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on empirical findings

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Abstract

This thesis presents a literature review on the empirical studies which have been conducted in the field of subjective performance evaluation. As subjective performance evaluation is a broad field of study this work focuses on the determinants of the use and the effects of discretionary assessments. The theoretical background, the underlying hypotheses and the findings are presented based on the works of several authors. When there are multiple empirical results for the same hypothesis, the findings are compared to each other. On the one hand, coherent results validate the underlying assumptions so that general implications for the use and the effects of subjective performance evaluation can be derived. Contradictory findings, on the other hand, show that the hypothesis might be flawed and that, depending on the research setting and the sample, different results can be obtained.

Diese Diplomarbeit ist eine Literaturübersicht der bisherigen empirischen Studien zu dem Thema subjektive Entlohnung. Da das Themengebiet der subjektiven Leistungsbewertung sehr weit gefasst ist, konzentriert sich die vorliegende Arbeit auf die Anwendungen und Auswirkungen der subjektiven Entlohnung. Basierend auf den Werken diverser Autoren werden der theoretische Hintergrund, die zu Grunde liegenden Hypothesen und die Forschungsergebnisse präsentiert. Wenn für eine Hypothese mehrere empirische Resultate vorliegen, werden die Ergebnisse miteinander verglichen. Auf der einen Seite bestätigen übereinstimmende Forschungsergebnisse die Hypothesen. Daher können allgemein gültige Schlussfolgerungen über die Anwendung und die Auswirkungen von subjektiver Leistungsbewertung getroffen werden. Auf der anderen Seite, zeigen widersprüchliche Resultate, dass die Hypothesen möglicherweise fehlerhaft sind und dass, je nach dem Aufbau der Studie und der verwendeten Daten, verschiedene Ergebnisse erzielt werden.

Contents

1.	Introduction	1
2.	Definition of subjective performance evaluation	2
3.	Where/when to apply subjective performance evaluation.....	3
3.1.	Mitigation of distortions	5
3.1.1.	Narrow objective performance measures	6
3.1.1.1.	Interdependencies	9
3.1.1.2.	Long-term incentives.....	11
3.1.2.	Broad objective performance measures.....	14
3.2.	Risk reduction.....	14
3.2.1.	Controllable and uncontrollable risk	18
3.2.2.	Difficulty to meet the target	19
3.2.3.	Operating in loss conditions	20
3.2.4.	Risk and CEOs	20
3.3.	Limitation of manipulation.....	21
3.4.	Limited knowledge of the principal	23
3.5.	Influence activities	25
3.6.	Personal relationships.....	26
4.	Effects of subjective performance evaluation	26
4.1.	Reneging.....	27
4.2.	Inaccurate performance measures	28
4.2.1.1.	Leniency Bias	31
4.2.1.2.	Centrality bias.....	35
4.2.1.3.	Favoritism.....	38
4.3.	The importance of trust	39
5.	Discussion	40
5.1.	Comparability of studies.....	40
5.2.	Coherent findings	42
5.3.	Contradicting findings.....	43

6.	Conclusion.....	47
7.	Extended bibliography	48
7.1.	Bol, 2007	48
7.2.	Gibbs, Merchant, Van der Stede, and Vargus, 2004	49
7.3.	Höppe and Moers, 2007	52
7.4.	Murphy and Oyer, 2003	53
7.5.	Woods, 2008.....	54
8.	Bibliography.....	57

Index of tables

Table 1: Composition of incentive contracts.....	4
Table 2: Completeness and use of subjective performance evaluations	7
Table 3: Weights of bonuses based on business segments.....	10
Table 4: Weights of bonuses based on industries.....	10
Table 5: Manipulability and the use of subjective performance evaluation.....	22
Table 6: Manipulability and the size of subjective performance evaluation.....	22
Table 7: Determinants of leniency bias	33
Table 8: Performance effects of leniency bias	35
Table 9: Determinants of centrality bias	36
Table 10: Performance effects of centrality bias.....	38
Table 11: Variables for risk and their correlation	44
Table 12: Bol hypotheses and findings	49
Table 13: Gibbs, Merchant, Van der Stede, and Vargus hypotheses and findings.....	50
Table 14: Höppe and Moers hypotheses and findings.....	53
Table 15: Murphy and Oyer hypotheses and findings.....	54
Table 16: Woods hypotheses and findings.....	55

1. Introduction

The whole concept of performance evaluation is based on the notion that the principal has to offer a compensation to get an agent to work. To determine the right amount of payment, the principal needs to evaluate the work of the agent. This assessment and the consequential remuneration can be derived from objective, formula-based contracts. Objective numbers are widely used because they are fairly easy to measure once the compensation contract is set up. However, objective evaluation has its pitfalls.

Research shows that performance measures are poor if they are “(a) not sensitive to manager actions, (b) not congruent with organizational objectives, (c) noisy, (d) incomplete, (e) not verifiable, and (f) manipulable.”¹ Objective measures can be all that. The more deficient they are, the more sense it makes to evaluate the agent’s actions subjectively. In fact, Baker, Jensen, and Murphy state that the “performance in most jobs cannot be measured objectively because joint production and unobservability mean that individual output is not readily quantifiable.”²

The notion of using subjective performance evaluation seems to be odd at first glance. Several authors have shown that subjectivity is an important component of incentive contracts.³ The subjective bonuses, which are also called discretionary, are crucial elements of implicit compensation contracts. Subjectivity also plays a major role when it comes to “promotions, job assignments and the threat of termination.”⁴

The above shows that the field of subjective performance evaluation is important in practice as objective assessments are prone to errors. Up until now, various authors have dealt with the topic. This thesis gives a literature review on their findings and focuses on the empirical studies which examine the use and the effects of subjective performance evaluation. The theoretical background, the hypotheses and the empirical results are presented and discussed. Findings which are based on the same hypothesis are compared. Coinciding as well as conflicting deliverables are looked at in detail to find common implications for the use and the effects of subjective performance evaluation.

The remainder of the thesis is organized as follows. In section 3, I will introduce studies that show under which circumstances subjective performance evaluation is used. In section 4, the effects of discretionary assessments will be discussed. In section 5, the comparability of the studies and the

¹ Woods, 2008, p. 7

² Baker, Jensen, & Murphy, 1988, p. 597

³ Prendergast, 1999

⁴ Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 2

findings will be examined, chapter 6 concludes. Before the analysis begins, I will introduce definitions of subjective performance evaluation and the context they are used in.

2. Definition of subjective performance evaluation

Even though there are many studies dealing with the topic of subjective performance evaluation, there is no universally valid definition of subjective assessments. Listed below are some of the definitions used by the authors covered in this thesis.

- Höppe and Moers define subjective evaluation as assessments where the bonus is not based on a mathematical formula and the principal can change bonuses by her⁵ sole discretion.⁶
- For Prendergast “a subjective measure is anything that is not verifiable to a third party.”⁷
- Gibbs M. , Merchant, Van der Stede, and Vargus state that discretionary bonuses are determined by the principal’s judgement.⁸
- Hayes and Schaefer state that subjective performance evaluation is only observable to the contracting principal and the agent.⁹
- Chow and Van der Stede define subjective performance measures as “nonfinancial measures that are derived from subjective judgment.”¹⁰
- Moers defines subjective performance measures as “superior’s subjective judgments about qualitative performance indicators.”¹¹
- Murphy and Oyer test for the amount of discretion, the ratio between subjective and objective assessments. They state that subjective ratings are based on the principal’s ex post assessment of performance.¹² While objective performance measures are observable and verifiable, and thus enforceable in courts, subjective performance measures can only be observed by the principal and cannot be verified by third parties.¹³
- Bushman, Indjejikian, and Smith¹⁴ base their study on individual performance measures, as opposed to firm-wide financial measures, and assume that the individual evaluation is highly subjective.

⁵ To facilitate the understanding of pronouns the principal will be referred to as she while the agent will be denoted by he.

⁶ Höppe & Moers, 2007

⁷ Prendergast, 1999, p. 12

⁸ Gibbs, Merchant, Van der Stede, & Vargus, 2009

⁹ Hayes & Schaefer, 2000

¹⁰ Chow & Van der Stede, 2006, p. 2

¹¹ Moers, 2005

¹² Murphy & Oyer, 2003

¹³ Murphy & Oyer, 2003

¹⁴ Bushman, Indjejikian, & Smith, 1996

- Woods says that there are three forms of subjective performance evaluations: “individual performance evaluations, discretion in weighting objective performance measures, and paying bonuses based on factors other than the objective measures specified in managers’ bonus contracts.”¹⁵

Combining all these definitions the following common characteristics stand out. Subjective performance evaluation

- is based on the subjective perception of the principal,
- is made ex post,
- is observable only to the contracting principal and agent,
- cannot be checked by a third party, and
- is not court enforceable.

3. Where/when to apply subjective performance evaluation

During the contract design stage, principal and agent have to agree on how the agent will be compensated for his work. The terms of the evaluation process and the performance measures which will be used to assess the work of the agent need to be negotiated and identified.

In general, incentive contracts are divided into a base salary, a formula bonus, and a discretionary bonus. The base salary will be given to the agent in any case. The bonuses depend on the performance of the employee during a given period of time. “Formula bonuses are based on quantitative performance measures”¹⁶ while discretionary bonuses depend on the principal’s subjective assessment.

During their study, Gibbs, Merchant, Van der Stede, and Vargus¹⁷ find out that the distribution between the different components of incentive contracts is the following: Base salary accounts for 49.80%, formula bonus for 36.17%. and discretionary bonus for 4.17%^{18, 19}. As shown in the table below, 23.14% of all respective managers received a bonus based on subjective performance evaluation.

¹⁵ Woods, 2008, p. 6

¹⁶ Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 22

¹⁷ Gibbs, Merchant, Van der Stede, & Vargus, 2004

¹⁸ This number includes instances of zero bonuses, for the managers which receive a subjective bonus, the average percent of total compensation is 18.01.

¹⁹ The percentage amounts displayed here do not add up to 100%, these are the numbers given by the authors. I assume that some kind of rounding error occurred.

Table 1: Composition of incentive contracts²⁰

	Base salary	Formula bonus	Discretionary bonus
Percent of managers receiving	84.90	66.27	23.14
Average percent of compensation	49.80	36.17	4.17

These findings on the occurrence of subjective performance evaluations are consistent with those of prior studies. Gibbs, for example, finds out that in his sample of middle managers 25% received a discretionary bonus and that this bonus made up 12% of the total compensation.²¹

Subjective performance evaluation is also used for the assessment of CEOs. One example for an empirical proof is the study conducted by Hayes and Schaefer who state that “boards of directors use information that is not available to those outside the relationship as part of an implicit incentive compensation contract”²² for the CEO. Looking at incentive contracts for CEOs, Bushman, Indjejikian, and Smith discover that 35% received individual performance bonuses which are believed to be discretionary.²³

Chow and Van der Stede²⁴ find that, in their sample of manufacturing managers, financial performance measures account for 49%, non-financial for 30% and subjective for 21% of the incentive plan.

In accordance with these findings, Prendergast states that “most workers are evaluated on subjective criteria, where firms choose how to evaluate and how to pay based on those evaluations.”²⁵

Knowing that the use of subjective performance evaluations is common in practice, it is questionable under which circumstances subjectivity will be used. Depending on the prevailing settings of the environment, the use of subjective performance measures is preferable over objective measures in some cases, while in others it is not. In the following subsections, I will present empirical findings which show under which conditions subjective performance evaluations are integrated in compensation contracts.

²⁰ Based on Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 22, Table 1

²¹ Gibbs, 1995

²² Hayes & Schaefer, 2000

²³ Bushman, Indjejikian, & Smith, 1996

²⁴ Chow & Van der Stede, 2006

²⁵ Prendergast, 1999, p. 11

3.1. Mitigation of distortions

Compensation contracts are used to set incentives for the agent who performs an action for the principal. The supervisor wants the employee to act in a way that maximizes the outcome for the principal. Thus, incentive contracts should remunerate all dimensions of a job which are important in obtaining the optimal outcome for the principal. To achieve goal congruence between the supervisor and the employee, all crucial job aspects should be weighted properly according to their importance to balance the efforts of the agent.²⁶

The proper weighting of incentives can be achieved through the right weight allocation of objective performance measures. However, this is extremely hard to accomplish due to the fact that objective performance measures are commonly based on quantitative accounting numbers which are incomplete. Furthermore, it “is difficult to specify all aspects of workers' jobs in an explicit contract.”²⁷

In most cases, objective performance evaluation is either (1) too narrow or (2) too broad to capture the true contribution of the agent to the firm value.²⁸

1. If objective performance assessments are too narrow, they fail to capture all dimensions which are under the control of the agent.²⁹ This means that the agent is not rewarded for all aspects of his work. As a consequence, he will not perform these unrewarded actions any longer and will concentrate solely on actions which are remunerated. Whether these actions lead to the desired goal of the principal, which is to maximize her outcome, is negligible.
2. When objective performance evaluation is too broad, it includes aspects that influence the outcome of the agent's work which are beyond the control of the employee. These uncontrollables can be, for example, external influences such as the economic development of the industry or the actions of the agent's colleagues. As the performance measures cannot be controlled by the agent, he will not try to exert the highest effort. This will lessen the outcome for the principal.

In both cases, the agent will not work as hard as he could, which results in a reduction of the principal's profit. This effect is called distorted incentives, since the deployed performance measures do not induce the desired behavior but instead lead to unwanted actions.³⁰ In order to avoid distortion, the selection of objective performance measures has to be conducted thoroughly and the weighting needs to be elaborate. Finding the adequate implementation is almost impossible since objective

²⁶ Holmström, 1979 and Gibbs, Merchant, Van der Stede, & Vargus, 2004

²⁷ Prendergast, 1999, p. 9

²⁸ Murphy & Oyer, 2003

²⁹ Holmström & Milgrom, 1991

³⁰ Bol, 2008

performance measures are mostly expressed in numbers which can only capture certain aspects of a job.

