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Subjectivity at Different Stages in the Contracting Process

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Abstract

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When considering the overall contracting process, subjectivity can be adopted in the contract design stage and/or the performance evaluation stage of the contracting process. By distinguishing between these two different contracting stages I shed light on the differential incentives for the inclusion of subjective performance measures at the different stages of the contracting process. My results show that in the contract design stage less subjective performance measures are included in the contract when the compensation committee is unlikely to formulate sufficient subjective assessments due to inadequate knowledge of the to-be-evaluated CEOs and when the level of trust between the compensation committee and the CEO is low. In the performance evaluation stage, after performance results based on objective measures are readily available, subjectivity tends to be used more as a potential tool to complement the predetermined contract. In particular, in cases where the predetermined contract did not assign high weights to objective performance measures that the CEO was able to significantly outperform, my analyses suggest that subjectivity was applied in order to account for such effects ex-post. My last set of hypotheses tries to investigate whether subjectivity is used as a potential tool for powerful CEOs to extract rent. Consistent with prior literature, the mere use of subjectivity in evaluating powerful CEOs does not lead to excess compensation. However, I find that powerful CEOs take advantage of performance evaluators' outcome biases and spillover effects from the determined performance results based on objective measures to extract greater amounts of compensation.

Keywords: Performance measurement; Subjectivity; Contract design; Performance evaluation; Rent extraction

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1. INTRODUCTION

This study examines the use of subjectivity in bonus contracts. Traditionally, a lot of firms mostly adopted observable financial performance measures such as profit or return in order to evaluate employees and management. However, acknowledging that these measures can be very noisy in capturing agents' efforts, an increasing number of firms have started to utilize non-financial and/or subjective performance measures as well. Accordingly, even though the main focus of the compensation contracting literature has been explicit compensation contracts, a growing number of papers also study the role of subjectivity in compensation contracts analytically (Baker et al. 1994, Baiman and Rajan 1995, Rajan and Reichelstein 2006, 2009) and empirically (Ittner et al. 2003, Gibbs et al. 2004, Murphy and Oyer 2003, Ederhof 2010, Hoeppe and Moers 2011).

Analytical models show that incentive distortions created by the objective performance measures can be complemented by using subjective performance measures and predict that compensation contracts based on both type of measures can result in better outcomes (Baker et al. 1994). Analytical research also shows that adopting subjectivity in the form of allocating bonus pools without explicitly defined predetermined performance measures can result in optimal contracting (Baiman and Rajan 1995, Rajan and Reichelstein 2006, 2009). Accordingly, the focus of empirical research mostly based on confidential data has been to verify the proposed determinants of the use of subjectivity in executive compensation contracts. Factors such as the importance of growth opportunities, strategic quality initiatives (Bushman et al. 1996, Ittner et al. 1997), environmental unpredictability and the noisiness of objective performance measures (Hoeppe and Moers 2011) have been identified as significant determinants to adopt subjectivity in executive compensation contracts.

Despite a number of empirical research that investigate the use of subjectivity, not many attempts have been made to shed light on the use of subjectivity at different stages in the contracting process. It is possible to distinguish between two significant stages in the contracting process: the contract design stage and the performance evaluation stage. In the contract design stage, the compensation committee is only confined to information that precedes the actual performance of the agent. Decisions regarding the choice of performance measures and weights placed on these measures can affect the compensation contract in the contract design stage. After determining the performance measures and their respective weights, the compensation committee can still affect the compensation contract by incorporating ex-post information on the performance of the agents. Subjectivity in the performance evaluation stage refers to such cases when the compensation committee chooses to apply additional subjective performance assessments after the agent's performance period. Therefore, when considering the overall contracting process, subjectivity can be adopted in the contract design stage and/or the performance evaluation stage of the contracting process.

My study is among the first to distinguish between different types of subjectivity depending on the different stages in the contracting process using hand-collected data from the 2010 proxy statements. I intend to shed light on the differential incentives of the compensation committee for the inclusion of subjective performance measures at the different stages of the contracting process. I find that the compensation committee is less likely to adopt subjectivity in designing the contract when it is unable to provide accurate performance assessments based on their knowledge of the CEO and when the level of trust between the compensation committee and the CEO is low. In contrast, in the performance evaluation stage following the agent's performance, subjectivity tends to be utilized as complements to objective measures.

Moreover, since subjectivity is largely based on non-verifiable personal judgments, subjective performance assessments are likely to be vulnerable for potential sources in the executive compensation contract to extract more rent. By investigating whether the level of compensation changes depending on the use of subjectivity in evaluating powerful CEOs, I try to provide insights into such debate. My findings indicate that powerful CEOs do not use subjectivity as a tool to extract more rents per se. However, if CEOs are able to induce favorable subjective assessments by outperformance on their objective measures, they are able to extract more rents by taking advantage of evaluators' outcome biases and spillover effects.

The next section summarizes the related prior literature followed by the hypotheses development in section 3. In Section 4, I describe the sample and measures used for empirical analyses. Section 5 presents the research design and discusses the empirical results. I conclude with section 6.

2. PRIOR LITERATURE

A bulk of research centers on the benefits and costs of subjectivity in performance evaluation. Benefits associated with the use of subjectivity in compensation contracts are well documented in prior works. A major advantage of using subjectivity is explained by agency theory. The optimal contract should be based on performance measures that capture the agents' efforts to the best extent possible and align the agents' performance to his/her compensation. Overemphasizing objective performance measures, however, has been criticized of ignoring unmeasured job dimensions, being contaminated by uncontrollable events and placing too much weight on short-term effects. Baker et al. (1994) show analytically that using subjectivity can provide additional information and can complement objective performance measures. Moreover, analytical research has also shown that subjectivity can improve incentive contracting by filtering out uncontrollable factors and thereby reduce the associated risk

(Holmstroem 1979; Banker and Datar 1989). Even though the use of subjectivity in compensation contracts may induce potential benefits, there are also some associated costs. The behavioral literature suggests that supervisors potentially engage in reneging, inaccurate performance assessments and are influenced by biases when applying subjectivity in compensation contracts (Bol 2008).

