation. Under this assumption, the pay cap is mainly determined by the firm's economic characteristics following the efficient contracting theory (Core et al., 1999). Specifically, when the executives' pay cap serves its pure purpose, the firms governance structures should not have any significant impact on the

pay cap. Also, the pay cap will be designed to mitigate the agency problem such as pay for failure (Jensen and Murphy, 1990).

Second, the pay cap may act as an invisible justification device for self-serving executives to reap a greater pay. Since higher pay cap opens up the possibilities of executives' receiving more compensation, they may have an incentive to manipulate the pay cap for their own benefits. In fact, opportunistic executives may try to maximize the amount they can extract without inviting intervention by corporate raiders (Bebchuk and Fried, 2003). Under this assumption, governance structures which affect firm-level monitoring systems are likely to have a significant impact on the pay cap. In other words, firms with weak governance may tend to have higher executive pay cap.

Lastly, it can act as a signaling message that sends executives' expectation about the future firm performance. That is, if executives who possess proprietary knowledge about the business strategies expect a huge growth potential in the near future, they may suggest an increase in the pay cap while they communicate shareholders about the possible good news. Since shareholders also have an incentive to encourage executives to catch the growth opportunity, they willingly approve the proposed pay cap increase to better motivate executives in the favorable circumstance. If that is the case,

the change in the pay cap may have a predictive power and show a positive association with the future performance.

1.3. Main Findings

Among these three possible roles, this paper tries to pinpoint the most plausible role through empirical tests using an extensive Korean dataset. First, I test a model that investigates the determinants of the pay cap. The empirical result shows that the level of executives' pay cap has a strong association with firm's governance structure, after controlling firm-level economic factors such as size, leverage, and growth potential. Specifically, chaebol firms or firms with controlling shareholders sitting as top executives tend to have higher pay cap while firms with more independent boards of directors tend to have lower pay cap. On the other hand, performance measures such as stock return and return on assets do not seem to have a significant impact on the level of the pay cap. Overall, the result suggests that the role of the pay cap seems to be beyond a pure regulatory upper bound of the executive compensation. The finding weakens the first story that the pay cap fulfills its intended purpose in effect.

Next, I test the mechanism that enables the cap revision favorable to executives when the monitoring power is weak, by

examining the determinants of the change in the pay cap. The result shows that the executives' pay cap is revised in an asymmetric manner—more sensitive to favorable prior performance than to unfavorable performance when the corporate governance structure is weak. That is, while weak governance firms revise the executives' pay cap upward when they perform well, they rarely revise the cap downward as much when they perform badly. On the other hand, firms with strong governance structures tend to show a symmetric cap–performance sensitivity. In sum, it can be suggested that firms with weaker governance structures make the most out of a good performance to stretch the executive compensation cap as much as possible. The asymmetric use of the past performance results in the higher pay cap level in firms with weak governance structures.

Given that the analyses of the level and revision of pay cap suggest potential opportunistic use of pay cap to enable executives to reap greater pay, I directly examine the effect of pay cap on the actual executive pay. By testing the effect, I try to check whether the pay cap is actually taken into consideration in setting the level of the executive compensation. Obviously, the cap level has a significant positive association with the actual pay level. On the other hand, performance measures do not seem to have strong effect on the actual compensation level for executives.

Interestingly, however, the performance measures gain predictive power when the dependent variable changes from the actual executive pay to the actual-to-cap ratio. In other words, the board of directors may use the pay cap as an anchor when they decide the actual compensation level. Since the cap is the legitimate upper bound approved by shareholders, any amount of compensation below the cap is acceptable. Therefore, when firm performs well, executives receive the actual compensation close to the approved upper limit no matter where the limit is set. This process provides a greater incentive to raise the cap as high as possible. The result helps explain why the opportunistic executives tries to exploit the good performance when the corporate governance is weak.

While the former test results provide evidence consistent with the pay cap being used as a pay-raising device for self-serving executives in firms with weaker governance structure, I additionally examine whether the pay cap has a predictive power on future performance. If the decision to increase or decrease the pay cap reflects executives' expectation about the future firm performance, then it is likely that the revision of the pay cap has a significant association with the future performance. However, the test result indicates that the change in the pay cap has no significant impact on the firm performance in the next period. The implication still holds

when the cap revision is replaced with the abnormal cap revision derived from the aforementioned cap revision model. Overall, the results suggest that the third story that the cap revision is informative of future firm performance is rejected.

In sum, I conclude that the pay cap deviates from its original purpose of serving as an upper bound of the executive compensation and takes a role as an invisible justification device for executives to reap a higher compensation. Since the pay cap is practically used as an anchor to decide the actual compensation level, opportunistic executives have an incentive to raise the pay cap as high as possible. The test results support this argument by showing that firms with weaker governance tend to raise the pay cap to a greater extent by exploiting favorable situations.

This paper contributes to a better understanding of the executive pay cap employed in South Korea by drawing attention on the undisclosed roles of the executive pay cap and examining its efficacy. I hope this study becomes a foothold for further research on the Korean unique regulation on the executive compensation in the accounting literature. The rest of this paper proceeds as follows. In Chapter 2, I provide background information and develop the hypotheses of this paper. Chapter 3 introduces the sample and defines the main variables used in the paper, along with the

descriptive statistics. Chapter 4 details the research designs and provides the empirical findings. In Chapter 5, I summarize and conclude the study.