Subjective performance evaluation, which includes the effort the agent exerts or the creativity of his actions, can help to mitigate the distortions of objective measures.³¹ Hayes and Schaefer support this notion by stating that implicit contracts, which are prone to subjectivity, will be used if some of the agent's actions cannot be captured through objective performance measures.³²

Based on the concept that performance measures are congruent when the agent's action to increase the measure also augments the principal's utility, Woods argues that subjective adjustments to objective performance measures will be less likely when the objective measure is thought to be congruent.³³ The empirical analysis of his sample shows that no significant correlation between congruence and the use of subjective performance evaluation can be found. Woods explains his findings by stating that the ability to fulfill organizational goals cannot be determined by less knowledgeable principals.

Despite this, similar studies show that other distinct measures of goal congruity do influence the occurrence of subjective performance evaluations. In the next sections I will present specific scenarios where the use of objective performance measures leads to incentive distortions, which can be mitigated by the introduction of subjective performance measures.

3.1.1. Narrow objective performance measures

When objective performance measures fail to capture the whole spectrum of actions, some dimensions are not rewarded and the agent will focus on the dimensions of the job that are incorporated in the compensation contract.³⁴ Being too narrow, these objective measures do not provide strong incentives; therefore, distorted incentives are induced.

Using subjective performance evaluation, the agent's actions, which cannot be easily captured through objective performance measures, can be included in the assessment to create a more holistic picture of the employee's efforts. As a consequence, the agent will not only focus on the objectively measurable aspects of his job.³⁵

In this case, the introduction of subjectivity is beneficial because it mitigates distortions in the incentive contract and thus enables better incentives. This effect has been investigated analytically by

³¹ Bol, 2008 and Gibbs, Merchant, Van der Stede, & Vargus, 2004

³² Hayes & Schaefer, 2000

³³ Woods, 2008

³⁴ Holmström & Milgrom, 1991

³⁵ Gibbs, Merchant, Van der Stede, & Vargus, 2004

Baker, Gibbons, and Murphy³⁶ as well as Budde³⁷ who show that incorporating subjective performance measures can improve compensation contracts.

In their empirical study, Gibbs, Merchant, Van der Stede, and Vargus follow the same thoughts and hypothesize that “the use of subjectivity in the assignment of rewards will be negatively related to formula bonus completeness.”³⁸ The completeness of formula bonuses was approximated by the number of objective measures used assuming that the more there are, the more complete the objective evaluation will be. Trying to find the correlation between formula and discretionary bonuses, the authors find that in the absence of a formula bonus, subjective bonuses account for 13% of total compensation while they only make up 3% if an objective performance measure is used as well.

The analysis of their entire sample shows that their measure for formula-based contract completeness is not correlated to the use of subjective performance evaluations. When the sample is divided into service and sales departments, the regression shows that subjective bonuses in the service departments are interrelated with objective bonus completeness.

Table 2: Completeness and use of subjective performance evaluations³⁹

Independent variable	Discretionary bonuses in all departments	Discretionary bonuses in service departments	Discretionary bonuses in sales departments
Number of formula bonuses (measure for objective bonus completeness)	no correlation	negative correlation*	no correlation

* statistical significance at 10%

Gibbs, Merchant, Van der Stede, and Vargus argue that jobs in the sales departments include less tasks which are difficult to measure objectively. Therefore, the completeness of objective performance appraisals is not a problem in the sales department and, thus, there is no correlation in this case. In the service departments, job aspects like customer satisfaction and the quality of services can hardly be evaluated through formula bonuses. Here, objective measures are more incomplete. Following this rationale, Gibbs, Merchant, Van der Stede, and Vargus come to the conclusion that “subjective bonuses are used to mitigate formula bonus distortions caused by incompleteness.”⁴⁰

³⁶ Baker, Gibbons, & Murphy, 1994

³⁷ Budde, 2007

³⁸ Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 4

³⁹ Based on Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 30, Table 5

⁴⁰ Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 14

Gibbs, Merchant, Van der Stede, and Vargus study both, the use and the size of subjective bonuses, to determine their influence. After running a Tobit test, they show that the size of the discretionary bonus is not related to the number of formula bonuses.

The context between completeness and the application of subjective performance evaluation is not entirely cleared by Gibbs, Merchant, Van der Stede, and Vargus, therefore, I will introduce other authors who investigate the same context.

Woods argues that the subjective adjustments to objective performance measures are more likely to occur when the objective numbers are incomplete.⁴¹ His Probit regression shows that this concept is valid as the expected negative correlation is proven (-0.393, statistical significance at 1%).⁴²

Murphy and Oyer⁴³ argue that the mitigation of distortion in objective measures can be reached by introducing subjective evaluation or by tying pay to objective market-based measures of shareholder value. In this case, market-based measures are an alternative, since stock-based compensation induces non-distortionary incentives to increase firm value. Privately held companies do not have market-based measures of shareholder value, consequentially they rely more heavily on subjective performance measures. This leads to the hypothesis that “bonuses will be more discretionary (that is, the relative weight on subjective vs. objective performance measures will be higher) in privately held companies than in publicly held corporations.”⁴⁴

Evaluating their sample of 280 bonus plans, Murphy and Oyer empirically show that the use of individual performance appraisals, which are assumed to be largely subjective, is significantly higher in privately held firms (75%) than in publicly traded enterprises (62%). Privately held companies, that have no objective means to mitigate distortions, use subjective performance evaluation to induce more accurate incentives. In fact, bonuses of CEOs in private firms are 11% more often based on subjective measures than bonuses of chief executive officers in public enterprises.

⁴¹ Woods, 2008

⁴² Because the hypothesis about completeness is tested in combination with the theory concerning verifiability the coefficient is the same.

⁴³ Murphy & Oyer, 2003

⁴⁴ Murphy & Oyer, 2003, p. 10

3.1.1.1. Interdependencies

A special pitfall of objective performance evaluation is that it can hardly display the effects of interdependencies in firms. Either it is too narrow and solely focuses on the isolated task of one agent which will cause him to maximize his own profit even if other business units are harmed and the overall firm value is decreased. Or objective performance measures are set so broad that they capture the whole firm, leaving the agent with a lot of uncontrollable influences, such as the actions of the other business units. Again, discretionary evaluation, which holds the agent accountable for all his actions but not for those of others, is believed to alleviate the problem. The underlying consensus exists that the more interdependencies there are the more likely subjective performance evaluation will be used.

Gibbs, Merchant, Van der Stede, and Vargus argue that “the use of subjectivity in the assignment of rewards will be positively related to the extent of organizational interdependencies.”⁴⁵ In order to measure the interdependencies, the authors measure the “percentage of time department managers spend interacting with managers in other departments”⁴⁶, which seems to be a vague approximation to capture the networks in a firm.

Their analysis shows that there is a positive correlation between organizational interdependencies and the use of subjective performance measures (0.021, statistical significance at 5%). Gibbs, Merchant, Van der Stede, and Vargus interpret this fact in two ways. Firstly, subjective performance measures are used to increase and remunerate cooperation between business departments. Secondly, the introduction of subjectivity shields agents from the uncontrollable influences of other departments. Looking at the determinants for the size of discretionary bonuses they find a positive correlation which is very weak and not significant for the total sample.

The above findings suggest that subjective performance evaluation captures interdependencies better than objective performance evaluation, as the individual efforts and the actions undertaken to help or harm other units can be detected when performing subjective appraisals. Thus, subjective performance measures should be used in enterprises with vertical and horizontal interdependencies, while objective measures should be used in firms with relatively autonomous business units.

Murphy and Oyer⁴⁷ empirically test this notion by dividing their sample into firms operating in a single segment/industry or in multi-segments/industries. Data from the Annual Incentive Plan Design Survey 1997 conducted by the consulting firm Towers Perin is used and matched with Compustat

⁴⁵ Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 5

⁴⁶ Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 26

⁴⁷ Murphy & Oyer, 2003

Business Segment files to determine the number of the enterprises' business segments and industries. According to these classifications, the percentage of the executives' bonuses based on corporate, unit and individual performance was determined. Murphy and Oyer presume that individual performance appraisals are "subjective assessments of individual performance"⁴⁸, using them as the equivalent for subjective performance evaluation.

Table 3: Weights of bonuses based on business segments⁴⁹

Bonus based on	Corporate performance	Unit performance	Individual performance
One business segment	46%	21%	32%
Multiple business segments	35%	41%	24%

Table 4: Weights of bonuses based on industries⁵⁰

Bonus based on	Corporate performance	Unit performance	Individual performance
One industry	46%	18%	36%
Multiple industries	38%	36%	25%

The results, which can be seen in Table 1 and Table 2, show that in the presence of one single business segment, where the interdependencies between the units are high, individual performance measures are more likely to be used (32%) than in the case of multiple business segments (24%). The same holds true for the number of industries the firm works in. If the interdependencies are high, because the firm is operating in one single industry, the bonus is based on individual performance more often (36% compared to 25%).

These findings prove that executives in firms with high interdependencies receive bonuses that are based on individual subjective performance evaluations more often than their colleagues in firms with few interdependencies.

⁴⁸ Murphy & Oyer, 2003, p. 1

⁴⁹ Based on Murphy & Oyer, 2003, p. 39, Table 8

⁵⁰ Based on Murphy & Oyer, 2003, p. 39, Table 8

3.1.1.2. Long-term incentives

Objective evaluation mostly concentrates on accounting measures that reflect the effects of the agent's actions on the contemporaneous firm performance. As accounting numbers are mostly analyzed at the end of a month, quarter, or year, they show the past effects of the agent's actions. The consequences of the agent's efforts which shape the future firm value are not taken into account. Since the agent is not going to invest his work in undertakings which are not rewarded by the incentive plan, he will only act to increase the accounting measures which he will be compensated for. This causes the agent to focus on ameliorating the short-term firm value reflected in the accounting measures but not considering long-term value creation. However, long-term value creation is the key to sustainable profits in the next years. Concentrating on short-term performance measures might seriously harm the long-term success of the firm.

In order to set long-term incentives, compensation plans cannot merely be based on objective accounting measures. One approach to alleviate this problem is the use of subjective performance evaluations as they are capable of including long-term aspects of the agent's work. Using discretionary bonuses, the employee can be rewarded for research and development which requires investments in the current period, decreases present accounting profit, but yields profits in the future. In fact, Chow and Van der Stede state that "compared to both financial and nonfinancial measures, subjective measures are seen as being the most effective at curtailing short-termism."⁵¹

In accordance with this train of thought, Gibbs, Merchant, Van der Stede, and Vargus try to draw up a connection between objective and subjective performance measures and their time focus. They hypothesize that "the use of subjectivity in the assignment of rewards will be positively related to the short-term focus of the quantitative measures"⁵². Testing the correlation between the short-term focus of the objective performance measure and the use of subjectivity Gibbs, Merchant, Van der Stede, and Vargus find that, in contrary to their hypothesis, the two variables are negatively correlated.⁵³ They explain this fact by stating that the objective bonus is used to generate an intentional short-term incentive and that this is not considered to be a weakness.

Another consideration is empirically tested through the hypothesis that "the use of subjectivity in the assignment of rewards will be positively related to [...] the extent of long-term investments in intangibles."⁵⁴ Looking at the department's investments in training, which is considered to be a long-term investment in intangibles, shows that it is positively related to the use as well as the size of

⁵¹ Chow & Van der Stede, 2006, p. 6

⁵² Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 4

⁵³ Gibbs, Merchant, Van der Stede, & Vargus, 2004

⁵⁴ Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 4

subjective performance evaluations. Training expenses certainly are not the only possible long-term investments in intangibles but the correlation shows that the underlying theory might be valid.

In companies where the managerial actions largely affect current performance but not future performance, the incentive plan can be accounting based. In firms where executive activities influence future performance and not current accounting performance subjective evaluation can be used to mitigate the focus on short-term incentives.⁵⁵ In this case, stock based bonus plans can also induce congruent long-term incentives, but Murphy and Oyer⁵⁶ argue that they are especially noisy in environments where managerial actions affect future performance. These substantial effects on the future are most likely in settings of extensive growth or investment opportunities. These theoretical implications are also represented by Hayes and Schaefer⁵⁷ as well as by Bushman, Indjejikian, and Smith.⁵⁸

Murphy and Oyer try to prove their hypothesis that “bonuses will be more discretionary in companies with substantial growth or investment opportunities”⁵⁹ by introducing proxies for investment opportunities. The investment opportunities were captured by the market-to-book ratio (defined as “average year-end stock price times the outstanding shares”⁶⁰ “divided by the book value of common equity”⁶¹) and sales growth for the years 1993 to 1997. According to their hypothesis, both variables should show a positive correlation to the use of subjective performance measures, however, they do not. While the market-to-book ratio shows a minimal positive correlation, it is not significant. Sales growth shows a marginally significant negative correlation to the use of subjective performance measures.

Murphy and Oyer⁶² offer three explanations for these findings.

- Some firms simply use sales growth as an objective measure and do not use it in their subjective evaluations.
- Other companies face investment opportunities and substantial growth and, as a consequence, have to deal with greater risk of failure. As discussed above, an incentive contract based on subjective evaluation cannot be enforced by a third party and needs to be self-enforcing through continuous interactions of the agent and the principal. In environments where there is a high risk of not continuing business, the ongoing contact between agent and principal is highly unlikely.

⁵⁵ Murphy & Oyer, 2003

⁵⁶ Murphy & Oyer, 2003

⁵⁷ Hayes & Schaefer, 2000

⁵⁸ Bushman, Indjejikian, & Smith, 1996

⁵⁹ Murphy & Oyer, 2003, p. 12

⁶⁰ Murphy & Oyer, 2003, p. 36

⁶¹ Murphy & Oyer, 2003, p. 36

⁶² Murphy & Oyer, 2003

Consequently, the contract is not self-enforcing and the agent cannot rely on receiving his promised compensation which leads to the fact that he is not entering the contract in the first place.

