The relationship between subjectivity in performance evaluation and managerial performance

PhD thesis by

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Abstract

This thesis develops and tests a framework examining the relationship between subjectivity in performance evaluation and managerial performance. The framework predicts that subjectivity in performance evaluation is positively associated with psychological empowerment and supervisor-subordinate conflict. As previous studies established a positive association between empowerment and performance, and a negative association between conflict and performance, it is suggested in this thesis that subjectivity in performance evaluation has both positive and negative indirect associations with managerial performance.

The investigation was undertaken using a sample of 102 anonymous managers who completed a mail survey. The data analysis was done using Partial Least Squares. This study finds that subjectivity in performance evaluation is a multidimensional construct. Subjectivity was split into two variables: process-based subjectivity and supervisor-based subjectivity. Both variables were related to managerial performance through positive and negative indirect associations. Process-based subjectivity is similar to supervisor-based subjectivity regarding its effect on supervisor-subordinate conflict, but it differs concerning its effect on access to information.

This study is important as it investigates the competing effects of subjectivity in performance evaluation upon managerial performance. Further, the findings suggest that supervisor-subordinate conflict and access to information fully mediate the association between subjectivity and psychological empowerment. The contribution of this study to the literature lies in developing a new scale to measure subjectivity in performance evaluation and in providing additional empirical evidence regarding the effects of subjectivity in performance evaluation on managerial performance.

Statement of authorship

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university or other institution. I affirm, to the best of my knowledge, that this thesis contains no material previously published or written by another person, except where due reference has been made in the text of the thesis.

Vicente de Camargo Bicudo de Castro

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Chapter 1. Introduction

1.1. Purpose of the research

The management accounting literature is increasingly dedicating attention to the role of subjectivity in performance evaluation (Bol, 2008). Subjectivity in performance evaluation refers to the degree of a supervisor's discretion on performance evaluation (Bol & Smith, 2011; Govindarajan & Gupta, 1985). Recent studies show that subjectivity is an important characteristic of performance evaluation (Gibbs, Merchant, Van der Stede, & Vargus, 2004; Moers, 2005). Subjectivity arises from supervisors using qualitative assessments of performance, or discretionary weightings of different aspects of performance (Gibbs et al., 2004; Moers, 2005).

The adoption of predominantly subjective performance evaluation may enhance psychological empowerment (Simons, 1995). Empowerment refers to an increased task motivation affected by both personality and environmental variables (Spreitzer, 1995; Thomas & Velthouse, 1990). Through empowerment, employees have the discretion to make decisions regarding job-related activities (Conger & Kanungo, 1988). The subjectivity of the performance evaluation process enables supervisors to evaluate subordinates´ performance based on their level of effort, commitment, obstinacy, creativity, and on whether they are a role model to fellow colleagues (Baiman & Rajan, 1995; Simons, 1995). Notwithstanding, some research suggests that subjectivity in performance evaluation might be associated with conflict between supervisor and subordinate (Gibbs et al., 2004; Ittner, Larcker, & Meyer, 2003). Subjectivity in performance evaluation also makes it possible for supervisors to evaluate subordinates' performance based on factors that are not related to

observed performance, which may result in a deteriorating supervisor-subordinate relationship (Prendergast & Topel, 1993). Therefore, the adoption of subjective performance evaluations may increase supervisor-subordinate conflict as well as psychological empowerment.

If, as the prior research suggests, subjectivity in performance evaluation may foster both conflict and empowerment, the payoff for organisations adopting subjective performance evaluations is uncertain, as psychological empowerment and supervisor-subordinate conflict are likely to have opposite effects on managerial performance (Jehn, 1995; Spreitzer, 1995). Therefore, a key research question is whether the adoption of subjective performance evaluation improves or hinders managerial performance. Recent studies provide some insights as to its consequences, although research in subjectivity in performance evaluation is still in an early stage of development (Bol, 2008). For example, Van Rinsum and Verbeeten (2012) find that the negative effects of subjectivity in performance evaluation outweigh the potential positive consequences.

This study seeks to examine how subjectivity in performance evaluation influences managerial performance, as well as whether subjectivity in performance evaluation is associated with psychological empowerment and supervisor-subordinate conflict.

1.2. Research question

As indicated above, this study investigates the association between subjectivity in performance evaluation and managerial performance. The following research question is addressed in this thesis:

- Does subjectivity in performance evaluation enhance or hinder managerial performance?

To further investigate the association between subjectivity and performance, two sub-questions address possible outcomes of subjective performance evaluation. The two possible outcomes are supervisor-subordinate conflict and psychological empowerment. The first sub-question addresses whether the adoption of subjective performance evaluations is associated with supervisor-subordinate conflict, and whether, in turn, this conflict affects managerial performance:

- Is subjectivity in performance evaluation associated with supervisor-subordinate conflict? Is supervisor-subordinate conflict associated with managerial performance?

The second sub-question addresses the association between subjectivity in performance evaluation and psychological empowerment, and psychological empowerment's subsequent effect on managerial performance:

- Is subjectivity in performance evaluation associated with psychological empowerment? Is psychological empowerment associated with managerial performance?

To answer these questions, a framework is proposed in Chapter 2. The next section outlines the motivation of this study.

1.3. Motivation

This study seeks to better understand the competing effects upon managerial performance of adopting a more subjective performance evaluation. Studies that explore the effects of subjectivity in performance evaluation upon managerial performance are still in an early stage of development and they give little insight into the seemingly competing effects of subjective performance evaluation. Authors such as Van Rinsum and Verbeeten (2012) argue

that subjective performance evaluation may have competing effects (both positive and negative) upon managerial performance. However there is a lack of evidence of these possible competing effects, and it is therefore uncertain if the adoption of subjective performance evaluation improves or hinders managerial performance.

These possible competing effects may be due to mediating variables, which are the outcomes of subjectivity in performance evaluation and the antecedents of managerial performance, such as psychological empowerment and supervisor-subordinate conflict. Research suggests that the cognitions of psychological empowerment may be improved by the adoption of a more subjective performance evaluation, as supervisors may evaluate a subordinate´s performance based on his or her amount of effort, commitment, obstinacy, creativity, and being a role model to fellow colleagues (Baiman & Rajan, 1995; Simons, 1995). Additionally, research also suggests that subjectivity in performance evaluation might be associated with supervisor-subordinate conflict (Gibbs et al., 2004; Ittner, Larcker, & Meyer, 2003). Supervisor-subordinate relations may deteriorate if supervisors evaluate subordinates due to other factors which are not related to subordinates' observed performance (Prendergast & Topel, 1993). Thus, subjectivity in performance evaluation may be positively associated with supervisor-subordinate conflict and psychological empowerment.

However, psychological empowerment and supervisor-subordinate conflict may have opposite effects on managerial performance. Whilst psychological empowerment is expected to be positively associated with managerial performance (Hall, 2008; Spreitzer, 1995), supervisor-subordinate conflict is expected to be negatively associated with managerial performance (Jehn, 1995, 1997; Jehn & Chatman, 2000).

Still, there is no research regarding these competing, or opposing effects; thus, it is uncertain if the adoption of subjective performance evaluation improves or hinders managerial performance. Therefore, the motivation of this study is the lack of empirical research which has examined the effects of adopting a subjective performance evaluation upon managerial performance.

1.4. Contributions to the literature

This study analyses the association between subjectivity in performance evaluation and managerial performance, psychological empowerment, and supervisor-subordinate conflict, contributing to the literature in two main ways.

The first contribution is to provide additional empirical evidence regarding the effects of subjectivity in performance evaluation on managerial performance. As Bol (2008) argues, few studies provide related insights. This study investigates the competing effects of subjective performance evaluation on managerial performance through psychological empowerment and supervisor-subordinate conflict. The study's framework posits a positive association between subjectivity in performance evaluation and psychological empowerment, and a positive association between subjectivity in performance evaluation and supervisor-subordinate conflict.[1] Additionally, it posits that psychological empowerment has a positive association with managerial performance, while supervisor-subordinate conflict has a negative association with managerial performance. It also presents evidence that subjectivity in performance evaluation has competing effects upon managerial performance.

[1] More detail on this point is provided in Chapter 2.

The second contribution is the development of a new scale to measure subjectivity in performance evaluation. Authors, such as Bol (2008), argue that most studies refer to subjectivity in a very general sense. No known previous research has attempted to measure subjectivity in performance evaluation using a survey instrument.[2] This study finds that subjectivity in performance evaluation is a two-dimensional construct. One was labelled as process-based subjectivity, reflecting the characteristics of the performance evaluation itself, capturing what supervisors were able to do with the organisation's current performance evaluation system. The other was named supervisor-based subjectivity, representing the uniqueness of each supervisor while evaluating her or his subordinate, being less about the process by itself and more about the supervisor using it.[3]

Investigating the competing effects of subjectivity in performance evaluation and developing a measure for subjectivity provides researchers with an instrument to examine subjectivity in performance evaluation, thereby contributing to the growing body of literature which examines the effects of subjectivity in performance evaluation.

1.5. Overview of the thesis

This thesis is comprised of seven chapters. Chapter 2 begins with a discussion of the nature of management control systems and then presents the proposed framework of the study.

Chapter 3 develops the hypotheses to be tested. A total of 12 hypotheses are developed here.

[2] As Bol (2008, p.16) explains in her paper, "[t]he biggest limitation of the research to date is that most studies refer to subjectivity in a very general sense without acknowledging that many different types of supervisor discretion influence the compensation process."

[3] More detail is provided in Chapter 5, Section 5.3.1.1, regarding variable measurement.

Chapter 4 discusses the research method pursued by this study. It begins with the description of the data collection process and proceeds to explain the preliminary data analysis procedures, including data screening and data preparation for the main statistical analysis. The method used for analysing the data is also explained in this chapter.

Chapter 5 focuses on how the variables were measured, and the results of the measurement model analysis. It starts by describing how each variable was measured and does so by presenting and explaining the items used in each scale. This is followed by an outline of the statistical analyses conducted to ensure that the variables used in the model are valid and reliable. This chapter also provides the descriptive statistics for the variables used in the model.

Chapter 6 contains the results of the analysis of the data and discusses the findings. The 12 hypotheses are tested and the findings presented here. The chapter ends with a model summary, showing an overview of the results and offering a brief discussion of the key findings.

Chapter 7 concludes the thesis. It presents the key findings, revisits the contributions, discusses the implications, outlines the limitations, and offers some avenues for future research.

1.6. Summary

This chapter began by discussing the relevance of studying subjectivity in performance evaluation and its relationship with psychological empowerment, supervisor-subordinate conflict, and managerial performance. Section 1.2 outlined the research question addressed in this study.

Section 1.3 presented the motivation of the study, which is the lack of evidence about the competing effects of adopting a more subjective performance evaluation, upon managerial performance.

Section 1.4 outlined the two main contributions of this study to management accounting literature. The first is presenting evidence that subjectivity in performance evaluation has competing effects upon managerial performance. The second is development of a new scale to measure subjectivity in performance evaluation. Finally, Section 1.5 contained an overview of the thesis.

Chapter 2. Literature review and proposed framework

2.1. Introduction

This chapter is organised in five sections, which present the literature review and framework of this thesis. Section 2.2 provides a review of definitions of a management control system and the definition adopted in this thesis. Section 2.3 provides a literature review of subjectivity in performance evaluation, from which the analytical framework is built. Section 2.4 discusses the proposed framework, and Section 2.5 explains the variables used. The chapter ends with a summary.

2.2. Defining management control systems

The objective of this section is to present a definition of the management control system which will be adopted by this thesis. The accounting literature offers many definitions and descriptions of a management control system, and as these definitions vary widely, they may affect the interpretation of research results (Henri, 2006; Malmi & Brown, 2008). Merchant and Otley (2006) argue that some definitions of management control systems are too general and cover most managerial activity directed to the organisation's objectives.

In broad terms, Merchant and Otley (2006) state that management control systems are designed to deliver key outcomes wanted by stakeholder groups and assist organisations to adapt to the environment in which they operate. Merchant (1982) argues that a good control system should ensure that "an informed person could be reasonably confident that no major unpleasant surprises will occur" (p. 44). Management control systems provide a way of

influencing cooperation between employees who may not share similar objectives, making them work together towards a set of organisational goals (Merchant, 1982; Ouchi, 1979). Furthermore, broader notions of management control systems also include strategic implementation and influencing strategy formulation (Ferreira & Otley, 2009; Merchant & Otley, 2006). Malmi and Brown (2008) argue that research can become difficult without a clear boundary to define a management control system. Thus, defining the term is the very first challenge faced by any research on management control systems (Fisher, 1998).

The classic conceptualisation of management control systems comes from Anthony (1965, p. 17), who identifies it as "the process by which managers assure that resources are obtained and used effectively and efficiently in the accomplishment of the organisation's objectives". Anthony (1965) divides control between management control, strategic planning, and operational control. In Anthony's classical definition, a management control system is separate from strategic and operational controls (Otley, 1999). As Merchant and Otley (2006) indicate, Anthony's definition has a strong emphasis on financial, accounting-based control. Additionally, Ferreira and Otley (2009, p. 264) argue that Anthony's definition:

> […] encouraged a narrow view of MCSs that falls short of capturing the richness of issues and relationships implicated in MCS design and use. In particular, it concentrated on formal (and usually accounting) controls without setting them in their wider context.

In order to address such limitations a number of other definitions have been suggested. For instance, Lowe (1971, p. 5) defines a management control system as:

> A system of organisational information seeking and gathering, accountability, and feedback designed to ensure that the enterprise adapts to changes in its substantial environment and that the work behaviour of its employees is measured by reference to a set of operational sub-goals (which conform with overall objectives) so that the discrepancy between the two can be reconciled and corrected for.

Lowe's definition of management control systems is more comprehensive than Anthony's definition, as it is composed by measurement and feedback processes, where managers are continually reformulating strategy to adapt to environment (Otley, 1994). Further, authors such as Simons (1987) and Merchant and Van der Stede (2003) provide some other contemporary definitions of management control systems, which encompass strategic planning and operational control.

On the one hand, Simons (1987, p. 358) defines management control systems as "formalized procedures and systems that use information to maintain or alter patterns in organisational activity". Simons' (1987) definition for management control systems is directed towards senior management implementing strategies. On the other hand, Merchant and Van der Stede (2003, p. 5) define management control systems as "devices or systems managers use to ensure that the behaviours and decisions of their employees are consistent with the organisation's objectives and strategies".

Malmi and Brown (2008) suggest two principles which a management control system should fulfil, to be considered a good management control system. The first principle, which is related to operational controls, is that "senior managers use [the management control system] to influence the behaviour of junior managers or employees". The second principle, which is related to strategic planning, is that "senior managers create [the management control system] to allow efficient decision-making either by themselves or at more junior levels" (Malmi & Brown, 2008, pp. 289-290).

For the purpose of this thesis the definition put forward by Merchant and Van der Stede (2003) was adopted. This definition fulfils the two principles presented by Malmi and Brown (2008), where senior managers use the management control system to influence behaviour of employees and to allow efficient decision-making. It is noteworthy that Merchant and Van

der Stede's (2003) definition of management control systems comprises both strategic planning and operational control.

Consistent with Merchant and Van der Stede's (2003) definition of management control systems, Merchant (1982) suggests a typology with three different control mechanisms, which are personnel control, action control, and results control. Personnel controls are mechanisms that influence organisational actors by aligning their personal objectives with those of the organisation. Personnel controls include selection and placement, training, job design, as well as provision of the necessary resources. Action controls are mechanisms that influence organisational actors by directing actions they should take. Action controls include policies and procedures such as behavioural constraints, pre-action reviews, and action accountability. Results controls are mechanisms that influence organisational actors by measuring and rewarding the result of their actions. Some examples of results controls are planning and budgeting together.

Compared to other frameworks, Merchant and Van der Stede's (2003) definition is suitable for this study, as it can be applied at the individual level of analysis and offers a broader scope. Some alternative frameworks are more appropriate at the organisational level, such as Simons' (1995) levers of control. Additionally, compared to some other frameworks that can be applied at the individual level of analysis, such as Ouchi's (1979) control mechanisms, Merchant and Van der Stede's (2003) framework offers a broader scope. While Merchant and Van der Stede's (2003) definition involves formal and informal aspects of management control systems (Chenhall, 2006), the focus of this study is on the formal elements of management control systems, such as performance evaluations.

Performance evaluations are a part of management control systems. They are used by supervisors to ensure that subordinates follow the organisation's objectives and strategies.

Subordinates who behave and make decisions according to the organisation's objectives and strategies are likely to receive favourable performance evaluations, whilst subordinates who do not behave as expected by their supervisors and do not deliver what is expected of them are likely to receive unfavourable performance evaluations.

Nonetheless, subjectivity might impact how performance evaluations delivered by supervisors influence subordinates' behaviour. The next section provides a literature review, in order to investigate studies on such subjectivity.

2.3. Subjectivity in performance evaluation

The purpose of this section is to present a literature review of subjectivity in performance evaluation. The following four sections review contemporary studies, focusing on their contribution to the understanding of issues related to subjectivity. Section 2.3.1 describes the conceptualisation of subjectivity in performance evaluation, Section 2.3.2 presents the identifying attributes of such subjectivity, Section 2.3.3 discusses the antecedents of subjectivity in performance evaluation, and Section 2.3.4 outlines the consequences of this subjectivity. The section ends with a summary of the literature review of subjectivity in performance evaluation.

2.3.1. Conceptualisation of subjectivity in performance evaluation

The objective of this first subsection is to discuss how subjectivity is described in prior research, so as to better understand the concept of subjectivity in performance evaluation, and to adopt a definition to be used throughout this thesis.

Some of the research literature on subjectivity conflates performance evaluation with compensation. Authors such as Bol (2011), and Höppe and Moers (2011), present subjectivity in performance evaluation as relating to a supervisor's discretion on how observed

performance is translated into rewards. Although still related to bonus payments, Murphy and Oyer (2003, p. 21) go further and argue that subjectivity in performance evaluation takes place when:

> [A] Bonus pool is determined ex post after the annual results are tallied, subjectively and without explicit schedules or target bonuses. […] However, there are a variety of ways that firms can exercise discretion in awarding annual bonuses. For example, individual bonuses may be based in part on subjectively assessed individual performance as well as on accounting-based financial performance. Or, the boards of directors may make discretionary adjustments to the aggregate bonus pool. Even if the aggregate bonus pool is fixed, the allocation of the bonus pool among the participants may be somewhat discretionary.

Thus, subjectivity in bonus payments goes beyond the use of qualitative measures and includes a discretionary mix of quantitative measures. Authors such as Ittner, Larcker, and Meyer (2003) and Gibbs et al. (2004) use concepts similar to Murphy and Oyer (2003). Although these conceptualisations encompass both quantitative and qualitative measures of performance, they focus on how much bonus is paid to employees.