Chapter 2. Background Information and Hypotheses

2.1. Background Information

Article 388 of Korean Commercial Code (Remuneration for Director) requires firms to receive shareholders' approval on the maximum amount of the remuneration to all executives, directors, and auditors unless it has been determined by the articles of incorporation. Because what is determined by a resolution at a general shareholder's meeting is the total compensation for all executives, the board distributes the compensation to each executive within the total maximum amount.

While implementing a regulation on executive compensation by setting an upper bound has been discussed worldwide, there are few countries that actually impose a legal requirement to firms. The main difference between the Korean executive pay cap and the cap required of TARP banks in the U.S. is the source of the limit. Korean firms are mandated to receive an annual approval of shareholders on the limit of the executive compensation on an annual basis. The limit used in the U.S., on the other hand, is set uniformly by the government for firms who received funds from TARP. Also, while a

say-on-pay regulation mandated by the U.S. law^② offers shareholders the right to vote on the remuneration of executives, it cannot be regarded as analogous to the pay cap since it is a non-binding resolution. (Garner and Kim, 2010)

Considering that there are few practical cases of imposing a regulative upper bound on executive compensation, South Korea offers a unique setting to examine the nature of the compensation cap in the corporate context. The purpose of the requirement implemented in Korea is clearly to avoid granting excess compensation to executives. However, the asymmetric information between executives and the majority of shareholders may let the executives manipulate the cap-setting process and render the cap as an ineffective tool (Kim, 1986).

If the pay cap fulfils its purpose as intended, it should support the shareholder value view. According to this view, executive pay is the outcome of the efficient labor market where firms optimally compete for managerial talent. Since executive compensation contracts are the result of shareholders' value maximizing strategy, it takes the form of optimal contracting that gives managers

^② On July 21, 2010, President Obama signed the "Restoring American Financial Stability Act of 2010" into law. One of its provisions is to give shareholders a non-binding vote on executive pay, which is called "Say on Pay".

incentives to act in the way that increases shareholder value (Jensen and Murphy, 1990). This contract should mitigate the agency problem by relating the compensation to the firm performance (Gibbons and Murphy, 1992; Holmström, 1999). Therefore, the shareholder value view proposes that the pay level is mainly influenced by firm-level economic determinants such as size, leverage, growth potential and performance.

Since the pay cap is the surest way for shareholders to intervene in executive compensation in the Korean corporation setting, cap-setting process would be more or less the same as the pay-setting process proposed by the shareholder value view. That is, if the shareholder value view holds in Korea, the pay cap will be mainly determined by economic factors, as well. Under this assumption, non-economic factors, such as governance structure should not have a significant impact on the pay cap. Also, the pay cap should be sensitive to firm performance (Edmans et al., 2017).

On the other hand, rent extraction view assumes that the executive pay is manipulated by executives to maximize their own benefits. This view starts with the actual corporate practice where the executive pay is set by the board of directors. As opposed to the theoretical prediction that monitoring systems such as strong governance structure and competitive managerial labor market

prevent executives from extracting rent, large deviations from optimal contracting can be made in practice (Bebchuk et al., 2002). Under this assumption, the executive pay is more or less sensitive to firm performance depending on the corporate governance (Bebchuk and Fried, 2003).

Since opportunistic executives try to gain the maximum amount they can extract without inviting intervention by corporate raiders, firms with weak governance structures tend to be easily exploited by them (Bertrand and Mullainathan, 2001). Indeed, empirical studies show that compensation practices that are seemingly favorable to executives tend to be more prevalent when corporate governance is weak. Core et al. (1999), for instance, find that excess compensation is generally affected by poor governance structures and greater agency problems, using U.S. data. Also, a large body of prior research shows that substantial variation in CEO pay can be attributed to the quality of board and shareholder monitoring as well as private benefit incentives of controlling shareholders (David et al., 1998; Core et al., 1999; Hartzell and Starks, 2003; Larcker and Tayan, 2011). In Korea, where a pay cap should be approved by the resolution from shareholders, setting up a pay cap can be regarded as an important process in determining actual compensation for executives. Thus, the executives' pay cap

should be affected by the corporate governance in order to support the rent extraction view.

While studies on executives' pay cap are virtually non-existent, executive compensation of Korean firms has been studied in prior literature. Kim et al. (1999) shows that executive cash compensation has a positive association with firm performance, while the association varies with a specific industry a firm belongs to. Park (2007) also provides evidence that executive pay is positively influenced by performance measures. On the other hand, Cho and Park (2017) examine the impact of corporate governance on the executive compensation structure and find that the pay-performance sensitivity tends to be affected by a corporate-level monitoring system such as board independence. Also, Kato et al. (2007) study the behavior of chaebol, a family-controlled large business group, on executive pay structure and find that only non-chaebol firms have a significant pay-performance sensitivity, using Korean data between 1998 and 2001.

While there are some papers that examine executive compensation in Korean firms as mentioned above, the comprehensive understanding on pay-setting arrangement is still limited due to the data availability issue. Thus, how firms set their executive pay still remains as a black box (Kato et al., 2007). Under

the circumstance, the pay cap may provide a hint to better understand the pay-setting mechanism in Korean firms. By examining the nature of the pay cap employed in Korea, this paper provides evidence on practical role of the executives' pay cap and sheds light on its importance in setting the actual compensation in the corporate context.

2.2. Hypotheses Development

Executives' pay cap specifies the regulatory upper bound of the pay level granted to executives. The regulation is intended to prevent paying excess compensation to executives. In practice, however, executives closely participate in the cap-setting process. In many cases, majority of shareholders tend to stamp their seal without actively debating on the reasonable level of the pay cap. Thus, the pay cap can easily deviate from its original purpose and assume other roles than setting the binding upper limit on executive pay. This paper tries to extend the understanding on the role of the pay cap by answering what the pay cap really means in the Korean corporate setting. By focusing on this basic question, it provides a groundwork on further research regarding the pay cap.