- Firms that face growth or investment opportunities will rely on stock-based pay rather than using cash bonuses.

Other authors try to find the correlation between the need for long-term incentive and the use of subjective performance evaluations. Bushman, Indjejikian, and Smith,⁶³ who also use the market-to-book ratio as a measure for firm growth, find that this ratio is positively correlated to the use of subjective performance measures.

Bushman, Indjejikian, and Smith test the correlation of the product time horizon (reflected by product development cycles⁶⁴ and product life cycles⁶⁵) and the use of subjective evaluation. Product development and life cycles are classified as short or long according to the classification scheme published by the National Academy of Engineering.⁶⁶ Cycles that last less or up to four years are considered to be short; all other cycles are considered to be long.

Long development and life cycles imply that the actions taken today will not be displayed in accounting profits immediately. Longer cycles should compel firms to focus on long-term values and performance measures that capture the long-term impacts of the agent's actions. Bushman, Indjejikian, and Smith's findings show a positive correlation between the length of the product development, the product life cycle, and the use of individual performance measures that are subjective. Comparing firms with a short product development cycle to those with a long one, the percentage of the agent's annual bonus based on individual performance is 8% higher in companies with a long product development cycle. The use of subjective performance measures is 12% higher in firms with a long product life cycle.

The influence of the length of the product development cycle and the employee-to-sales ratios on the use of discretionary bonuses is also proven by Hayes and Schaefer.⁶⁷ They concur that the principal⁶⁸ uses subjective performance evaluation to motivate the agent⁶⁹ to take actions which are not reflected in current objective performance measures.

⁶³ Bushman, Indjejikian, & Smith, 1996

⁶⁴ The product development cycle starts with the development of the product and ends with bringing the product to the market.

⁶⁵ The product life cycle is the time span the item is in the market.

⁶⁶ National Academy of Engineering, 1992

⁶⁷ Hayes & Schaefer, 2000

⁶⁸ In their case the principal is the board of directors

⁶⁹ In their case the principal is the CEO

Ittner, Larcker, and Rajan also prove this effect by detecting a positive relation between their latent variable called STRATEGY and the occurrence of nonfinancial performance measures.⁷⁰ Their variable STRATEGY is also derived by employee-to-sales as well as research and development-to-sales ratios.

Caranikas-Walker, Goel, Gómez-Mejía, Cardy, and Rundell who test the correlation between insider-based boards, the amount of subjectivity used in CEO assessments and the RandD intensity, also find that the higher the RandD expenses the more discretion is applied in the determination of bonuses.⁷¹

3.1.2. **Broad objective performance measures**

As mentioned above, objective performance evaluation is too broad when it includes aspects which are beyond the control of the agent. As the outcome of his actions and the performance measure used for determining compensation cannot be controlled by the agent, he will be demoralized and exert less effort. This incident can be alleviated by introducing subjectivity where the agent will not be held accountable for uncontrollable events. This is discussed in the next section concerning risk reduction.

3.2. **Risk reduction**

Objective formula bonuses are set ex ante, the remuneration is derived from the outcome which is observed by both, principal and agent ex-post. However, the result of the agent's actions does not only depend on his effort but also on random events which accredit for the so called noise in objective assessments.

These random effects can be “downside risk”⁷², which is hazardous for the agent since he might not be rewarded for his effort if the outcome is randomly low. To bear this risk, the employee demands extra compensation, the so called risk premium, which is costly for the principal.⁷³

The employer, on the other hand, wants to be protected against “good luck”⁷⁴ that is, the positive measurement error which will give the agent a higher compensation than he deserves.

Subjective performance evaluation can reduce both kinds of risk by filtering out uncontrollable events because the principal can “exploit any additional relevant information that arises during the

⁷⁰ Ittner, Larcker, & Rajan, 1997

⁷¹ Caranikas-Walker, Goel, Gómez-Mejía, Cardy, & Rundell, 2007-8

⁷² Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 5

⁷³ Höpfe & Moers, 2007

⁷⁴ Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 5

measurement period.”⁷⁵ This can be achieved by making ex-post adjustments according to the received noise signals.⁷⁶ Analytical models, such as those presented by Holmström⁷⁷, as well as Baker, Gibbons, and Murphy,⁷⁸ show that contracts based on a noisy objective measure can be enhanced by subjective compensation if the principal has information about noise realizations. Hayes and Schaefer also argue that implicit contracts that include subjectivity are used more often when quantitative performance measures are noisier.⁷⁹

Empirical tests such conducted by as Gibbs, Merchant, Van der Stede, and Vargus hypothesize that “the use of subjectivity in the assignment of rewards will be positively related to the extent to which the quantitative measures reflect factors outside the managers’ control.”⁸⁰ Analyzing the independent variable “performance measure controllability”, which is defined as the “extent to which the measure used for the primary formula bonus reflects factors outside the manager’s control”⁸¹, Gibbs, Merchant, Van der Stede, and Vargus fail to find a relation between the controllability of objective bonuses and the use of subjective performance measures. Their Tobit analysis, which aims at finding a correlation between controllability and the size of the discretionary bonus, also shows no significant results.

However, other studies show that there is a connection between the noise of objective performance measures and the use of subjectivity. Woods hypothesizes that the use of subjective adjustments to objective performance measures is more likely if the underlying measure is very noisy.⁸² His regression shows a significant positive correlation between the noise and the occurrence of subjectivity (0.741, statistical significance at 1%).

Woods tests whether using subjective adjustments to objective performance measures is influenced by the sensitivity of the performance measure. The larger the influence of the agent’s action on a performance measure, the higher the sensitivity of the measure. Therefore, the hypothesis is: “the likelihood of supervisors’ subjective adjustments to objective performance measures will be negatively related to supervisors’ perceptions of performance measure sensitivity.”⁸³ A Probit regression of subjective performance adjustment shows that there is no significant correlation between sensitivity and the occurrence of subjectivity. An explanation for this finding is that the effects of the agent’s actions cannot be distinguished from uncontrollables by the less knowledgeable principal. This study shows no correlation but the sensitivity of performance measures also strongly depends on

⁷⁵ Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 3

⁷⁶ Gibbs, Merchant, Van der Stede, & Vargus, 2009

⁷⁷ Holmström, 1979

⁷⁸ Baker, Gibbons, & Murphy, 1994

⁷⁹ Hayes & Schaefer, 2000

⁸⁰ Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 5

⁸¹ Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 25

⁸² Woods, 2008

⁸³ Woods, 2008, p. 9

random effects which are characterized as risk. In the section below the authors which empirically tested the implications of risk are discussed.

Höppe and Moers conduct the analysis for their two cases of (1) an earnings-based contract and (2) a multi-measure contract.⁸⁴

1. Höppe and Moers argue that discretionary bonuses can mitigate risks and draw up the hypothesis that “in earnings-based contracts⁸⁵, the use of discretionary bonuses is positively related to the noise in earnings.”⁸⁶ The noise in earnings is derived from the time series variability in the industry return on assets, return on sales, and return on equity of the five precedent years. The analysis shows that the correlation between the noise in objective measures and the use of subjective performance evaluation is positive as expected (0.311, statistical significance at 5%).
2. The first hypothesis of Höppe and Moers deals with incentive contracts that are based entirely “on earnings or an earnings-related measure”.⁸⁷ However, subjectivity can be introduced to multi-measure contracts, which encompass a “combination of earnings and alternative non-accounting measures.”⁸⁸ As mentioned before, the alignment of the goals of the principal and the objectives of the agent calls for using a multitude of performance measures rather than just one. In order to achieve target congruity, the measures have to be weighted to minimize distortions. If the weights are fixed ex ante, changes in the environment cannot be accounted for. If the weighting decision is made subjectively, which implies that it will be made ex-post, adaptive behavior will be evaluated.

In accordance with the logic presented above, the context between the use of discretionary weights and noise is the same as the correlation presented in Höppe and Moers’ hypothesis: “In multi-measure contracts, the use of implicit incentive weights is positively related to environmental uncertainty.”⁸⁹ The environmental uncertainty is measured by “the time series variability of monthly stock returns 60 months prior to the proxy data.”⁹⁰ The analysis shows that the hypothesized positive correlation between environmental uncertainty and the occurrence of discretionary bonuses is valid (0.997, statistical significance at 5%).

Other empirical evidence, for example Murphy and Oyer, shows that subjective performance evaluation is more likely to be used in cases where the inherent risk of objective performance

⁸⁴ Höppe & Moers, 2007

⁸⁵ Earnings-based contracts are solely based on earnings or one earnings-related number.

⁸⁶ Höppe & Moers, 2007, p. 7

⁸⁷ Höppe & Moers, 2007, p. 11

⁸⁸ Höppe & Moers, 2007, p. 11

⁸⁹ Höppe & Moers, 2007, p. 9

⁹⁰ Höppe & Moers, 2007, p. 31

measures is higher.⁹¹ Looking at publicly traded firms, which are believed to use stock-based pay to mitigate distortions from other objective performance measures (see chapter 3.1.), Murphy and Oyer identify (1) external and (2) internal factors for the noise in stock prices.

1. The most important external noise factor for the stock price is systematic risk that is the risk inherent to conducting business. Congruent with the former findings, bonuses in publicly traded firms should be more discretionary in enterprises with higher systematic risk.⁹² However, no evidence was found by Murphy and Oyer⁹³ that subjective performance evaluation is used to limit the risk caused by external factors such as the systematic risk. Using data from 396 firms from the Hewitt Associates' compensation survey of public domestic companies for the years 1990 to 1995, Bushman, Indjejikian and Smith find that their proxy for noise in objective performance measures (in this case accounting earnings and stock price) has no significant impact on the use of individual performance evaluation, which is again assumed to be highly subjective.⁹⁴
2. Internal noise factors are the size of the company and the number of top executives. The data reveals that larger firms and corporations with more managers employ significantly more subjective performance evaluations for top executives. This finding can be explained by the fact that the larger the firm is, the more actions that the agent cannot directly influence take place. This also holds true for an increased size of the management team because the more managers there are, the less influence one agent has, therefore increasing the risk that the exerted effort will go unrewarded. Testing private firms for an increase in discretion when the firm is larger, the management team includes more members and when the systematic risk is higher, shows that there is no significant connection. Since privately held firms cannot use stock-based bonus payments, the noise factors that influence the stock price are not relevant for these firms.

Another noise proxy used for the stock price is the variance in stock price. Murphy and Oyer show that internal factors of the stock price such as the firm size and the size of the top management do have an impact on the use of subjective performance evaluation.⁹⁵ External factors, however, have no significant influence. Bushman, Indjejikian, and Smith only test for the overall variance of stock prices and find no connection to subjective performance evaluations.⁹⁶

⁹¹ Murphy & Oyer, 2003

⁹² Murphy & Oyer, 2003

⁹³ Murphy & Oyer, 2003

⁹⁴ Bushman, Indjejikian, & Smith, 1996

⁹⁵ Murphy & Oyer, 2003

⁹⁶ Bushman, Indjejikian, & Smith, 1996

Bushman, Indjejikian, and Smith also tested the influence of the noise of accounting earnings. However, the variance of accounting earnings proved to be non-significant for the increased use of individual performance evaluation.⁹⁷

3.2.1. Controllable and uncontrollable risk

The correlation between risk and the use of subjective performance evaluation is also investigated by Gibbs, Merchant, Van der Stede, and Vargus.⁹⁸ For their empirical test they divide risk into two components, the controllable and the uncontrollable. According to their definition, controllable risk does occur but can be adjusted for by the agent if he recognizes the development in time and is willing to take action. The effects of uncontrollable risk, on the other hand, cannot be altered by any action taken by the agent or the principal.

For unknown reasons Gibbs, Merchant, Van der Stede, and Vargus drop the topic of uncontrollable risk and solely focus on the impact of controllable risk. For controllable risk, they draw up the following hypothesis: “Implicit rewards will be more strongly related to a performance measure the more important is controllable risk in the measure.”⁹⁹ The assumption that the agent will be rewarded for reacting effectively was proven by their test results as it turned out that employees were punished if they did not react to controllable risk.

The occurrence of controllable and uncontrollable risk was also investigated by Gibbs, Merchant, Van der Stede, and Vargus in their 2004 paper.¹⁰⁰ They argue that the distinction between controllable and uncontrollable risk is ambiguous. Often, external factors cannot be controlled by the agent, however, he can influence the effects of the uncontrollables by his own reactions. Therefore, taking all external risk off the employee would reduce the agent’s incentive to respond to new developments. Consequentially, uncontrollable effects should be filtered for evaluation purposes to reduce risk. Effects which can be changed by the employee should be included to encourage him to react to unforeseen events.

This reduction of risk and the ability to adapt will be more important in environments with high uncertainty and strong competition. As subjective performance evaluations can achieve these two effects, Gibbs, Merchant, Van der Stede, and Vargus hypothesize that (1) “the use of subjectivity in the assignment of rewards will be positively related to the level of environmental uncertainty”¹⁰¹ and

⁹⁷ Bushman, Indjejikian, & Smith, 1996

⁹⁸ Gibbs, Merchant, Van der Stede, & Vargus, 2009

⁹⁹ Gibbs, Merchant, Van der Stede, & Vargus, 2009, p. 242

¹⁰⁰ Gibbs, Merchant, Van der Stede, & Vargus, 2004

¹⁰¹ Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 6

that (2) “the use of subjectivity in the assignment of rewards will be positively related to [...] the level of competition.”¹⁰²

1. Testing for the influence of environmental uncertainty, the independent variable was captured through the predictability of actions of competitors, the foreseeability of new car sales in the coming year, the stability of customer preferences, the stability of legal constraints, and the stability of the economic environment. The analysis for the connection to the use and the size of discretionary bonuses showed no significant relation whatsoever. However, this contradiction with the underlying theory is not further investigated or explained by Gibbs, Merchant, Van der Stede, and Vargus.
2. Looking at the competition in the firm’s environment, the number of competitors, the amount of other car dealers, and the amount of service providers is measured. The expected positive relation to the use and the size of subjective performance evaluations is not found as all results are insignificant. Despite this, Gibbs, Merchant, Van der Stede, and Vargus draw up other hypotheses which concern the risk of the agent that are discussed in the sections below.