Another stream of literature on the use of subjectivity in compensation plans investigates the determinants of subjectivity use (Bushman et al. 1996, Gibbs et al. 2004). Most of these studies interpret subjectivity in a very general sense without accounting for the many different types of subjectivity and their respective use and performance effects. An exception is the study by Hoeppe and Moers (2011) who distinguish between different forms of subjectivity and show what type of subjectivity prevails for solving different kinds of contracting problems. In particular, they focus on (1) discretionary bonus – the ex-ante option to ex-post override a formula-based contract and (2) subjective incentive weights – the ex-ante absence of any formula in a contract. Thereby, however, they have disregarded another significant possibility by which firms incorporate subjective performance assessments of their executives – the use of subjective performance measures additional to the more traditional objective measures in the predetermined contract. Field-based studies highlight the multifaceted nature of subjectivity and that all three types of subjectivity may occur simultaneously (Ittner et al. 2003).

This study tries to present more detailed examinations of the use of subjectivity in performance measurement by proposing a framework that can meaningfully categorize these three different forms of subjectivity. Specifically, I distinguish between different forms of subjectivity by looking at the different stages in the contracting process. The overall contracting process can be divided into a contract design stage and a performance evaluation stage. The compensation committee can exert influence on the use of subjectivity prior to the agents' performance period by incorporating subjective performance evaluation properties in designing the contract. Subjective incentive weights (i.e. the absence of any formula in a contract) and the use of subjectivity in the form of qualitative performance measures belong to such types of subjectivity that the agent can expect ex-ante. In contrast, the compensation committee may also apply subjectivity in the form of discretionary bonuses after observing the agent's performance. Based on the predetermined contract, the agent, thus, does not expect any form of subjectivity ex-ante. My study is among the first to investigate the use of subjectivity in the different stages of the contracting process. In this study, I shed light on the differential incentives of the compensation committee for the inclusion of subjective performance measures at these different stages in the contracting process.

Moreover, since subjectivity is largely based on non-verifiable personal judgments, it is worthwhile to provide insights into whether subjectivity is indeed used as complementary measures to objective performance measures or as potential sources in the contract to extract more rent. Excessive executive compensation has been at the heart of public fury in the media, thereby associating executive compensation with corporate greed. Prior works have investigated the possibility that CEOs may be inclined to extract more compensation, especially when they have considerable power within the firm. Some studies indeed show that powerful CEOs are likely to use option grants as means to extract more rent (Bebchuk et al. 2008) and that CEO power is positively associated with excessive pay levels (Core et al. 1999). Another recent movement in the development of executive compensation practices is the quest for more forward-looking performance metrics such as nonfinancial and subjective measures in addition to the traditional objective measures. Even though the prior literature argues that subjectivity can complement the drawbacks of objective performance measures and predicts that compensation contracts based on both type of measures can result in better outcomes (Baker et al. 1994), this also suggests that these forward-looking performance metrics may create potential loopholes in the contract which powerful CEOs can effectively abuse for themselves to extract more rent. My last set of hypotheses try to provide insights into the debate whether subjectivity in executive compensation contracts is utilized as potential tools to extract excessive compensation and if so, under what circumstances.

3. HYPOTHESES DEVELOPMENT

3.1. Subjectivity in the Contract Design Stage

Agency problems arise whenever one party (shareholders) delegates decision-making authority or control over resources to another (management) (Jensen and Meckling 1976). In such an agency theory context, shareholder value is maximized (i.e. better firm performance is achieved) when the manager's interests are well aligned with that of shareholders. An optimal incentive alignment structure can only be accomplished when executive compensation plans are based on contracts with effective performance measures that can well align the executive's exerted efforts with the associated optimal level of compensation. Therefore, it is likely that the contract designers of executive compensation plans will try to choose a combination of performance measures in the contract that can best capture the executives' efforts. Contract designers have the choice to utilize objective performance measures that are easily verifiable and measureable and/or subjective performance measures that entails personal judgments by evaluators. However, objective performance measures have been frequently accused of being incomplete. Since the executive's actions and strategies are not observable directly, he/she also cannot be compensated directly for his input into the firm. Objective performance measures are limited in capturing managerial efforts adequately which can result in distorted incentives (Holmstroem and Milgrom 1991). Subjective performance evaluations can act as supplements by offering additional evaluations and judgments on the unobservable aspects of the executives' actions and strategies inadequately captured by the objective measures. The use of subjectivity can only provide a solution to such problem if subjective performance assessments provide incremental information regarding the agent's efforts. However, subjective performance assessments can only be informative if performance evaluators have sufficient knowledge of the executives they intend to evaluate in order to provide accurate evaluations on the unobserved executive's characteristics.

Moreover, the level of trust between the agent and the principal is a significant factor to be considered when using subjectivity in performance evaluations. The prior trust literature shows that the use of subjectivity in assigning awards can lead to greater pay satisfaction of the agent under conditions of high levels of trust (Gibbs et al. 2004). The benefit of using subjectivity in compensation contracts can only be maximized under conditions that there is an enforcing mechanism which ensures that principals do not have incentives to assess performance untruthfully (MacLeod and Malcomson 1989). Otherwise, the compensation contract will reduce incentives on the part of the agent due to their belief that principals may behave opportunistically and underreport the agents' true level of performance. A high level of trust between the agent and the principal may function as an enforcing mechanism for the overall compensation contract to retain its motivational value. Fisher et al. (2005) also show that discretion on the part of the principal allows for opportunism such that the agent's trust in the principal can affect agent effort. These literatures, thus, suggest that the level of trust between the agent and the principal can lead to more effective use of subjectivity. Accordingly, I expect that the compensation committee will refrain from adopting subjective performance measures in the contract when the level of trust is low.