Nonetheless, studies such as Bol and Smith (2011), and Van Rinsum and Verbeeten (2012), conceptualise performance evaluation as a different process from rewards payment. This type of definition follows on from Murphy and Oyer (2003), but emphasises the performance evaluation instead of the financial rewards. It is noteworthy that a performance evaluation may lead to financial and non-financial rewards. Thus, this conceptualisation for subjectivity is different from previous studies, as they investigate subjectivity in the performance evaluation as something apart from financial rewards. What can be drawn from these different conceptualisations of subjectivity in performance evaluation is that they lack consistency. For instance, studies that investigate subjectivity in performance evaluation in the context of financial compensation tend to conflate the definition of subjective performance evaluation with financial rewards.

Throughout this study, the type of conceptualisation put forward by Bol and Smith (2011) is adopted. Therefore, subjectivity in performance evaluation refers to the degree of a supervisor's discretion on performance evaluation (Bol & Smith, 2011). Thus, performance evaluation may lead to the provision of financial and non-financial rewards. It is understood that subjectivity arises from supervisors using qualitative assessments of performance, or discretionary weightings of different aspects of performance (Gibbs et al., 2004; Moers, 2005). For this study, evaluations are treated as 'more subjective (less objective)' or 'less subjective (more objective)', instead of a binomial concept of 'subjective/objective'. For instance, a formula-based performance target contributes to a less subjective performance evaluation, while setting a performance target based on a supervisor's experience contributes towards more subjectivity in performance evaluation (Bol, 2008).

However, for simplicity and conciseness, throughout this study, the term 'subjective performance evaluation' will be used instead of 'more subjective performance evaluation'.

2.3.2. Identifying subjectivity in performance evaluation

As discussed in the previous section, subjectivity is conceptualised in many ways throughout the research literature. In spite of this, literature discusses several attributes that characterise subjectivity in performance evaluation. This section outlines and describes the most common attributes of subjectivity in performance evaluation.

Due to discretion, subordinates' performance evaluation may change considerably according to which supervisor is evaluating the subordinate (Heneman, 1986; Prendergast & Topel, 1993). Supervisors' experience with previous performance evaluations and personal expectations influences how they evaluate subordinates' current performance (Baker, 1990; Bommer, Johnson, Rich, Podsakoff, & Mackenzie, 1995). Further, subjectivity can be used as

a resource to neutralise or at least account for the effects of externalities (Gibbs et al., 2004; Merchant, Chow, & Wu, 1995).

Subjective performance evaluation can be influenced by a supervisor's knowledge of other information unrelated to a subordinate's performance, and supervisors are able to signal expectations or intentions to subordinates (Bol, Hecht, & Smith, 2012; Bol & Smith, 2011). Additionally, as subjective evaluations are outcomes of a supervisor's discretion, there is no general formula to precisely track how or why past performance evaluations were what they were, and similarly, subordinates may not know what to expect in their next evaluation (Baker, Gibbons, & Murphy, 1994; Murphy & Oyer, 2003).

These attributes are described in a number of studies. Subjectivity in performance evaluation refers to the degree of a supervisor's discretion on performance evaluation (Govindarajan & Gupta, 1985). Therefore, if supervisors have plenty of discretion in conducting performance evaluation, this is considered a subjective performance evaluation. Performance evaluation may be influenced by a specific supervisor; as some researchers argue, it may be highly influenced by a superior's bias (Heneman, 1986; Prendergast & Topel, 1993). Thus, the subordinate's performance evaluation may change considerably accordingly to which supervisor is evaluating the subordinate. Further, as discretion relies mostly on personal judgment, subjective performance evaluation may be influenced by the supervisor's expectations of the subordinate's performance (Bommer et al., 1995; Simons, 1995). So, a supervisor's personal expectations influence the evaluation and supervisors may conduct performance evaluation according to what they expect from subordinates.

It is suggested that subjectivity can account for environmental unpredictability over performance, and the use of discretion may adjust the effects of uncontrollable factors

(MacLeod & Parent, 1998; Merchant et al., 1995). Therefore, subjectivity can be used as a resource to neutralise or at least account for the effects of externalities.

The use of subjectivity allows the supervisor to evaluate the subordinate's performance based on not only what the subordinate has achieved, but also the supervisor's expectations of what the subordinate should have achieved (Baker, 1990). Hence subjective performance evaluations are influenced by a supervisor's expectations over a subordinate's performance. As Bol et al. (2012) argue, discretion allows supervisors to signal expectations or intentions to subordinates. Further, subjective performance evaluation can be influenced by a supervisor's knowledge of other information unrelated to subordinate's performance (Bol & Smith, 2011).

Baker (1990) maintains that discretion allows the supervisor to use knowledge of what actually happened to separate an individual's effort from the effects of unforeseen events. Thus, supervisors' experience with previous performance evaluations influences how they evaluate subordinates' current performance (Baker, 1990).

Another attribute of subjectivity is that the rules concerning performance evaluation are not clearly set in advance. Two features of subjective performance evaluations are that they are unspecified *ex ante* and non-verifiable *ex post* (Baker et al., 1994; Murphy & Oyer, 2003). As subjective evaluations are outcomes of supervisor's discretion there is no general formula to precisely track how or why past performance evaluations were what they were. In a similar fashion, subordinates may have no concrete way of knowing the performance criteria expected at the next evaluation.

2.3.3. Antecedents of subjectivity in performance evaluation

Studies such as Bushman, Indjejikian, and Smith (1996), Gibbs et al. (2004), and Höppe and Moers (2011) examine antecedents of subjectivity in performance evaluation. This literature on the antecedents of subjectivity in performance evaluation suggests that subjectivity is more likely to be adopted in situations where top management is seeking long term commitments, such as exploring growth opportunities and expanding product life cycle (Bushman et al., 1996), and investment in training (Gibbs et al., 2004). Additionally, antecedents such as environmental unpredictability (Höppe & Moers, 2011), bonus achievement, and risk-reduction effects from additional performance measures (Gibbs et al., 2004) are related to the use of the controllability principle in the content of performance evaluations. The controllability principle means that managers should be held accountable for factors on performance which they can influence (Merchant & Otley, 2006). Therefore, it can be suggested that subjectivity in performance evaluation is a valuable tool to ensure that managers are held accountable only for factors which they can influence.

Growth opportunities and product life cycle are antecedents for subjectivity because objective performance evaluations may be imperfect, not capturing value-enhancing actions (Bushman et al., 1996). Therefore subjective performance evaluations are necessary when top management wants to pursue growth opportunities and expand product life cycle. Investment in training is an antecedent of subjectivity, as objective performance evaluations tend to fail to encourage investments with long-term impacts, such as training (Gibbs et al., 2004).

Environmental unpredictability is an antecedent of subjectivity because supervisors will seek to exploit the use of subjective weights in performance evaluation in unpredictable circumstances (Höppe & Moers, 2011). The extent to which the achievability of formula-

based performance evaluations is difficult and leads to significant consequences if not achieved is an antecedent of subjectivity. This is because top management may use subjectivity to reduce subordinate risk or revise incentives, such as when subordinates "face difficult targets that have severe consequences or when they operate in a loss condition" (Gibbs et al., 2004, p. 434). Subjectivity is less pronounced in contracts for which additional measures already have risk-reduction effects because adding performance measures has risk-reduction effects, thus reducing the need for discretion (Höppe & Moers, 2011).

Additionally, performance measure noise is also an antecedent of subjectivity in performance evaluation because supervisors are more likely to use discretion to adjust performance evaluation, as performance measures become noisier (Höppe & Moers, 2011). One last antecedent of subjectivity is when performance evaluations are susceptible to manipulation. Gibbs et al. (2004) argue that subjectivity is used to complement the perceived weakness of objective performance evaluation.

2.3.4. Consequences of subjectivity in performance evaluation

The consequences of subjective performance evaluation can be separated into two general groups. First, are the consequences which are expected to improve the performance evaluation output, and second, are the consequences which are expected to worsen the performance evaluation output.

Regarding the first group, subjectivity is suggested to provide an improved performance evaluation output. The consequences from this group can be associated with a better performance evaluation, such as a supervisor considering additional information reflecting a subordinate's efforts (Baiman & Rajan, 1995; Baker et al., 1994), which filters uncontrollable factors from subordinates' evaluations (Bol & Smith, 2011), and with reduced manipulation and noise from quantitative performance measures (Murphy & Oyer, 2003). This first group

of consequences describes subjectivity as a useful tool that supervisors possess, to take into consideration exogenous information when delivering performance evaluations that reflect subordinates' efforts more accurately.

Studies, such as Baiman and Rajan (1995), and Baker et al. (1994), maintain that subjectivity in performance evaluation provides additional information to the supervisor regarding a subordinate's behaviour because supervisors are able to use discretion to evaluate subordinates based on what they actually observe (Baiman & Rajan, 1995; Baker et al., 1994). The argument behind such finding is that supervisors use their discretion to overcome perceived deficiencies in performance evaluations.

Murphy and Oyer (2003) have argued that there is reduction of manipulation and noise from quantitative performance measures because of the use of subjective performance evaluation. The authors developed a model "based on the realistic assumptions that discretionary contracts are not court enforceable and are therefore limited […] and that contracts based on company-wide performance are also limited." (Murphy & Oyer, 2003, p. 30).

Regarding the second group, subjectivity is suggested to provide a worse performance evaluation output. The consequences listed in this group can be associated with a short-term performance evaluation, such as supervisors using their discretion to put more weight on non-predictive measures of future financial performance, outcome/results measures, and objective or quantitative measures, whilst putting less weight on input/driver measures and subjective or qualitative measures (Ittner, Larcker, & Meyer, 2003). Additionally, there may be problems such as favouritism, general evaluation bias, compression of ratings, and leniency (Bol, 2011; Moers, 2005; Prendergast & Topel, 1993), tension between supervisors

and subordinates (Ittner, Larcker, & Meyer, 2003), and reducing the subordinate's perceived mission clarity and trust in supervisors (Van Rinsum & Verbeeten, 2012).

Ittner, Larcker, and Meyer (2003) argue that the adoption of subjectivity in performance evaluation may lead to more attention being given to non-predictive measures of future financial performance. Additionally, the authors argue that supervisors may place greater weight on outcome/results measures than on input/driver measures. The arguments put forward by Ittner, Larcker, and Meyer (2003) are supported by their findings.

Favouritism, evaluation bias, compression of ratings and leniency are consequences of subjective performance evaluation because performance measures cannot be verifiable by a third party, thus enabling supervisors to exploit discretion (Prendergast & Topel, 1993). Compression of ratings and leniency also take place as supervisors often insufficiently differentiate between subordinates and due to the psychological cost of communicating poor performance (Moers, 2005). Furthermore, managers respond to their own incentives and preferences when they subjectively evaluate performance, as supervisors usually do not receive rewards for rating subordinates' performance precisely (Bol, 2011).

A reduction in a subordinate's perceived mission clarity and trust in a supervisor are also consequences of subjective performance evaluation (Van Rinsum & Verbeeten, 2012). The reasoning behind this is that due to subjectivity in performance evaluation, the supervisor's ability to differentiate between subordinates' performance is reduced, and this leads to evaluation biases. Van Rinsum and Verbeeten (2012) suggest that evaluation biases might affect the reliability of performance evaluation, sending mixed signals that reduce mission clarity and trust in the supervisor.

This second group of consequences presents subjectivity as a bad choice for performance evaluation, where there is not much difference between subordinates who are working

towards the organisation goals and long-term performance or not doing so. Further, this last group of consequences associates subjectivity with dysfunctional behaviour from both supervisors and subordinates. Thus, as shown above, research provides a range of different consequences regarding the adoption of subjectivity in performance evaluation.

2.3.5. Literature review summary

Table 2.1 below, summarises the main contributions from the research papers used in the previous sections, to define and evaluate conceptualisation, attributes, antecedents, and consequences of subjectivity in performance evaluation.

Table 2.1 – Summary of main contributions to the subjectivity in performance evaluation literature

Authors	Main findings regarding subjectivity in performance evaluation
Prendergast and Topel (1993)	Subjective performance evaluation results in practices such as rent-seeking behaviour, evaluation bias, and favouritism.
Baker et al. (1994)	Compensation contracts based on objective performance measures, and compensation contracts based on subjective assessment can work as complements.
Baiman and Rajan (1995)	The use of both objective and subjective information in bonus pool arrangements leads to Pareto improvements compared to a situation where only objective information is used.
Bommer et al. (1995)	Objective and subjective performance measures should not be used interchangeably.
Bushman et al. (1996)	Higher levels of subjectivity are used in circumstances in which a short-term oriented behaviour is particularly harmful, such as high firm growth opportunities and a long product life cycle.
Murphy and Oyer (2003)	Executive incentive contracts may use subjectivity to reduce the possibility of manipulation of quantitative performance measures, or to reduce noise in quantitative measures.
Ittner, Larcker, and Meyer (2003)	Supervisors place greater weight on outcome/results measures than on input/driver measures, and that they place more weight on objective or quantitative measures than on subjective or qualitative measures.
Gibbs et al. (2004)	When performance measures are more susceptible to manipulation, increasing the danger of data manipulation, firms use more subjective evaluations.
Moers (2005)	On average, performance ratings on the subjective dimension are higher and closer to the median rating than performance ratings on the objective dimension.
Rajan and Reicheistein (2009)	A subjective metric is relevant only if an objective metric results in an unfavourable outcome and, even then, the subjective metric serves only to punish very poor performance.
Bol and Smith (2011)	Supervisors use discretion to evaluate performance on one task, to adjust for perceived deficiencies in the evaluation of performance on other tasks.
Bol (2011)	Managers respond to their own incentives and preferences when they subjectively evaluate performance.
Höppe and Moers (2011)	Subjectivity in performance evaluation is used to solve contracting problems. Discretionary bonuses are used for risk-reduction purposes, while subjective weights on different performance dimensions are used for congruity-improvement purposes.
Van Rinsum and Verbeeten (2012)	Subjectivity in performance evaluation practices reduces perceived mission clarity, which in turn decreases motivation. Additionally, subjectivity negatively affects subordinates' trust in their supervisor, which also reduces motivation.

Four key aspects can be drawn from this literature review regarding the conceptualisation, attributes, antecedents, and consequences of subjectivity in performance evaluation.

The first aspect is the importance of conceptualising performance evaluation as a continuum between subjective and objective performance evaluation, as described in Section 2.3.1. Evidence from the literature shows that organisations neither adopt an entirely objective nor entirely subjective performance evaluation. Bommer et al.'s (1995) meta-analysis shows that objective and subjective performance measures should not be used interchangeably. Baiman

and Rajan (1995) and Baker et al. (1994) also suggest that organisations which use a mix of subjective and objective measures are better off than organisations which only use subjective or objective measures for performance evaluation.

Thus, considering performance evaluation as a spectrum where the extremes are 'entirely subjective (not objective)' to 'entirely objective (not subjective)', organisations can place themselves somewhere around 'more or less subjective (or, more or less objective)'. This means organisations may adopt a mix of subjective and objective measures for the purpose of performance evaluation.

The second key aspect is the meaning of subjectivity in performance evaluation. This literature review finds that conceptualisation of subjectivity in performance evaluation varies with the scope of each research study. For example, studies investigating subjectivity in performance evaluation which only regards financial compensation tend to conflate subjective performance evaluation with financial rewards.

This conflation of different concepts within subjectivity in performance evaluation prejudices further studies regarding the same topic, as researchers have to first compile previous literature and separate the studies which examine similar concepts from those that do not. Therefore, instead of mixing performance evaluation with performance compensation, it would be better if research used a consistent definition of subjectivity in performance evaluation.

The third key aspect regards the antecedents of subjectivity in performance evaluation (discussed in Section 2.3.3). Through the literature review, it can be argued that subjectivity is more likely to be adopted in situations where top management is seeking long-term commitment and concerned that managers should only be held accountable for factors which they can influence (controllability principle).

The fourth key aspect regards the consequences of subjectivity in performance evaluation (discussed in Section 2.3.4). The consequences of subjective performance evaluation can be separated into two groups. First, are the consequences which are expected to improve the performance evaluation, and second, are the consequences which are expected to worsen the performance evaluation. Thus, it can be concluded that subjectivity in performance evaluation provides some good and bad consequences. An example of a drawback of subjectivity is the supervisor placing more weight on outcome/results measures instead of input/driver measures of a subordinate's performance (Ittner, Larcker, & Meyer, 2003). A benefit of subjectivity is the supervisor using his/her discretion to reduce the manipulation and noise of quantitative performance measures (Murphy & Oyer, 2003).

There is evidence from the literature that subjective performance evaluation may influence supervisors' and subordinates' behaviour. For instance, research has shown that the way performance is evaluated is likely to influence the relationship between supervisor and subordinate, and especially how supervisors evaluate subordinates. Thus two subordinates with identical performance may receive different performance evaluations because one is subject to objective performance evaluation whilst the other is subject to subjective performance evaluation. However, there is no evidence that a subjective performance evaluation is always better or worse than an objective performance evaluation. The relationship between subordinate and supervisor may be affected by the use of subjective performance evaluation due to perceptions of evaluation bias and favouritism (Bol, 2011; Prendergast & Topel, 1993) and a reduction in the subordinate's trust in the supervisor (Van Rinsum & Verbeeten, 2012).

The definition of management control systems, presented in Section 2.2, and the literature review presented in this section provide the substantive material for this study's proposed framework, which is presented in the next section.

2.4. Proposed framework

This study analyses the relationship between subjective performance evaluation and managerial performance. The level of analysis of this study is the individual because the key focus of the study is on individual performance evaluation (subordinates are expected to be directly affected by performance evaluation policies and financial incentive schemes). Consequently, all variables are measured at the level of the individual. The key aspects drawn from the literature review in Section 2.3.5 show that subjectivity in performance evaluation can be used by supervisors to make subordinates behave and make decisions according to the organisation's objectives and strategies. The literature review indicated there is limited evidence on how subjectivity in performance evaluation affects performance. However, the literature provides evidence that supervisors and subordinates' behaviour may change, due to subjectivity in performance evaluation.

As shown at the end of Section 2.2, performance evaluation falls into Merchant's (1982) control of results typology. The control of results typology includes both performance evaluation and financial rewards. Control of results will only be effective if subordinates have their efforts measured and rewarded in some significant manner, to encourage behaviour that leads to these expected results (Merchant, 1982). Nevertheless, as discussed in Section 2.3.1, the literature regarding subjectivity often conflates subjective performance evaluation with financial rewards. This study's framework addresses this issue. Therefore, this study investigates the relationship between subjectivity in performance evaluation and managerial performance, and considers performance-contingent rewards as a separate variable. As such, the association between performance-contingent rewards and managerial performance is also considered.

To examine the relationship between rewards and performance, the analysis uses the same mediators for subjectivity (which are psychological empowerment and supervisor-subordinate conflict), thus providing an analogous scenario where, if both factors work as mediators, performance-contingent financial rewards may have positive and negative relationships with managerial performance. The paragraphs below consider the roles of psychological empowerment and supervisor-subordinate conflict as mediators.