If the role of shareholders in setting the pay cap is actually limited to stamping on the pay cap proposed by executives, the pay cap is less likely to fulfill its original duty. That is, it cannot serve as

an effective regulation to restrict the maximum amount of executive compensation. In this case, the shareholder value view is weakened. Since the executive pay cap cannot be seen as outcome of the strategy that maximizes shareholder value, it may deviate from the form of optimal contracting and fail to provide optimal incentive for executives to be aligned with shareholders.

Rather, rent extraction view gains more credibility. Based on this view, shareholders with weak monitoring power are likely to be sacrificed by the executives, since opportunistic executives always search for a way to receive more compensation. In other words, executives have more chance to manipulate the pay cap and raise it at the greater extent when the firms have weak governance. Following the rationale, I conjecture that corporate governance structures that affect firm-level monitoring systems serve as important determinants for the level of pay cap.

Hypothesis 1: Corporate governance measures have significant associations with the level of the executive pay cap.

If the empirical test supports the first hypothesis, there must be a certain mechanism that allows the cap revision favorable to executives in the firms with weaker corporate governance. As long as the pay cap should be approved by shareholders' resolution, executives need to provide evidence that can justify their proposal

on the new pay cap level. One possible evidence is the favorable past performance. For example, when a firm happens to achieve a good performance, executives have a chance to exploit this situation to propose an increase in their compensation limit. On the other hand, when a firm does not perform well, executives would not suggest a change in the pay cap since providing evidence with past performance is not favorable to them. This asymmetric use of the past performance seems to be possible when the corporate monitoring power is weak. Therefore, I conjecture that firms with weak governance are likely to revise the pay cap upward more when the past performance is good and downward less when the past performance is bad than firms with strong governance.

Hypothesis 2: When the corporate governance is weak, executive pay cap is revised in an asymmetric manner – more sensitive to favorable past performance than unfavorable performance.

Considering that the analyses of the level and revision of pay cap suggest potential opportunistic use of pay cap to enable executives to reap greater pay, one might question the efficacy of the executives' pay cap. Specifically, if the shareholders' approval on the pay cap is nothing more than an ineffective procedure, the executive pay cap could be irrelevant to the actual executive

compensation. However, since firms should receive a formal approval from shareholders on the level of the pay cap, it may not be a random number and have some association with the actual pay level. Thus, I conjecture that the executives' pay cap has a significant impact on the actual pay level.

If the pay cap has a binding power on the actual pay, it means that the cap level becomes a basis for setting the pay level. In other words, once a firm receive approval from shareholders on the executives' pay cap, they would use the pay cap as an anchor for setting the actual pay level. For example, if a firm performs well, executives to receive the actual pay close to the cap regardless of the level of pay cap, since the cap is the legitimate upper bound approved by shareholders. Therefore, I conjecture that the firm performance is more associated with the actual-to-cap ratio than the actual pay level.

Hypothesis 3a: The executive pay level has a significant positive association with the executive pay cap.

Hypothesis 3b: The firm performance is more associated with the ratio of the actual pay to the pay cap rather than with the actual pay level.

Lastly, if the tests provide evidence consistent with the pay cap being used as a pay-raising device for self-serving executives

in weak governance firms, the pay cap is less likely to serve the role as a signal for future performance. In other word, if the pay cap is adjusted upward as a reward for past good performance, firms may not use the cap as a counter-image of the performance target and reflect their expectation. Thus, I conjecture that the pay cap does not have a predictive power on the future firm performance.

***Hypothesis 4:** The executive pay cap does not have a significant positive association with the future firm performance.*

Chapter 3. Data and Variable Definition

3.1. Data

My sample consists of KOSPI and KOSDAQ firms for the fiscal years from 2002 to 2019. I obtain financial statement data and board data from TS2000 and the stock return data are obtained from Data Guide. Chaebol firms are indicated manually. To enhance the data accuracy, I drop the firms that appear to have incomplete board data, including firms with a greater number of outside directors than the number of total directors. I also drop firms with missing financial or stock return data or firms with missing board data. After imposing these data restrictions on the initial sample, I obtain a final sample of 5,978 firm–year observations. To reduce the effect of outliers, I winsorize all continuous variables at the 1st and 99st percentiles.

3.2. Variable Definition

Since the Korean regulatory system does not require firms to determine individual pay cap for each executive, this paper uses the total and average pay cap as measures of executives' pay cap. To capture firm–level economic factors, I use the log of the average total assets as a size measure (SIZE), the average total liabilities scaled by the average total assets as a leverage measure (LEV), and

the book value of equity and the market value of equity as a growth potential measure (BTM). Also, I use two performance measures: earnings before extraordinary item scaled by average total assets (ROA) and annual log return of stock (RET).

In order to capture firm-level governance structure, I use the board independence measure (BOARDINDEPENDENCE), chaebol indicator (CHAEBOL), and controlling shareholder indicator (CONTROLLING). Since prior literature suggests that more independent boards are better performing (Yermack, 1996; Vafeas, 1999; Core et al., 1999; Choi et al., 2007), BOARDINDEPENDENCE, the proportion of outside directors in the board, is used as a measure for the firm-level monitoring power. I also exploit Korean unique corporate ownership structure by using two indicator variables. CONTROLLING takes the value of one if the largest controlling shareholder or a member of his or her immediate family takes the position of executive inside director (Shin et al., 2015). CHAEBOL indicates firms that belongs to the top 30 largest business group (Bae et al., 2002).