Taken together, I hypothesize that more subjective performance measurement is adopted in compensation contracts when the directors of the compensation committee are able to formulate sufficient personal judgments of the CEOs they are supposed to assess and when the level of trust between them and the CEO to be evaluated is high. In case new CEOs are appointed, the compensation committee may not have had the sufficient opportunity to observe them and also the level of trust is likely to be low. Gibbons and Murphy (1992), for example, maintain that a board of directors may have little information about a new CEO's true ability, regardless of whether the new CEO was appointed from inside or outside the organization. The compensation committee is likely to be uncertain about the ability of a new CEO even if he/she was appointed from within the organization since the skills required to manage a corporation as a CEO are quite different from the skills required at lower levels in the organization. Thus, the use of subjectivity as specified in the contract should be negatively associated with the appointment of a new CEO. Since there is no theory that specifies how new and old CEOs should be defined based on CEO tenure, I utilize an indicator variable which captures whether a CEO was newly appointed in the respective fiscal year.

> H1: The use of subjectivity in the contract design stage is negatively associated with the appointment of a new CEO.

3.2. Subjectivity in the Performance Evaluation Stage

The choice to use subjectivity in the performance evaluation stage follows the agent's performance period and represents a discretionary tool to complement the predetermined contract in the contract design stage. This form of subjectivity is, therefore, more likely to be utilized as complementary measures to the potential drawbacks of objective performance measures as suggested in the prior literature. The reason is that subjectivity in the contract design stage is specified in the contract preceding the executives' performance and is, thus, a form of *ex-ante subjectivity*; contract designers have no choice but to depend on information pertaining to the pre-performance period of the agent so that they are likely to adopt subjectivity when its incremental benefits can be maximized. In contrast, subjectivity in the performance evaluation stage is not pre-specified in the contract; the decision to use this type of subjectivity rather follows the executives' performance and can, thus, be referred to as a form of *ex-post subjectivity*. This form of subjectivity provides the opportunity to complement the predetermined contract set in the contract design stage after the agent has exerted his/her level of performance. If subjectivity is utilized as a tool to complement the potentially incomplete and/or noisy objective measures, I hypothesize that the weight placed on objective performance measures in the predetermined compensation contract influences the decision to utilize subjectivity in the performance evaluation process. In particular, the use of *ex-post subjectivity* should be positively associated with the weight placed on objective measures since a compensation contract predominantly based on objective measures may be more vulnerable to the potential drawbacks of utilizing objective measures.

> H2a: The use of subjectivity in the performance evaluation stage is positively associated with the weight placed on objective performance measures as predetermined in the contract.

Moreover, in case the predetermined compensation contract assigned excessive weights on objective measures the CEO underperformed, I predict that the use of subjectivity increases in order to sufficiently account for the CEO's efforts. Gibbs et al (2004) show that the use of subjectivity is positively associated with the extent to which the achievability of the formula bonus target is both difficult and leads to significant consequences if not met. This suggests that the role of *ex-post subjectivity* involves the observation of the executive's performance and reflects some incremental performance measurement in excess of only depending on objective performance measures. In order for the compensation contract to retain its motivational value in cases of underperformance on the predetermined objective measures due to bad luck, the compensation committee may have incentives to additionally apply subjectivity in the performance evaluation stage following the agent's performance.

> H2b: The use of subjectivity in the performance evaluation stage is greater when CEOs underperformed the objective performance measures on which high weights were assigned in the predetermined contract.

3.3. Subjectivity as a Potential Tool for Rent Extraction

If compensation contracts are optimal, pay should be arranged as a solution to agency problems. Assuming that the ultimate goal is to maximize shareholder value, an optimal compensation contract should effectively measure executive performance by choosing metrics that can align the incentives of executives and shareholders. The level of compensation based on such an optimal compensation contract should appropriately reward the executives to induce further efforts. The managerial power approach deviates from the optimal contracting perspective in that executive compensation is regarded as the result of an agency problem rather than a solution to an agency problem. Powerful executives are able to extract "rents" – compensation in excess of that which they would receive under optimal contracting by using their power to influence the level and structure of their pay. Thus, CEOs are inclined to set their own level of compensation and the greater the CEO's power, the higher the rents will tend to be (Bebchuk et al. 2002). Subjectivity is prone to be utilized as an effective way for powerful CEOs to extract rents since it entails a lot of personal judgment and its correctness cannot be determined by a third party it. Powerful CEOs may exert their influence on the compensation committee to increase the use of subjectivity in order to magnify the benefits of receiving a better rating on the subjective component of performance measurement. These efforts may ultimately lead to a higher level of pay (i.e. rents). Thus, I obtain the following two hypotheses if subjectivity is used as a potential tool of powerful CEOs to extract more rent:

> H3a: The use of subjectivity is greater in firms where CEOs have considerable power.

> H3b: The level of compensation is greater in firms that use subjectivity and where CEOs have considerable power within the firm.

Especially under conditions of high levels of target achievement based on the predetermined objective measures, I expect that powerful CEOs will be more likely to extract rents. The reason is that an overachievement of target could induce additional favorable qualitative assessments of managements' performance. Such spillover effects have been extensively documented in prior literature (Bol and Smith 2011, Bond et al. 2007). Since the directors of the compensation committee can be subject to cognitive limitations and performance results based on objective measures are readily available before subjective ratings are determined, it is likely that they may unintentionally bias their subjective assessments to be consistent with the known level of performance based on the objective measures. Moreover, the behavioral literature proposes that evaluators are subject to "outcome biases" (Baron and Hershey 1988). Depending on whether the outcome is favorable or unfavorable, decision makers tend to evaluate the agents' performance in the direction of the outcome. Taking advantage of such a "spillover" and "outcome-bias" effect, powerful CEOs may be encouraged to increase their level of compensation through increased use of subjectivity especially when they performed well based on the objective measures.

> H3c: The level of compensation is greater in firms that use subjectivity, where CEOs have considerable power within the firm and exhibit a high level of target achievement.

4. SAMPLE SELECTION AND VARIABLE MEASUREMENT

The initial sample in this study consists of S&P 500 firms in 2010 for which SEC Proxy Statements (DEF 14a) were publicly available. I hand-collect data for the key variables of this study such as the different types of subjectivity and executive compensation contract-related information by reading each firm's proxy statement. Other data used in this study are obtained from the COMPUSTAT and EXECUCOMP databases.