3.2.2. Difficulty to meet the target

As argued above, subjective performance evaluation has the advantage that it is very flexible because it can be altered as the environment changes. This is most important in quickly changing business settings. Gibbs, Merchant, Van der Stede, and Vargus argue that when the failure of achieving a performance target has no negative effects for the agent, he faces no high risks. When the employee will be punished for not reaching his goal he faces high risks which have to be monetarily compensated by the principal. In order to take risk from the agent, subjectivity can be introduced in the evaluation process. Gibbs, Merchant, Van der Stede, and Vargus, hypothesize that “the use of subjectivity in the assignment of rewards will be positively related to the difficulty of meeting a performance target that has high consequences for failure.”¹⁰³

The difficulty to achieve the target is displayed as “100 minus the percentage likelihood that the performance target for the primary formula bonus will be met.”¹⁰⁴ The consequences are defined as negative effects concerning the agent’s operating autonomy, pay raise, prospects for promotion, and continued employment. The two variables were combined to show the overall impact, which was positive for use (0.019, statistical significance at 5%) and for size (0.002, statistical significance at

¹⁰² Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 6

¹⁰³ Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 6

¹⁰⁴ Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 26

5%). Gibbs, Merchant, Van der Stede, and Vargus explain that the reason for these findings is that firms use subjective bonuses to set aggressive targets which are flexible. Furthermore, subjective evaluations can be an insurance if objective measures are not met.

3.2.3. Operating in loss conditions

Another situation where subjectivity is used to alleviate the risk for agent is the case when the whole entity is in a loss condition. In this setting, objective performance measures will typically be zero for all agents, which eliminates all motivations. If some of the risks are truly not controllable by the agent, subjective performance evaluation can be used to improve incentives by filtering out these effects. Therefore, Gibbs, Merchant, Van der Stede, and Vargus hypothesize that „the use of subjectivity in the assignment of rewards will be positively related to the occurrence of a loss.“¹⁰⁵

Combining the data concerning the departments, which are operating at a loss and the information about the occurrence of discretionary bonuses, Gibbs, Merchant, Van der Stede, and Vargus fail to find a connection between the two variables. Dividing the sample into service and sales departments shows that there is a significant increase in subjective performance evaluations (0.870, statistical significance at 10%) in the sales departments when the unit reports a loss. In these cases, the introduction of subjectivity is used to recreate incentives when the motivation stemming from objective measures is abolished through the loss. According to the findings of Gibbs, Merchant, Van der Stede, and Vargus the size of the discretionary bonus is positively related to the occurrence of a loss (0.530, statistical significance at 20%).

3.2.4. Risk and CEOs

As discussed above, the use of subjective performance evaluation will depend on the quality of the available objective performance measures. The noisier and the riskier the objective evaluation is, the more likely becomes the use of subjective assessment. CEO bonuses are often stock-market based, which is one of the less distortionary objective measures. Noise in stock prices from internal factors is particularly low for the CEOs, since the decisions of the CEO have a high impact on stock prices. Thus, objective performance measures are of high quality. This implies that discretion will be used less often in CEO bonuses than in compensation contracts of other agents.¹⁰⁶ Furthermore, subjective assessments are only feasible if the principal observes the work of the agent on a daily basis and has information about the quality of the agent's work. Boards of directors only meet irregularly and highly

¹⁰⁵ Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 6

¹⁰⁶ Murphy & Oyer, 2003, p. 292

depend on the information given by the CEO himself; as a consequence, a profound subjective performance evaluation is not possible.

Murphy and Oyer take these facts into consideration and hypothesize that the compensation plans of CEOs should be less discretionary. Their sample of 280 bonus plans¹⁰⁷ shows that only 31% of the CEO bonus but 35% to 37% of the bonus of lower-level executives are based on subjective performance evaluation. The use of subjective performance evaluation is indeed less common for CEOs than it is for other agents.

3.3. Limitation of manipulation

“With manipulation the employee uses his or her specific knowledge to increase measured performance in ways that are not consistent with firm value.”¹⁰⁸ Therefore, manipulating the performance measure will increase the utility of the agent, but not the profit of the principal. Spoofing of a performance measure can easily occur as the agent is better informed about the nature of his work and its outcome than the principal. As the supervisor is the less informed, it is hard to detect alteration of performance measures.

According to Gibbs, Merchant, Van der Stede, and Vargus, “the effects of manipulation are similar to the effects of distortion.”¹⁰⁹ As mentioned above, the introduction of subjective performance evaluation has the advantage of being able to adjust the assessment ex-post. The principal can change the rating if she learns that the employee did manipulate the performance measure.

Gibbs, Merchant, Van der Stede, and Vargus hypothesize that “implicit rewards will be more strongly related to a performance measure; the more manipulable is the measure.”¹¹⁰ Testing for this hypothesis Gibbs et al. find out that punishments (or negative rewards) that are based on subjective evaluations are less likely if poor performance, based on a measure which is less prone to manipulation, occurs. If poor performance is recorded even though the measure is highly susceptible to manipulation, the agent is punished because performance must be very low if manipulating the performance measure did not help.

However, Gibbs, Merchant, Van der Stede, and Vargus fail to answer their original question if subjective performance evaluation is more likely to occur when other measures are more manipulable. They only can stipulate that if poor performance is measured when the performance measure is prone to manipulation, negative repercussions are likely.

¹⁰⁷ Murphy & Oyer, 2003

¹⁰⁸ Gibbs, Merchant, Van der Stede, & Vargus, 2009, p. 241

¹⁰⁹ Gibbs, Merchant, Van der Stede, & Vargus, 2009, p. 241

¹¹⁰ Gibbs, Merchant, Van der Stede, & Vargus, 2009, p. 242

In another empirical test, Gibbs, Merchant, Van der Stede, and Vargus analyze the connection between manipulation of objective performance measures and the use of subjectivity. The respective hypothesis is: “the use of subjectivity in the assignment of rewards will be positively related to the manipulability of the quantitative measures.”¹¹¹

A regression shows that for the total sample of department managers there is no significant correlation between manipulability and the use of subjective performance measures. When the sample is divided into service and sales departments, it can be seen that the two variables are interrelated in the service departments (see Table 5).

Table 5: Manipulability and the use of subjective performance evaluation¹¹²

Independent variable	Discretionary bonuses in all departments	Discretionary bonuses in service departments	Discretionary bonuses in sales departments
Performance measure manipulation	0.035	0.397*	-0.052

* statistical significance at 10%

Gibbs, Merchant, Van der Stede, and Vargus argue that the service departments include a greater amount of tasks which are more difficult to measure, such as quality of repairs and customer satisfaction. Objective performance measures in such environments are more prone to manipulation, while other jobs, like those in the sales departments, can be measured easily.

Testing the correlation between the performance measure manipulation and the size of discretionary bonuses the data shows that there is a positive relation for the whole sample, which is only marginally significant (see Table 6).

Table 6: Manipulability and the size of subjective performance evaluation¹¹³

Independent variable	Discretionary bonuses in all departments	Discretionary bonuses in service departments	Discretionary bonuses in sales departments
Performance measure manipulation	0.012**	0.031*	0.008

* statistical significance at 10%, ** statistical significance at 20%

¹¹¹ Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 5

¹¹² Based on Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 29, Table 5

¹¹³ Based on Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 29, Table 5

Woods also tests the influence of manipulability, however he concentrates on subjective adjustments, rather than sheer subjective measures.¹¹⁴ In his analysis he finds that in his model the likelihood of subjective adjustments is not related to the manipulability of the objective performance measure.

Woods tested a similar idea by analysing the correlation between performance measure verifiability and the use of subjective evaluation.¹¹⁵ Verifiability is “the extent to which a measure can be easily quantified and/or specified.”¹¹⁶ When a measure can be easily verified the bias the principal applies can be seen by outsiders. Therefore, Woods hypothesizes that “the likelihood of supervisors’ subjective adjustments to objective performance measures will be negatively related to supervisors’ perceptions of performance measure verifiability.”¹¹⁷ The regression results show that in his sample a negative correlation exists.

Due to these findings, it is established that if formula-based bonuses are susceptible to manipulation, subjective performance evaluations can be used to mitigate distortions in some cases but not all. Furthermore, the less verifiable objective measure is, the more likely subjective adjustments will be made.

3.4. Limited knowledge of the principal

Another influence factor for the use of subjective performance evaluation is the limited knowledge of the principal and the information gathering costs which emerge, when supplemental information is needed.

As Höppe and Moers put it: “the benefits of discretion hinge on the accuracy of the observed unverifiable signal; the lower the accuracy of this signal, the lower the benefits of using it to resolve contracting problems.”¹¹⁸ In order to observe the signal, the principal has to have knowledge on the nature of the agent’s job, which implies that the less knowledge the supervisor has, the more likely it is that performance data is falsely interpreted. However, “closely monitoring subordinates’ options and actions is time-consuming and intrusive. It also requires a great deal of information and, thus, an expensive information system.”¹¹⁹

As argued above, discretionary bonuses highly depend on the fact that the principal has to be well informed about the actions of the agent. The CEO’s principal is the board of directors which is mostly

¹¹⁴ Woods, 2008

¹¹⁵ Woods, 2008

¹¹⁶ Woods, 2008, p. 10

¹¹⁷ Woods, 2008, p. 11

¹¹⁸ Höppe & Moers, 2007, p. 9

¹¹⁹ Kren & Tyson, 2009, p. 14

not included in the operative business of the firm on a daily basis. The composition of the board members plays an important role in determining whether the CEO will be evaluated subjectively or objectively.

Höppe and Moers try to test this concept by dividing their sample of CEOs incentive contracts according to the knowledge of the principal. The boards of directors are separated into two groups, namely the knowledgeable and the less knowledgeable.

The board of directors is assumed to be knowledgeable if the board includes fewer members because effective monitoring and finding consensus is easier in smaller groups. Busy outside directors, people with three or more directorships, and busy inside directors, people with two or more directorships, on the other hand, are thought to be less informed.

Following Höppe and Moers distinction in (1) earning-based and (2) multi-measure contracts the hypotheses below are stipulated.

1. “In an earnings-based contract, the relationship between the use of discretionary bonuses and noise in earnings is less positive the less knowledgeable the board.”¹²⁰ The regression shows that the knowledge of the board itself has no implications on the use of subjectivity. Combining the effects of noise and information shows a negative relation (-0.325, statistical significance at 1%). This shows that the effects of noise on the use of discretion as less positive if the board is less informed.
2. “In a multi-measure contract, the relationship between the use of implicit incentive weights and environmental uncertainty is less positive the less knowledgeable the board.”¹²¹ The findings for multi-measure contracts are similar to those of earning-based plans. Low knowledge of the board has no effects, but the combination of noise and low information proves the expected negative correlation to be valid (-0.321, statistical significance at 10%).

The impact of insider-dominated boards and outsider-dominated boards on subjectivity has also been studied by Caranikas-Walker, Goel, Gómez-Mejía, Cardy, and Rundell.¹²² Their analysis is based on Baysinger and Hoskisson’s paper about the composition of boards of directors¹²³ which defines insider-dominated as boards in which the majority of the members is employed by the company full-time and possesses “information regarding CEO decisions and actions due to their own intimate involvement in organizational decision processes, or through their personal relationships with

¹²⁰ Höppe & Moers, 2007, p. 10

¹²¹ Höppe & Moers, 2007, p. 10

¹²² Caranikas-Walker, Goel, Gómez-Mejía, Cardy, & Rundell, 2007-8

¹²³ Baysinger & Hoskisson, 1990

members of the top management team.”¹²⁴ Therefore, insider-dominated boards should rely on subjective performance evaluations more heavily than outsider-based boards, which lack the necessary information. However, the regression for the available data does not show any significant correlations between board composition and the use of discretion. Caranikas-Walker, Goel, Gómez-Mejía, Cardy, and Rundell state that this lack of empirical proof might result from a false measure of board composition but an additional analysis cannot find any validation for the hypothesis.

3.5. Influence activities

When subjective performance evaluations are used in incentive contracts, the agent is considerably effected by the discretion of the supervisor. Therefore, the employee will try to influence the decision of the principal. These influence activities, called rent-seeking activities,¹²⁵ are costly for the firm because the agent spends time and effort on changing the supervisor’s assessment.¹²⁶

Trying to influence the principal is a complicated business. On the one hand, the principal might notice the influence activities and respond by subjectively adjusting the bonus of the agent to refocus him. On the other hand, the influencing could go unnoticed and the manager might successfully sway the evaluation.

According to Woods, prior research has shown that employees are rather successful at influencing their superior.¹²⁷ Therefore, there should be a positive relation between the occurrence of subjective adjustments and the influence activities of the agent. Woods empirical analysis shows that there is a significant positive relation (1.164, statistical significance at 1%) indicating that the more the employees engage in activities to influence the supervisor’s evaluations the more the principal will use subjective adjustments.¹²⁸

¹²⁴ Caranikas-Walker, Goel, Gómez-Mejía, Cardy, & Rundell, 2007-8, p. 11

¹²⁵ Bol, 2005

¹²⁶ Prendergast, 1999

¹²⁷ Woods, 2008

¹²⁸ Woods, 2008

3.6. **Personal relationships**

Bushman, Indjejikian, and Smith investigate the notion that CEO tenure, the number of years the CEO has been working for the principal, might have an impact on the use of subjective performance measures.¹²⁹

The longer the CEO works for the board of directors the better the board is capable of assessing his actions. Thus, CEO tenure is assumed to be positively related to the use of individual performance appraisals. A longer tenure also allows the CEO to exert more power over the board of directors, leading to an increase in subjective performance measures which the powerful CEO can manipulate more easily. On the other hand, it would be possible that a new CEO is especially evaluated subjectively as objective accounting measures still show the impacts of the work of his predecessor.