[Insert Table 1 here]

Table 1 shows the summary statistics of the main variable for the full sample of 5,978 firm-year dataset during 2002 and 2019. The average total pay cap of Korean firm is around 2.9 billion Korean

Won. The total pay received by executives is on average 1 billion Korean Won. The average ratio of the actual pay to the pay cap is around 38%.

[Insert Table 2 here]

Table 2 describes the spearman correlations between the main variables. The total pay cap is positively correlated with the total actual pay, the number of executives, firm size, the size of the leverage, the return on assets, and Chaebol indicator. On the other hand, the book value of equity scaled by the market value of equity and the controlling shareholder indicator have significant negative correlation with the total pay cap.

Chapter 4. Research Design and Empirical Results

4.1. The Determinants of Pay Cap

If the executives' pay cap serves as an effective tool to restrict excessive compensation on executive and to protect shareholders' value, the pay cap should be mainly determined by economic factors in line with efficient contracting theory. On the other hand, if corporate governance structure has a significant impact on the executives' pay cap, then it would suggest that the pay cap could be rigged by powerful controlling shareholders and executives.

$$\begin{aligned} &LNCAP_ALL_{T+1} \\ &= \beta_0 + \beta_1 LNEXECUTIVE_NUM_{T+1} \\ &+ \beta_3 BOARDINDEPENDENCE + \beta_4 CHAEBOL \\ &+ \beta_5 CONTROLLING + \beta_6 ROA + \beta_7 RET + \beta_8 SIZE + \beta_9 LEV \\ &+ \beta_{10} BTM + \beta_{11} INDUSTRY_AVERAGE \\ &+ INDUSTRY AND YEAR FIXED EFFECTS \end{aligned}$$

To test the first hypothesis, I design a model that can examine the determinants of the executives' pay cap. By using firm-level economic and governance factors as independent variables, I investigate whether the pay cap is successfully devised to fulfill its original purpose. If the coefficients for the governance variables have significance with expected signs, then the result provides evidence

that supports the first hypothesis. When I estimate an OLS regression equation, I base my inferences on Huber–White robust standard errors clustered by firm that are robust to both serial correlation and heteroscedasticity in panel data (Petersen 2009).

[Insert Table 3 here]

The table 3 shows the empirical result that the level of executives' pay cap has a strong association with firm–level governance structure, after controlling for economic factors such as size, leverage, book–to–market and performance. Specifically, β_3 , the coefficient of the board independence measure is significant and negative, while β_4 and β_5 , the coefficients of the indicators for Chaebol firms and firms with controlling shareholders in the boards are significant and positive. In other words, Chaebol firms or firms with controlling shareholders sitting as top executives tend to have higher pay cap while firms with more independent boards tend to have a lower pay cap. Also, the result shows that the firm performance measures such as return on assets and stock return do not appear to have a significant effect on the level of the pay cap. Overall, the result support the first hypothesis, by granting more credibility to the rent extraction view. In other words, the role of the pay cap seems to be beyond a pure regulatory upper bound of the executive compensation.

4.2. The Determinants of Pay Cap Revision

When firms with weaker governance structure tend to have a higher executives' pay cap, there must be a mechanism that enables the cap revision favorable to executive. Since the pay cap is one of the items that should be determined by the resolution of shareholders, executives need to prepare rational explanation that can justify their proposal on the pay cap revision. One possible explanation is firms' past performance. For example, when a firm performs well, executives have a chance to use this performance as a reason to raise the pay cap. On the other hand, when a firm does not perform well, executives may not want to use the performance as evidence to adjust the pay cap. And the asymmetric use of the past performance may be more easily materialized when the corporate monitoring power is weak.

$$\begin{aligned} &DLNCAP_AVERAGE_{T,T+1} \\ &= \beta_0 + \beta_1 LNCAP_{AVERAGE} + \beta_3 RATIO_{AVERAGE} + \beta_4 DROA_{T,T+1} \\ &+ \beta_5 DROA * NEG DROA + \beta_6 SIZE + \beta_7 LEV + \beta_8 BTM \\ &+ INDUSTRY AND YEAR FIXED EFFECTS \end{aligned}$$

To test the hypotheses about the cap revision process, I devise a model that investigates the determinants of the pay cap revision and test the model after dividing the sample into two group based on the corporate governance structure. Specifically, I estimate

the OLS model for firms with controlling shareholders in the boards and for firms without controlling shareholders in the boards respectively and compare the results. If the coefficient of $DROA_{T,T+1}$ is more significant and positive and the coefficient of $DROA * NEG DROA$ is more significant and negative for the sample firms with controlling shareholders, the effect of the corporate governance structure on the cap revision process is further supported.

[Insert Table 4 here]

Table 4 shows the test result that β_4 , the coefficient of $DROA_{T,T+1}$ is more significant and positive for the firms with controlling shareholders in the boards. The result also indicates that β_5 , the coefficient of $DROA * NEG DROA$ is significant and negative only for the firms with controlling shareholders in the boards. In other words, the asymmetric behavior is demonstrated only from the sample firms with weaker governance structure. While firms with strong monitoring systems adjust the pay cap in response to the past performance in a symmetric manner, firms with weak systems make use of the past performance only when it is favorable to executives. This asymmetric use of the past performance may result in the higher pay cap level for the firms with weak governance structure. Overall, the test result supports the hypotheses 2.