Measuring Subjectivity

Subjectivity is a binary variable. Upon reading the proxy statement, I distinguish between three different types of subjectivity as shown in table 1 (Bol 2008). These three forms of subjectivity do not have to be mutually exclusive, implying that a firm may adopt multiple different types of subjectivity. Examples of the different types of subjectivity are provided in the appendix.

[INSERT TABLE 1 ABOUT HERE]

The first two types of subjectivity (i.e. subjective incentive weights and subjective performance measures) are categorized as subjectivity in the contract design stage. The CEO is aware of the fact that he/she will be evaluated based on some subjective component even prior to his/her performance period. I code a firm with 1 if it either belongs to one of these two types of subjectivity and refer to this form of subjectivity in the contract design stage as *SubCD*.

The last type of subjectivity (i.e. subjectivity ex-post) is categorized as subjectivity in the performance evaluation stage. The CEO is not aware that he/she will be evaluated based on some subjective component until the end of his/her performance period. I code a firm with 1 if it belongs to this last type of subjectivity and refer to this form of subjectivity in the performance evaluation stage as *SubPE*.

Measuring Weight and Achievement Rate of Performance Measures

I distinguish between objective/quantitative measures and subjective/qualitative measures of performance. Subjective measures of performance in this context belong to the second type of subjectivity as show in table 1. This distinction should not be confused with that between financial measures and nonfinancial measures of performance, even though they both overlap to a large extent. For example, firms that use return on assets, net operating profit or earnings per share as performance metrics rely on measures that are both objective and financial. However, firms that measure executive performance based on customer-based survey ratings use objective but nonfinancial performance measures. Proxy statements provide information about specified performance measures. I classify each performance measure into either "objective" or "subjective" performance measures and determine the weights placed on each of them whenever disclosed in the proxy statement.

Instead of assigning specific weights, some firms choose to rely on an incentive formula that assigns multipliers to each of the performance measures. In such cases, I calculate the weights as illustrated in the example below. Suppose a firm has an incentive formula as follows:

Target opportunity * Corporate Multiplier * Individual Multiplier

Assume that the Corporate Multiplier can maximally range up to 200% and the Individual Multiplier can maximally range up to 150%. In addition, assume that the Corporate Multiplier is measured based on EPS or profit (i.e. objective performance) whereas the Individual Multiplier is based on subjective performance evaluation. For calculation purposes, I set target opportunity at 100 and assumed maximum performance. Then, an agent compensated based on the above formula can earn a maximum of 300 (=100*200%*150%) whereby 200 (=100*200%) is based on the corporate portion. Expressed in weights, I obtain a weight of 2/3 (=200/300) on objective performance measures and 1/3 (=100/300) on subjective measures. By construction, the sum of the weights applied to objective measures and subjective measures add up to one. I, thus, only define the variable *Oweight* as the weight applied to objective performance measures in the compensation contract.

Proxy statements also provide information about the initial targets and actual results for each of the performance measures. I calculate the achievement rate of the objective performance measures (*Orate*) by dividing the actual achieved result by the initially set target. In case a firm uses several objective measures, I obtain the weighted achievement rate of the performance measures by multiplying the achievement rate with the weight assigned to each type of measure.

CEO Compensation

This study investigates the use of subjectivity based on short-term, cash-based incentive plans which comprise the non-equity component of annual compensation. Although annual bonuses comprise only a fraction of total compensation, it is the pay component most susceptible to meaningful discretion. Accordingly, compensation is equivalently referred to as non-equity compensation in this study (Nonequity).

Measuring CEO Power

I use CEO share holdings (CEOShare) as my measure for CEO power. Prior literature suggests that CEO share holdings is a relevant source of managerial power by showing its association with the level of compensation (Finkelstein and Hambrick 1989). This measure is expected to reflect the power and influence of the CEO in the organization in that CEOs with more share holdings are expected to have greater influence in the compensation-setting process.

Control Variables

Hoeppe and Moers (2011) acknowledge that the monitoring ability of firms may influence the use of subjectivity. Since subjectivity is by its very nature unverifiable, the accuracy of subjective performance evaluations may be questionable and may result in potential drawbacks of using subjectivity. Firms with better monitoring abilities are expected to provide more accurate subjective evaluations. I control for firms' monitoring ability using the number of directors in the committee (CommTotal), the average tenure of directors in the committee (CommTenure), the number of board meetings (BODMeet) and the number of busy directors in the committee, defined as directors in the committee with more than three directorships (CommBusy). I also control for firms' size using total assets (Assets).

Descriptive Statistics

Table 2 presents the descriptive statistics. Approximately 69% of the total sample base bonuses at least in part on subjective performance measurement. This hand-collected statistic is comparable to the study by Murphy and Oyer (2003) who report that 65% of their sample firms use non-financial measures of individual performance. Subjectivity in the contract design stage (*SubCD*) is prevalent in 43% of all sample firms whereas subjectivity in the performance evaluation stage (*SubPE*) is prevalent in slightly more than 40% of all sample firms. Firms place on average more than 80% weight on outcome-based performance measures indicating that objective measures with high goal congruence are favored by contract designers. Consistent with Merchant and Manzoni (1989), it seems that most firms set targets that are very likely to be achieved. The average total achievement rate of the objective outcome-based performance measures exceeds 109% of the initially set target. About 6.9% of all CEOs in the sample are newly appointed. The monitoring intensity variables show that my sample firms on average have a committee size of 3.7 with 2 busy directors. Each director on the committee has a tenure of 8 years. Moreover, the average meeting frequency of the board is about 8.5 times. I present the Pearson correlation matrix in table 3.