Regarding empowerment, it is proposed that subjective performance evaluation allows supervisors to encourage subordinates towards the cognitions of empowerment (Gibbs et al., 2004; Simons, 1995). Further, it is likely that more empowered subordinates are more effective than less empowered subordinates (Conger & Kanungo, 1988; Thomas & Velthouse, 1990). Thus, it is suggested that subjectivity in performance evaluation has a positive association with psychological empowerment, and psychological empowerment has a positive association with performance. If the two proposed associations are supported, psychological empowerment may work as a mediator for a positive relationship between subjectivity and performance.

Regarding conflict, due to outcomes from subjectivity in performance evaluation, such as compression of ratings (Moers, 2005) and favouritism (Prendergast & Topel, 1993), disagreements are likely to arise between subordinates and supervisors regarding performance evaluation. Therefore, it is suggested that subjectivity is positively associated with supervisor-subordinate conflict. It is also suggested that conflict has a negative association with performance. The friction between supervisor and subordinate hinders consensus, weakens the ability to work together, and reduces productivity (Evan, 1965; Gladstein, 1984; Schweiger, Sandberg, & Ragan, 1986). Therefore supervisor-subordinate conflict works as a mediator for a negative relationship between subjectivity and

performance, and if both empowerment and conflict act as mediators, subjectivity may have positive and negative relationships with managerial performance.

Due to the competing effects of empowerment and conflict upon managerial performance, the model is expected to assist in explaining why some studies find positive relationships between performance-contingent financial rewards and managerial performance, while other studies find a negative relationship between the two variables. Furthermore, the framework is also useful to explain why it is not yet established if the relationship between subjectivity in performance evaluation and managerial performance is positive or negative. Additionally, the framework defines the role of psychological empowerment and supervisor-subordinate conflict as mediators between management control systems and managerial performance.

Besides psychological empowerment and supervisor-subordinate conflict, the proposed framework draws attention to one more element, which is access to information. Management accounting systems will only be efficient if subordinates understand what is required of them and take the steps required to increase goal congruence (Merchant, 1982). Studies using archival data, such as Gibbs et al. (2004), and analytical studies, such as Baiman and Rajan (1995), suggest that one of the main outcomes of subjective performance evaluation is the availability of additional information due to supervisor discretion. Therefore access to information may be a mediator for linking subjectivity in performance evaluation with the remaining variables in the framework.

Psychology literature suggests that access to information has a positive association with psychological empowerment and a negative association with supervisor-subordinate conflict. Information about objectives and goals is an important antecedent of empowerment, as it helps to create a sense of meaning and purpose (Conger & Kanungo,

1988). Further, studies such as Spreitzer (1995) and Drake, Wong, and Salter (2007) have found an association between information and psychological empowerment. Also, it is suggested that access to information has a negative association with supervisor-subordinate conflict, as specifying objectives and goals to subordinates clarifies their tasks and diminishes disagreements between subordinate and supervisors (Jehn, 1995).

These associations build a tension with the expected outcome from subjectivity in performance evaluation, which is a positive association with both psychological empowerment and supervisor-subordinate conflict. This tension regarding access to information presented in the framework might help to understand the relationship between subjectivity in performance evaluation and managerial performance. The proposed framework is depicted below in a diagram.

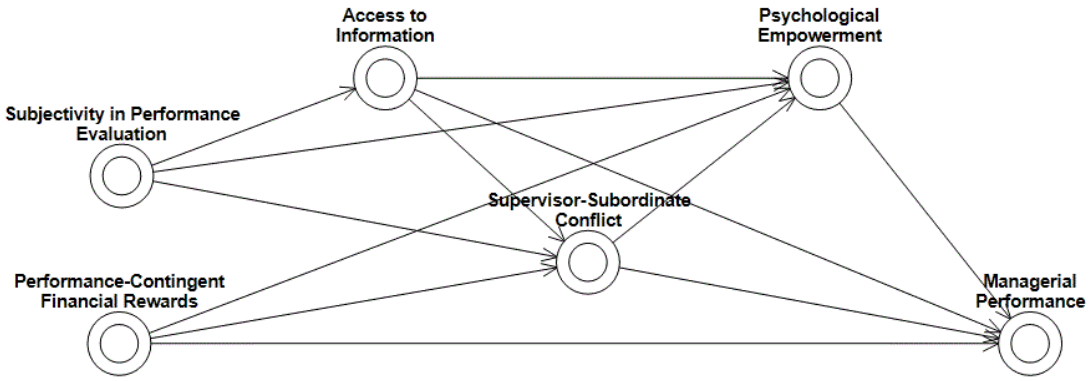


Figure 2.1 – Proposed framework

Figure 2.1 shows the proposed relations between the variables in the framework. The variables are described in the next section, and the hypotheses are presented in Chapter 3.

2.5. Variables

The variables selected are subjectivity in performance evaluation, access to information, performance-contingent financial rewards, psychological empowerment, and supervisor-subordinate conflict. The following subsections describe these variables.

2.5.1. Subjectivity in performance evaluation

Subjectivity in performance evaluation refers to the degree of supervisory discretion on performance evaluation (Bol & Smith, 2011; Govindarajan & Gupta, 1985). Subjectivity arises from supervisors using qualitative assessments of performance, or a discretionary weighting of assessments of different aspects of performance (Gibbs et al., 2004; Moers, 2005). For this study evaluations are treated as 'more subjective (less objective)' or 'less subjective (more objective)', instead of a binomial concept of 'subjective (objective)'. For instance, a formula-based performance target contributes to a less subjective performance evaluation, while setting a performance target based on a supervisor's experience contributes towards more subjectivity in performance evaluation (Bol, 2008). Examples of more objective performance evaluations are when there are direct measures of countable behaviours or outcomes, formula-based achievements, or no requirements of judgment on the part of the supervisor (Baker, 1990; Bommer et al., 1995).

Otley (1999) defined performance evaluation practices as measuring and evaluating performance, relative to targets. Therefore, the spectrum of 'objectivity' and 'subjectivity' in performance evaluation refers to the amount of supervisory discretion over choosing which

and how many items happen to be those targets, how those targets are measured, and if the measurement of those targets changes along the evaluation period.[4]

Ferreira and Otley (2009, p. 272) maintain that performance evaluation represents a 'critical nexus in control activities', as performance evaluation represents what management is signalling as important inside the organisation. All relevant job dimensions should be incorporated and weighted properly in the performance evaluation, in such a way top management signal to employees exactly all dimensions of their responsibilities (Hölmstrom, 1979). Hence, the choice of measures in evaluation of individual performance is crucial, as the subjects direct their attention to those aspects of tasks that are being measured (Moers, 2005).

Keeley (1977) argues that discretion in performance evaluation may be necessary due to complexity in performed tasks.[5] In addition, the use of discretion may be used to adjust the effects of uncontrollable factors on performance (Merchant et al., 1995). For instance, Merchant and Otley (2006) suggest the controllability principle should be renamed the "influenceability principle", as most managers are held accountable for factors of performance which they cannot influence.[6] Thus supervisory discretion with respect to

[4] As the definition presented by Bol and Smith (2011, p. 1214), "[s]ubjectivity in performance evaluation can be introduced by the use of subjective performance measures, by allowing for ex post flexibility in the weighting of objective performance measures, or by allowing for ex post discretional adjustment based on factors other than the performance measures specified ex ante."

[5] Regarding task complexity, Keeley (1977, p. 311) argues that '[a]t one extreme are relatively simple abilities, like running, where one's performance on a standard task can be ordered in relation to that of others. At the other extreme are more complex abilities, like writing, which are not manifested in comparably standardized settings, but must be judged in relation to the opinions of knowledgeable others on the quality of the performance sample.'

[6] The definition, as stated by Merchant and Otley (2006, p. 793), is that "[t]he controllability principle – hold people accountable only for what they can control – is one of the oldest control principles. If individuals can have no effect on an outcome, it serves no useful purpose to hold them accountable for that outcome."

managers' performance evaluations may reduce the gap between a manager's control over the factors and actual performance. Using subjectivity in performance evaluation may prevent managers from being punished for occurrences for which they have no actual control. But such qualitative assessments require personal judgment based on both fact and intuition, and consist of data such as supervisor rating of behaviour and contribution to the organisation (Bommer et al., 1995; Simons, 1995).

At one extreme of the spectrum of performance evaluation is the objective performance evaluation. Objectivity is regarded as unbiased because it is directly related to actual job outcomes (Bommer et al., 1995). Authors such as Keating (1997) maintains that a benefit for adopting objective performance evaluation is that as manager's effort is difficult and/or costly to observe, usually organisations adopt accounting performance measures as proxies for individual effort.

Objective measures for managerial performance evaluation are often associated with accounting measures, which authors such as Kaplan and Norton (1996) consider as backward-looking and not emphasising long-term effects. Thus providing employees with a performance evaluation which is mostly tied to accounting measures may compromise the organisation's long-term value. Similarly, Baker et al. (1994) assume that objective performance evaluations are regarded as imperfect, and compensation contracts based solely on such evaluations create distorted incentives.

Subjective performance evaluation is considered less accurate because it may be influenced by bias from the superior (Heneman, 1986; Prendergast & Topel, 1993). However, Baker (1990) maintains that discretion allows the supervisor to use knowledge of what actually happened to separate the individual effort from the effects of unforeseen events. Thus,

subjectivity reduces noise from quantitative measures, as a resource to neutralise the effects of negative externalities (Bol, 2008).

Gibbs et al. (2004) advocate that the intervention of the supervisor through discretion in performance evaluation mitigates distortions from quantitative measures. This may happen when the supervisor has experience from previous observations and additional information which is not available through quantitative data. Thus, subjectivity can work as smoothers to environmental unpredictability over performance (MacLeod & Parent, 1998). As a consequence, subjectivity in performance evaluation allows supervisors to use information which is difficult or even impossible to incorporate in a formal compensation agreement, providing a more complete depiction of a subordinate's performance (Bol, 2008; Rajan & Reicheistein, 2009).

Subjectivity in performance evaluation also has some limitations. For instance, subjective performance measures are unanticipated *ex ante* and non-verifiable *ex post* (Baker et al., 1994; Murphy & Oyer, 2003), and are prone to rating biases, such as unfair evaluation (Prendergast & Topel, 1993), compression of ratings (Ahn, Hwang, & Kim, 2010; Bol & Smith, 2011; Garvey & Milbourn, 2006), and favouritism (Ittner, Larcker, & Meyer, 2003; Moers, 2005; Prendergast & Topel, 1996). Thus, the use of subjective performance measures is usually ineffective when the rater does not appropriately cope with the flaws of subjectivity.

Baker et al. (1994) maintain that objectivity and subjectivity complement each other in performance evaluations, as neither an objective nor a subjective assessment alone is able to reflect realised financial performance and strategic expectations for the long-term value (Moers, 2005). This is reinforced by both Heneman (1986) and Bommer et al. (1995), who

found that objectivity and subjectivity are not substitutable.[7] These findings suggest that as both subjective and objective performance evaluations have advantages and disadvantages, management should consider placing the organisation's performance management somewhere within the spectrum between the 'more subjective (less objective)' and 'less subjective (more objective)'. Objectivity and subjectivity should be treated as complements instead of a dyad 'subjective (objective)'.

2.5.2. Access to information

Access to information refers to two types of information from the organisation to the employee. First, it is the organisation providing objectives and goals to the employee. Second, it is the organisation providing the employee with feedback regarding her/his performance (Spreitzer, 1995). Sharing information about business plans, goals and performance is essential to understand how the organisation is developing and how to make a meaningful contribution to its success (Lawler, Mohrman, Ledford, & Association for Quality and Participation., 1995). Following Lawler et al.'s (1995) suggestion, the model used by Spreitzer (1995) considers information in two dimensions. First, it considers access to the organisation's mission and objectives; second, it considers access to performance feedback.

With access to information about the organisation's objectives and goals, supervisors can learn how to design more efficient incentives, develop better strategies, and ensure that individuals receive adequate support (Parker & Kyj, 2006; Shields & Shields, 1998).

[7] Besides all the reasoning for adopting more subjective performance evaluations, authors such as HassabElnaby, Said, and Wier (2005) argue that the adoption of such performance evaluations may not be indicating an optimal behaviour, as organisations may be only following the market leader or advice from third party consultants.

Through the systematic use of management accounting information, managers are able to implement plans to achieve their objectives and goals in the organisation (Chenhall, 2006; Simons, 1995). An essential condition for effective performance evaluation and compensation is that the workforce is properly informed of the organisation's objectives and goals. However, issues such as information asymmetry and lack of information sharing are recurring problems in management control (Shields & Shields, 1998).

Failure to properly communicate strategy to managers can lead to failure in the implementation (Young & Selto, 1993). The lack of feedback regarding performance can mislead individuals, and this can cause a waste of time and resources before performance evaluation feedback corrects the task execution.

Information provides role clarity and reduces ambiguity, so individuals are likely to be more effective in their tasks when they understand what needs to be done (Hall, 2008). In addition, Lawler et al. (1995) argue that for individuals to make meaningful contributions to the organisation they must have access to information regarding the organisation's performance, plans, and goals, as well as feedback about the effectiveness of their performance. Therefore, it is essential that the goals are disseminated through all the levels of the organisation, and in such a way that individuals plainly understand the message (Kaplan & Norton, 1996).

Ferreira and Otley (2009, p. 273) maintain that the flow of information works 'like the nervous system in the human body, transmitting information from the extremities to the centre and from the centre to the extremities'. Without access to this information, the organisation may become a place where individuals are concerned only about their own personal goals, rather than the collective effort towards an objective or common goal achievement.

This concept of access to information does not include communication frequency. Becerra and Gupta (2003) argue that communication frequency is a determinant of general attitudinal predisposition towards peers, but as communication frequency can be compromised by conflicts and silence from autonomous successful groups, a high frequency of communication is not necessarily associated with improved performance (Ancona & Caldwell, 1992; Smith et al., 1994).

2.5.3. Performance-contingent financial rewards

This study also analyses performance-contingent financial rewards. Reward systems, namely, extrinsic rewards such as performance-contingent financial rewards, are an important part of most organisations, as they deal with incentives for employees to keep or improve their performance in the organisation (Kunz & Pfaff, 2002). Performance-contingent financial rewards refer to monetary compensation that is awarded to individuals according to their performance. Merchant and Otley (2006) argue that extrinsic rewards and punishments are a significant part of all accountability-oriented control systems. Rewards are usually the outcome of performance evaluations (Ferreira & Otley, 2009). Merchant and Otley (2006) argue that organisations usually cannot optimise their incentive plan to suit every employee, as, for example, young employees might favour promotions whilst older employees might favour pensions. Therefore, organisations simply use peformance-contingent financial rewards as incentives.

Individuals who perform well might be rewarded for it, and using performance as a basis for compensation is backed by agency theory and psychology. Agency theory maintains that agents' performance can be controlled by tying compensation to performance (Prendergast

& Topel, 1993), and psychology sustains that individuals are motivated through financial rewards (Kunz & Pfaff, 2002).[8]

Some researchers argue that performance-contingent monetary compensation should be positively associated with performance. For instance, Banker, Lee, Potter, and Srinivasan (2000) argue that performance-based rewards increase an organisation's overall productivity because it encourages less productive individuals to leave and more productive individuals to join or remain in the organisation (selection effect), and motivates individuals to learn more productive solutions or tasks (effort effect). But accounting studies find mixed results regarding the effectiveness of performance-contingent financial rewards. Some findings support a positive association between incentives and performance (Awasthi & Pratt, 1990; Sprinkle, 2000), some others find a negative association (Deci, Koestner, & Ryan, 1999; Kohn, 1993), and some studies find conflicting or no relation between financial incentives and performance (Ashton, 1990; Camerer & Hogarth, 1999; Jenkins, Gupta, Mitra, & Shaw, 1998).[9]

The association between performance-contingent financial rewards and performance should be examined together with behavioural variables, as behavioural variables may mediate or moderate this association. Awasthi and Pratt (1990) conclude that the effectiveness of a monetary incentive is contingent on the cognitive characteristics of the decision maker, and suggests that cognitive characteristics should be considered in the development of performance evaluation and incentive systems. Additionally, Bonner and Sprinkle (2002)

[8] However, some researchers question this positive association between financial compensation and performance (Kohn, 1993; Deci, 1971)

[9] Please see Guzzo, Jette, and Katzell (1985) and Bonner and Sprinkle (2002) for reviews.

present theories, evidence, and framework for understanding the effects of monetary incentives on effort and task performance using cognitive and motivational mechanisms.

2.5.4. Psychological empowerment

Psychological empowerment is multifaceted, being an increased task motivation manifested in a set of cognitions that reflect perceptions of the work role, which are: self-determination, competence, impact, and meaning (Thomas & Velthouse, 1990). It is a continuum where subjects are "more empowered" or "less empowered", instead of "empowered" or "not empowered" (Spreitzer, 1995). Empowerment is a multidimensional concept that is affected by both personality and environmental variables (Drake et al., 2007; Spreitzer, 1995).

Psychological empowerment is a motivational construct manifested in cognitions, which reflect an active, rather than passive, orientation to a work role (Spreitzer, 1995). Through empowerment, managers relinquish control, giving empowered employees the discretion to make decisions about job-related activities (Conger & Kanungo, 1988).

Self-determination is one of the dimensions of empowerment (Conger & Kanungo, 1988; Spreitzer, 1995), also labelled as choice (Thomas & Velthouse, 1990). It is the perception of having choice to initiate, continue, or terminate actions and processes, control the effort level, and autonomy over behaviours in the workplace (Conger & Kanungo, 1988; Drake et al., 2007; Spreitzer, 1995). Impact is one of the four dimensions of psychological empowerment, which refers to the degree individuals feel that their tasks and behaviour contribute to the organisation (Thomas & Velthouse, 1990). It is the belief that the work that is being done is influencing administrative and operating outcomes (Drake et al., 2007).

Meaning refers to the perceived importance that individuals give to their tasks. The degree of meaningfulness reflects the relevance given to the task, the feeling that the activity is

important, valuable and worthwhile (Thomas & Velthouse, 1990). The dimension of competence (Drake et al., 2007; Spreitzer, 1995; Thomas & Velthouse, 1990) or self-efficacy (Conger & Kanungo, 1988), is the perceived capability to successfully accomplish specific tasks. It must be noted that potency is related to the work to which the individual is directed, which means that this is not an organisation-wide effectiveness, but mostly at the individual level of analysis (Thomas & Velthouse, 1990).