4.3. The Effect of Pay Cap on Actual Pay

Given that the analyses of the level and revision of pay cap suggest potential opportunistic use of pay cap to reap greater pay, I directly examine the effect of the pay cap on the actual executive pay to see whether the pay cap has an effective binding power on the actual pay. If the pay cap level significantly affects the actual pay level, then the pay cap really matters to executives. Otherwise, the executives do not have much incentive to care about the level of the pay cap. Therefore, a significant and positive coefficient may grant validity to examine the nature of the pay cap.

$$\begin{aligned} LNCOMP_ALL = & \beta_0 + \beta_1 LNCAP_ALL + \beta_2 LNEXEUCITVE \\ & + \beta_3 BOARDINDEPENDENCE + \beta_4 CHAEBOL \\ & + \beta_5 CONTROLLING + \beta_6 ROA + \beta_7 RET + \beta_8 SIZE + \beta_9 LEV \\ & + \beta_{10} BTM + \beta_{11} INDUSTRY_AVERAGE \\ & + INDUSTRY AND YEAR FIXED EFFECTS \end{aligned}$$

[Insert Table 5 here]

The table 5 shows that β_1 , the coefficient of the pay cap is significant and positive. In other words, the pay cap has a significant positive association with actual executive pay. It suggests that the pay cap is actually taken into consideration when determining the executive pay level, confirming that the pay cap has a binding power.

On the other hand, firm performance measures do not seem to have strong effect on the actual pay level for executives as opposed to the conventional belief that the firm performance is one of the main factors that determine the executive compensation (Kim et al., 1999).

If the pay cap has a binding power on the actual pay by becoming a basis for setting the pay level, the performance measures may have a significant association with the actual-to-cap ratio, rather than with the pay level. Since the pay cap is an approved upper limit of the actual pay, any amount below the pay cap could be acceptable. Therefore, firms use the pay cap as an anchor to determine the pay level. In this case, if a firm performs well, the amount of compensation granted to executives could be close to the cap regardless of where the cap is set. If this is the case, the firm performance is more closely related with the actual-to-cap ratio than with the pay level.

$$\begin{aligned}
 \text{RATIO_ALL} = & \beta_0 + \beta_1 \text{BOARDINDEPENDENCE} + \beta_2 \text{CHAEBOL} \\
 & + \beta_3 \text{CONTROLLING} + \beta_4 \text{ROA} + \beta_5 \text{RET} + \beta_6 \text{SIZE} + \beta_7 \text{LEV} \\
 & + \beta_8 \text{BTM} + \beta_9 \text{INDUSTRY_AVERAGE} \\
 & + \text{INDUSTRY AND YEAR FIXED EFFECTS}
 \end{aligned}$$

[Insert Table 6 here]

Table 6 shows confirms the use of the pay cap as an anchor

in the pay-setting process. Specifically, β_4 , the coefficient of return on asset and β_5 , the coefficient of stock return are both significant and positive. When firms determine the actual pay in response to the firm performance, they refer to the pay cap. That is, the actual pay level is determined relative to the pay cap. Therefore, once the cap is set high, executives are more likely to receive higher compensation. This process provides a greater incentive for executives to set the cap as high as possible. The result explains why opportunistic executives tries to raise the pay cap by exploiting favorable past performance when the corporate governance structure is weak.

4.4. The Cap Revision and Future Performance

While the former test results provide evidence consistent with the pay cap being used as a pay-raising device for self-serving executives in firms with weak governance structure, I additionally examine whether the pay cap may have a predictive power to test the role as a signaling message for future performance. If the pay cap reflects executives' expectation on future firm performance, the pay cap revision is likely to have a significant relation to future performance.

$$\begin{aligned}
DROA_{T,T+1} = & \beta_0 + \beta_1 DLNCAP_{AVERAGE_{T,T+1}} + \beta_2 BOARDINDEPENDENCE \\
& + \beta_3 CHAEBOL + \beta_4 CONTROLLING + \beta_5 SIZE + \beta_6 LEV \\
& + \beta_7 BTM + \beta_8 RET + INDUSTRY AND YEAR FIXED EFFECTS
\end{aligned}$$

[Insert Table 7 here]

The result suggests that the change in the pay cap has no predictive power for the firm performance in the next period. Table 7 Panel A shows that β_1 , the coefficient of the change in the pay cap is not significant. When I replace the change in the pay cap with the abnormal change in the pay cap, measured by the residual from the pay cap revision model, the result does not change. Specifically, Table 7 Panel B shows that that β_1 , the coefficient of the abnormal change in the pay cap has no significance as well.

It confirms that the pay cap revision has nothing to do with the future firm performance. In other word, firms do not use the cap as a counter-image of the performance target and hardly reflect their expectation about the future firm performance, since they adjust the pay cap mainly based on the past performance. Overall, the test results support the second story that the pay cap serve as a justification device for greater executive pay.

Chapter 5. Conclusion

The article 388 of Korean Commercial Code provide a unique opportunity to empirically examine the nature of the executive pay cap in the corporate setting. With a sample of Korean firms during the period of 2002 to 2019, I investigate the practical role of the executives' pay cap using a regression-based approach. In this paper, I propose three different candidates for a practical role of the executives' pay cap. The first candidate is the pure regulatory upper limit to avoid granting excessive executive pay. The second candidate is an invisible justification device for self-serving executives to reap a greater pay. The last candidate is a signaling message that sends executives' expectation about the future firm performance. By implementing empirical tests, this paper tries to pinpoint the most plausible role that the pay cap takes in practice.