[INSERT TABLE 2 ABOUT HERE]

[INSERT TABLE 3 ABOUT HERE]

5. RESEARCH DESIGN AND EMPIRICAL RESULTS

5.1. Subjectivity in the Contract Design Stage

I estimate the following cross-sectional model using Probit analysis to investigate subjectivity in the contract design stage:

$$SubCD_i=\alpha_0+\alpha_1 CEOnew_i+\alpha_2 CEOShares_i+\alpha_3 CEOnew_i*CEOShares_i$$
$$+\alpha_4 CommTotal_i+\alpha_5 CommTenure_i+\alpha_6 BODMeet_i$$
$$+\alpha_7 CommBusy_i+\alpha_8 Size_i+\varepsilon_i \qquad (1)$$

The variables *CommTotal*, *CommTenure*, *BODMeet* and *CommBusy* control for the monitoring intensity. *CEOnew* is the key variable of interest in the regression equation to investigate H1. Table 4 presents the estimation results for equation (1). Consistent with H1, I find less subjectivity is incorporated into the compensation contract when CEOs are newly appointed. This result suggests that the compensation committee is less likely to formulate a contract based on subjective performance measures if it is unable to formulate sufficient personal judgments of the executives it is supposed to assess and if the level of trust is low.

[INSERT TABLE 4 ABOUT HERE]

5.2. Subjectivity in the Performance Evaluation Stage

The following cross-sectional regression model is estimated using Probit analysis in order to investigate the use of subjectivity in the performance evaluation stage:

$$
\begin{aligned}
SubPE_i &= \alpha_0+\alpha_1 Oweight_i+\alpha_2 Orate_i+\alpha_3 Oweight_i{*}Orate_i+\alpha_4 CEOnew_i \\
&+ \alpha_5 CEOshares_i+\alpha_6 CEOnew_i{*}CEOshares_i+\alpha_7 CommTotal_i \\
&+ \alpha_8 CommTenure_i+\alpha_9 BODMeet_i+\alpha_{10} CommBusy_i \\
&+ \alpha_{11} Size_i+\varepsilon_i \qquad (2)
\end{aligned}
$$

Table 5 presents the estimation results for equation (2). Consistent with H2a, I obtain a significantly positive coefficient on *Oweight*. This result implies that subjectivity in the performance evaluation process is likely to be utilized as a complementary measure for the objective performance measures predetermined in the contract. Excessive reliance on objective performance measures is subject to potential drawbacks. For instance, objective measures may be too noisy or they may not be able to account for uncontrollable events to accurately measure performance. Subjectivity is, thus, utilized as a tool to provide for possibilities that can refine these drawbacks of objective measures ex-post.

A significant and negative coefficient on the interaction term between *Oweight* and *Orate* yields support for H2b. Performance evaluators may have incentives to provide incremental performance assessment in excess of what was determined in the compensation contract before the performance period. Empirical support for H2b provides evidence that such incentives exist. If performance in excess of a preset target was not sufficiently rewarded due to minor weights placed on that performance measure, subjectivity following the performance period is utilized to potentially account for target overachievement.

[INSERT TABLE 5 ABOUT HERE]

5.3. Subjectivity as a Potential Tool for Rent Extraction

In order to investigate H3a, I run regression equation (1) and (2) including *CEOshares* as a measure for CEO power. If powerful CEOs increase the use of subjectivity to potentially utilize it as a means to extract more rents by inducing favorable subjective ratings, I expect a positive coefficient on *CEOshares* or the interaction term between *CEOshares* and *CEOnew*. Consistent with prior literature (Ederhof 2010), however, I do not obtain evidence that subjectivity is used more frequently in firms where the CEO has considerable power as shown in Table 4 and 5.

In order to investigate how the use of subjectivity affects the level of awarded compensation I use the following cross-sectional regression model:

$$Nonequity_i = \alpha_0 + \alpha_1 Sub_i + \alpha_2 Orate_i + \alpha_3 CEOshares_i + \alpha_4 Sub_i * Orate_i + \alpha_5 Orate_i * CEOshares_i + \alpha_6 Sub_i * CEOshares_i + \alpha_7 Sub_i * Orate_i * CEOshares_i + \alpha_8 Size_i + \varepsilon_i \quad (3)$$

Table 6 presents the estimated results of equation (3). The variable *Sub* in equation (3) either refers to subjectivity in the contract design stage (*SubCD*) or subjectivity in the performance evaluation stage (*SubPE*). Consistent with the bonus contract, the coefficient on *Orate* is significantly positive for both subjectivity variables. CEOs are able to earn a higher level of compensation if they exert efforts to improve their performance on the predefined objective performance measures in the contract. My results reveal evidence that neither the mere use of subjective performance measurement itself nor the level of CEO power biases the level of compensation. The insignificant result on the interaction term between the use of subjectivity and the level of CEO power (α_6) fails to support H3b and I do not obtain support for the rent extraction hypothesis when the mere use of subjectivity is considered in firms with powerful CEOs. This result is the same for both subjectivity variables.

However, the use of subjectivity and the level of CEO power can bias the level of compensation upward in case both are accompanied by superior performance based on the predetermined objective performance measures. Consistent with H3c, α_7 is significantly positive which suggests that powerful CEOs are able to utilize subjectivity as a tool to extract more rents only if they can benefit from the outcome biases of performance evaluators and the consequent spillover effects in the form of favorable subjective ratings. This result holds for *SubPE* which suggests that subjectivity in the performance evaluation stage is more vulnerable to be abused by powerful CEOs as potential tools to extract more rents. The fact that I obtain a significant positive coefficient for α_7 when considering *SubPE* but no such significant result when considering *SubCD* possibly confirms the nature of subjectivity in the performance evaluation stage to be used more as an adjusting measure to the predetermined contract.