2.5.5. Supervisor-subordinate conflict

Supervisor-subordinate conflict refers to attrition between two people from different hierarchical levels, where one is a subordinate and the other is a supervisor. This conflict can be segregated between relationship conflict and task conflict (Jehn, 1995). Relationship conflict refers to interpersonal incompatibilities including tension, animosity, and annoyance, while task conflict refers to disagreements about how tasks are being performed (Jehn, 1995; Wall & Nolan, 1986). Task conflict may include 'animated discussions and personal excitement', but does not contain the 'intense interpersonal negative emotions' common to relationship conflict (Jehn & Mannix, 2001, pp. 238-239).

Kabanoff (1985) argues that individuals may agree to work together, but they may find themselves unable to do so effectively because of disagreements or differences among themselves that eventually turn them into negative, irritable, suspicious, and resentful people. Individuals must establish relationships that allow them to effectively work together, because strong negative sentiments between individuals diminish overall participation in the productive process, hindering performance.

Task conflict can improve decision-making, as individuals argue about the best way of performing assigned tasks, in order to find an appropriate solution. Jehn and Chatman (2000) found that in specific situations task conflict may improve individual performance. However,

attempts to stimulate task conflict may accidentally trigger relationship conflict. It is possible that the relationship between the supervisor and subordinate experiencing task conflict may gradually degenerate, as individuals find that they cannot agree on task issues or have difficulty dealing with criticism, ultimately leading to relationship conflict (Jehn, 1997).

2.6. Summary

The definition of management control systems adopted throughout this thesis is the definition presented by Merchant and Van der Stede (2003). This is followed by a literature review of subjective performance evaluation, succeeded by the framework. The variables used in the framework are subjectivity in performance evaluation, performance-contingent financial rewards, access to information, psychological empowerment, and supervisor-subordinate conflict. The next chapter develops hypotheses for associations between these variables.

Chapter 3. Hypothesis development

3.1. Introduction

This chapter develops hypothesised associations between the variables contained in the proposed framework presented in Chapter 2.

The flow of hypothesis is centred on the variables. The hypotheses begin by focusing on the consequences of subjectivity in performance evaluation, providing associations with supervisor-subordinate conflict (H1), access to information (H2), and psychological empowerment (H3). Followed by focus on the consequences of access to information, as the second three hypotheses provide associations with supervisor-subordinate conflict (H4), managerial performance (H5), and psychological empowerment (H6). Next hypotheses are related to associations from performance-contingent financial rewards and supervisor-subordinate conflict (H7), managerial performance (H8), and psychological empowerment (H9). H10 is related to the association between psychological empowerment and managerial performance, and H11 and H12 refer to the associations between supervisor-subordinate conflict and psychological empowerment and managerial performance. The chapter ends with a diagram in Section 3.14 of the proposed framework.

3.2. Subjectivity in performance evaluation and supervisor-subordinate conflict

Subjectivity in performance evaluation refers to the amount of discretion a supervisor has when evaluating her/his subordinate's performance, whilst supervisor-subordinate conflict

refers to the amount of friction in the relation between both parties. It is proposed that subjectivity in performance evaluation may increase the amount of conflict between supervisor and subordinate. The relationship between supervisor and subordinate may degenerate due to factors which are consequences from more subjective performance evaluations. Consequences from more subjective performance evaluations are compression of ratings, perceived favouritism, and disagreements between supervisor and subordinate regarding how performance is evaluated (Bol, 2008; Cosier & Rose, 1977; Prendergast & Topel, 1993). Each one of the three consequences from subjectivity which leads to conflict will be presented separately.

First, is the compression of ratings. Baker (1990) found that when supervisors can use subjective performance evaluation there is a strong tendency that supervisors rate everyone as 'good' or 'outstanding'. Although subjectivity allows supervisors to exert discretion when evaluating subordinates, Ahn et al. (2010) found a ´lack of discriminalility´ in performance evaluation, which means supervisors usually did not exert this discretion when evaluating subordinates.

Moers (2005) found that subjectivity in performance evaluations was associated with more compressed performance ratings. This positive association between compression of rating and subjectivity in performance evaluation may be because supervisors prefer equity in outcomes while rating performance, meaning that supervisors tend to prefer to rate individuals toward uniformity (Prendergast & Topel, 1993).[10]

[10] Prendergast and Topel (1993, p. 361) argue that "In many cases supervisors are reluctant to give poor ratings to subordinates [...] because doing so is unpleasant", but this is perhaps questionable.

In addition, when supervisor and subordinate do not concur, rating compression can serve as an optimal solution on the part of the supervisor to avoid confrontation (Ahn et al., 2010). This may be an optimal solution, but the subordinate may develop a perception of inequity, as not necessarily the same procedure will be adopted with all subordinates. According to Baker (1990), supervisors do not have incentive to provide adequate evaluations.[11]

The compression of ratings may lead to some unexpected consequences. For instance, the performance evaluation may be taken less seriously by the subordinate, especially when supervisor and subordinate do not concur (Ahn et al., 2010). As Prendergast and Topel (1993, p. 359) advocate, "the wrong workers may be promoted and shirking is encouraged by the emphasis on equality". Compression of ratings compromises the reliability of subjective performance evaluations, and reinforces the perception of inequality as supervisors have a strong tendency to rate everyone as ´good´ or ´outstanding´ (Baker, 1990).

Therefore, if a supervisor practices compression of ratings, subordinates who had different levels of effort during the evaluation period will have their performance assessed at a similar level; subordinates would then feel that their level of effort was worthless, and disagreements may arise between subordinates and supervisor. Eventually, this perception of difference between subordinate´s effort and performance evaluation will lead to conflict due to the increased disagreement between subordinate and supervisor (Wall & Nolan, 1986).

[11] Baker (1990, p. 18) provides anecdotal evidence: 'Some years ago a colleague of mine actually used the recommended criteria for evaluating his secretary. The available rating categories were "unacceptable," "needs improvement," "good," and "excellent." He honestly felt that his secretary needed improvement in some areas, so he gave her this rating. Few other faculty members gave such a low grade to their secretaries. The result was predictable; she was very upset, arguing that such a poor rating would be a permanent blot on her record and would hurt her promotion prospects for years to come.'

Perceived favouritism takes place when supervisors use their discretionary powers in subjective performance evaluation to impose their own personal preferences (Prendergast & Topel, 1993). Keeley (1978) argues that discretion in performance evaluation allows supervisors' personal tastes and expressions of self-interest in the evaluation process; thus subjectivity in performance evaluation has the potential of becoming a political process, with a 'you scratch my back and I'll scratch yours' mentality.

Baker (1990) maintains that is it difficult to demonstrate that performance evaluation is free from bias, since assessments of bad performance can be confused with manipulation. As subjective performance evaluations require supervisor discretion, they are only completely specified when the supervisor expresses his/her personal judgment, while performance evaluations with objective data can be forecasted, as they are formula-based and fed with countable outcomes (Baker, 1990).

A clear example of favouritism is stated in Bol, Keune, Matsumura, and Jae Yong (2010), who found that supervisors provided easier targets to store managers with relatively higher hierarchical status in the organisation. In addition, some research found that supervisors are known to use discretion for adjusting subordinates´ performance evaluation when she or he had back luck during the evaluation period (i.e., some uncontrollable external factor decreased her or his performance), but the same did not happen when the subordinate had good luck during the evaluation period (i.e., the performance evaluation was not adjusted if the subordinate had a better performance due to some uncontrollable external factor) (Bol & Smith, 2011; Garvey & Milbourn, 2006). Therefore, the performance evaluation may be perceived as favouring some subordinates.

Ittner, Larcker, and Meyer (2003) argue that perceived favouritism related to subjectivity in performance evaluation can undermine supervisor-subordinate relation. A supervisor-

subordinate relation which is undermined due to tension is more subject to cause conflict between the parties. Thus, similarly to compression of ratings, due to favouritism the performance evaluation may not correspond to the subordinate´s effort during the evaluation period. As a consequence, subordinates may feel her or his effort is worthless, and disagreements may arise between subordinate and supervisor. Ultimately, this difference between a subordinate´s effort and performance evaluation will lead to conflict due to increased disagreement between subordinate and supervisor (Wall & Nolan, 1986).

The third and last consequence of subjectivity in performance evaluation which leads to conflict is disagreement between supervisor and subordinate regarding how performance is evaluated. More subjective performance evaluations allows discretion, which is solely the supervisor´s judgment based on the subordinate´s efforts during the evaluation period. Nevertheless, both supervisor and subordinate may disagree over an identical stimulus such as the subordinate´s effort (Cosier & Rose, 1977). As Thompson and Loewenstein (1992, p. 191) state:

> Even when people are presented with identical information, their perceptions of the situation differ dramatically depending upon their role in the situation.

Due to the use of discretion, subjectivity in performance evaluation is subject to differences between a supervisor´s and subordinate´s perception of effort. Subjectivity in performance evaluation is unanticipated *ex ante* (before the event) and non-verifiable *ex post* (after the fact) (Baker et al., 1994; Murphy & Oyer, 2003). As the evaluation is unanticipated *ex ante*, subordinates may get a rating for their performance quite different from what she or he was expecting. Additionally, as the evaluation is non-verifiable *ex post*, the only source of information regarding why the subordinate got her or his rating is the supervisor; thus all matters regarding a disagreement in the performance evaluation will be directed to the supervisor.

Subordinates may feel uneasy, as some might perceive that performance evaluation with supervisor discretion overemphasises recent performance to the detriment of older performance, or vice-versa. This disagreement on how performance is evaluated may provoke friction between supervisor and subordinate, as the notion of what constitutes good performance for the evaluation period may differ among individuals (Van Rinsum & Verbeeten, 2012).

Therefore, as subjectivity in performance evaluation relies on the supervisor´s discretion, there might be disagreements between subordinate and supervisor regarding how the subordinate´s effort was evaluated, ultimately leading to supervisor-subordinate conflict. When the performance evaluation is more objective, there are fewer chances for the subordinate to blame the subordinate, as her or his effort is measured by more quantitative schemes and do not rely on the supervisor´s discretion.

This section has presented arguments which maintained that use of discretion while evaluating subordinate performance raises issues such as compression of ratings, perceived favouritism, and disagreements between supervisor and subordinate regarding how performance is evaluated. These issues may lead to supervisor-subordinate conflict, whereas less subjective methods of evaluating subordinate performance may diminish conflict. Considering that subjectivity in performance evaluation may lead to conflict, the following hypothesis is proposed:

> **Hypothesis 1** – Subjectivity in performance evaluation is positively associated with supervisor-subordinate conflict.

3.3. Subjectivity in performance evaluation and access to information

Objective performance evaluations are made from direct measures of countable behaviours or outcomes, and formula-based achievements, and have no requirements of judgment on the part of supervisor (Baker, 1990; Bommer et al., 1995). On the contrary, subjectivity performance evaluations arises from supervisors using qualitative assessments of performance (Gibbs et al., 2004; Moers, 2005). It is proposed that subjective performance evaluation increases the subordinate's access to information. This may take place as subjectivity allows supervisors to provide a wider set of information to evaluate subordinates, based not only on a subordinate´s measurable effort but also on a subordinate´s perceived effort.

Because of supervisors' discretionary power, supervisors may consider assert performance according to his or her judgment of how employee effort has translated toward achieving goals. Additionally, supervisors can use discretion to supplement incomplete quantitative measures of performance, such as plain accounting information (Gibbs et al., 2004; Bol, 2008), and additional information that would be non-contractible in objective measures (Baiman & Rajan, 1995; Baker et al., 1994).

With more emphasis on subjective performance evaluation, subordinates are exposed to a wider range of information, and the nature of this additional information is provided by the supervisor. Regarding supervisors as providers of additional information to the subordinate through subjective performance evaluation, Gibbs et al. (2004, p. 413) argue that:

> It is impossible to account for all random events with quantitative performance measures, so the firm may feel that supervisors, using judgment, are better able to take such factors into consideration.

Therefore, subjectivity provides supervisors the opportunity to exploit additional relevant information which is not imbued within objective measures, to the benefit of the organisation.

Subjectivity in performance evaluation can also improve access to information through supervisors' feedback on subordinates' performance. Supervisors may use subjectivity in performance evaluation (for example, re-weighting of performance assessments) to show how well the subordinates are performing and where the effort is expected to be directed (Campbell, 2008).

As there is the possibility of making *ex post* adjustments in subjective performance evaluations, supervisors do not need to wait for the evaluation period to be over, to change how performance is measured. Therefore, if a supervisor finds that her or his subordinates are gaming the system, the supervisor can clearly, and in a timely manner, communicate his intentions, by punishing subordinates using his discretion in performance evaluation (Bol, 2008). Thus subjective performance evaluation allows supervisors to provide quicker feedback to her or his subordinates.

This section has provided arguments on how subjective performance evaluation may provide subordinates with improved information regarding the organisation's objectives, as well as better feedback. Therefore the abovementioned arguments lead to the following hypothesis:

> **Hypothesis 2** – Subjectivity in performance evaluation is positively associated with access to information.

3.4. Subjectivity in performance evaluation and psychological empowerment

Psychological empowerment consists of four cognitions that reflect perceptions of the work role, which are: self-determination, competence, impact, and meaning (Thomas & Velthouse, 1990). It is proposed that subjectivity in performance evaluation may increase psychological empowerment cognitions.

Objective measures for performance evaluation are related to measureable outcomes, such as accounting measures, which some consider backward-looking (Kaplan & Norton, 1996). On the contrary, subjective performance evaluation allows a wider range of aspects to be considered beyond quantitative measure. For instance, supervisors may evaluate a subordinate´s performance based on his or her amount of effort, commitment, obstinacy, creativity, and being a role model to fellow colleagues (Baiman & Rajan, 1995; Simons, 1995). Therefore, more subjective performance evaluation allows supervisors to encourage subordinates towards the cognitions of empowerment.

Since initiatives, like commitment and creativity, can be assessed by the supervisors, so that subordinates are likely to perceive their actions as important and worthwhile to the organisation, thus increasing the cognitive perception of meaningfulness (Simons, 1995). Self-determination may improve with subjectivity in performance evaluation, since achievements are tied to a supervisor's judgments of excellence. Subjectivity in performance evaluation is necessary as the performance of some tasks, such as innovation, can only be assessed by the judgment of supervisors (Keeley, 1977). When subordinates are not limited to formula-based evaluations, they may initiate, continue, or terminate actions and processes according to the belief that such actions are likely to improve the overall performance, as evaluated by their supervisors.

Additionally, supervisors may impose new challenges for employees whose goals have lost their relevance (Gibbs et al., 2004). Thus subjective performance evaluation may contribute to the cognitive perception of meaningfulness, as the subordinate is likely to have the belief that her or his tasks are relevant and valuable to the organisation.

Hence subjective performance evaluation may improve a subordinate's psychological empowerment cognitions and can be used by the supervisor to foster empowerment.[12] Therefore the following hypothesis is proposed:

> **Hypothesis 3** – Subjectivity in performance evaluation is positively associated with psychological empowerment.

3.5. Access to information and supervisor-subordinate conflict

Prior research suggests that access to information about the organisation's objectives and goals, and performance feedback, can align efforts and reduce disagreement (Jehn, 1995). Defining objectives and goals to subordinates clarifies their tasks, diminishing disagreements between subordinates and supervisors of how to solve problems (Jehn, 1995).

It is argued that access to information can reduce both relationship and task conflict. Understanding the organisation's objectives and goals may reduce the risk of cognitive conflict between subordinate and supervisor (Cosier & Rose, 1977); therefore, greater access

[12] Prendergast (1993) introduces the theory of 'Yes Men', where he argues that with subjectivity there is more reliance on information provided by the supervisor and less on the subordinate, ultimately making the subordinate distort his opinion toward her or his supervisor. This theory undermines the proposed hypothesis that subjectivity in performance measures will increase empowerment.

to information is likely to improve consensus regarding tasks and reduce cognitive dissimilarities between supervisor and subordinate.

Providing performance feedback regarding how well the work is proceeding also reduces conflict, as it clearly points to subordinates the way of executing tasks that generate a better performance. Additionally, it is likely that providing information about the organisation's objectives and goals will diminish relationship conflict, as supervisors and subordinates can focus their efforts towards a common objective, instead of spending time dealing with conflict.

Furthermore, if information is available, there is less chance that subordinates will question supervisors, thus reducing the friction between subordinate and supervisor (Xin & Pelled, 2003). Hence sharing the organisation's objectives and goals and providing feedback of performance diminishes disagreements between supervisor and subordinate. These arguments lead to the following hypothesis:

> **Hypothesis 4** – Access to information is negatively associated with supervisor-subordinate conflict.

3.6. Access to information and managerial performance

Sharing with employees, information relating to the objectives and goals of the organisation, allows individuals to focus on the issues that are relevant to the organisation, and performance feedback enables employees to learn from past mistakes and successes. The goals and feedback must be provided so that employees can identify problems and opportunities, and coordinate their efforts (Banker, Potter, & Schroeder, 1993).

Regarding access to information, some studies investigate the use of information in the context of the budgeting process (Chalos & Poon, 2000; Chenhall & Brownell, 1988; Parker

& Kyj, 2006). Information helps clarify roles in the organisation (Chenhall & Brownell, 1988), and have a positive association with individual and team performance (Chalos & Poon, 2000; Parker & Kyj, 2006). Further, the flow of information may facilitate coordination among different parts of the organisation and lead to better resource allocation (Shields & Young, 1993).

Access to information also encompasses providing performance feedback to subordinates. Research, such as Sprinkle (2000), and Frederickson, Peffer, and Pratt (1999), find that such feedback information plays a key role in performance improvement.[13] Providing feedback regarding a subordinate's performance allows the employee to improve her or his understanding of how to accomplish tasks. Feedback enhances performance as it is a powerful tool to show individuals whether they are doing things right (Pritchard, Jones, Roth, Stuebing, & Ekeberg, 1988).

Therefore, providing goals to subordinates is likely to enable them to focus on tasks, while the feedback may provide a channel for subordinates to learn from past mistakes and successes. These arguments lead to the proposed hypothesis:

> **Hypothesis 5** – Access to information is positively associated with managerial performance

[13] Nevertheless, some argue that performance feedback will demoralise those with poor performance and fail to provide additional motivation for the good performers: "The effect is that the poor performers become disaffected and unproductive, while the good performers continue to perform at the same level as before" (Baker, 1990, p. 61).

3.7. Access to information and psychological empowerment

Bowen and Lawler (1992) argue that information about an organisation's goals and about a subordinate's performance are critical for empowerment. Empowering practices include increasing access to information for individuals at the lower levels of the organisation (Conger & Kanungo, 1988). Further, relevant information may enable individuals to participate in decision-making processes.

Conger and Kanungo (1988) argue that information about objectives and goals are an important antecedent of empowerment, as it helps to create a sense of meaning and purpose. Information about objectives and goals enhance an individual's ability to make and influence decisions that are appropriately aligned with the organisation's mission (Bowen & Lawler, 1992). Employees require adequate performance information in order to develop the understanding of how they can make and influence decisions that are consistent with the organisation's priorities (Lawler et al., 1995).