By testing the determinants of the pay cap level, I find that the pay cap level is influenced not only by economic factors, but also by governance structure. Specifically, firms with weaker governance tend to have higher executive pay cap. Since the result is inconsistent with the efficient contracting theory that supports the use of the pay cap as a regulatory upper limit on the executive compensation, it rejects the first story that the pay cap fulfills its original duty of

limiting the excessive compensation as intended. Rather, it supports the second story that the pay cap is a pay-raising device for self-serving executives.

To investigate the mechanism that allows the higher pay cap in firms with weaker monitoring power, I test the pay cap revision model. The test result shows that the pay cap is revised in an asymmetric manner – more sensitive to favorable past performance than to unfavorable past performance only when the corporate governance is weak. This limited usage of the past performance renders the cap revision favorable to executives. When firms perform well, the pay cap is adjusted upward in response to the performance. On the other hand, when the firm do not perform well, the cap is not adjusted downward as much. The downward-sticky pay cap offers executives greater chances to receive gradually increasing compensation. This tendency results in the higher pay cap for the firms with weak governance structure.

As long as the pay cap has no effect on the actual pay, the executives' effort to raise the pay cap is of no use. To examine the existence of the executive's incentive to maximize the cap, I test the impact of the pay cap on the actual pay and find that the pay cap is significantly taken into account when deciding the pay level. However, in contrast to the conventional belief, the performance measures do

not seem to have a strong association with the actual pay level. Rather, the measures are more closely related with the actual-to-cap ratio. In other words, the cap is used as an anchor in the pay-setting process.

Since the cap means the maximum amount of compensation approved by shareholders, any amount below the cap is acceptable. If a firm performs well, executives are eligible to receiving the actual pay close to the pay cap no matter where the cap is set. In other words, the pay cap is used as a reference for an appropriate pay level in case of the good performance. Since firms with higher pay cap opens up the possibilities of granting more pay, executives have greater incentive to actively raise the pay cap. This process explains how the pay cap is used as a pay-raising device for self-serving executives.

Lastly, I test the predictive power of the pay cap on the future performance to test its possible role as a signaling device. If the pay cap is set by reflecting executives' expectation on future firm performance, then pay cap revision is likely to have a significant association with the future performance. However, the test result rejects the argument since neither the pay cap revision, nor the abnormal pay cap revision has a significant effect on the future firm performance. Overall, my results are more consistent with the

argument that the pay cap is mainly used as a justification device for opportunistic executives.

In conclusion, the pay cap deviates from its intended purpose of serving as an upper limit on the executive compensation and takes a role as an invisible justification device for executives to reap a higher compensation. Since the pay cap is practically used as an anchor in the pay-setting process, opportunistic executives have an incentive to influence the pay to their own benefits. As a result, firms with weak monitoring systems tend to revise the cap in an asymmetric manner and end up having higher pay cap than firms with strong monitoring systems.

This paper contributes to a better understanding of the executive pay cap employed in South Korea by drawing attention on the unexplored roles of the executive pay cap and examining its efficacy. I hope this study provides a foothold for further research on the Korean unique regulation about the executive compensation in the accounting literature.

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Appendix

Variable Definition

F1LNCAP_ALL	log (pay cap for all executives) at t+1
F1LNEXCEUTIVE_NUM	log (the number of all executives) at t
LNCOMP_ALL	log (actual pay for all executives) at t
RATIO_ALL	(actual pay for all executives/pay cap for all executives) at t
SIZE	log (total assets) at t
LEV	average total liabilities scaled by average total assets
BTM	book value of equity to market value of equity at t
ROA	earnings before extraordinary item scaled by average total assets
RET	annual log return of stock
BOARDINDEPENDENCE	proportion of independent directors in the board
CHAEBOL	1 if the firm is chaebol, 0 otherwise
CONTROLLING	1 if there is a controlling shareholder in the board, 0 otherwise

Tables

Table 1. Descriptive Statistics

Variable	N	Mean	Std	Min	1Q	Median	3Q	Max
F1CAP_ALL	5978	2,924,475.04	2,746,435.03	500,000	1,200,000	2,050,000	3,200,000	15,000,000
F1COMP_ALL	5978	1,042,054.98	1,245,043.69	6,000	340,000	688,000	1,225,000	7,453,000
F1EXECUTIVE_NUM	5978	6.6105721	2.378217	3	5	6	8	16
F1RATIO_ALL	5978	0.3872721	0.2527275	0.0039344	0.1823881	0.3894731	0.57262	0.9406415
SIZE	5978	1,795,583,10	5,421,591,25	29,327,854	108,699,549	256,114,571	819,396,457	38,613,121,00
		4	1					0
LEV	5978	0.4709222	0.2012374	0.0734313	0.3146323	0.481252	0.6247196	0.9199481
BTM	5978	1.3889193	1.1230201	0.1134393	0.6141389	1.0756666	1.8045337	6.2346046
ROA	5978	0.0181713	0.0806737	-0.3208816	-0.0030366	0.0264304	0.0604001	0.2141791

RET	5978	0.000932385	0.008042	-0.0202	-0.0039	0.0005	0.0054	0.0245
BOARDINDEPENDENC E	5978	0.2343276	0.1355419	0	0.2	0.2163743	0.2857143	0.6666667
CHAEBOL	5978	0.1510539	0.3581313	0	0	0	0	1
CONTROLLING	5978	0.5403145	0.4984138	0	0	1	1	1

Variables F1CAP_ALL, F1COMP_ALL, and SIZE are expressed in thousand Won.