[INSERT TABLE 6 ABOUT HERE]

6. SUMMARY AND CONCLUSION

Prior research has been devoted to studying the determinants of adopting subjective performance measurement within firms and documented on the advantages and disadvantages of using subjectivity in executive compensation contracts. These empirical and analytical works, however, have typically examined one element of subjectivity at a time and did not sufficiently analyze the different forms of subjectivity. Firms have the choice to use three different types of subjectivity which do not have to be mutually exclusive. This suggests that the nature of subjectivity is very complex and multifaceted since firms may adopt different forms of subjectivity simultaneously. This study intends to distinguish between the different types of subjectivity by focusing on the contracting process. The contracting process ranges from the period when the compensation contract is first designed to the period when the agent is awarded his/her compensation. From the agent's perspective, subjectivity can be either applied before or after he/she exerts performance. In other words, based on the contract, the agent may be aware ex-ante that he/she will be evaluated subjectively (the contract design stage) or only after he/she exerted performance (the performance evaluation stage). Accordingly, I try to shed light on the differential incentives of including subjectivity at different stages in the contracting process by distinguishing between subjectivity applied in the contract design stage and subjectivity applied in the performance evaluation stage.

My first hypothesis examines the use of subjectivity in the contract design stage of the contracting process. Since subjective performance assessments involve personal judgments about agents who are to be evaluated the compensation committee should be more inclined to use subjective performance measures in formulating the contract only if they have sufficient knowledge of the agent. In contrast, I hypothesize that subjectivity in the performance evaluation stage of the contracting process is influenced by the predetermined contract developed in the contract design stage of the contracting process. If the predetermined contract was designed to place high weights on objective performance measures, the compensation committee should be more inclined to adopt subjectivity ex-post in order to possibly complement the drawbacks of objective measures. Moreover, the compensation committee may find that the predetermined contract does not sufficiently account for the agent's efforts by assigning only minimal weights to objective performance measures that the agent was able to outperform. In such cases, subjectivity can be applied as an effective tool that can adjust the agent's compensation level accordingly. In my last set of hypotheses, I test whether subjectivity is associated with rent extraction of powerful CEOs. Even though the level of CEO power alone cannot significantly influence the level of compensation upward by using subjectivity, CEOs can take advantages of performance evaluator's outcome biases and spillover effects of their outperformance on objective measures to induce high subjective performance ratings leading to a greater level of compensation.

My empirical results are line with these expectations. Firms with newly appointed CEOs are likely to lower the use of subjectivity in the contract design stage. Moreover, the more weight is placed on objective performance measures in the predetermined contract, the more likely is the firm to use subjectivity in the performance evaluation stage. By hand-collecting data on the target achievement rate on the objective performance measures as predefined in the compensation contract, I also show that more subjectivity in the performance evaluation stage is used the lower the weights on the objective measures that the agent was able to outperform. Lastly, my results confirm the possibility that powerful CEOs are likely to use subjectivity as potential sources in the contract to extract more rents under conditions that they performed well based on the objective measures.

As with any empirical study, this study is subject to some limitations. I investigate the use of subjectivity at different stages in the contracting process hand-collecting data from the publicly available SEC proxy statements. Since there is no consistent reporting requirement for firms to comment on their compensation plans, especially to provide detailed instructions on how they compensate their executives, the coding scheme of my key variable of interest (subjectivity) may involve my personal subjective judgments. However, I refrained from obtaining help for collecting the necessary data for this study. Even though this resulted in a small number of observations, coding the key variables of interest only by myself ensured the consistency of my coding criteria for the different types of subjectivity.

Another limitation is the small sample size due to the difficulty to obtain the relevant data. I lose a lot of observations in the process of identifying the explicit weight and target achievement rates of objective performance as predefined in the contract. In cases when firms do not disclose their detailed performance measures, the weights, targets and actual results on each of the respective performance measures I am not able to calculate the variables *Oweight* and *Orate*. My overall sample may, thus, be subject to some sampling bias in that firms which choose to disclose their explicit contracts in the proxy statements can be fundamentally different from the firms that do not disclose the necessary information.

Lastly, I only examine the use of subjectivity at the different stages in the contracting process based on the CEO annual bonus contract. Considering the total amount of compensation (including stock and equity-based incentives) and differentiating between subjectivity applied to short-term bonuses and long-term bonuses may provide further areas of research.

Notwithstanding these limitations, this study contributes to the literature by providing evidence that the use of subjectivity in the contract design stage and the performance evaluation stage of the overall contracting process is subject to different incentives and purposes. Thereby, I try to shed more light on the complex and multifaceted nature of subjectivity which the prior literature fails to adequately account for. Moreover, prior works have failed to show the association between the use of subjectivity and CEO rent extraction. With this study, however, I show that the use of subjectivity in performance evaluations can function as potential means for powerful CEOs to extract more rents when taking into consideration the cognitive biases of performance evaluators. Therefore, this study has meaningful implications for contract designers and performance evaluators in practice as well.

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APPENDIX

1. Example of subjective incentive weights and subjectivity ex-post

Excerpt from **Vornado Realty Trust**'s 2010 proxy statement

We pay annual bonuses as a component of overall compensation as well as to provide an incentive and a reward for superior performance. From time to time, we may pay additional special bonuses for superior performance. None of our current bonuses are (and only in rare cases are any bonuses) based on specific performance targets. Bonuses are paid in cash and/or in equity interests, generally in the first quarter of each year for the prior year's performance. **These bonuses are based upon our evaluation of each executive's individual performance during the prior year in the context of our assessment of the overall performance of the Company and the executive's business unit or function in meeting the budgeted financial and other goals established for the Company and the executive's business unit or function. [SUBJECTIVE INCENTIVE WEIGHTS]… Special bonuses are generally awarded in recognition of outstanding achievement with regard to specific events based upon an after-the-fact subjective evaluation of factors then deemed important by our Chairman, our President and Chief Executive Officer and our Compensation Committee. [SUBJECTIVITY EX-POST]**

2. Example of subjective incentive weights in the form of bonus pool allocation

Excerpt from **Ameriprise Financial, Inc.**'s 2010 proxy statement

Determine the size of the total incentive pool

After the committee conducts its assessment of performance results, it considers the target total incentive pool, which is aligned with the median of the competitive market data and established with the assistance of the committee's independent consultant. The committee's assessment of the Company's performance will determine the extent to which the total incentive pool is funded below, at, or above target. For the named executive officers who are covered employees under

Section 162(m) of the Internal Revenue Code, the maximum amount that can be paid as an annual cash incentive award is limited. We explain how we seek to maintain the federal income tax deductibility of these awards beginning on page 48. There is no minimum funding level for the total incentive pool. Depending upon the committee's assessment of the Company's performance in the context of the year's operating environment, the committee may decide not to fund any components of the total incentive compensation pool for the named executive officers.