Feedback on performance can improve psychological empowerment (Collins, 1982; Luckett & Eggleton, 1991), as shown by Spreitzer (1995) and Drake et al. (2007). Psychological empowerment is enhanced in an environment where subordinates can openly communicate and freely share and exchange information (Mathieu, Gilson, & Ruddy, 2006). Additionally, the cognition of impact is enhanced when individuals perceive through information that their effort generates results and their work is significant for the organisation. Feedback enhances the cognition of impact as individuals have access to information about the quality and effectiveness of their actions (Liden, Wayne, & Sparrowe, 2000). Performance information is also essential for individuals to believe that their tasks are an important part of an organisation (Spreitzer, 1995), and information about the results contributes to motivation (Hall, 2008).

Moreover, the lack of information about an organisation's goals and performance feedback is likely to limit individual psychological empowerment (Hall, 2008). With feedback about performance, individuals are able to learn if their past efforts led to a good performance, and consequently, they are more likely to make better decisions in the future, and this information is also likely to influence the individual's perception of self-determination (Spreitzer, 1995).

As mentioned above, prior research suggests that access to information about objectives and goals, and performance feedback, improves the four cognitions of psychological empowerment. Therefore, it is proposed that:

> **Hypothesis 6** – Access to information is positively associated with psychological empowerment.

3.8. Performance-contingent financial rewards and supervisor-subordinate conflict

Financial rewards tied to performance are intended to motivate subordinates to improve efficiency by increasing effort on tasks, improving processes and/or creating new solutions. Considering that the subordinate can have access to financial rewards according to how well she or he performs in the eyes of the supervisor adds tension to this supervisor-subordinate relationship. Supervisor-subordinate conflict derives from perceived differences between the two individuals who are in different hierarchical positions (Xin & Pelled, 2003). With performance-contingent financial rewards the subordinate is more prone to be concerned about how her or his performance is evaluated by the supervisor, and if subordinate and supervisor do not concur, conflict may arise.

There are a diverse set of situations from which supervisor-subordinate disagreements can appear, independently of how the performance is measured. For instance, due to cognitive conflict (Cosier & Rose, 1977), an identical evaluation can be seen quite differently by the supervisor and subordinate. The same issue may occur due to the interpretation of what is a fair financial reward to the subordinate according to her or his effort in fulfilling a task, where each individual may be biased in a manner to favour themselves (Thompson & Loewenstein, 1992).

Meyer (1975) argues that most subordinates believe that their performance is above average, but as some employees may have their self-esteem threatened by average rewards, conflict will arise as those employees getting rewards below their expectations blame their supervisors. In addition, supervisors are prone to build between their subordinates' an inner circle of close friendships and an outer circle of more distant relationships, and this may influence the supervisors' perception of subordinates' contributions (Burris, Rodgers, Mannix, Hendron, & Oldroyd, 2009). All these factors contribute to friction in the relationship between subordinate and supervisor, and the subordinate may eventually disagree with the supervisor regarding financial rewards.

Considering the aforementioned issues, it is plausible to consider that performance-contingent financial rewards will ultimately lead to supervisor-subordinate conflict, as proposed:

> **Hypothesis 7** – Performance-contingent financial rewards are positively associated with supervisor-subordinate conflict.

3.9. Performance-contingent financial rewards and managerial performance

The association between performance-contingent financial rewards and performance is typically assumed to be positive because incentives increase attention and effort (Bonner & Sprinkle, 2002). Individuals who perform well might be rewarded for it, and using performance as a basis for compensation is backed by agency theory and psychology. The first maintains that agents' performance can be controlled by tying compensation to performance (Prendergast & Topel, 1993), and the second, that employees are motivated through financial rewards (Kunz & Pfaff, 2002).

Banker et al. (2000) argue that performance-contingent rewards increases an organisation's overall productivity because it encourages less productive individuals to leave and more productive individuals to join or remain in the organisation (selection effect), and motivates individuals to learn more productive solutions for tasks (effort effect).

Some empirical research finds a positive relation between performance-contingent financial reward and performance (Jenkins et al., 1998; Podsakoff, Todor, Grover, & Huber, 1984; Sprinkle, 2000). These studies demonstrate that employees' performance improve due to financial rewards. Nonetheless, authors such as Kohn (1993) and Deci et al. (1999) argue that performance-contingent financial rewards do not increase performance. They state that financial incentives jeopardise employees' intrinsic motivation, thus actually reduce performance.

Although some studies argue that performance-contingent financial rewards do not increase performance (Deci et al., 1999; Kohn, 1993), this hypothesis is proposed on the grounds that

linking financial rewards to performance motivates employees to put more effort to improve performance, as increased performance leads to larger financial reward (Hölmstrom, 1979).

Backed by abovementioned theory and empirical findings, the following hypothesis is presented:

> **Hypothesis 8** – Performance-contingent financial rewards are positively associated with managerial performance.

3.10. Performance-contingent financial rewards and psychological empowerment

Bowen and Lawler (1992) argue that an incentive system that rewards performance is critical for empowerment, and if this reward system recognises contribution, this may contribute to the cognition of impact. Spreitzer (1995) found that rewards were positively related to individual psychological empowerment, and suggests that a link between performance and rewards leads to an increased feeling of empowerment, as it reinforces feelings of competence (Spreitzer's (1995) model did not specify a type of reward).[14] Drake et al. (2007) adapted Spreitzer's model for a study with lower-level employees and found that performance-based rewards do not have the same effects on the dimensions of empowerment as Spreitzer's (1995) survey of managers, which suggests that control features which empower managers may not empower ordinary employees. Drake et al.'s (2007) result points that rewards affect separate dimensions of empowerment rather than all dimensions.

[14] Drake et al. (2007) performed an experiment using two reward systems: a flat-wage per work period; and a performance-based reward system based on the profits generated by individual performance.

Drake et al. (2007) found that a performance-based reward system was negatively associated with autonomy. The researchers conclude that, given a flat-wage system, individuals could simply choose the amount of effort needed to perform a task, while in a performance-based reward system they were compelled to expend greater effort and work at a high pace.

Spreitzer (1995) suggests that a link between performance and rewards leads to an increased feeling of empowerment as it reinforces feelings of competence. Drake et al. (2007) found that performance-based rewards have significant and negative effects on perceived competence for perceived psychological empowerment in lower-level employees. According to the researchers, those with performance-based rewards felt themselves as less competent than those with flat-wage rewards (Drake et al., 2007). But, as stated by Zimmerman (1995), empowerment takes different forms for different people, as well as different forms in different contexts.

Although Drake et al.'s (2007) experiment with low-level employees finds that performance-based rewards have negative effects on some cognitions of psychological empowerment, this hypothesis is proposed on the grounds of Spreitzer's (1995) survey with managers, of a positive association between performance-based rewards and psychological empowerment. Hence the following hypothesis is proposed:

> **Hypothesis 9 –** Performance-contingent financial rewards are positively associated with psychological empowerment.

3.11. Psychological empowerment and managerial performance

Conger and Kanungo (1988) and Thomas and Velthouse (1990) advocated that a more empowered individual is more effective than a less empowered individual. A positive

relationship between performance and individual empowerment was later established (Spreitzer, 1995).

More empowered individuals are expected to perform better than less empowered ones (Liden et al., 2000), as empowerment leads to greater effort and intensity of persistence and flexibility (Spreitzer, 1995; Thomas & Velthouse, 1990), and the dimensions of empowerment are related to behaviours that enhance performance (Hall 2008).

With self-determination, they have the choice to initiate, continue, or terminate actions and processes aiming to improve performance (Thomas & Velthouse, 1990). As individuals perceive the cognition of impact, they realise the capacity of successfully accomplishing the tasks, this being a motivational element for improving performance (Thomas & Velthouse, 1990). As individuals recognise that their task contributes to the organisation, they are likely to perceive that accomplishing goals improves the organisation's overall performance (Thomas & Velthouse, 1990). Liden et al. (2000) found that impact and competence were positively associated with work performance. Additionally, individuals are expected to put more effort into tasks which they perceive as meaningful and worthwhile (Liden et al., 2000; Thomas & Velthouse, 1990).

As mentioned above, psychological empowerment is likely to improve performance through the enhancement of the cognitions of self-determination, competence, impact, and meaning. Therefore the following hypothesis is proposed:

> **Hypothesis 10** – Psychological empowerment is positively associated with managerial performance.

3.12. Supervisor-subordinate conflict and psychological empowerment

Given that conflict consists of interpersonal incompatibilities regarding task and relationship dissimilarities (Jehn, 1995), it is plausible to consider that conflict hinders the four cognitive dimensions of psychological empowerment. Task conflict may hamper self-determination, as subordinates might fail to choose the right timing to work on actions and processes, due to disagreements with her or his supervisor on how to proceed with tasks (Jehn, Greer, Levine, & Szulanski, 2008).

If individuals do not find a solution for the conflict, the subordinate may need to hand over part of her or his autonomy, so that the supervisor interferes by instructing how to proceed with the task. Disagreements about how to proceed with tasks also diminishes the cognitive perception of impact as individuals perceive that the time that they are spending arguing about how to do the task could be used to effectively accomplish the task.

A similar argument is used for the competence and meaning cognitions. Time is wasted discussing the task *per se*, instead of proceeding with task completion. Nonetheless, it is arguable that small levels of task conflict may increase the perceptual cognition of impact, competence and meaning, as internal discussion helps individuals to consubstantiate procedures, improving them so that the tasks become more effective and relevant. If the subordinate is excluded from supervisor's inner circle due to some supervisor-subordinate tension, this excluded subordinate may be demoted from some empowerment cognitions

(Burris et al., 2009). Sutton (2007) argues that if a supervisor fosters tension in the work environment, this tension diminishes the subordinate's empowerment cognitions.[15]

Relationship conflict limits cognitive processing, as supervisors may dislike subordinates – and vice-versa – making them less receptive to the other's ideas, reducing goodwill and mutual understanding (Evan, 1965; Jehn, 1995; Xin & Pelled, 2003). Relationship conflict evidently diminishes self-determination, since subordinates become less reliable, thereby increasing the frequency of interference by supervisors. As individuals spend part of their productive time dealing with conflict, there is less time to contribute to the organisation and effectively accomplish tasks.

Hence this section provided arguments on how conflict has a negative impact on psychological empowerment, leading to the following hypothesis:

> **Hypothesis 11 –** Supervisor-subordinate conflict is negatively associated with psychological empowerment.

3.13. Supervisor-subordinate conflict and managerial performance

Disagreements between supervisor and subordinate are likely to increase the amount of time the subordinate spends solving conflict issues, rather than working properly (Jehn, 1995, 1997). Empirical studies show a negative relation between conflict and productivity (Evan, 1965; Gladstein, 1984). Conflict may be important for high-quality decisions, but it also hinders consensus, as well as weakening the ability to work together (Schweiger et al.,

[15] As a counterargument, authors such as Jehn and Chatman (2000) argue that in specific conditions some conflict may have some positive outcome in commitment, cohesiveness, and satisfaction.

1986). Considering Jehn's distinction between task and relationship conflict, it is arguable that lower levels of task conflict could be effective for subordinates' performance, as they would be required to look for new ways of solving problems, but higher levels would interfere with task completion (Jehn, 1997). Jehn (1995) found that task conflict contributes to performance within groups performing non-routine tasks, while disagreements about tasks were detrimental to performance of routine tasks.

Eventually task conflict can become relationship conflict, since individuals constantly disagreeing about task procedures may trigger interpersonal incompatibilities. With relationship conflict, subordinates experience tension, animosity, and annoyance, thereby turning the experience into something unpleasant. Evan (1965) argues that with conflict, individuals focus less on tasks and more on interpersonal aspects, which means that time that should be spent completing tasks and solving problems is spent dealing with relationship conflict. While task conflict may rise from discussing the best way to perform tasks, there is no beneficial output from the struggle when it turns into relationship conflict. It is widely accepted that relationship conflict interferes with performance (Jehn, 1995, 1997; Jehn & Chatman, 2000).

Disagreements between supervisor and subordinate are time and effort consuming for actions which are not directed to tasks, therefore reducing performance. Both relationship conflict and a higher level of task conflict divert subordinates from contributing to the output, and this leads to the following hypothesis:

> **Hypothesis 12 –** Supervisor-subordinate conflict is negatively associated with managerial performance.

3.14. Summary

The twelve hypotheses represent a diverse set of associations between the six variables. Each hypothesis is an association between two variables within the framework. The framework is shown in diagrammatic form in the figure below, where each arrow represents a hypothesis.

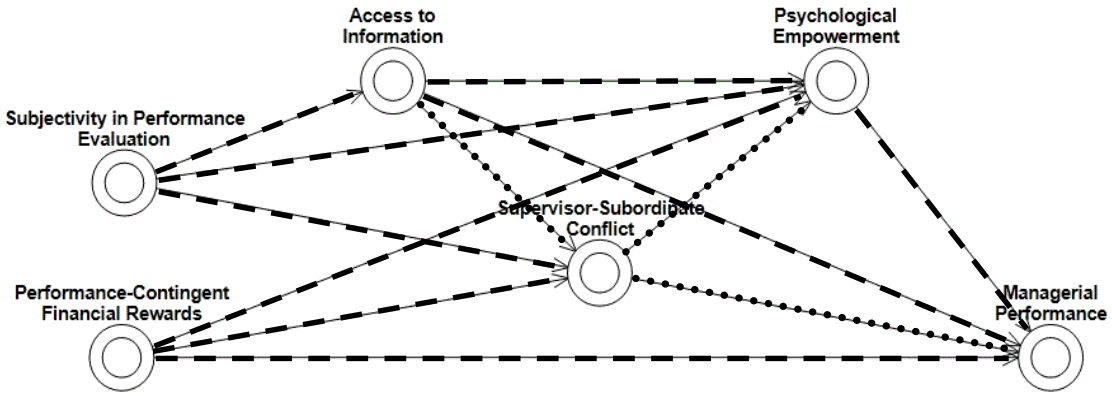


Figure 3.1 – Proposed model

The dotted lines (•••) represent the negative associations and the dashed lines (– – –) represent the positive associations. As shown in Figure 3.1, subjectivity in performance evaluation has indirect associations with managerial performance.

The next chapter explains the research method of this study.

Chapter 4. Research method

4.1. Introduction

This chapter is organised in four sections, which describe the data collection process and data analysis for this thesis. Section 4.2 provides the details regarding how the sample selection was undertaken, including information regarding the survey procedures, how the survey pre-test was conducted, and the response rate. Section 4.3 has the preliminary data analyses, which include accounting for missing data, data screening, testing for non-response bias, demographics, and control variables. Section 4.4 has the details of the data analysis approach, while Section 4.5 concludes the chapter.

4.2. Data collection

The research method adopted in the thesis was a mail survey. Surveys are commonly employed for theory testing in management accounting research (Van der Stede, Young, & Chen, 2006).[16] This method is very effective to empirically study the characteristics and interrelations among a diverse set of variables. The data collection process is the main difference between surveys and other research methods, such as case study and experiment (De Vaus, 2002).

[16] Van der Stede et al. (2006) found that between 1982 and 2001, the mail survey method was used by 30% of all published empirical management accounting research.

In surveys, usually a large set of data referring to a group of variables is collected. This is quite different from case studies, where in-depth data are collected relating to one case (or a small number of cases). This means that surveys tend to have a broader scope of observations, but in a smaller depth (De Vaus, 2002). But while case studies typically provide qualitative data, surveys are a source of quantitative data. Quantitative data can be arranged as data tables (Marsh, 1982). This allows the researcher to test hypotheses and derive conclusions with the help of statistical analysis.

Questionnaires are widely used for data collection in surveys and allow the researcher to build a data table for statistical analysis. Thus, the relations between the proposed variables of interest can be explored, hypotheses tested, and conclusions derived. However, the use of surveys in management accounting research has also been criticised (Van der Stede et al., 2006). Some of the criticism relates to measurement error issues and low validity of the data collected (De Vaus, 2002). The survey method also presents the researcher with some challenges, such as the risk of low response rates (Dillman, Smyth, & Christian, 2009).

While these criticisms of surveys cannot be ignored, there are ways to identify these problems and deal with them. To increase the response rate there is a list of recommended procedures presented by Dillman et al. (2009) that can be adopted, ranging from specific ways of tailoring the questionnaire, contacting the participants, doing follow up, to offering rewards. To identify and deal with measurement error issues and low validity, there are a number of statistical analyses presented by Hair, Black, and Babin (2010)[17]. This means that

[17] For increasing response rate in this survey, please check Section 4.2.2 regarding the survey procedures for further information. For unreliability and low validity issues in this survey, please check the preliminary data analysis (Section 4.3 on this chapter) and the measurement model analysis (Section 5.3 in the variable measurement chapter) for further information.

despite the criticisms, surveys are still one of the most efficient ways of collecting unique large-scale high-quality data (Van der Stede et al., 2006).

The option of conducting an experiment was also considered, but measuring supervisor-subordinate conflict, a key element of this research, in an experiment, would prove rather challenging due to ethical issues.[18] Also, considering that conflict level varies between stages of interaction (Jehn & Mannix, 2001), it would be necessary to develop a multiple-stage experiment to explore such a complex variable.

There was an option of doing this survey through an electronic questionnaire, instead of mailing booklets to the participants, but this would raise a number of issues. For instance, some participants might consider the Internet an unsafe environment, compromising their anonymity as respondents or threatening their computers with viruses or worms (Dillman et al., 2009). The option of sending the questionnaire booklets and offering a digital questionnaire was declined, as participants might complete both the booklet and the digital questionnaire. Therefore, it was chosen to do the survey solely with mailed questionnaire booklets.

4.2.1. Sample selection

Managers were selected to sample for this study as they are subject to all elements investigated in this study. Further, managerial performance and interplay with management control systems has been widely studied and documented in the literature since early studies, such as Anthony (1965), Mahoney, Jerdee, and Carroll (1965), Otley (1978), and

[18] Exposing participants to conflict situation in experiments raises ethical implications which would have to be carefully examined by the Monash University Human Research Ethics Committee – MUHREC.

Ouchi (1979). The only restriction to sample selection was to exclude top management. Top management had to be excluded from sample selection because they are not directly subordinate to someone else; thus not being valid for capturing supervisor-subordinate conflict, which is one of the behavioural variables of this study.[19] Additionally, top management has performance evaluation tied mostly to the organisation's financial performance. Murphy and Oyer (2003) stated that discretion is less important in determining top management performance than the performance of other executives, similar to Bushman et al. (1996) who found that only approximately one-third of the sample organisations used individual performance for top management compensation.

The selection of the service industry only was due to the potential impact of different industry subsamples on data analysis. The choice of restricting the survey to the service industry might limit the generalisation of the results, but it also reduces the chances of confounding variables. Also, it is argued that single industry analysis has substantially higher internal validity than a multi-industry analysis (Ittner, Larcker, & Randall, 2003).