Table 2. Pearson Correlation Matrix

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) LNF1CAP_ALL	1.00										
(2) LNF1COMP_ALL	0.54	1.00									
(3) LNF1EXECUTIVE_NUM	0.34	0.41	1.00								
(4) SIZE	0.56	0.54	0.35	1.00							
(5) LEV	0.09	0.12	0.08	0.34	1.00						
(6) BTM	-0.03	0.06	0.01	0.25	0.03	1.00					
(7) ROA	0.16	0.17	0.02	0.13	-0.34	-0.12	1.00				
(8) RET	0.00	0.05	0.00	-0.02	-0.06	-0.21	0.29	1.00			
(9) BOARDINDEPENDENCE	0.00	0.07	0.14	0.08	0.08	-0.01	-0.01	0.03	1.00		
(10) CHAEBOL	0.39	0.32	0.24	0.51	0.21	0.01	0.03	-0.02	0.04	1.00	
(11) CONTROLLING	-0.10	-0.05	-0.11	-0.20	-0.12	0.10	0.06	0.05	-0.05	-0.24	1.00

Above are the correlations between main variables included in the regression. Bold coefficients correspond to a 5 percent significance level. Variable definitions are in Appendix.

Table 3. Determinants for Pay Cap Level

Parameter	Coefficient (t-value)
INTERCEPT	2.919*** (2.64)
LNF1EXECUTIVE_NUM	0.338*** (7.73)
BOARDINDEPENDENCE	-0.196** (-2.53)
CHAEBOL	0.153*** (2.59)
CONTROLLING	0.074*** (2.59)
ROA	0.246 (1.62)
RET	-1.131 (-1.15)
SIZE	0.300*** (20.68)
LEV	-0.322*** (-3.83)
BTM	-0.097*** (-6.32)
INDUSTRY_AVERAGE	0.387*** (5.28)

Above is the OLS regression result for model:

$$\begin{aligned}
 LNCAP_ALL_{T+1} = & \beta_0 + \beta_1 LNEXECUTIVE_NUM_{T+1} \\
 & + \beta_3 BOARDINDEPENDENCE + \beta_4 CHAEBOL \\
 & + \beta_5 CONTROLLING + \beta_6 ROA + \beta_7 RET + \beta_8 SIZE + \beta_9 LEV \\
 & + \beta_{10} BTM + \beta_{11} INDUSTRY_AVERAGE \\
 & + INDUSTRY AND YEAR FIXED EFFECTS
 \end{aligned}$$

for the sample of 5,978 firm-year observations. Industry fixed effects and year fixed effects are included and standard errors are clustered by firm.

*, **, and *** denote statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively. T-values are in parentheses. Variable definitions are in Appendix.

Table 4. Determinants for Pay Cap Revision

Parameter	CONTROLLING=1	CONTROLLING =0
	Coefficient (t-value)	Coefficient (t-value)
INTERCEPT	1.345*** (8.05)	1.083*** (5.34)
LNCAP_AVERAGE	-0.142*** (-9.28)	-0.146*** (-7.89)
RATIO_AVERAGE	0.087*** (3.04)	0.108*** (3.01)
DROA	0.682*** (4.98)	0.250* (1.86)
DROA*NEGDROA	-0.582*** (-2.71)	-0.157 (-0.68)
SIZE	0.037*** (5.69)	0.037*** (5.35)
LEV	-0.057* (-1.7)	-0.005 (-0.16)
BTM	-0.016*** (-2.83)	-0.012* (-1.66)

Above are the OLS regression results for model:

$$\begin{aligned}
 &DLN\text{CAP_AVERAGE}_{T,T+1} \\
 &= \beta_0 + \beta_1 LNCAP_{AVERAGE} + \beta_3 RATIO_{AVERAGE} + \beta_4 DROA_{T,T+1} \\
 &+ \beta_5 DROA * NEGDROA + \beta_6 SIZE + \beta_7 LEV + \beta_8 BTM \\
 &+ \text{INDUSTRY AND YEAR FIXED EFFECTS}
 \end{aligned}$$

for the sample of 2,662 firm-year observations and 2,239 firm-year observations, respectively. Industry fixed effects and year fixed effects are included and standard errors are clustered by firm.

*, **, and *** denote statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively. T-values are in parentheses. Variable definitions are in Appendix.

Table 5. Effect of Pay Cap on Actual Pay

Parameter	Coefficient (t-value)
INTERCEPT	-5.158*** (-5.48)
LNCAP_ALL	0.378*** (7.78)
LNEXECUTIVE_NUM	0.769*** (9.25)
BOARDINDEPENDENCE	-0.158 (-0.94)
CHAEBOL	-0.128 (-1.55)
CONTROLLING	0.021 (0.39)
ROA	0.484* (1.66)
RET	1.847 (0.99)
SIZE	0.255*** (8.97)
LEV	-0.039 (-0.27)
BTM	-0.028 (-1.29)

Above is the OLS regression result for model:

$$\begin{aligned}
 LNCOMP_ALL = & \beta_0 + \beta_1 LNCAP_ALL + \beta_2 LNEXECUTIVE \\
 & + \beta_3 BOARDINDEPENDENCE + \beta_4 CHAEBOL + \beta_5 CONTROLLING \\
 & + \beta_6 ROA + \beta_7 RET + \beta_8 SIZE + \beta_9 LEV + \beta_{10} BTM \\
 & + \beta_{11} INDUSTRY_AVERAGE \\
 & + INDUSTRY AND YEAR FIXED EFFECTS
 \end{aligned}$$

for the sample of 5,978 firm-year observations. Industry fixed effects and year fixed effects are included and standard errors are clustered by firm.