Allocate individual awards

Our chief executive officer discusses the performance of and recommends total direct compensation for each other named executive officer. The chief executive officer's performance assessment for each other named executive officer is based on these factors, among others, depending on the officer's job responsibilities: the officer's contribution to the Company's financial performance and strategic and business accomplishments; demonstrated leadership ability; adherence to ethical, legal, and regulatory standards of conduct; risk management skills; improvements in technology and service delivery; and the safety and soundness of the business or staff function's operating environment. None of these factors were assigned a specific target or weight in determining individual awards. Rather, the committee uses a holistic approach in considering these performance factors. Our chief executive officer gives the committee an overall performance assessment for each named executive officer that is based on the chief executive officer's observations and judgment of performance throughout the year. [SUBJECTIVE INCENTIVE WEIGHTS]

3. Example: subjective performance measures and subjectivity ex-post

Excerpt from **Goodrich Corporation**'s 2010 proxy statement

The Committee then reviews financial performance throughout the fiscal year and identifies any areas where further consideration and discussion are warranted. **The decision to exercise any discretionary adjustments regarding special items is reserved for year-end after the Committee reviews overall performance. [SUBJECTIVITY EX-POST]** The actual target financial performance levels and the threshold and maximums for the financial metrics for 2010 are set forth below.

Chief Executive Officer

Financial Metric	Percentage	Threshold	Target	Maximum
	Performance Levels			
Earnings Before Interest and Taxes	42.5%	$756.0	$945.0	$1,134.0
Free Cash Flow*	42.5%	$363.2	$484.2	$ 605.3
Team and Individual Goals	15.0%	–	–	–

…

In addition to the financial objectives used to determine the annual incentive plan payout, each participant is evaluated on the achievement of individual and team goals. These goals are typically non-financial such as execution of strategic initiatives, talent management and continuous improvement. The respective individual and team goals for the named executive officers are discussed, reviewed and approved by the Committee at the beginning of each year. The Chief Executive Officer provides written feedback to the Committee on the achievement of individual and team goals by each named executive officer, including himself. [SUBJECTIVE PERFORMANCE MEASURES with 15% allocated to subjective performance measurement]

TABLE 1
Types of Subjectivity

Type	Explanation	Subjectivity in the overall contracting process
Subjective incentive weights	i) No predetermined bonus plan, type and weights of measures are not pre-specified, entirely subjective ii) Allocating a pre-specified bonus pool based on assessment of individual performance	Subjectivity in the Contract Design Stage
Subjective performance measures	Subjectivity is explicitly specified in the bonus plan by assigning weights or multipliers to the subjective portion of performance evaluation	
Subjectivity ex-post	Predetermined bonus plan exists, but subjectivity is applied outside of the contract in the form of discretionary bonus payments or separate bonus plans for extraordinary achievements	Subjectivity in the Performance Evaluation Stage

TABLE 2
Descriptive Statistics

Variables[a]	N	Mean	Standard Deviation	Min	Q1	Median	Q3	Max
Subjectivity (*Sub*)	457	0.69	0.46	0	0	1	1	1
SubCD	457	0.43	0.50	0	0	0	1	1
SubPE	457	0.40	0.49	0	0	0	1	1
Compensation (*nonequity*)	457	2311	2340	0	993	1805	2874	19500
Contract Characteristics								
Oweight	364	0.81	0.22	0.22	0.67	0.85	1	1
Orate	279	1.35	1.24	0.58	1.03	1.10	1.31	17.362
CEO Characteristics								
CEOshares	411	0.01	0.02	0	0.00	0.00	0.01	0.1521
CEOnew	423	0.07	0.25	0	0	0	0	1
Monitoring Intensity								
CommTotal	417	3.69	1.23	1	3	4	4	8
CommTenure	417	8.11	4.01	0	5.25	4.6	10	28.67
BODMeet	418	8.49	3.92	0	6	8	10	53
CommBusy	417	2.03	0.61	1	1.6	2	2.4	4.5
Size (*Assets*)	425	43889	142429	1121	6204	13282	32545	2117605

a. Variable Definitions

SubCD =	1 if firm either uses subjective incentive weights or subjective performance measures (refer to Table 1 for detailed definitions of the types of subjectivity), and 0 otherwise
SubPE =	1 if firm uses subjectivity ex-post (refer to Table 1 for detailed definitions of the types of subjectivity), and 0 otherwise
Sub =	1 if firm uses at least one of the three types of subjectivity (refer to Table 1 for detailed definitions of the types of subjectivity), and 0 otherwise
nonequity =	Non-equity component of CEO's annual compensation
Oweight =	Weight that is placed on objective performance measures as defined in the executive compensation contract
Orate =	(actual result)/(target) weighted by the respective weights assigned to each objective measure used in the executive compensation contract
CEOshares=	Percentage of CEO owned outstanding shares

CEOnew =	1 if CEO is newly appointed during the fiscal year, and 0 otherwise
CommTotal=	the number of directors in the committee
CommTenure=	the average tenure of directors in the committee
BODMeet =	the number of board meetings
CommBusy=	the number of busy directors in the committee, defined as directors in the committee with more than three directorships
Assets =	total assets