The contact list for selecting middle level managers was obtained from List Bank (www.listbank.com.au), a business database in Australia which contains contact information collected from publicly available sources. To build the list of participants, the following criteria was applied: exclude managers from organisations with less than 100 employees;[20] exclude organisations whose business description did not include the term 'service'; and exclude top management. After applying these filters the list comprised of 1,818 managers

[19] The supervisor-subordinate conflict is captured through the subordinate perspective. Please see Chapter 5 for further information regarding how the variables are measured.

[20] Chenhall (2006) argues that large organisations are associated with more diversified operations, formalisation of procedures, specialisation of functions, divisionalised organisational structures, and sophisticated controls.

from which 1,000 participants were selected randomly. The selection was limited to a maximum of two managers per organization.

The rationale for selecting a sample of 1,000 participants was to guard against low samples for statistical analysis. The response rate of surveys can be as low as 15% (Van der Stede et al., 2006), so the researcher would still have approximately 150 responses to go through preliminary data analysis, and still have a considerable amount of useable completed questionnaires to run statistical analysis (please check the response rate in Section 4.2.4 for more information).[21] The sample size has to be big enough to perform the analyses with sufficient statistical power (Van der Stede et al., 2006).

4.2.2. Survey procedures

The survey procedures were based on the guidelines presented by Dillman et al. (2009). The process of choosing words and forming questions was done in a way to ensure that the questions were accurate and applicable to managers at organisations. The questionnaire consisted of sets of questions, using simple and familiar words. The wording was specific and concrete, specifying the concepts clearly. As no technical terms were used, a glossary was not included in the survey. Details regarding the measurement of variables are provided in the next chapter.

Regarding the visual presentation of the questionnaire, there were different colours between each item to help the respondent identify each one, as well as visually standardised answer spaces and response options. The anchor texts were highlighted for a similar

[21] In their study Van der Stede et al. (2006) found that the bottom decile for response rates was 15%, which is similar to low response rates observed in recent surveys in Australia, such as Moores and Yuen (2001), and Auzair and Langfield-Smith (2005).

purpose. The visual presentation of the survey was used consistently throughout the questionnaire.

The survey package delivered to each participant consisted of an explanatory statement and a questionnaire booklet. The explanatory statement presented the research objectives, survey deadline, and necessary ethical disclaimers. Besides going through the nature and relevance of the survey, it also stated that no participant could be identified in any way and the information obtained would not be used for purposes other than those stated in the research. This one page document was printed on Monash University letterhead. A copy is available in Appendix 1.[22]

The printed booklet contained the questionnaire instructions followed by the questions. These were presented in numerical sequence, ordered from top to bottom, to minimise the possibility some being missed out by participants. The questions regarding number of years and percentage included 'years' and '%' after the space provided to ensure that the specific unit desired was clear to the participant. The questionnaire booklet format was constructed following Dillman et al.'s (2009) recommendations.[23]

The survey was mailed on October 26, 2011 and a postcard reminder mailed on November 16, 2011. The postcard reminder is available in Appendix 3. As explained to participants in the explanatory statement and cover letter, a $1.00 donation would be made for each completed questionnaire booklet received before November 30, to the Ron Evans Cancer Research Fellowship. Follow-up calls were made during November and December, 2011, and

[22] The research, as project CF10/3442 – 2010001813, was approved by the Monash University Human Research Ethics Committee – MUHREC on March 16th, 2011.

[23] The booklet was made to fit a C5 (162 x 229 mm) reply-paid envelope, stapled on the spine, no questions on the front or back cover, and with Monash University's official logo.

January, 2012. The first completed questionnaire was received on November 2 and the last one on February 20, 2012. In total, 103 responses were received.

Although only 81 completed questionnaires were received prior to the proposed deadline of November 30, 2011, the researcher donated $200.00 to Ron Evans Cancer Research Fellowship on behalf of the anonymous participants (please see Appendix 4 for receipt from the Monash Institute of Medical Research).

4.2.3. Survey pre-test

A draft version of the survey package was mailed to three professional practitioners and ten fellow researchers from the Faculty of Business & Economics at Monash University for constructive feedback. The objective of this procedure was to circulate the material asking other researchers to read and complete the questionnaire and give some comments regarding its accuracy and precision. Suggestions were used to improve the survey wording, question order, visual design, and navigation. Based on this, some slight changes were made to the survey.

4.2.4. Response rate

From 1,000 survey packages mailed on October 26, a total of 173 questionnaires came back marked 'return to sender'. Phone follow-ups revealed that a further 129 contacts were unknown or had left the organisation, dropping the effective number of participants to 698.

There were a total of 103 completed questionnaires returned, but as one of these had a whole section of missing data, the total useable sample was 102 answers. This represents an

effective response rate of 14.61%, considering only the actual number of participants and revised sample size.[24]

Recent mail surveys conducted in Australia indicated similar response rates, such as 14.5% response rate for Moores and Yuen (2001), 20% for Baines and Langfield-Smith (2003), and 14.9% for Auzair and Langfield-Smith (2005). According to recent studies, the main reasons for this decreasing response rate range from not enough time to spend completing surveys, receiving too many surveys, and/or company policy of not completing surveys (Baines & Langfield-Smith, 2003; Chenhall, 2005; Hall, 2008). Follow-up phone calls provided similar reasons from the participants.

A more substantive factor that may have decreased the response rate of this survey is the research topic. Although anonymity was guaranteed, the information requested might have been considered delicate by some participants.[25] The survey had questions directed to supervisor-subordinate conflict and performance-contingent financial rewards (please see Appendix 2 for questionnaire).

Although the absolute number of 102 useable questionnaires was a sample big enough for most statistical analysis (Hair et al., 2010), a low response rate raises the potential for non-response bias, which impacts the generalisability of findings. Some researchers argue that low response rate does not necessarily mean large non-response bias (Groves, 2006; Visser, Krosnick, Marquette, & Curtin, 1996). Some comparisons between identical surveys with significantly different response rates have shown that results were similar, such as Keeter,

[24] The total sample should consider only those participants who were presumably contacted (Armstrong & Overton, 1977).

[25] Shields and Young (1993, p. 368) had a 20% response rate for their survey and argued that: "The expected response rate was low, in part, because some of the information requested was proprietary (e.g., compensation)".

Miller, Kohut, Groves, and Presser (2000) and Keeter, Kennedy, Dimock, Best, and Craighill (2006).[26] Nevertheless, potential implications of a low response rate have to be carefully examined by preliminary data analysis. The results of testing for non-response bias are presented in Section 4.3.3.

4.3. Preliminary data analysis

The preliminary data analysis comprised mostly of data screening and preparing the data for further statistical analysis. The procedures carried out in this section were based on the guidelines presented by Hair et al. (2010). The IBM SPSS Statistics 20.0® program was used for all statistical analysis in this section. This program was chosen because it provides all necessary tools to perform this chapter's statistical analyses, as well as a user-friendly and intuitive graphical user interface.

4.3.1. Accounting for missing data

The preliminary data analysis examines whether the missing data is scattered randomly throughout the observations or if there are distinct patterns of missing data. This is an important analysis, as missing data may considerably reduce the sample size available, and any statistical analysis based on non-random missing data may be biased, directly impacting the generalisability of the results (Hair et al., 2010).

Following visual analysis of the completed questionnaires, there was no discernible pattern to missing responses. One exception was a completed questionnaire where the participant failed to complete the whole section regarding subjectivity in performance evaluation. This

[26] These studies were published in *Public Opinion Quarterly* and are related to public opinion polls. Therefore, although the findings are encouraging, Keeter et al. (2006) advice researchers to not necessarily generalise those findings to surveys approaching non-political topics.

response was excluded from the total sample. Therefore, the total sample was reduced to 102 useable responses, from which nine questionnaires had at least one item left blank, resulting in a total of 13 missing values. Considering those 102 useable responses, accounting for missing data was undertaken following the process suggested by Hair et al. (2010).

Checking the percentage of missing data by question and by questionnaire, the largest amounts of missing answers, by questions, were two blank questions (missing 2% of total completed questions), and the largest amounts of missing answers, by questionnaire, were two blank questions (missing 4% of total completed questions). Hair et al. (2010) argue that missing data under 10% can be generally ignored, unless the missing data occurs in a specific non-random fashion.

The randomness of the missing data may be classified as missing at random (MAR) or missing completely at random (MCAR). MAR occurs when data is missing randomly within subgroups, but differ in levels between subgroups, while MCAR occurs when there is really no pattern in the missing data (Hair et al., 2010).

The first step to check if the data is missing in a specific non-random fashion is visual inspection, followed by Little's MCAR test (Hair et al., 2010). If the MCAR test indicates a non-significant statistical level (a *p*-value greater than .05) this means that the observed pattern does not differ from a random pattern. As noted, a visual inspection did not identify any pattern on those 13 missing values. Little's MCAR test was run and the result indicates that the values were missing completely at random (Chi-Square = 1013.237, degrees of freedom = 1024, significance = 0.589). The question regarding managerial performance had a 'not applicable' option for each activity item developed by Mahoney et al. (1965).[27] Even if the

[27] Please see Chapter 5 for more information regarding variable measurement.

'not applicable' answers were considered as missing values, the Little's MCAR test would still indicate that the values were missing completely at random (Chi-Square = 833.139, degrees of freedom = 797, significance = 0.182).

Given that the missing data were MCAR, the next step was selecting an imputation method for completing missing values. The imputation methods listed by Hair et al. (2010) for data MCAR are: using only valid data (complete case approach and using all-available data); and defining replacement values for the missing data (using known replacement values and calculating replacement values). It was chosen to replace missing values because the severity of the problem was minimal and if those nine questionnaires were excluded from the sample, there would remain only 93 useable questionnaires, an even smaller sample for further statistical analysis.

Imputation methods such as mean substitution and regression imputation can provide biased estimates, as those techniques use relationships contained in the data to estimate the values of missing data (Hair et al., 2010). So, the chosen method was the estimation-maximisation (EM) method, which is a model-based method available in the IBM SPSS Statistics 20.0® program. Hair et al. (2010) argue that model-based methods offer the best representation of the original data distribution, with the least bias.

The EM method consists of an estimation and a maximisation step (Dempster, Laird, & Rubin, 1977). As explained in the IBM SPSS Statistics 20.0® manual (IBM, 2011, p. 7):

> This method assumes a distribution for the partially missing data and bases inferences on the likelihood under that distribution. Each interaction consists of an E step and an M step. The E step finds the conditional expectation of the "missing" data, given the observed values and current estimates of the parameters. These expectations are then substituted for the "missing" data. In the M step, maximum likelihood estimates of the parameters are computed as though the missing data had been filled in.

In summary, the technique is a two-stage process, where the first stage makes the best estimates of the missing data and the second stage makes parameter estimates assuming the missing data is replaced (Dempster et al., 1977).

4.3.2. Data screening

Data screening comprised of examining the accuracy of data entry, univariate normality, outliers, and common method variance. These analyses are essential for understanding the data set and learning which kind of further statistical analysis can be applied.

For the accuracy of data entry, first, a visual inspection was done and this was followed by checking the maximum and minimum values for each item. All data was numerical and no value from the main variables was set outside the 1-7 range. A visual inspection of normality plots for each variable found that some variables, especially supervisor-subordinate conflict and access to information, were somewhat skewed. For further analysis, univariate normality was tested by skewness and kurtosis. As suggested by Kline (2010), the threshold for being considered within the boundaries of normality is maximum skewness of 3 and kurtosis of 10.

Even though visual inspection pointed to some skewness, the only three variables that exceeded those thresholds were the following demographic variables: the number of employees in the organisation, the number of employees in the business unit, and the number of subordinates. Hair et al. (2010) present some data transformations that could be used to adjust those demographic variables to achieve normality, but as these variables are only used for demographic purposes, data transformation was not used (for more information referring to demographics variables, please see Section 4.3.4).

For parsimony and simplicity reasons, the variables from the proposed framework were tested as averages of their items for data screening and non-response bias (summing the individual responses to each item and dividing them by the number of items in each scale). Please see Appendix 2 for all items from the questionnaire.

Table 4.1 – Statistics for data screening

Description	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
Subjectivity in Performance Evaluation	2.86	6.00	4.8146	.62631	-.476	.363
Access to Information	2.43	7.00	5.8661	.98747	-1.550	3.435
Performance-Contingent Financial Rewards	1.00	7.00	4.5327	1.48276	-.436	-.380
Psychological Empowerment	2.83	7.00	5.8843	.72659	-.843	2.192
Managerial Performance	2.67	6.67	5.3113	.64945	-.756	1.902
Supervisor-Subordinate Conflict	1.00	6.00	2.3463	1.29830	1.026	.208
Bonus received as a percentage of base annual pay	0.00	100.00	11.9450	15.94243	2.464	8.973
Years in current position	.3	36.0	7.060	6.7265	2.186	5.785
Years in current organisation	.7	36.0	10.997	7.9157	1.171	1.202
Number of full-time equivalent employees that work in organisation	0.0	210000.0	3386.337	21119.5409	9.576	94.205
Number of full-time equivalent employees that work in business unit	0.0	1000.0	61.817	129.4791	4.696	28.465
Number of employees responsible for	0.0	400.0	26.270	57.8521	4.398	22.175

Following Hair et al. (2010), the Mahalanobis (D^2) distance measure was adopted for multivariate detection of outliers. This method measures the multidimensional position of each observation relative to a common point, and is an efficient multivariate assessment across a set of variables. Outliers are identified as values which are farther removed from the general distribution of the sample within the multidimensional space (Hair et al., 2010). The threshold suggested by Hair et al. (2010) is 2.5 for the D^2/df measure of distance. No outliers were detected beyond the suggested threshold through this method.[28]

The last procedure for data screening was checking for common method bias. When applying questionnaires, there is concern that the items' variances are related to the measurement method rather than to the variables which they should represent (Podsakoff, MacKenzie, Jeong-Yeon, & Podsakoff, 2003). A Harman's single-factor test was carried out to examine common method variance. This test consists of an exploratory factor analysis for all items in the questionnaire. The unrotated factor solution was examined to check how many factors were necessary to account for the variance in the variables. The major concern – which implies common method variance – occurs if the outcome from this exploratory factor analysis has only one single factor or if one factor accounts for the majority of the covariance among items (Podsakoff et al., 2003).

The outcome of the unrotated exploratory factor analysis is available in Appendix 5. This analysis yielded 11 factors with eigenvalues greater than one, with the first factor accounting for 28.85 per cent of the variance in the items. The results do not indicate a single factor

[28] The highest D^2 score obtained was 80, which divided by 49 (*df*) variables provides a distance of 1.6. The 2.5 distance threshold suggested by Hair et al. (2010) would only be surpassed with a D^2 score beyond the 120s.

structure that accounts for the majority of the variance, suggesting common method bias is not a concern in the data.

4.3.3. Non-response bias

As the responses were anonymous, it was not possible to compare the sample of respondents with non-respondents. Therefore, to test for non-response bias, *t*-tests were conducted by comparing the means of the answers between early respondents and late respondents (Armstrong & Overton, 1977). The rationale for this procedure is that late respondents are considered to have similar characteristics to non-respondents. If there are differences between the early and late respondents, this indicates that non-respondents might be different from current respondents. This is known as an extrapolation method of estimating non-response bias in mail surveys (Armstrong & Overton, 1977).

The first 30 answers were those from November 2 to 4, 2011, whilst the last 30 answers were those from November 24, 2011, to February 20, 2012. Please check Appendix 2 for a complete table with all items from the questionnaire.

Table 4.2 – Non-response bias test

Description	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
				Lower	Upper
Subjectivity in Performance Evaluation	.709	.06820	.18210	-.29618	.43258
Access to Information	.258	.25498	.22315	-.19154	.70149
Performance-Contingent Financial Rewards	.041	.70753	.33813	.03093	1.38412
Psychological Empowerment	.324	.17748	.17827	-.17924	.53420
Managerial Performance	.170	.19275	.13880	-.08499	.47050
Supervisor-Subordinate Conflict	.340	-.31059	.32264	-.95619	.33502

Bonus received as a percentage of base annual pay	.937	-.23733	3.00123	-6.24719	5.77254
Years in current position	.346	-1.8989	1.9972	-5.8953	2.0974
Years in current organisation	.916	-.2328	2.1880	-4.6109	4.1453

Accordingly to Levene's test, there was no difference of variance between early and late respondent samples.

The comparison of both sets of data found differences between early and late respondents for the performance-contingent financial rewards variable. This implies that non-respondents might be different from the actual sample, regarding the performance-contingent financial rewards variable. However, the performance-contingent financial rewards variable is only one of the six variables considered in the model. Further analysis regarding the content of items and variables is presented in Chapter 5.

4.3.4. Demographics

The survey collected demographic information regarding respondent and organisation. The following demographics data was collected: main industry of organisation, job title, time in current position, time in current organisation, number of employees in the organisation, number of employees in the business unit, number of employees for whom the respondent is responsible, and bonus received as a percentage of base annual pay. These questions were used to learn who these respondents were, where they were placed in their organisations, and with how many people they had to deal. Most of these questions were kept to the end of the questionnaire, as recommended by Dillman et al. (2009). The reason for this was that participants may not regard demographics as relevant to the purpose of the survey. Nevertheless, demographic data play a role in surveys as they provide additional information to the researcher about respondents.

The questionnaire provided a set of nine industry options, from which the participant was required to select one. If the industry was not listed, respondents were able to specify it

(please see questionnaire in Appendix 2). From 102 completed questionnaires, 22 participants opted to specify the industry and one respondent checked two boxes, thus invalidating the answer. The specified answers were reclassified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC) codes.

Table 4.3 – List of industry by respondents

Industry (ANZSIC)	Frequency	Percentage
(M) Professional, Scientific and Technical Services	29	29%
(K) Financial and Insurance Services	26	26%
(C) Manufacturing	8	8%
(E) Construction	8	8%
(H) Accommodation and Food Services	8	8%
(D) Electricity, Gas, Water and Waste Services	7	7%
(A) Agriculture, Forestry and Fishing	3	3%
(J) Information Media and Telecommunications	3	3%
(Q) Health Care and Social Assistance	3	3%
(N) Administrative and Support Services	2	2%
(R) Arts and Recreation Services	2	2%
(B) Mining	1	1%
(F) Wholesale Trade	1	1%

As shown in Table 4.3, some respondents selected manufacturing (8%) and construction (8%). It must be noted that the sample selection from List Bank was referring to the service industry and therefore those are likely to be manufacturing and construction services.[29]

The participants were asked their job title in open-ended questions. There were 46 titles with the word 'manager', 20 titles with the word 'chief', and 7 titles with the word 'director' (all three groups were exclusive). To ensure that the answers from those respondents entitled 'managers' were not different from the remaining respondents within the sample, *t*-tests were run. Except for an average lower level of performance-contingent financial rewards, *t*-

[29] As anecdotal evidence, the researcher contacted one participant in an architecture company during the follow-up process. The participant described himself as in the "construction industry".

tests indicated that the 'managers' (46 responses) were similar to remaining respondents in the sample (56 responses).