An ordinary least squares regression of Bushman, Indjejikian, and Smith shows that subjective individual performance evaluations are more likely for more seasoned CEOs.¹³⁰ However, it remains unclear which of the presented explanations account for this effect.

As the findings of Bushman, Indjejikian, and Smith are based on a sample of CEO incentive contracts, it remains an open question whether the implications can be adapted to other management positions as well. No other paper on the use of subjective performance evaluation of the discussed authors deals with the tenure of the agent. Therefore, no other empirical evidence can be presented to validate the connection between the agent's tenure in lower management positions and the use of subjective evaluation.

4. **Effects of subjective performance evaluation**

As it can be seen above, including subjective performance evaluation in bonus plans can improve incentives in various settings. However, the use of subjective performance measures also has its pitfalls. As the performance evaluation depends on the discretion of the direct supervisor, problems can arise. Gibbs, Merchant, Van der Stede, and Vargus state “subjectivity works well only if the supervisor makes fair, unbiased judgments and if the subordinate accepts the judgments and does not try to influence the supervisor inappropriately.”¹³¹

¹²⁹ Bushman, Indjejikian, & Smith, 1996

¹³⁰ Bushman, Indjejikian, & Smith, 1996

¹³¹ Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 3

The most common problem noticed is rating inaccuracy,¹³² which can present itself in various ways such as bias and favoritism.¹³³ Other negative effects arise because of unclear measurement criteria and influence activities conducted by the agent. Another concern is that, due to its nature, discretionary bonuses cannot be verified by a third party.

4.1. Reneging

“Reneging occurs when contracted performance is not rewarded. Reneging is not a problem when performance is verifiable, because contracts can be made explicit and legally enforceable.”¹³⁴ As subjective assessments are only observable by the principal, the bonus cannot be contractible. Therefore, reneging might be a problem in discretionary incentive plans.

Theoretical thoughts on implicit contracts suggest that there is an alternative enforcement mechanism, namely the firm’s reputation.¹³⁵ In general, an organization is aware of its perception by the market and reneging on compensation contracts, will make it harder for the enterprise to find future employees.

Another factor influencing the probability of reneging is the reoccurrence of the employment relationship. When the principal and the agent will work together repeatedly, dishonest behavior will cause the agent to punish the supervisor for going back on her promises.¹³⁶ In this case “the value of the future relationship must be sufficiently large that neither party wishes to renege.”¹³⁷ An analytical proof can be seen in the paper by Gibbons.¹³⁸ Reneging and turn over costs which are endured when the agent leaves the firm are analytically explored by Huanxing.¹³⁹

Other ways to ensure that reneging does not occur are up-or-out contracts attaching wages to jobs or tasks¹⁴⁰ or by objectively determining a bonus pool and distributing it subjectively. This last alternative was examined by Baiman and Rajan¹⁴¹ as well as Ittner, Larcker, and Meyer.¹⁴²

¹³² Bol, 2007

¹³³ Gibbs, Merchant, Van der Stede, & Vargus, 2009

¹³⁴ Prendergast & Topel, 1993

¹³⁵ Hayes & Schaefer, 2000

¹³⁶ Prendergast & Topel, 1993

¹³⁷ Baker, Gibbons, & Murphy, 2002

¹³⁸ Gibbons, 1998

¹³⁹ Yang, 2008

¹⁴⁰ Prendergast & Topel, 1993

¹⁴¹ Baiman & Rajan, 1995

¹⁴² Ittner, Larcker, & Meyer, 2003

In most cases, the principal is not the residual claimant¹⁴³ which influences the probability of reneging. As the supervisor will not receive the compensation which is not given to the agent, she is not very keen on denying the agent his remuneration.

To my knowledge no empirical studies regarding the relation between subjective performance evaluation and reneging exist. Nonetheless, in my belief, reneging might be a problem concerning discretionary assessments.

4.2. Inaccurate performance measures

As subjective performance evaluations are solely based on the perception of the principal, the ratings can be highly inaccurate. In fact, “subjective measures are seen as being most susceptible to measurement problems.”¹⁴⁴ The assessment cannot be controlled by a third party. Thus, it cannot be established if the evaluation of the principal was correct, inaccurate or unfair.

The assumption that inaccurate evaluation always exhibits a bad influence on compensation contracting, as for example presented by Rynes, Gerhart, and Parks,¹⁴⁵ is seriously doubted by Bol¹⁴⁶ who also discusses positive effects of supervisor bias, which will be shown in the following chapters.

Some imprecise evaluations can surely be attributed to the fact that, despite of trying to do the best, the principal is incapable of taking in all the relevant information. However, as the principal has total discretion when it comes to rewarding the agent, she can consider her own preferences when assessing an employee. This leads to biased performance ratings,¹⁴⁷ which are more or less intended by the principal.¹⁴⁸

The amount of bias that is exerted by a principal varies according to her own needs as she intends to increase her utility.¹⁴⁹ Therefore, the supervisor considers the positive and negative consequences of the distorted evaluations and acts accordingly. Listed below are some of the concepts that a principal might consider:

Notion 1: “Communicating harsh but accurate ratings to employees will likely damage personal relationships and lead to discussions and criticism.”¹⁵⁰

¹⁴³ Baker, Jensen, & Murphy, 1988

¹⁴⁴ Chow & Van der Stede, 2006, p. 7

¹⁴⁵ Rynes, Gerhart, & Parks, 2005

¹⁴⁶ Bol, 2007

¹⁴⁷ Moers, 2005 and Bol, 2007

¹⁴⁸ Based on Bol, 2007

¹⁴⁹ Bol, 2007

¹⁵⁰ Bol, 2007, p. 4

- Notion 2: Making accurate evaluations requires a lot of information. Information gathering takes time and effort that imposes costs on the principal. If information gathering costs are very high, it is more practicable for the supervisor not to receive the information.
- Notion 3: "Supervisors' compensation and promotion possibilities are often linked to employee performance."¹⁵¹ The better the performance of the agents the better the management style and capabilities of the principal are thought to be.
- Notion 4: The principal herself has a supervisor who expects her to make accurate evaluations and might punish her if inaccurate assessments are made.

Taking these notions into account Bol draws up the hypothesis that "the extent of bias applied to subjective performance ratings is influenced by the costs of communicating evaluations, information-gathering costs, employee performance, and the attitude of the supervisor's superiors towards rating accuracy."¹⁵²

After drawing up this hypothesis, Bol focuses her analysis on two distinct supervisor biases, the leniency bias and the centrality bias, never coming back to answer her general hypothesis about the extent of bias applied to subjective evaluations. Trying to validate or falsify her statement, I sum up her findings concerning the occurrence of leniency and centrality bias (which are discussed in the following sections) to give the reader an idea whether her hypothesis is true or not.

1. Influence of costs of communication evaluations

In accordance with Notion 1, negative consequences of communicating harsh evaluations will cause the principal to bias the subjective performance evaluations to avoid distress. In general, personal confrontations are less costly if the engaged parties do not have strong social ties. Thus, principals will be less biased the shorter they have been working with the agent. Trying to find a correlation between the amount of time the agent has been working for the supervisor, Bol¹⁵³ finds that a shorter period of working together implies less lenient evaluations because the principal is not afraid to communicate harsh accurate ratings to the employee.

Implication: the costs of communication influence the extend of bias applied

¹⁵¹ Bol, 2007, p. 4

¹⁵² Bol, 2007, p. 5

¹⁵³ Bol, 2007

2. Influence of information gathering-costs

The negative correlation between information gathering costs and the use of subjective performance evaluations has been established. Consequentially, I argue that as the principal seeks to maximize her utility, high costs will be avoided even if the assessment becomes more inaccurate. In order to make up for the missing information, the supervisor will rely on other factors such as general perceptions of the agent. This correlation is proven by Bol in her 2009 paper,¹⁵⁴ which will be discussed below.

Implication: the costs of information gathering influence the extend of bias applied

3. Influence of employee performance

Confrontations with the employee are more likely to occur when the performance of the agent is inadequate. Therefore, a negative influence of employee performance on rating bias is assumed.¹⁵⁵

Biased rating of poor performance is also used to hide departmental problems, so that the principal seems to be more competent in managing her department.¹⁵⁶ However, principals are responsible for their departmental performance. They are assumed to be less biased when a biased rating might cause an agent to think that he is doing his job as expected.

Implication: employee performance influences the extend of bias applied

4. Influence of the attitude of the supervisor's superiors towards rating accuracy

Eventhough notion 4 is included in Bol's paper,¹⁵⁷ she fails to empirically test this idea because she drops it from her discussion immediately after bringing it up. In my literature review, I could not find any other empirical study dealing with this problem. But it seems only logical that if the principal's supervisor strongly expects the principal to make accurate evaluations and reviews the accuracy, the principal will be careful not to use too much intended bias to make herself look good.

Implication: no empirical findings, logic dictates that the attitude of the supervisor's superiors towards rating accuracy should influence the extend of bias applied

Bol's hypothesis that "the costs of communicating evaluations, information-gathering costs, employee performance, and the attitude of the supervisor's superiors towards rating accuracy"¹⁵⁸ influence the amount of bias applied by the principal seems to be true. Nevertheless, there might be other factors

¹⁵⁴ Bol, 2009

¹⁵⁵ Bol, 2007

¹⁵⁶ Bol, 2007

¹⁵⁷ Bol, 2007

¹⁵⁸ Bol, 2007, p. 5

influencing the extent to which bias is used intentionally to comply with the preferences of the principal.

In the section below, distinct subcategories of bias which have been identified by the literature will be discussed. In particular, leniency bias, centrality bias, and favoritism could be identified so far.¹⁵⁹

4.2.1.1. Leniency Bias

“Leniency bias is the tendency to provide employees with inflated subjective performance ratings.”¹⁶⁰ The existence of leniency bias results in evaluations which are, compared to the actual work performed, too high and cause higher bonuses than deserved. Leniency bias is very likely to occur as it was found that 60 to 70% of a firm’s agents are rated in the top two performance categories.¹⁶¹

Principals often rate employees too leniently because of the reasons listed below:

1. Human beings tend to overestimate themselves, as a consequence, they assess themselves higher than their principal would.¹⁶² If the principal evaluates the agent truthfully, the attained level will be most likely lower than the expectation of the employee. The agent, who believes that he received a smaller bonus than he deserves, will lower his performance to restore the feeling of equity.¹⁶³ If the employee overestimates himself in the following period as well, the feelings of unfairness will get stronger, resulting in the fact that the agent works even less. In this case, lenient performance ratings can abolish the perceived level of unfairness and the employee will maintain his efforts.
2. Receiving good performance evaluations will build the agent’s confidence in his own capabilities which will motivate him to undertake new projects and overcome problems in the future.¹⁶⁴

Testing 792 bonus plans for the occurrence of leniency bias, Bol¹⁶⁵ divides her sample of bonus plans into subjective and objective components and tests whether the attained scores in subjective performance ratings are higher than in the objective performance ratings. Assuming that the objective performance measures are less biased and, thus, closer to the true performance and expecting that employees do equally well on the subjective and the objective dimension, higher scores in subjectively measured performance should be an indicator of the occurrence of lenient ratings.

¹⁵⁹ Prendergast, 1999 and Moers, 2005

¹⁶⁰ Bol, 2007, p. 1

¹⁶¹ Bol, 2005

¹⁶² Prendergast & Topel, 1993

¹⁶³ Bol, 2005

¹⁶⁴ Bénabou & Tirole, 2002

¹⁶⁵ Bol, 2007

The result shows that the employees' ratings according to subjective performance measures are higher than their respective scores based on objective performance measures. Therefore, the occurrence of leniency bias is very likely because it is assumed that the actual performance is about equal in subjective and objective settings.

Since Bol uses data for the years 2003 and 2004, it is astonishing that the effect of subjective performance evaluation is significantly positive in 2003 (+0.29) but it has a marginally negative effect (-0.09) on the overall rating in 2004. These findings cause Bol to conclude that "supervisors in general use the leeway they have in subjective performance appraisal to bias performance ratings, but that this does not necessarily result in more lenient ratings."¹⁶⁶

Moers also hypothesizes that "subjectivity in performance measurement leads to more lenient performance ratings."¹⁶⁷ His Tobit regression shows that the subjective performance ratings are higher than the objective ones, which suggests that the discretionary evaluation is more lenient.

Testing for the determinants of leniency bias, Bol defines the independent variables listed below:

OBJ_R	objective performance rating
NEW_R	dummy variable, 1 if the agent is working for the principal for a short amount of time (joined the organizations in the last three years, recently changed positions in the company, or if a new principal was assigned), 0 if the agent is working for the principal for a long time
INFO_C	dummy variable, 0 if agent and principal have the same organizational level, 1 if the principal has a higher level
GROWTH	difference (in percent) between the previous and current profit of the office per year
BUDGET	difference (in percent) between the budgeted and the actual profit
SUP_SEX	supervisor sex
SEX	agent sex
DIF_AGE	difference between principal and agent age
SUP_AGE	principal age

¹⁶⁶ Bol, 2007, p. 26

¹⁶⁷ Moers, 2005, p. 71

The analysis with the underlying data shows the correlation displayed in Table 7.