TABLE 3
Pearson Correlation Matrix

	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	*(12)*	*(13)*
(1) Sub	1												
(2) SubCD	0.63***	1											
(3) SubPE	0.55***	-0.02	1										
(4) nonequity	-0.06	-0.05	-0.07	1									
(5) oweight	-0.41***	-0.61***	0.10**	0.04	1								
(6) orate	0.005	-0.07	0.06	0.20***	-0.01	1							
(7) CEOshares	-0.04	-0.008	0.01	-0.02	0.08	-0.02	1						
(8) CEOnew	0.04	-0.03	0.08	-0.02	-0.03	0.22***	-0.08	1					
(9) CommTotal	0.07	-0.03	0.12**	0.09*	0.04	-0.01	-0.06	-0.01	1				
(10)CommTenure	0.05	-0.00	0.08*	-0.03	0.10*	-0.09	0.10**	-0.07	0.03	1			
(11) BODMeet	0.17***	0.15***	0.06	0.02	-0.16***	-0.006	-0.10**	0.22***	-0.02	-0.05	1		
(12) CommBusy	-0.07	-0.03	-0.03	0.07	0.11*	0.02	0.01	0.06	0.22***	-0.12**	0.004	1	
(13) Assets	0.09**	0.14***	0.10**	-0.006	-0.09	-0.002	-0.06	0.04	0.09*	-0.007	0.24***	0.06	1

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

TABLE 4
Subjectivity in the Contract Design Stage

Independent Variables	Predicted Sign	Coefficient (p-value)
CEOnew	-	-0.6679* (0.0709)
CEOshares	+	1.1062 (0.7554)
*CEOnew*CEOShares*	+	221.1533 (0.1818)
CommTotal		-0.0210* (0.6962)
CommTenure		-0.0025 (0.8793)
BODMeet		0.0511** (0.0143)
CommBusy		-0.1040 (0.3576)
Assets		0.0000** (0.0269)
Intercept		-0.2988 (0.4063)
Number of Observations		401

P-values are reported in parentheses under each estimated coefficient. 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 5
Subjectivity in the Performance Evaluation Stage

Independent Variables	Predicted Sign	Coefficient (p-value)
Oweight	+	2.2599** (0.0424)
Orate		1.1307* (0.0723)
*Oweight*Orate*	-	-1.4040* (0.0901)
CEOnew		0.7258 (0.1119)
CEOshares	+	0.8345 (0.8693)
*CEOnew*CEOshares*	+	-214.6070 (0.4788)
CommTotal		0.2188*** (0.0092)
CommTenure		0.0292 (0.2261)
BODMeet		0.0225 (0.4738)
CommBusy		-0.3320** (0.0378)
Assets		-0.0000 (0.5704)
Intercept		-2.8367*** (0.0039)
Number of Observations		230

P-values are reported in parentheses under each estimated coefficient. 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
Subjectivity and Compensation

Independent Variables	Predicted Sign	Coefficient (p-value)	
		SubCD	*SubPE*
Subjectivity *(SubCD* or *SubPE)*		-318.4483 (0.6697)	84.3625 (0.8377)
Orate	+	260.8105** (0.0142)	482.8032** (0.0198)
CEOShares		-37414.9113 (0.3840)	-8099.9061 (0.8584)
*Subjectivity*Orate*		406.0847 (0.4606)	-332.7110 (0.1620)
*Orate*CEOShares*		28327.4797 (0.4125)	-2960.8787 (0.9304)
*Subjectivity*CEOShares*	+	54706.5888 (0.5612)	-115163.5541 (0.1364)
*Subjectivity*Orate *CEOShares*	+	-40793.7498 (0.5454)	122133.6435* (0.0516)
Assets		0.0039* (0.0727)	0.0038* (0.0767)
Intercept		1879.5412*** (<.0001)	1783.2471*** (<.0001)
Number of Observations		250	250
R^2		0.0603	0.0931

P-values are reported in parentheses under each estimated coefficient. 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

주관적 성과평가는 대리인의 성과를 관측하기 이전인 계약체결 단계 또는 대리인의 성과가 관측 가능한 평가 단계에서 각기 도입 가능하다. 본 연구는 성과평가 과정을 계약체결 단계와 성과평가 단계로 구분하고 각 단계에서 주관적 성과평가요소가 사용될 유인을 알아보는데 목적을 두었다. 본 연구결과에 의하면, 계약체결 단계에서는 대리인에 대한 사전 지식수준이 낮거나 대리인과 주인 간의 신뢰수준이 낮을 때 주관적 성과평가요소들을 계약상 덜 반영하는 것으로 나타났다. 반면, 성과평가 단계에서는 객관적 지표의 사용정도와 이러한 객관적 지표들을 이용해 관측가능한 대리인의 성과달성정도가 추후 주관성 사용여부에 중요한 영향을 미치는 것으로 나타났다. 객관적 지표의 비중이 높은 계약을 체결 할수록 성과평가 단계에서는 주관적 성과평가요소들을 더 많이 적용하는 것으로 나타났다. 이는 사전 계약이 지나치게 객관적 지표들에만 의존할 경우 이로 인한 문제점들을 주관적 성과평가요소들을 적용함으로써 보완하려는 노력으로 해석할 수 있다. 또한 객관적 지표들에 의한 대리인의 성과달성정도가 낮을수록 추후 주관성을 더 사용하는 것으로 확인되었는데, 이는 계약상 사용된 객관적 지표들이 대리인의 성과를 과소평가함으로 인해 대리인의 동기부여를 저하시키지 않도록 주인들은 주관적 성과평가요소를 더 반영할 유인이 있는 것으로 해석된다. 마지막으로, 주관적 성과평가요소들은 검증하기 어려우므로 기업내에서 영향력이 큰 대리인으로부터 악용될 가능성이 높다. 사전 연구와 마찬가지로, 본 연구결과에 의하면 영향력이 큰 대리인들이 주관적 성과평가요소를 더 많이 쓰고 이로 인해 더 많은 보상을 받게 된다는 결론은 얻지 못하

였다. 하지만, 대리인의 성과달성여부를 고려하면 성과달성정도가 높고 주관적 성과평가요소를 사용할 경우 영향력이 큰 대리인들이 더 많은 보상을 받는 것으로 나타났다. 이는 높은 성과달성정도가 긍정적인 주관적 성과평가로 이어지는 스필오버 효과로 나타나고 있을 가능성을 시사한다.

주요어: 주관적 성과평가; 주관성; 계약체결; 성과평가
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