Besides industry and job title, the following demographics were also collected: bonus received as a percentage of base annual pay, time in current position, time in current organisation, number of employees in the organisation, number of employees in the business unit, and number of employees for whom the respondent is held responsible.[30] These questions were fundamental to learn who those respondents were and how many people they had to deal with.

Regarding the time in their jobs, the respondents were, on average, in their current positions for seven years and in their organisations for 11 years. This suggests that this sample comprises of managers with considerable experience. These values are similar to contemporary research such as Hall (2008), who found five years in current position and 11 years in organisation, Spreitzer (1995) with three in the current position and 13 years in the organisation, and Baines and Langfield-Smith (2003) with 11 years in the organisation. The number of full-time employees in the organisations studied varies widely, especially because this study includes multinational corporations as well as nongovernmental organisations.

4.3.5. Control variables

Three control variables related to participants' tasks and deadlines were inserted in the questionnaire. These control variables were tailored to capture some issues that could arise from using the supervisor-subordinate conflict variable in a survey. As supervisor-

[30] The demographics are presented in Table 4.1 at the beginning of this section.

subordinate conflict can be regarded as a sensitive topic, the concern was having a substantial amount of missing values for this variable.

Table 4.4 – Statistics for control variables

Description	Range	Minimum	Maximum	Mean	Std. Deviation
I frequently share my tasks with other employees	6	1	7	4.91	1.401
My tasks' priorities frequently change because of new deadlines	6	1	7	5.24	1.366
My deadlines severely impact the quality of my tasks	6	1	7	3.92	1.584

If there were a substantial amount of missing data for supervisor-subordinate conflict variable, tasks and deadlines control variables could be used for further analysis (Jehn & Mannix, 2001). As the missing data analysis did not account for missing values for supervisor-subordinate conflict, it was chosen not to perform further analysis using the tasks and deadlines control variables.

4.4. Data analysis

The model to be tested in this thesis is a path model. To test path models it is required to estimate the parameters in a series of equations, where the dependent variable of one equation may become the independent variable of the next (Hair et al., 2010). It must be noted that the variables in this proposed path model are subject to measurement error, which means that a portion of the observed variable may be measuring something other than the hypothesised latent variable. Given that it should be adopted, a second-generation multivariate technique such as structural equation modelling (SEM) or partial least squares (PLS), which enables the researcher greater flexibility for the interplay of theory and data (Chin, 1998). The choice between SEM or PLS is dependent on factors such as sample size and distribution of the data being tested.

The default estimation technique used in SEM software packages is maximum likelihood estimation, thus the practical difference between SEM and PLS is briefly summarised by Roos, Yip, and Johanson (1997, p. 118) as:

> In short, the difference in technique is that PLS-estimation begins by weighting the estimated parameter scores of the first latent variable (principal component) as an exact linear combination of its manifest variables (as regression matrices). The manifest variables can be treated as either reflective of formative. The variation in the residual is minimized, maximizing the degree of explained variation (R^2) in the endogenous latent variables. Maximum likelihood estimation, on the other hand, begins by estimating the loadings (correlation between manifest variable and latent variable), eliminating the latent variables in the process, and finishes by estimating the latent variables by regressing them on the manifest variables. The optimal parameters are obtained by minimizing the residual covariances among manifest variables.

The PLS estimation method works with two models, the measurement model and the structural model. The measurement model refers to the latent variables and the structural model refers to the estimation of the path coefficients. Thus the aim is to explain at best the residual variance of the latent variables, which is quite different from the classical covariance-based approach (Chin, 1998). PLS is more focused on optimising explained variance than the statistical accuracy of the estimates (Vinzi, Trinchera, & Amato, 2010).

PLS is called a *soft modelling* approach, which means that there is no strong assumption regarding distribution and sample size (Chin, 1998). Given this, it is not possible to produce parametric inferences for the path model. Thus resampling methods have to be adopted for building confidence intervals (Chin, 1998). The use of maximum likelihood estimation (which is the default estimation technique in SEM) assumes that the observed variables follow a multivariate normal distribution, and requires a sample size of at least 200 observations to provide a sound basis for estimation (Hair et al., 2010). PLS makes fewer demands of the data, meaning that it can be applied to smaller samples than SEM, and it does not assume a normal distribution of the data (Chin, 1998; Kline, 2010). The rule of thumb for minimum

sample size in PLS is ten times the number of arrow schemes pointed to the latent variable with the largest number of independent variables impacting it (Chin, 1998). Considering this thesis' proposed framework and hypotheses, this minimum sample size should be four times 10, which is 40 observations.[31] Thus the sample size of 102 clearly surpasses the threshold.

4.4.1. The choice of PLS

A second-generation multivariate technique was adopted due to the likelihood of measurement error in the variables of the model. So, the choice of technique adopted to analyse the proposed path model was between SEM or PLS. Due to the SEM sample size limitation for accounting research, Smith and Langfield-Smith (2004) suggest PLS as an alternative. Therefore, the decision was based on the sample size and distribution of the data being tested.

For the period 1980 to 2001, only one management accounting study used PLS (Smith & Langfield-Smith, 2004), but more recent surveys shown an increasing trend. For the period 1997 to 2010, Lee, Petter, Fayard, and Robinson (2011) found 20 accounting papers published using PLS, across seven journals. As Smith and Langfield-Smith (2004) argue, PLS is very suitable for management accounting research as it accommodates small sample sizes and works with non-normal data.

In the data collection section of this thesis it was stated that there was a useable sample size of 102 observations. This number was below the safe threshold of 200 observations required

[31] This is based on the equation, with the dependent variable being managerial performance with the following independent variables: supervisor-subordinate conflict, access to information, performance-contingent rewards, and psychological empowerment; or dependent variable psychological empowerment with the following independent variables: supervisor-subordinate conflict, subjectivity in performance evaluation, access to information, and performance-contingent financial rewards. But further analysis in the variable measurement chapter split subjectivity in performance evaluation into two, thus increasing the minimum sample size to 50 observations.

by SEM as suggested by Hair et al. (2010), but bigger than the 40 observations required by PLS. Through the preliminary data analysis, it was stated that the main variables demonstrated univariate normality. Thus, based on its ability to deal with small sample sizes and being a current method for management accounting research, the PLS method was the adopted technique for this thesis.

As PLS does not make distributional assumptions, a method must be adopted to determine significance levels of parameter estimates. For this study a resampling procedure was adopted to estimate significance levels in PLS (Chin, 1998).

PLS-Graph 3.0® offers different kinds of resampling techniques, which are bootstrapping, jack-knifing, and blindfolding (Temme, Kreis, & Hildebrandt, 2010). It has been argued that the bootstrapping resampling method is superior to jack-knifing and blindfolding (Chin, 2010a), so the resampling method used in this analysis was bootstrapping. This method is described by Chin (1998, p. 320) as:

> N samples sets are created in order to obtain N estimates for each parameter in the PLS model. Each sample is obtained by sampling with replacement from the original data set (typically until the number of cases are identical to the original sample set).

For this analysis 1,000 samples were used for bootstrapping. Contemporary bootstrapping for PLS analysis have used large samples, such as 500 samples (Hall, 2008) and 1,000 samples (Hall & Smith, 2009).

4.4.2. Indirect effect analysis

PLS analysis presents the hypothesised relation between the variables within the structural model, but to answer the research question presented in Chapter 1, it is necessary to examine the direct and indirect effects between the model's variables. For this study, the

statistical significance of indirect effects is analysed in a technique identical to Hall and Smith (2009).[32]

The technique adopted is done with the bootstrapping output obtained from PLS-Graph 3.0®. For each one of the 1,000 samples from bootstrapping the estimated coefficients for the indirect path are multiplied to calculate an estimated coefficient for the indirect effect. The significance is obtained examining the percentage of effects above and below zero. This technique is done with the bootstrapping output and does not assume any distribution.

4.5. Summary

The purpose of this chapter was to present the research method adopted in this thesis. For the data collection, a random sample of 1,000 middle level managers was selected from a business database. A survey package was carefully prepared and sent to this sample of managers, of which 102 useable questionnaires were returned. Considering return to sender letters (173) and unknown or departed from the organisation contacts (129), the adjusted response rate was 14.61%.

The accounting for missing data found that data are MCAR, and expectation-maximisation was used as an imputation method to deal with missing observations. The data screening process found that the main variables exhibited normal distribution and that no outliers could be detected. A non-response bias analysis was performed and no response bias was found. Finally, due to the small sample, PLS was chosen to test the thesis' path model.

[32] Another option was Sobel's test (Baron & Kenny, 1986). But as Sobel's test is more suitable for large samples (Preacher & Hayes, 2004) it was chosen to work with the bootstrapping, as did Hall and Smith (2009). Nevertheless, Sobel's test has been used for testing indirect relations in contemporary management accounting literature. For example, please see Mithas, Krishnan, and Fornell (2005), Mahama (2006), and Henri and Journeault (2010).

Chapter 5. Variable measurement and analysis

5.1. Introduction

This chapter presents the description of how the variables used in the model were measured and how the data obtained for these variables was analysed. This chapter first introduces, in Section 5.2, the measurement of all variables used in the proposed framework of this thesis. Section 5.3 provides analyses to assess the reliability and validity of those variables. This is followed by Section 5.4, with descriptive statistics and finally Section 5.5, which provides the conclusions.

5.2. Variable measurement

This section explains how the variables presented in the hypothesised research model were measured. A copy of the questionnaire with all questions used for the survey is available in Appendix 2.

5.2.1. Subjectivity in performance evaluation

The measure of subjectivity in performance evaluation was developed for this thesis based on contemporary research about the topic. The measure consisted of seven items which explored characteristics drawn from an extended literature review of subjectivity in performance evaluation, including papers such as Govindarajan and Gupta (1985), Prendergast and Topel (1993), Bommer et al. (1995), Murphy and Oyer (2003), and Gibbs et al. (2004).

It is important to note that the participants of the survey were instructed to answer the questionnaire regarding the amount of subjectivity when they were evaluated by their supervisors. As the researcher did not have direct access to the organisations to learn about the performance evaluation process, these items rely solely on the perception of respondents. It was not possible to cross reference between human resources or supervisors and subordinates regarding the amount of subjectivity within the performance evaluation process (Keating, 1997).

Subjectivity in performance evaluation is represented in many ways throughout the literature, so to measure it the following items were developed to capture it. The objective of these items is to detect the use of discretion in performance evaluation. These items are presented in Table 5.1 below.

Table 5.1 – Items for subjectivity in performance evaluation

Item	Code
My supervisor has plenty of discretion in conducting my performance evaluation	SPEV01
My performance evaluation could change considerably if I were evaluated by another supervisor	SPEV02
My supervisor's experience with previous performance evaluations influences how s/he evaluates my current performance	SPEV03
My supervisor conducts my performance evaluation according to what s/he personally expects from me	SPEV04
My performance is evaluated based on what I have done and also on what I should have done	SPEV05
The rules concerning my performance evaluation are clearly set in advance [R]	SPEV06
My performance evaluation excludes unexpected occurrences that are beyond my control but influence my current performance	SPEV07

Note: The item marked with [R] is reverse-scored.

Item SPEV01 captures the amount of discretion during the performance evaluation. This item represents the definition from Govindarajan and Gupta (1985) that subjectivity in performance evaluation refers to the degree of a supervisor's discretion on performance evaluation. Item SPEV02 refers to how much performance evaluation is influenced by a

specific supervisor, as some researchers argue that subjectivity in performance evaluation is highly influenced by the superior's bias (Heneman, 1986; Prendergast & Topel, 1993).

Baker (1990) maintains that discretion allows the supervisor to use knowledge of what actually happened to separate the individual effort from the effects of unforeseen events. This is the objective of item SPEV03, which seeks to capture this discretion through how much the supervisor used her or his knowledge to influence the subordinate's performance evaluation. The item SPEV04 refers to the extent to which a supervisor's personal expectations influence the evaluation. The influence of the supervisor's expectations on the subordinate's performance evaluation shows that there is some subjectivity present in the evaluation, as subjective rating may rely mostly on personal judgment (Bommer et al., 1995; Simons, 1995).

The use of subjectivity allows the supervisor to evaluate the subordinate's performance regarding not only what the subordinate has done, but also the supervisor's expectations of what the subordinate should have done (Baker, 1990). Hence item SPEV05 captures the subjectivity in performance evaluation by the influence of the supervisor's expectations over performance evaluation. As Bol et al. (2012) argue, discretion allows supervisors to signal expectations or intentions to subordinates. Further, subjective performance evaluation can be influenced by the supervisor's knowledge of other information unrelated to the subordinate's performance (Bol & Smith, 2011).

Two features of subjective performance evaluations are that they are unspecified *ex ante* and non-verifiable *ex post* (Baker et al., 1994; Murphy & Oyer, 2003). As they are outcomes of the supervisor's discretion, there is no general formula or database to precisely track how or why past performance evaluations were defined as they were, and how good the rates will be for the next evaluations. Based on these arguments, the reverse-scored item SPEV06

was introduced in the questionnaire to capture how much unspecified *ex ante* and verifiable *ex post* information the subordinate had access to regarding her/his performance evaluation.

It has been suggested that subjectivity can work as smoothers to environmental unpredictability over performance and that the use of discretion may adjust the effects of uncontrollable factors (MacLeod & Parent, 1998; Merchant et al., 1995). Hence subjectivity can be used as a resource to neutralise the effects of negative externalities. Item SPEV07 captures the amount of subjectivity in performance evaluation by checking if this process excludes unexpected occurrences beyond the control of the subordinate, but that could influence her/his performance.

5.2.2. Access to information

The access to information scale was based on Spreitzer's (1995) instrument, with four items capturing how well the participant understands the organisation's intentions, and three items focused on measuring how much information concerning performance the participant has access to. There were a total of seven items in only one factor. In her study, Spreitzer's (1995) access to the information variable had a reliability of 0.81 (Cronbach alpha).[33] The items for this scale are shown in Figure 5.2.

[33] The paper which introduces this measure does not show the exact survey questions used. Due to this, the questions presented here were re-written based on the description found in Spreitzer (1995).

Table 5.2 – Items for access to information

Item	Code
I have access to the strategic information necessary to do my job well	AINF01
I understand my organisation's vision and mission	AINF02
I understand the goals of my organisation	AINF03
I understand my business unit's quality standards	AINF04
I understand my business unit's cost limits	AINF05
I have access to information regarding my business unit's performance in relation to quality	AINF06
I have access to information of my business unit performance in relation to cost management	AINF07

5.2.3. Performance-contingent financial rewards

The performance-contingent financial rewards scale was based on the four-item scale from Chow, Shields, and Wu (1999).[34] As the original items had a different anchor, they had to be slightly rewritten to adapt to the present questionnaire. This adaptation presented some challenges, as during the survey pre-test, there were some difficulties with one of the re-written items, which was considered rather complex and inconsistent with the rest of the questionnaire. Thus, for the sake of clarity it was dropped, reducing the scale to three items. The original items presented in Chow et al. (1999) are:

- "The extent to which your compensation contract clearly specifies how your compensation is related to your unit's performance relative to your unit's budget" (p. 459), which was adapted to questionnaire item PCFR01;
- "The extent to which your financial rewards increase as your unit increasingly outperforms your unit's budget" (p. 459), which was adapted to item PCFR02;

[34] Chow et al. (1999) based their scale on Shields and Young (1993).

- "The extent to which managers whose units' performance relative to their budgets are among the top 25% are given larger financial rewards than those given to unit managers among the bottom 25%" (p. 459), which was adapted to item PCFR03; and
- "The percentage of your total annual compensation typically coming from a pre-set salary as opposed to a bonus based on your unit's performance relative to your unit's budget" (p. 459), which was dropped from the scale and re-set as a stand-alone open question referring to the approximate bonus/incentive received as a percentage of base annual pay.

Table 5.3 shows the items used to measure peformance-contingent financial rewards in this thesis.

Table 5.3 – Items for performance-contingent financial rewards

Item	Code
Employee compensation at my organisation is related to an individual's performance relative to their performance targets	PCFR01
Employees' rewards at my organisation increase as employees perform better, relative to their performance targets	PCFR02
Higher performing employees in my organisation are given larger rewards than lower performing employees	PCFR03

The complementary question asking participants to indicate the approximate bonus/incentive received as a percentage of base annual pay was open-ended in percentage points, which could range from zero to a large percentage. Surveys directed to subjectivity, such as Gibbs et al. (2004), and Murphy and Oyer (2003), use bonus/incentive information in their analysis; however, for this survey, this information was used mostly for demographic analysis and was excluded from further analysis.

5.2.4. Psychological empowerment

The psychological empowerment scale came from Spreitzer (1995), which uses twelve items to capture the four dimensions of empowerment: meaning, competence, self-determination, and impact. These items are widely used in contemporary research and acceptable reliabilities have been consistently reported.[35] These items are shown in Table 5.4.

Table 5.4 – Items for psychological empowerment

Item	Spreitzer's (1995) Dimension	Code
The work I do is very important to me	Meaning	PEMP01
My job activities are personally meaningful to me	Meaning	PEMP02
The work I do is meaningful to me	Meaning	PEMP03
I am confident about my ability to do my job	Competence	PEMP04
I am self-assured about my capabilities to perform my work activities	Competence	PEMP05
I have mastered the skills necessary for my job	Competence	PEMP06
I have significant autonomy in determining how I do my job	Self-determination	PEMP07
I can decide on my own how to go about doing my work	Self-determination	PEMP08
I have considerable opportunity for independence and freedom in how I do my job	Self-determination	PEMP09
My impact on what happens in my business unit is large	Impact	PEMP10
I have a great deal of control over what happens in my business unit	Impact	PEMP11
I have significant influence over what happens in my business unit	Impact	PEMP12

5.2.5. Supervisor-subordinate conflict

Supervisor-subordinate conflict was measured using an adaptation of the scale from Xin and Pelled (2003), which was drawn from Jehn (1995). This measure comprised of seven items

[35] For examples of contemporary accounting research using psychological empowerment, please see Hall (2008), and Hall and Smith (2009).

divided between task and emotional conflict scales. It must be noted that Jehn (1995) explored the interaction between peers, Xin and Pelled (2003) explored the supervisors' interaction with subordinates, and this research explored the subordinates' interaction with supervisors. Therefore, the items were slightly changed to reflect this difference of perspective. While Xin and Pelled (2003) presented questions as "between you and the subordinate", this survey presented questions as "between me and my supervisor". Table 5.5 provides the items that comprise the scale.