Table 7: Determinants of leniency bias¹⁶⁸

Independent variable	Leniency bias
OBJ_R	-0.33***
NEW_R	-0.05**
INFO_C	0.04*
GROWTH	0.02**
BUDGET	0.01***
SUP_SEX	0.11***
SEX	0.3
DIF_AGE	-0.01*
SUP_AGE	-0.01*

***statistical significance at 1%, ** statistical significance at 5%, * statistical significance at 10%

As it can be seen in Table 7 the objective performance rating has a negative effect on the use of leniency bias, meaning that performance evaluations tend to be more lenient when the actual employee performance is weak. The amount of time the agent and the principal have been working together also influences the extend of leniency bias. When the relationship is fairly new, the principal rates less leniently as personal ties are not so strong. The costs of information gathering, which are assumed to be higher when the agent and the supervisor are on different organizational levels, are causing lenient ratings as the principal tries to avoid them. The higher the growth of the profits, the more lenient the ratings because supervisors can afford to be more generous when their office is performing better financially. This effect can also be observed with the difference between the budgeted and the actual profit. The better the office performance, the more lenient the principal can be. Testing for the influence of the principal's sex, the regression shows that male supervisors are more lenient than their female counterparts. One possible explanation for this is that females are thought to be more lenient, as they are aware of this stereotype they exercise more caution. The sex of the agent has no influence on on lenient performance evaluations. The age difference, on the other hand, does have a negative impact on the extent of leniency bias. The larger the age gap the less lenient the rating. Bol ascribes this to the fact that relations between the agent and the principal are stronger when they are the same age. The personal relation will make it unpleasant to rate accurately when performance is weak. When the age difference is high, the relation is not going to be very strong and communicating harsh ratings is no problem, thus the principal does not have to be lenient.¹⁶⁹ This explanation is based on the assumption that people of different age cannot have strong emotional ties, which can be doubted.

¹⁶⁸ Based on Bol, 2007, p. 46, Table 6

¹⁶⁹ Bol, 2007

In another study, Bol examines the information gathering costs and confrontation costs for the principal and their effects on leniency bias. Based on the notion that the supervisor seeks to minimize her own cost, she will try to avoid all additional costs. Therefore, Bol hypothesizes that “information gathering and confrontation costs positively affect leniency bias.”¹⁷⁰ In Bol’s empirical study, the information gathering costs are approximated by dividing the principals in two groups: The one group that shares its workspace with its agents and works together with them most of the time is thought to incur low information costs. The other group that is not as familiar with its agents’ actions is assumed to incur high information gathering costs. The confrontation costs are captured through the personal relationship between agent and principal. The relation is captured through age difference, gender difference, and the amount of time the employee has been working for the supervisor. The analysis of incentive plans for non-management employees shows that the higher the information gathering and the confrontation costs the more leniently the principal will rate.

So far it has been established that leniency bias does exist under certain circumstances and that there are various variables which influence the amount of leniency employed. Above, it has been stated that Bol assumes that evaluation bias does not only affect performance in a negative way. Thus, the section below deals with the effects of leniency bias on performance.

As performance evaluation is a mean to show agents how well they perform their tasks, lenient ratings make employees believe that their actions are desired by the supervisor. Consequentially, wrong or undesired behaviour will still be conducted because the agent is lead to believe that he is doing a good job. Bol argues that “supervisors are expected to be cautious about stimulating undesirable actions”¹⁷¹ and concludes that the overall effect of the leniency bias is positive as it increases the agent’s effort. This results in the hypothesis “leniency bias has a positive effect on the effectiveness of a compensation contract as an incentive provider.”¹⁷²

As Bol¹⁷³ used data for the years 2003 and 2004, she tries to capture the effects of supervisor bias by comparing the performance in the two years, matching it with the amount of bias which was exercised in the first year.

In order to better capture the effects on performance the dependent variables are divided in

$\Delta\text{PERF_O}$	difference between the objective rating of 2003 and 2004,
$\Delta\text{PERF_S}$	difference between the subjective rating of 2003 and 2004,
$\Delta\text{PERF_T}$	difference between the total rating of 2003 and 2004, and

¹⁷⁰ Bol, 2007, p. 7

¹⁷¹ Bol, 2007, p. 9

¹⁷² Bol, 2007, p. 9

¹⁷³ Bol, 2007

EFFORT change in the agent's effort according to the employees self-assessment on a 5-item Likert scale.¹⁷⁴

The independent variable referring to the use of subjective performance evaluations is¹⁷⁵

LEN_BIAS "Leniency bias, measured as the residuals of the regression of the ratio between the subjective performance rating and the objective performance rating on the contractual weights, the number of performance measures and the centrality bias"¹⁷⁶

Table 8: Performance effects of leniency bias¹⁷⁷

	Δ PERF_O	Δ PERF_S	Δ PERF_T	EFFORT
LEN_BIAS	0.73***	-0.10	0.22*	0.39*

*** statistical significance at 1%, * statistical significance at 10%

The analysis shows that the occurrence of leniency bias has negative as well as positive effects. After the occurrence of lenient ratings, the objective performance evaluations increased in the following year. The total rating including objective and subjective ratings augmented too. The subjective rating in the sequential year is not significantly altered by rating leniently. The exerted effort has increased. Due to these findings, it can be said that even though leniency bias distorts evaluations, it has positive performance effects.

4.2.1.2. Centrality bias

"Centrality bias is the tendency to compress performance ratings, creating less variance in performance ratings than in actual performance."¹⁷⁸ Centrality bias causes the performance ratings to cluster around the middle of the possible range, not allowing deviation from the average. The appearance of compression is thought to be due to insufficient differentiation between the agents because the needed information is not easily available to the principal.

Moers hypothesizes that "subjectivity in performance measurement leads to more compressed performance ratings"¹⁷⁹ Moers analysis of incentive plans for 160 higher-level subordinates shows that "on average, the performance ratings on the subjective dimension are closer to the median rating than

¹⁷⁴ Since the dependent variable itself is a subjective measure their interpretation can be problematic. Gibbs, Merchant, Van der Stede, & Vargus, 2009

¹⁷⁵ Other variables such as the employee's potential to growth, the change of supervisor, and the change of the incentive system are examined in Bol's study as well. As these variables are not especially related to subjective performance evaluations their impact will not be discussed here.

¹⁷⁶ Bol, 2007, p. 49

¹⁷⁷ Based on Bol, 2007, pp. 48-50, Table 7 and Table 8.

¹⁷⁸ Bol, 2007, p. 1

¹⁷⁹ Moers, 2005, p. 71

the performance ratings on the objective dimension.”¹⁸⁰ The findings show that the subjective performance ratings are indeed more compressed than their objective counterparts.

The determinants of centrality bias have been empirically tested by Bol.¹⁸¹ To capture centrality bias she measured “the ratio between the standard deviation of all ratings on the objective dimension and the standard deviation of all ratings on the subjective dimension for each reference group.”¹⁸² Based on this definition, a high ratio indicates that compared to the objective evaluation the subjective rating is subject to centrality bias and, thus, compressed.

The correlations of the empirical analysis are presented in the table below. The independent variables have already been explained in the previous section.

Table 9: Determinants of centrality bias¹⁸³

Independent variable	Centrality bias
OBJ_R	0.19
NEW_R	0.64*
INFO_C	0.48*
GROWTH	-0.02**
BUDGET	-0.04
SUP_SEX	-0.08
SEX	-
DIF_AGE	-
SUP_AGE	0.02

**statistical significance at 5%, * statistical significance at 10%

As it can be seen above, centrality bias is not influenced by the objective ratings. The amount of time the agent and the principal have been working together affects the extent of compression. Bol argues that she expects relations to be weak at the beginning, therefore, the principal is not afraid to differentiate between employees.¹⁸⁴ However, the empirical data shows that ratings are more compressed at the beginning of the employer-agent relationship. This could be due to the fact that the principal is not willing to differentiate strongly until she has more information about the agent’s actual performance. Similar to the effect on leniency bias, the principal exerts more centrality bias when information gathering costs are high. The independent variable GROWTH shows that supervisors compress less when the profit growth is larger. All other variables do not influence the centrality bias significantly.

¹⁸⁰ Moers, 2005, p. 77

¹⁸¹ Bol, 2007

¹⁸² Bol, 2007, p. 22

¹⁸³ Based on Bol, 2007, p. 46, Table 6

¹⁸⁴ Bol, 2007

In another study, Bol hypothesizes that “information gathering and confrontation costs positively affect centrality bias.”¹⁸⁵ Using the same variables as above, Bol’s analysis shows that the hypothesis is valid and compression is more likely the higher the costs.

Now that the determinants of centrality bias have been discussed, I will focus on the effects of compressed ratings. The effects of centrality bias have to be examined according to the two possible groups of agents, namely (1) the above-average performers and (2) the below-average performers.

1. Above-average employees will receive an average rating even though their efforts were high. They will be demotivated to see that they did not reach their expected level of performance. They see that co-workers who performed worse are equally rewarded. In the future, above-average performers will decrease their efforts because they believe that they are not rewarded for their work on a fair basis. Bol hypothesizes that “centrality bias has a negative effect on the effectiveness of a compensation contract as an incentive provider for above-average performers.”¹⁸⁶
2. Below-average employees, on the other hand, are influenced in a positive way. Due to the compression of the ratings, their performance is rated better than it actually is. Since human beings tend to overestimate themselves, they think that they deserve the higher evaluation. The compression of the evaluation scale protects them from being disappointed and suppresses the likelihood of lower performance because of perceived unfairness. However, below-average performers will not try to increase their productivity because an improvement of effort will not lead to a better performance assessment. Since compression has a positive and a negative effect it cannot be hypothesized which overall effect the centrality bias has.¹⁸⁷

The dependent variables are the same as explained in section 4.2.1.1. The independent variables referring to the use of subjective performance evaluations, in particular centrality bias, are:¹⁸⁸

CEN_BIASA centrality bias referring to an above-average performer

CEN_BIASB centrality bias referring to a below-average performer

¹⁸⁵ Bol, 2007, p. 7

¹⁸⁶ Bol, 2007, p. 9

¹⁸⁷ Bol, 2007

¹⁸⁸ Other variables such as the employee’s potential to growth, the change of supervisor, and the change of the incentive system are examined in Bol’s study as well. As these variables are not especially related to subjective performance evaluations their impact will not be discussed here.

Table 10: Performance effects of centrality bias¹⁸⁹

	Δ PERF O	Δ PERF S	Δ PERF T	EFFORT
CEN_BIASA	-0.14***	-0.04	-0.08**	-0.27 ^t
CEN_BIASB	-0.13***	-0.06***	-0.09***	-0.72**

*** statistical significance at 1%, ** statistical significance at 5%, ^t statistical significance at 15%

Bol's empirical test shows that centrality bias has a negative effect on all performance levels for above and below average performers and, therefore, should be avoided.

4.2.1.3.Favoritism

Another important factor which plays a role when the agent's performance is evaluated subjectively is favoritism. Since the assessment solely results from the supervisor's perception, she might rate employees based on personal preference¹⁹⁰ to encourage loyalty, promote personal agendas, or punish rebellious employees.¹⁹¹

The occurrence of favoritism is partly due to the hierarchical structure in firms. The supervisor who evaluates the agent has another principal. Therefore, the supervisor herself is not the so called residual claimant of the managers output.¹⁹² In the beginning of the paper it was argued that the principal receives the outcome of the agent's work and in return offers the employee some kind of remuneration. The profit of the supervisor should therefore be the output minus the compensation for the agent. This is not the case in most employer-supervisor relationships as the principal is not the owner of the company and has a pay plan which is independent of the agent's remuneration. In these cases, the principal's incentives regarding the evaluation of their subordinates are not perfectly aligned with organizational objectives,¹⁹³ which will lead to inefficient and ineffective compensation contracting.¹⁹⁴ In fact, there are a lot of noted complaints of perceived favoritism¹⁹⁵ but little evidence to prove the existence of favoritism.¹⁹⁶

However, Woods hypothesizes that "the likelihood of supervisors' subjective adjustments to objective performance measures will be positively related to perceptions of supervisor favoritism."¹⁹⁷ His analysis shows that there is a positive correlation (0.602, statistical significance at 1%), noting that the

¹⁸⁹ Based on Bol, 2007, pp. 48-50, Table 7 and Table 8

¹⁹⁰ Prendergast & Topel, 1996

¹⁹¹ Bol, 2005

¹⁹² Baker, Gibbons, & Murphy, 1994 and Prendergast, 2002

¹⁹³ Caranikas-Walker, Goel, Gómez-Mejía, Cardy, & Rundell, 2007-8

¹⁹⁴ Prendergast & Topel, 1996

¹⁹⁵ Ittner, Larcker, & Meyer, 2003

¹⁹⁶ Woods, 2008

¹⁹⁷ Woods, 2008, p. 15

supervisors which are thought to apply favoritism use subjective adjustment to objective performance measures more often. This also implies that the use of subjectivity is triggered by favoritism and enlarges the effects of favoritism, which are additional costs of subjective performance evaluation.

4.3. The importance of trust

As it can be seen above, the introduction of subjectivity can ameliorate incentive contracts by mitigating distortions and reducing risks for employees. Nevertheless, negative effects and implementation problems are caused either by the volition of the principal or the agent because they want to influence the incentive contract in one way or another. Therefore, the impact of subjective performance evaluations on the agent's performance and his satisfaction with the actual bonus cannot be theoretically derived.¹⁹⁸

Based on the knowledge that the agent's satisfaction with his assessment is higher when he trusts his supervisor¹⁹⁹ and that incentive plans are more effective when the principal and the agent trust each other,²⁰⁰ Gibbs, Merchant, Van der Stede, and Vargus conclude that subjectivity in combination with trust should improve performance and increase the agent's contentment with the incentive system. From this train of thought three hypothesis are developed:

"The use of subjectivity in assigning rewards will be more positively related to pay satisfaction [...] the greater the level of trust."²⁰¹

"The use of subjectivity in assigning rewards will be more positively related to [...] productivity [...] the greater the level of trust."²⁰²

"The use of subjectivity in assigning rewards will be more positively related to [...] net profit [...] the greater the level of trust."²⁰³

Testing for the effects of subjective evaluations in combination with trust on pay satisfaction, Gibbs, Merchant, Van der Stede, and Vargus find that this connection is significantly positive (1.257, statistical significance at 5%). Thus, they conclude that trust is an important factor for the successful use of discretionary bonuses.

¹⁹⁸ Gibbs, Merchant, Van der Stede, & Vargus, 2004

¹⁹⁹ Folger & Konovsky, 1989

²⁰⁰ Lawler, 1971

²⁰¹ Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 7

²⁰² Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 7

²⁰³ Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 7

The positive correlation between trust combined subjective performance measures and productivity is even stronger (23.351, statistical significance at 5%). The same holds true for the influence on net profit (72.363, statistical significance at 5%).