*, **, and *** denote statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively. T-values are in parentheses. Variable definitions are in Appendix.

Table 6. Effect of Performance on the Actual-to-Cap Ratio

Parameter	Coefficient (t-value)
INTERCEPT	-0.466*** (-4.13)
BOARDINDEPENDENCE	-0.021 (-0.59)
CHAEBOL	-0.059*** (-2.82)
CONTROLLING	0.015 (1.29)
ROA	0.175*** (2.97)
RET	0.940** (2.24)
SIZE	0.025*** (4.5)
LEV	0.001 (0.02)
BTM	0.002 (0.42)
INDUSTRY_AVERAGE	0.970*** (14.67)

Above is the OLS regression result for model:

$$\begin{aligned}
 \text{RATIO_ALL} = & \beta_0 + \beta_1 \text{BOARDINDEPENDENCE} + \beta_2 \text{CHAEBOL} + \beta_3 \text{CONTROLLING} \\
 & + \beta_4 \text{ROA} + \beta_5 \text{RET} + \beta_6 \text{SIZE} + \beta_7 \text{LEV} + \beta_8 \text{BTM} \\
 & + \beta_9 \text{INDUSTRY_AVERAGE} \\
 & + \text{INDUSTRY AND YEAR FIXED EFFECTS}
 \end{aligned}$$

for the sample of 5,978 firm-year observations. Industry fixed effects and year fixed effects are included and standard errors are clustered by firm.

*, **, and *** denote statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively. T-values are in parentheses. Variable definitions are in Appendix.

Table 7. Effect of Performance on the Actual-to-Cap Ratio

	Panel A	Panel B
Parameter	Coefficient (t-value)	Coefficient (t-value)
INTERCEPT	-0.014 (-0.54)	-0.014 (-0.51)
DLNF1CAP_AVERAGE	0.006 (-1.36)	
Abnormal DLNF1CAP_AVERGATE		0.001 (0.22)
SIZE	-0.001** (-1.99)	-0.001** (-1.97)
LEV	0.022*** (5.06)	0.022*** (5.01)
BTM	-0.002** (-2.47)	-0.002** (-2.46)
RET	-0.586*** (-3.13)	-0.602*** (-3.22)
BOARDINDEPENDENCE	0.005 (0.74)	0.006 (0.83)
CHAEBOL	0.002 (0.64)	0.002 (0.66)
CONTROLLING	0.002 (1.2)	0.002 (1.23)

Panel A is the OLS regression result for model:

$$DROA_{T,T+1} = \beta_0 + \beta_1 DLN\text{CAP_AVERAGE}_{T,T+1} + \beta_2 \text{BOARDINDEPENDENCE} + \beta_3 \text{CHAEBOL} + \beta_4 \text{CONTROLLING} + \beta_5 \text{SIZE} + \beta_6 \text{LEV} + \beta_7 \text{BTM} + \beta_8 \text{RET} + \text{INDUSTRY AND YEAR FIXED EFFECTS}$$

for the sample of 4,824 firm-year observations.

Panel B is the OLS regression result for model:

$$DROA_{T,T+1} = \beta_0 + \beta_1 \text{Residual} + \beta_2 \text{BOARDINDEPENDENCE} + \beta_3 \text{CHAEBOL} + \beta_4 \text{CONTROLLING} + \beta_5 \text{SIZE} + \beta_6 \text{LEV} + \beta_7 \text{BTM} + \beta_8 \text{RET} + \text{INDUSTRY AND YEAR FIXED EFFECTS}$$

for the sample of 4,824 firm–year observations. The variable *Residual* is the residual from the Pay Cap Revision model.

Industry fixed effects and year fixed effects are included and standard errors are clustered by firm.

*, **, and *** denote statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively. T-values are in parentheses. Variable definitions are in Appendix.

요약(국문초록)

임원 보수 한도에 관한 고찰 - 한국 기업을 중심으로 -

본 연구는 한국의 임원 보수 한도가 기업 환경에서 지니는 실재적 의미에 대한 실증적 근거를 제공한다. 한국 기업들은 임원에게 지급할 보수 총액의 한도에 대해 주주로부터 승인을 얻어야 한다. 한국 기업 데이터를 사용하여 임원 보수 한도의 결정 요인들과 보수 한도 조정에 영향을 주는 유인들을 분석한 결과, 보수 한도는 임원의 보상 수준을 제한한다는 본래의 의도에서 벗어나 기회주의적 임원들에게 더 높은 보상을 주는 장치로 사용되고 있음을 확인했다. 실증적 연구에 따르면 임원 보수 한도는 임원에게 실제 지급할 보상 수준을 결정하는 기준점으로 사용되고 있어, 임원들은 미래의 높은 보상 수준을 정당화하기 위해 보수 한도를 조작할 유인을 가진다. 실제로 임원의 기회주의적 행동을 감시할 수 있는 이사회 독립성이 강한 기업은 성과에 따라 보수 한도를 탄력적으로 조정하는 반면, 이사회 독립성이 약한 기업은 좋은 성과에만 반응하여 보수 한도를 상향 조정하는 비대칭적 행태를 보이는 것으로 나타났다. 본 연구는 한국 기업 환경에서 임원 보수 한도가 수행하는 실재적인 역할에 대한 이해를 높임으로써 보수 한도의 유효성을 개선하기 위해서는 기업 내부의 감시 체계를 강화할 필요가 있음을 시사한다.

주요어: 한국 기업 임원 보수 한도, 임원 보수 한도, 임원 보수

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