These findings indicate that subjective bonuses have a more positive effect when the principal and the agent trust each other. Therefore, relational contracting and trust is essential when subjective incentives are implemented.

5. Discussion

Gathering the relevant papers for this literature review, it became obvious that several authors have already empirically tested the application and the implications of subjective performance evaluation. The underlying theoretical concepts used for the studies are based on the principal-agent theory. Therefore, the theoretical background is the same for the studies presented in this paper. As all authors rely on the same theories, the hypothesized correlations are coherent. This general agreement on the theoretical concepts of subjective performance evaluations is astonishing, because not one single paper argues that the theory might be flawed.

Despite the common grounds, each paper deals with explicit research questions specified by the authors. As a consequence, the models differ from author to author and the hypotheses concentrate on specific aspects on the use or the effects of subjective performance evaluations. Some papers have similar research questions so that there were multiple findings regarding the same topic. Other authors concentrated on very specific matters so that the findings could not be compared to any other empirical results.

5.1. Comparability of studies

Even for the relations that are tested multiple times, the comparison is not easy, as the underlying models differ. Furthermore, the samples are diverse. The data was collected by various primary surveys or deduced from secondary datasets which already existed. All surveys were constructed for different target groups. Some were for CEOs²⁰⁴ while others were aimed at incentive contracts for managers.²⁰⁵ Even if it can be argued that the theory should be largely valid for both kinds of agents, it was never proven that the results for one group are valid for the other one as well. Since the underlying theories are the same and the hypotheses are derived from the same basic knowledge, I

²⁰⁴ For example Murphy & Oyer, 2003 and Höppe & Moers, 2007

²⁰⁵ For example Gibbs, Merchant, Van der Stede, & Vargus, 2004 and Woods, 2008

expect the results to be comparable. Thus, I chose to present empirical studies for compensation plans for CEOs as well as for other managers.

Most of the studies included questions which were answered by using the perception of the agent or the principal. To capture the impression, a 5-point Likert scale was utilized. The reasons and effects of discretionary assessments were captured through questionnaires with subjective answers. Therefore, the data is prone to the same distortions which were discussed in the chapter about effects of subjective performance evaluations. However, the surveys could not be constructed differently to obtain the requested information. The reader needs to keep in mind that the answers are susceptible to distortions.

Furthermore, the samples include data from different geographical regions. As most of them²⁰⁶ were gathered in the United States of America it can be assumed that the underlying socioeconomic understandings are the same for the entire datasets.

The studies were conducted in different years; the data spans from 1996/1997 in the paper by Murphy and Oyer²⁰⁷ to 2006.²⁰⁸ Covering a decade, the data, the incentive contracts, the principals, and the agents have surely changed.

Another aspect to keep in mind is that there is no generally valid definition for subjective performance evaluation. Almost all authors even fail to give a definition of subjectivity in their papers. In the course of reading, it turns out that some scientists think of subjective performance evaluation as the sheer occurrence of any discretionary assessment while others concentrate on subjective adjustments to objective measures. This makes it additionally hard to compare the findings as it cannot be assured that neither the hypotheses nor the questionnaires were covering the same phenomenon. For future research I would strongly suggest to draw up a common definition which can be used for all subsequent studies so that the comparability of hypotheses and results is ensured.

The differences in the various studies make it clear why some of them find contradicting empirical evidence. Despite these caveats, some coherent findings which give implications for the validity of some of the theoretical hypotheses could be found.

²⁰⁶ The paper of Moers is based on data from the Netherlands.

²⁰⁷ Murphy & Oyer, 2003

²⁰⁸ Woods, 2008

5.2. Coherent findings

Looking at different studies from various authors the following hypotheses, which were tested more than once, show coinciding results.

1. Overall occurrence of subjective performance

The empirical findings on the overall occurrence of subjective performance evaluation show that the agents who are receiving a discretionary bonus make up about one fourth of the sample (23% of managers²⁰⁹, 25% of middle managers²¹⁰ and 35%²¹¹ CEOs).

2. Interdependencies

Gibbs, Merchant, Van der Stede, and Vargus find that there is a positive relation between and the use of subjective assessments.²¹² Murphy and Oyer find the same correlation.²¹³ The hypothesis that interdependencies positively influence the use of subjectivity is validated.

1. Subjective performance evaluation and leniency bias

Concerning the effects of subjective performance evaluation, both, Bol²¹⁴ and Moers²¹⁵ find that subjective ratings are in fact more lenient than objective ones.

2. Subjective performance evaluation and centrality bias

Both, Bol²¹⁶ and Moers²¹⁷ test the notion that subjective assessments are more compressed than their objective counterparts. Their studies indeed show that subjective ratings deviate less than objective ones.

These hypotheses are the only ones which were tested more than once and received coherent results. All others were either only tested by one author or contradicting findings were obtained.

²⁰⁹ Gibbs, Merchant, Van der Stede, & Vargus, 2004

²¹⁰ Gibbs, 1995

²¹¹ Bushman, Indjejkian, & Smith, 1996

²¹² Gibbs, Merchant, Van der Stede, & Vargus, 2004

²¹³ Murphy & Oyer, 2003

²¹⁴ Bol, 2009

²¹⁵ Moers, 2005

²¹⁶ Bol, 2009

²¹⁷ Moers, 2005

5.3. Contradicting findings

1. Completeness of objective performance measures

Murphy and Oyer's empirical results show that subjective performance evaluation is used more often when objective assessments are less complete.²¹⁸ Testing their entire sample for the impact of formula-based contract completeness, Gibbs, Merchant, Van der Stede, and Vargus find no significant correlation.²¹⁹ When their sample is divided into service and sales departments, the results change. In the service departments, a significant relation of the completion of objective measures and the use of subjective performance evaluation can be seen. This is explained by the fact that jobs in the service departments depend on factors which can hardly be assessed by objective measures. Gibbs, Merchant, Van der Stede, and Vargus also test for the influence of formula-based contract completeness on the size of the subjective bonus and find no correlation, even when the sample is further divided. Woods analysis shows that subjective adjustments to objective performance measures are more likely to occur when objective assessments are incomplete.²²⁰

The results show that in most studies there is a correlation between the completeness of objective performance measures and the use of subjective performance evaluations. Only the study of Gibbs, Merchant, Van der Stede, and Vargus finds no valid relation in parts of their sample. They explain this by saying that in parts of their sample formula-based bonuses are almost complete so that subjective performance evaluation is not needed.

2. Long-term incentives

Gibbs, Merchant, Van der Stede, and Vargus test the correlation between the short-term focus of formula-based evaluations and the use of subjective performance assessments and do not find the hypothesized relation.²²¹ Murphy and Oyer also analyze this relation and do not find an empirical proof either.²²² Bushman, Indjejikian, and Smith, on the other hand, do find that their proxies for long-term focus are correlated to the use of subjectivity.²²³ Hayes and Schaefer²²⁴, Ittner, Larcker, and Rajan²²⁵, as well as Caranikas-Walker, Goel, Gómez-Mejía, Cardy, and Rundell²²⁶ also validate the hypothesis that subjective performance evaluation is used to induce long-term incentives. These studies use different variables to capture the long-term focus, which explain the

²¹⁸ Murphy & Oyer, 2003

²¹⁹ Gibbs, Merchant, Van der Stede, & Vargus, 2004

²²⁰ Woods, 2008

²²¹ Gibbs, Merchant, Van der Stede, & Vargus, 2004

²²² Murphy & Oyer, 2003

²²³ Bushman, Indjejikian, & Smith, 1996

²²⁴ Hayes & Schaefer, 2000

²²⁵ Ittner, Larcker, & Rajan, 1997

²²⁶ Caranikas-Walker, Goel, Gómez-Mejía, Cardy, & Rundell, 2007-8

deviating results. However, four out of six studies do find a relation between long-term incentives and the use of subjective performance evaluation. Therefore, the underlying hypothesis should be valid to some extent.

3. Risk reduction

Theoretically, subjective performance evaluation can be used to reduce the risk of objective bonus plans. The variables for risk, which are measures in empirical studies, vary from analysis to analysis so that the deviating findings are no surprise. The variables which were used and their correlation to the occurrence of subjective assessments are shown in Table 11.

Table 11: Variables for risk and their correlation

Independent variable	Correlation to subjective performance evaluation	Authors
Performance measure controllability	No	Gibbs, Merchant, Van der Stede, and Vargus ²²⁷
Noise	Yes	Höppe and Moers ²²⁸
Noise	Yes	Woods ²²⁹
Sensitivity of objective performance measures	No	Woods ²³⁰
Noise	Yes	Höppe and Moers ²³¹
Environmental uncertainty	Yes	Höppe and Moers ²³²
Environmental uncertainty	No	Gibbs, Merchant, Van der Stede, and Vargus ²³³
External risk	No	Murphy and Oyer ²³⁴
External risk	No	Bushman, Indjejikian, and Smith ²³⁵
Internal Risk	No	Murphy and Oyer ²³⁶
Variance in stock price (internal factors)	Yes	Murphy and Oyer ²³⁷
Variance in stock price (external factors)	Yes	Murphy and Oyer ²³⁸
Variance in stock price (overall)	No	Bushman, Indjejikian, and Smith ²³⁹
Variance in accounting earnings	No	Bushman, Indjejikian, and Smith ²⁴⁰

²²⁷ Gibbs, Merchant, Van der Stede, & Vargus, 2004

²²⁸ Höppe & Moers, 2007

²²⁹ Woods, 2008

²³⁰ Woods, 2008

²³¹ Höppe & Moers, 2007

²³² Höppe & Moers, 2007

²³³ Gibbs, Merchant, Van der Stede, & Vargus, 2004

²³⁴ Murphy & Oyer, 2003

²³⁵ Bushman, Indjejikian, & Smith, 1996

²³⁶ Murphy & Oyer, 2003

²³⁷ Murphy & Oyer, 2003

²³⁸ Murphy & Oyer, 2003

²³⁹ Bushman, Indjejikian, & Smith, 1996

Controllable risk	Yes	Gibbs, Merchant, Van der Stede, and Vargus ²⁴¹
Competition	No	Gibbs, Merchant, Van der Stede, and Vargus ²⁴²
Difficulty of meeting the performance target and negative effects	Yes	Gibbs, Merchant, Van der Stede, and Vargus ²⁴³
Operating in loss condition	Yes ²⁴⁴	Gibbs, Merchant, Van der Stede, and Vargus ²⁴⁵

As shown in Table 11, the connection between the variables which are used to approximate risk in objective performance measure and the use of subjective performance evaluation are ambiguous. One explanation for the different results are the definitions of risk and the ways in which it is measured. The study of Gibbs, Merchant, Van der Stede, and Vargus shows that the hypothesis is not valid for the entire sample while it holds true for certain subgroups.²⁴⁶ Therefore, it can be said that the sample group does play an important role. As all studies use different data from different industries and years, the comparison is not easy. The studies show that out of eighteen hypotheses, nine were validated.

4. Limitation of manipulation

According to the theory, subjective performance evaluation should be used when objective measures are easily manipulable. Gibbs, Merchant, Van der Stede, and Vargus test this correlation and find that in their entire sample it is not significant.²⁴⁷ When the sample is divided into sales and service departments, there is a relation in the service departments. Again, it is argued that tasks in the sales department can be assessed easily and, therefore, there subjective evaluation is needed. Testing for the size of subjective bonuses, the whole sample shows a positive correlation. Woods, on the other hand, finds that the occurrence of subjective adjustments is not related to the manipulability of objective measures.²⁴⁸ These findings indicate that subjectivity can be used to mitigate manipulation in some cases.

5. Limited knowledge of the principal

Höppe and Moers find that limited knowledge itself has no impact on the use of subjective performance measures but that in combination with noise, it is a significant determinant.²⁴⁹

²⁴⁰ Bushman, Indjejikian, & Smith, 1996

²⁴¹ Gibbs, Merchant, Van der Stede, & Vargus, 2009

²⁴² Gibbs, Merchant, Van der Stede, & Vargus, 2004

²⁴³ Gibbs, Merchant, Van der Stede, & Vargus, 2004

²⁴⁴ When the sample is divided into sales and service departments, it is valid in the service departments.

²⁴⁵ Gibbs, Merchant, Van der Stede, & Vargus, 2004

²⁴⁶ Gibbs, Merchant, Van der Stede, & Vargus, 2004

²⁴⁷ Gibbs, Merchant, Van der Stede, & Vargus, 2004

²⁴⁸ Woods, 2008

²⁴⁹ Höppe & Moers, 2007

Caranikas-Walker, Goel, Gómez-Mejía, Cardy, and Rundell²⁵⁰ also find no correlation between knowledge and subjectivity. Both studies approximate the amount of knowledge by board composition. The definitions of knowledgeable and not knowledgeable are defined by full-time employment and the amount of directorships. These measures might not be the best way to capture the information the principal has at hand. Other variables like the amount of time the principal and the agent spend together might be a better approximation, which still needs to be tested.

²⁵⁰ Caranikas-Walker, Goel, Gómez-Mejía, Cardy, & Rundell, 2007-8

6. Conclusion

My literature review on empirical studies in the field of subjective performance evaluation shows that discretionary assessments are commonly used to award CEOs and managers of all levels. The authors agree on the fact that the occurrence of subjective performance evaluation is widely spread and lies at about one quarter of all tested agents.

Various studies which are based on the same theoretical background were looked at in order to find common empirical results. Hypotheses which are validated by multiple studies are rare. Concerning the use of subjective performance evaluation, the only hypothesis which was validated by two studies was the correlation between interdependencies and the use of subjectivity.

All other influence factors received contradictory findings even though the hypotheses are largely the same. This is due to the fact that the studies are conducted in different years, use dissimilar samples, and measure slightly different variables. The absolute falsification of a hypothesis has never been proven because the authors can always explain the deviating findings. In the majority of all hypotheses, some studies also validate the underlying idea.

The effects of subjective performance evaluation, namely leniency bias, centrality bias, and favoritism, have not been studied as much as the determinants of its use. Empirical tests show that subjective assessments tend to be more lenient and more compressed than their objective counterparts, which has been validated by two independent authors. All other determinants of bias and their effects on future behavior have only been tested by one author so far. In this field, there is a serious need for more empirical studies to test the theoretical considerations.

7. Extended bibliography

In the following chapters my main sources are discussed. To make comparisons easier, each paper is displayed in the sections goal, definition of subjective performance evaluation, sample, as well as hypotheses and findings.

7.1. Bol, 2007

Goal

Bol's paper "The determinants and performance effects of supervisor bias"²⁵¹ concentrates on leniency and centrality bias and examines their determinants and effects. Bol published another paper with the exact same title in 2009.²⁵² The 2009 paper uses the same sample, the same models and is almost identical with the one from 2007. The only difference is that hypothesis 1 is more detailed in the 2009 paper.

Definition of subjective performance evaluation

Though Bol focuses on leniency and centrality bias in subjective performance evaluation, she does not define what discretionary assessments are. Throughout the paper, the reader finds hints that Bol refers to the general idea of subjective performance evaluation as described in Chapter 2.

Sample

The sample consists of incentive plans for low-level employees of five branch offices of a financial service provider. Contracts which included objective and subjective elements and the performance data for the years 2004 and 2005 are used.

²⁵¹ Bol, 2007

²⁵² Bol, 2009

Hypotheses and findings

Table 12: Bol hypotheses and findings

Hypothesis	Validation
“The extent of bias applied to subjective performance ratings is influenced by the costs of communicating evaluations, information-gathering costs, employee performance, and the attitude of the supervisor’s superiors towards rating accuracy.” ²⁵³	N/A
“Leniency bias has a positive effect on the effectiveness of a compensation contract as an incentive provider.” ²⁵⁴	True
“Centrality bias has a negative effect on the effectiveness of a compensation contract as an incentive provider for above-average performers.” ²⁵⁵	True

7.2. Gibbs, Merchant, Van der Stede, and Vargus, 2004

Goal

The paper “Determinants and effects of subjectivity in incentives”²⁵⁶ by Gibbs, Merchant, Van der Stede, and Vargus aims to answer two questions. Firstly, under which circumstances do firms use subjective performance evaluations? Secondly, what are the effects of discretion on actual employee performance and the agent’s satisfaction with his pay?

Definition of subjective performance evaluation

While the authors distinguish between different ways in which subjectivity can occur, Gibbs, Merchant, Van der Stede, and Vargus do not offer a definition for subjective performance evaluation. Only the comments to their Table 1 show that a “discretionary bonus is based on the supervisor’s subjective judgment of the manager’s performance.”²⁵⁷ However, this is the only definition which can be found because the examples of their questionnaire also do not include any hints what subjective performance assessments are exactly.

²⁵³ Bol, 2007, p. 5

²⁵⁴ Bol, 2007, p. 9

²⁵⁵ Bol, 2007, p. 9

²⁵⁶ Gibbs, Merchant, Van der Stede, & Vargus, 2004

²⁵⁷ Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 22

Sample

The study uses data from compensation contracts in auto dealerships in the United States used in 1998. The incentive plans of department managers were investigated as they are not as complex as bonus plans for senior executives. A customized survey was conducted with the help of a management-consulting firm. Each dealership received five questionnaires, one for the owner, one for the general manager, one for the service department manager, one for the new car sales department manager, and one for the used car sales department managers. In total, 1.050 usable surveys were returned (274 from owners, 250 from general managers, 205 from service department managers, 185 from new cars department managers, and 136 from used car sales managers).

Hypotheses and findings

Gibbs, Merchant, Van der Stede, and Vargus argue that the influence of a discretionary bonus depends on both, its incidence and its size. Therefore, they conduct a Logit analysis to find the determinants of incidence and a Tobit analysis to establish the factors influencing the size of the subjective bonuses. Due to the two analyses, each hypothesis has two empirical findings.

Table 13: Gibbs, Merchant, Van der Stede, and Vargus hypotheses and findings

Hypothesis	Validation for use	Validation for size
“The use of subjectivity in the assignment of rewards will be negatively related to formula bonus completeness.” ²⁵⁸	True*	True
“The use of subjectivity in the assignment of rewards will be positively related to the short-term focus of the quantitative measures.” ²⁵⁹	False	False
“The use of subjectivity in the assignment of rewards will be positively related to [...] the extent of long-term investments in intangibles.” ²⁶⁰	True	True
“The use of subjectivity in the assignment of rewards will be positively related to the manipulability of the quantitative measures.” ²⁶¹	True*	True
“The use of subjectivity in the assignment of rewards will be positively related to the extent to which the quantitative measures	False	False

²⁵⁸ Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 4

²⁵⁹ Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 4

²⁶⁰ Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 4

²⁶¹ Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 5

reflect factors outside the managers' control." ²⁶²		
"The use of subjectivity in the assignment of rewards will be positively related to the extent of organizational interdependencies." ²⁶³	True	False
"The use of subjectivity in the assignment of rewards will be positively related to the level of environmental uncertainty." ²⁶⁴	False	False
"The use of subjectivity in the assignment of rewards will be positively related to [...] the level of competition." ²⁶⁵	False	False
"The use of subjectivity in the assignment of rewards will be positively related to the difficulty of meeting a performance target that has high consequences for failure." ²⁶⁶	True	True
"The use of subjectivity in the assignment of rewards will be positively related to the occurrence of a loss." ²⁶⁷	True*	True
"The use of subjectivity in assigning rewards will be more positively related to pay satisfaction [...] the greater the level of trust." ²⁶⁸	True	Not tested
"The use of subjectivity in assigning rewards will be more positively related to [...] productivity [...] the greater the level of trust." ²⁶⁹	True	Not tested
"The use of subjectivity in assigning rewards will be more positively related to [...] net profit the greater the level of trust." ²⁷⁰	True	Not tested

* Under certain circumstances as explained above

²⁶² Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 5

²⁶³ Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 5

²⁶⁴ Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 6

²⁶⁵ Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 6

²⁶⁶ Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 6

²⁶⁷ Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 6

²⁶⁸ Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 7

²⁶⁹ Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 7

²⁷⁰ Gibbs, Merchant, Van der Stede, & Vargus, 2004, p. 7

7.3. Höppe and Moers, 2007

Goal

The paper “Discretion and the complexity of simple incentive contracts”²⁷¹ by Höppe and Moers aims to examine the determinants of discretion in CEO incentive contracts. They try to find out what the motivations to use subjective performance evaluation are and how the implicit contracts change with the type of implicitness, the contract details, and the underlying contracting problems.

Definition of subjective performance evaluation

Höppe and Moers state that there are different examples of subjective performance evaluations. They distinguish between subjectively assessing qualitative aspects of the agent’s tasks and the possibility of ex-post assigning subjective weights to multiple performance measures.

Sample

Höppe and Moers use data of incentive contracts from Security and Exchange Commission proxy statements for the years 1998 to 2002. The proxy statements provide information about the annual bonus plans and whether these plans are formula-based or discretionary. The sample only comprises publicly listed entities which are included in EXECUCOMP²⁷² and where the CEO did not change from 1998 to 2002. In total, the empirical analysis contains 1,753 incentive plans for 424 firms.

Hypotheses and findings

The authors conduct the analysis for the cases of an earnings-based contract and a multi-measure contract.

²⁷¹ Ittner, Larcker, & Rajan, 1997

²⁷² Database which tracks executive compensation in Standard & Poor's 1,000 firms.

Table 14: Höppe and Moers hypotheses and findings

Hypothesis	Validation
“In earnings-based contracts, the use of discretionary bonuses is positively related to the noise in earnings.” ²⁷³	True
“In multi-measure contracts, the use of implicit incentive weights is positively related to environmental uncertainty.” ²⁷⁴	True
“In an earnings-based contract, the relationship between the use of discretionary bonuses and noise in earnings is less positive the less knowledgeable the board.” ²⁷⁵	True
“In a multi-measure contract, the relationship between the use of implicit incentive weights and environmental uncertainty is less positive the less knowledgeable the board.” ²⁷⁶	True

7.4. Murphy and Oyer, 2003

Goal

Murphy and Oyer’s paper “Discretion in executive incentive contracts” aims at studying the function of discretion in incentive contracts designed for executive personnel.

Definition of subjective performance evaluation

According to Murphy and Oyer, discretion is defined as the ratio of subjective and objective performance measures. Thus, bonuses are more discretionary when “the relative weight on subjective vs. objective performance measures will be higher.”²⁷⁷

Sample

The data for the empirical test was gathered through a confidential survey named “Annual Incentive Plan” conducted by the consulting firm Towers Perrin in 1996 and 1997. 262 public and private firms from all sectors of the economy took part in the survey and revealed data about annual bonus plans which were effective between 1993 and 1995. The incentive plans, which were used for CEOs and other top executives, included up to 25.000 participants. Not all data from the survey was used for all parts of the empirical analysis due to incomplete information or insufficient details.

²⁷³ Höppe & Moers, 2007, p. 7

²⁷⁴ Höppe & Moers, 2007, p. 9

²⁷⁵ Höppe & Moers, 2007, p. 10

²⁷⁶ Höppe & Moers, 2007, p. 10

²⁷⁷ Murphy & Oyer, 2003, p. 2

Hypotheses and findings

Table 15: Murphy and Oyer hypotheses and findings

Hypothesis	Validation
“Bonuses will be more discretionary (that is, the relative weight on subjective vs. objective performance measures will be higher) in privately held companies than in publicly held corporations.” ²⁷⁸	True
“Bonuses in publicly traded firms will be more discretionary in larger companies and in companies with more top executives.” ²⁷⁹	True
“Bonuses in publicly traded firms will be more discretionary in companies with higher systematic risk.” ²⁸⁰	False
“Bonuses will be more discretionary in companies with substantial growth or investment opportunities.” ²⁸¹	False
“Bonuses will be less discretionary for the CEO than for lower-level executives.” ²⁸²	True
“Bonuses will be less discretionary, and more based on business-unit rather than company-wide results, in relatively autonomous business units.” ²⁸³	True

7.5. Woods, 2008

Goal

Woods’ paper “Subjective adjustments to objective performance measures: an empirical examination of the economic benefits and social costs in complex work settings”²⁸⁴ seeks to answer the question whether principals adjust objective performance measures by exercising subjectivity.

Definition of subjective performance evaluation

Woods study concentrates on the possibility of subjective adjustments. He stipulates that there is an original performance measure which is objective, but due to deficiencies the principal decides to adjust the underlying objective incentive plan. Woods also lacks an explanation as to what subjective actually means. It just is clear that the supervisor can decide about the adjustment according to her own discretion.

²⁷⁸ Murphy & Oyer, 2003, p. 10

²⁷⁹ Murphy & Oyer, 2003, p. 11

²⁸⁰ Murphy & Oyer, 2003, p. 11

²⁸¹ Murphy & Oyer, 2003, p. 11

²⁸² Murphy & Oyer, 2003, p. 12

²⁸³ Murphy & Oyer, 2003, p. 13

²⁸⁴ Woods, 2008

Sample

Woods uses a combination of proprietary secondary data and results from a survey conducted by him. The secondary data stems from a pay-for-performance compensation plan which is used by a large internal audit organization. The survey data measures perceptions about objective performance measures and the adjustments made by supervisors. The total dataset includes 111 audit managers and their incentive contracts in 2006.

Hypotheses and findings

Table 16: Woods hypotheses and findings

Hypothesis	Validation
“The likelihood of supervisors’ subjective adjustments to objective performance measures will be negatively related to supervisors’ perceptions of performance measure sensitivity.” ²⁸⁵	False
“The likelihood of supervisors’ subjective adjustments to objective performance measures will be negatively related to supervisors’ perceptions of performance measure congruity.” ²⁸⁶	False
“The likelihood of supervisors’ subjective adjustments to objective performance measures will be negatively (positively) related to supervisors’ perceptions of performance measure precision (noise).” ²⁸⁷	True
“The likelihood of supervisors’ subjective adjustments to objective performance measures will be negatively related to supervisors’ perceptions of performance measure completeness.” ²⁸⁸	True
“The likelihood of supervisors’ subjective adjustments to objective performance measures will be negatively related to supervisors’ perceptions of performance measure verifiability.” ²⁸⁹	True
“The likelihood of supervisors’ subjective adjustments to performance measures will be positively related to supervisors’ perceptions of performance measure manipulability.” ²⁹⁰	False
“The likelihood of supervisors’ subjective adjustments to objective performance measures	True

²⁸⁵ Woods, 2008, p. 9

²⁸⁶ Woods, 2008, p. 9

²⁸⁷ Woods, 2008, p. 9

²⁸⁸ Woods, 2008, p. 10

²⁸⁹ Woods, 2008, p. 11

²⁹⁰ Woods, 2008, p. 11

will be positively related to perceptions of manager influence activities.” ²⁹¹	
“The likelihood of supervisors’ subjective adjustments to objective performance measures will be positively related to perceptions of supervisor favoritism.” ²⁹²	True

²⁹¹ Woods, 2008, p. 14

²⁹² Woods, 2008, p. 15

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²⁹³ I used the pdf version of this paper which does not have identical page numbers with the version in the journal.

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Lebenslauf

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Wissenschaftlicher Werdegang:

2005 bis 2010	Studium der internationalen Betriebswirtschaftslehre an der Universität Wien Projektassistentin bei dem Projekt „Finance Benchmark“ des Lehrstuhls für Organisation und Personal der Universität Wien in Zusammenarbeit mit Ernst and Young Auszeichnung als beste Studentin der Internationalen BWL im ersten und zweiten Abschnitt Diverse Leistungsstipendien der Universität Wien
2005 April-Mai	Middlesex Community College, Middlesex, USA Active Leadership for Managers Certificate
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