Table 5.5 – Items for supervisor-subordinate conflict

Item	Code
Personality conflicts are evident between me and my supervisor	SSCO01
There is emotional conflict between me and my supervisor	SSCO02
My supervisor often disagrees with me regarding the way my work is done	SSCO03
There are conflicts between me and my supervisor about ideas related to my work	SSCO04
There is conflict between me and my supervisor regarding work and/or projects	SSCO05
There is friction between me and my supervisor	SSCO06
There is tension between me and my supervisor	SSCO07

5.2.6. Managerial performance

To measure managerial performance the eight items developed by Mahoney et al. (1965) were adopted, using one additional item for overall performance, as per Hall (2008). The header of the question (please see questionnaire in Appendix 2) asked the participant to rate her/his own performance compared to the average manager in their organisation.[36]

The Mahoney et al. (1965) measurement of managerial performance has been widely used in surveys, in spite of the issues with self-reported performance (Van der Stede et al., 2006). However, based on the study from Heneman (1974), researchers such as Hall (2008), and

[36] The brief instructions presented in the beginning of the questionnaire stated that the questions in this survey referred to the organisation the participant worked for.

Parker and Kyj (2006), argue that self-reported performance measures are valid and tend to display less bias than supervisor ratings. The items are shown in Table 5.6.

Table 5.6 – Items for managerial performance

Item	Code
Planning: determining goals, policies, and courses of action such as work scheduling, budgeting, and programming	MPER01
Investigating: collecting and preparing of information usually in the form of records, reports, and accounts (measuring output, record keeping, and job analysis)	MPER02
Coordinating: exchanging information with people in the organisation other than my subordinates in order to relate and adjust procedures, policies and programs	MPER03
Evaluating: assessment and appraisal of proposals or of reported/observed performance (e.g., employee appraisals, judging financial performance and product inspection)	MPER04
Supervising: directing, leading, and developing your subordinates	MPER05
Staffing: maintaining the work force of your responsibility area (e.g., selecting and promoting your subordinates)	MPER06
Negotiating: purchasing, selling, or contracting for products or services (e.g., contracting suppliers, collective bargaining)	MPER07
Representing: advancing the general interests of my organisation through speeches, consultations, or contacts with individuals or groups outside the organisation	MPER08
Your overall performance	MPER09

As this question was directed to middle level managers, it was deemed plausible that some managers might not be subjected to all performance dimensions captured by this variable. Therefore, for each dimension, a 'not applicable' option was made available.

5.3. Measurement model analysis

As explained in the previous chapter the technique adopted to analyse the proposed path model was PLS, which includes the measurement model and the structural model. Both models are run simultaneously in PLS, but they should be evaluated separately, beginning with the measurement model (Hulland, 1999). The measurement model should be evaluated to ensure that each measure is valid and reliable, especially in a situation where one of the variables measured – subjectivity in performance evaluation – is a novel variable.

For the measurement model analysis in PLS, the variables can be reflective or formative. Reflective indicators are shown with an outward arrow scheme, from the latent variable to the indicators, while formative indicators are shown with an inward arrow scheme, from the indicators to the latent variable (Chin, 2010b; Götz, Liehr-Gobbers, & Krafft, 2010). As Chin (1998, p. 305) explains:

> Reflective indicators are typical for the classical true score test theory and factor analysis models. These indicators are created under the perspective that they all measure the same underlying phenomenon. Should the actual level of the phenomenon change (say decrease in magnitude), then all the indicators should also change in the same direction. The magnitude in which each indicators shifts relative to the shift in the underlying phenomenon is based on how well the indicator reflects or taps into the latent variable.

Therefore, the reflective indicators are used where responses to the indicators are influenced by the latent variable.

In contrast, the formative indicators are used when the indicators are not assumed to be correlated nor measuring the same underlying phenomenon (Chin, 2010b). As a practical example presented by Chin (1998), if a change in the latent variable will result in similar changes in the indicators, the researcher should be using reflective indicators. But if changes in the latent variable do not result in similar changes in the indicators, then they are formative indicators.

Regarding the choice between reflective or formative indicators, due to the nature of the chosen variables for this research, the reflective indicators were chosen to set the weights. Based on previous studies on the variables selected and how they were measured in this research, it is suggested that changes in the latent variable will result in similar changes in the indicators (Lee et al., 2011). This means that the arrow scheme is outward, pointing from the latent variables to the indicators.

As Bisbe, Batista-Foguet, and Chenhall (2007) argue, reflective indicators are fundamentally interchangeable and eliminating a specific indicator does not change the conceptual scope of the variable. For instance, it was deemed plausible that not all performance dimensions captured by the survey items regarding the managerial performance variable might be relevant to all respondents. But as indicators are reflective, they are assumed to covary and are considered to be interchangeable manifestations of managerial performance. Furthermore, most variables reported in management accounting survey-based literature are based on reflective models (Bisbe et al., 2007).

The statistical analyses were conducted with IBM SPSS Statistics 20.0® and PLS-Graph 3.0®, examining individual item loadings, composite reliability, and discriminant validity.

5.3.1. Assessment of individual item loadings

The individual item loading is the correlation of the variable and the item, thus the squared loading is the amount of the variable's total variance accounted for by the item (Hair et al., 2010). This means that only relevant loadings that contribute to the variable's total variance should be considered. As Hulland (1999, p. 198) argues:

> A low loading may be the result of: (1) a poorly worded item, (2) an inappropriate item, or (3) an improper transfer of an item from one context to another. The first problem leads to low reliability, the second to poor content (and construct) validity, and the last to nongeneralisability of the item across contexts and/or settings.

However, the matter of what is a low item loading is the subject of considerable debate. One rule of thumb in literature is of a minimum of 0.7, which would account for at least 49 per

cent of the variance in the observed variable (Hulland, 1999).[37] Nevertheless, Hair et al. (2010) suggest that loadings of at least 0.50 or greater are considered practically significant. Furthermore, this threshold is widely adopted in contemporary literature. Therefore, this factor loading threshold of 0.50 was adopted.

A preliminary exploratory factor analysis was done with IBM SPSS Statistics 20.0® before inputting the data into PLS-Graph 3.0®. The purpose of this factor analysis was twofold. First, some of the variables had already been reported in other surveys as having more than one factor; for example, Jehn (1994), and Hall and Smith (2009). Second, the subjectivity in performance evaluation is a novel scale, as no previous known survey approaching this variable was available.

To help interpreting factors, a rotation method was adopted, and Hair et al. (2010) list orthogonal factor rotations and oblique factor rotations. As Hair et al. (2010) argue, factor rotations redistribute variance in order to obtain a theoretically more meaningful factor pattern. Orthogonal factor rotations – especially VARIMAX – are the most widely used method, and useful to obtain a set of uncorrelated measures. Thus the VARIMAX rotation method was used as the purpose of this factor analysis is to achieve clear separation of factors.[38]

[37] As the squared loading (0.70^2) is the amount of the variable's total variance accounted for by the item (0.49).

[38] The orthogonal (VARIMAX) rotation analysis was compared to an oblique (PROMAX) rotation and both methods presented the same amount of factors. The difference was that oblique rotation had more cross-loadings between items.

5.3.1.1. Subjectivity in performance evaluation

A factor analysis with VARIMAX rotation was run, using the seven items from the subjectivity in performance evaluation scale developed in Section 5.2.1, as shown in Table 5.7 below.

Table 5.7 – Exploratory factor analysis for subjectivity in performance evaluation

Item	Component		
	1	2	3
My performance is evaluated based on what I have done and also on what I should have done (SPEV05)	**.761**	-.201	.227
My supervisor conducts my performance evaluation according to what s/he personally expects from me (SPEV04)	**.724**	.115	-.110
My supervisor has plenty of discretion in conducting my performance evaluation (SPEV01)	**.617**	.157	-.209
My performance evaluation could change considerably if I were evaluated by another supervisor (SPEV02)	.037	**.831**	-.136
My supervisor's experience with previous performance evaluations influences how s/he evaluates my current performance (SPEV03)	.181	**.769**	.248
The rules concerning my performance evaluation are clearly set in advance [R] (SPEV06)	-.484	**.574**	-.195
My performance evaluation excludes unexpected occurrences that are beyond my control but influence my current performance (SPEV07)	-.083	.013	**.924**

The output from the rotated component matrix shows three factors, with three items in two of the factors and one item in the third factor. The first factor contained the items SPEV01, SPEV04, and SPEC05, the second factor the items SPEV02, SPEV03, and SPEV06, and the last factor the item SPEV07.

The first factor of subjectivity in performance evaluation represented the extent of the supervisor's discretion (SPEV01), the influence of the supervisor's expectations (SPEV04), and the supervisor's consideration of what the subordinate did and should have done (SPEV05). These items reflected characteristics of the performance evaluation itself. In other words, these items seem to capture what supervisors were able to do with the organisation's current performance evaluation system. This means that when this variable has a low score,

the performance evaluation is indifferent to the supervisor's discretion. Therefore, this first factor was named *process-based subjectivity in performance evaluation*.

The second factor of subjectivity in performance evaluation represents the uniqueness of each manager while evaluating her or his subordinate. It's less about the process by itself, and more about who is using it. The evaluation could change considerably if there was another supervisor there (SPEV02), and this supervisor's previous experiences influence how she or he is evaluating current performance (SPEV03). The reversed item regarding the rules of performance evaluation being set in advance (SPEV06) is in this factor. Probably this was due to the poor wording of the item, with participants possibly interpreting that as *supervisor's rules concerning performance evaluation*, and not *organisation's rules concerning performance evaluation*. This means that, when this variable has a low score, the supervisor may not be exploring the potential of the subjectivity performance evaluation. Therefore this second factor tells about the discretion in the supervisor's behaviour using the performance evaluation, hence it was named *supervisor-based subjectivity in performance evaluation*.

It was decided to delete the remaining item (SPECV07) from the measure. As this was a novel measure, it was subject to the risks of some item being poorly worded, inappropriate, or simply out of context (Hulland, 1999).

5.3.1.2. Access to information

The exploratory factor analysis for the access to information variable extracted two factors. One factor contained access to costs and performance information (items AINF07, AINF05, and AINF06), and another factor contained access to strategic information (items AINF04, AINF02, AINF01, and AINF03). The results for the exploratory factor analysis appear in Table 5.8.

Table 5.8 – Exploratory factor analysis for access to information

Item	Component	
	1	2
I understand my organisation's vision and mission (AINF02)	**.851**	.246
I understand the goals of my organisation (AINF03)	**.829**	.309
I have access to the strategic information necessary to do my job well (AINF01)	**.773**	.415
I understand my business unit's quality standards (AINF04)	**.759**	.126
I have access to information of my business unit performance in relation to cost management (AINF07)	.233	**.892**
I understand my business unit's cost limits (AINF05)	.220	**.869**
I have access to information regarding my business unit's performance in relation to quality (AINF06)	.286	**.692**

Hence, the two factors found are access to costs and performance information and access to strategic information. The study from Spreitzer (1995), which uses this same variable, does not report factor analysis for these items.

5.3.1.3. Performance-contingent financial rewards

The exploratory factor analysis for the performance-contingent financial rewards variable extracted only one factor (PCFR01, PCFR02, and PCFR03), similar to what has been reported by Chow et al. (1999), as well as Shields and Young (1993).

5.3.1.4. Psychological empowerment

The literature from psychological empowerment states that there are four dimensions of empowerment, which are meaning, competence, self-determination, and impact (Thomas & Velthouse, 1990). Nevertheless, contemporary empirical research reports three dimensions, which are meaning, competence, and influence, where this last dimension gathers the items from self-determination and impact (Fulford & Enz, 1995; Hall & Smith, 2009; Hancer, George, & Kim, 2005)).

The exploratory factor analysis for psychological empowerment variable identified three factors, which were labelled meaning (PEMP01, PEMP02, and PEMP03), competence (PEMP04, PEMP05, and PEMP06), and influence (self-determination and impact items, which are PEMP07, PEMP08, PEMP11, PEMP09, and PEMP12). The item "My impact on what happens in my business unit is large" (PEMP10) had cross-loading for both influence and meaning factors; thus this item was deleted (Hair et al., 2010). The results of the factor analysis appear in Table 5.9.

Table 5.9 – Exploratory factor analysis for psychological empowerment

Item	Component		
	1	2	3
I have considerable opportunity for independence and freedom in how I do my job (PEMP09)	**.878**	.124	.193
I have a great deal of control over what happens in my business unit (PEMP11)	**.834**	.345	-.024
I can decide on my own how to go about doing my work (PEMP08)	**.784**	.117	.403
I have significant autonomy in determining how I do my job (PEMP07)	**.700**	.221	.352
I have significant influence over what happens in my business unit (PEMP12)	**.670**	.457	.007
My impact on what happens in my business unit is large (PEMP10)	**.524**	**.611**	.112
The work I do is meaningful to me (PEMP03)	.203	**.851**	.279
The work I do is very important to me (PEMP01)	.129	**.846**	.300
My job activities are personally meaningful to me (PEMP02)	.375	**.773**	.211
I have mastered the skills necessary for my job (PEMP06)	.066	.137	**.864**
I am self-assured about my capabilities to perform my work activities (PEMP05)	.165	.281	**.859**
I am confident about my ability to do my job (PEMP04)	.324	.278	**.817**

Hence, the three factors found are meaning, competence, and influence. This three-factor outcome for psychological empowerment is similar to recent studies, such as Fulford and Enz (1995), Hancer et al. (2005), and Hall and Smith (2009).

5.3.1.5. Supervisor-subordinate conflict

The original scale by Jehn (1994) applied to groups presented two factors, which were emotional and task conflict. When adapted by Xin and Pelled (2003) to vertical conflict from the supervisor's point of view the variable presented were two factors, one being an emotional and another being a mixed conflict factor.

In this survey the conflict was approached through the subordinate's point of view, and only one factor was obtained from the exploratory factor analysis.

5.3.1.6. Managerial performance

It was chosen not to run an exploratory factor analysis for Mahoney et al.'s (1965) instrument. This instrument for managerial performance is usually approached as a single factor; for example, see Brownell and McInnes (1986), Parker and Kyj (2006), and Hall (2008). As the analysis is with PLS, the relative contribution of each item towards the overall measure can be determined through the measurement model.[39] In addition, Hulland (1999) argues that it is more appropriate to use multiple items for each construct rather than a single item. Thus, individual item loadings were analysed through a single-factor confirmatory analysis (Hair et al., 2010) in PLS-Graph 3.0® as shown next.

5.3.1.7. Measurement model item loadings

The exploratory factor analysis presented more than one factor for the following variables: subjectivity in performance evaluation (process-based subjectivity in performance evaluation and supervisor-based subjectivity in performance evaluation), access to

[39] Hall (2008) ran an exploratory factor analysis and found two factors for the nine items in managerial performance; being one factor with seven items and another with only two items. The second factor with only two items was deleted due to low loadings whilst running the PLS analysis.

information (access to costs and performance information and access to strategic information), and psychological empowerment (meaning, competence, and influence). There were two options for dealing with those factors within variables at PLS, which were treating them as first-order factors or second-order factors (Lee et al., 2011).

Due to model parsimony, it was chosen to present access to information and psychological empowerment as second-order factors in the framework. Regarding managerial performance, it was also examined as a second-order factor, as this variable is usually examined as a single factor in studies (Brownell & McInnes, 1986; Hall, 2008; Parker & Kyj, 2006). In PLS analysis the measurement model determines the relative contribution of each item towards the overall measure of managerial performance (Chin, 1998).

Regarding subjectivity in performance evaluation, this variable is a two-dimensional construct and the main focus of interest of this study. The interaction of the factors obtained from this variable, namely process-based subjectivity in performance evaluation and supervisor-based subjectivity in performance evaluation, with the other variables presented in the framework were unaccounted in the literature. Therefore it was chosen to use both as first-order factors in the framework.

The data was exported from IBM SPSS Statistics 20.0® into PLS-Graph 3.0® to run the initial measurement model loading. In the initial measurement model loading the item SPEV03 presented loading under 0.50, which is below the threshold suggested by Hair et al. (2010). This means that the item does not offer relevant contribution to their factor of the subjectivity in performance evaluation, and therefore was excluded from further analysis. Further analysis was done for item SPEV03 using bootstrapping and it was proven that the item's weight of 0.11 had a *t*-statistic of 0.80, thus being statistically insignificant within the

outer model.[40] Table 5.10 has the final PLS measurement model loadings excluding the item with loading below the 0.50 threshold.

Table 5.10 – PLS measurement model loadings

Variable and item	Weight	Loading
Process-based subjectivity in performance evaluation		
My performance is evaluated based on what I have done and also on what I should have done (SPEV05)	0.6604	**0.8427**
My supervisor has plenty of discretion in conducting my performance evaluation (SPEV01)	0.5084	**0.7169**
My supervisor conducts my performance evaluation according to what s/he personally expects from me (SPEV04)	0.1518	**0.5204**
Supervisor-based subjectivity in performance evaluation		
The rules concerning my performance evaluation are clearly set in advance [R] (SPEV06)	0.7824	**0.9211**
My performance evaluation could change considerably if I were evaluated by another supervisor (SPEV02)	0.4133	**0.6759**
Access to information		
I have access to information of my business unit performance in relation to cost management (AINF07)	0.1938	**0.7694**
I have access to information regarding my business unit's performance in relation to quality (AINF06)	0.1692	**0.6764**
I understand my business unit's cost limits (AINF05)	0.1883	**0.7437**
I understand my business unit's quality standards (AINF04)	0.1658	**0.6542**
I understand the goals of my organisation (AINF03)	0.1926	**0.8206**
I understand my organisation's vision and mission (AINF02)	0.1849	**0.7947**
I have access to the strategic information necessary to do my job well (AINF01)	0.2144	**0.8536**
Access to strategic information		
I have access to the strategic information necessary to do my job well (AINF01)	0.3196	**0.8894**
I understand my organisation's vision and mission (AINF02)	0.2975	**0.8806**
I understand the goals of my organisation (AINF03)	0.3072	**0.8983**
I understand my business unit's quality standards (AINF04)	0.2449	**0.7261**
Access to costs and performance information		
I understand my business unit's cost limits (AINF05)	0.3943	**0.8761**
I have access to information regarding my business unit's performance in relation to quality (AINF06)	0.3586	**0.7859**

[40] Bootstrapping is a non-parametric resampling technique used for inferring significance levels (Chin, 1998). This method is further utilised in Chapter 6.

Variable and item	Weight	Loading
I have access to information of my business unit performance in relation to cost management (AINF07)	0.4079	**0.9139**
Performance-contingent financial rewards		
Higher performing employees in my organisation are given larger rewards than lower performing employees (PCFR03)	0.3474	**0.8916**
Employees' rewards at my organisation increase as employees perform better, relative to their performance targets (PCFR02)	0.3754	**0.9152**
Employee compensation at my organisation is related to an individual's performance relative to their performance targets (PCFR01)	0.3648	**0.9503**
Supervisor-subordinate conflict		
There is tension between me and my supervisor (SSCO07)	0.1396	**0.9236**
There is friction between me and my supervisor (SSCO06)	0.1693	**0.9407**
There is conflict between me and my supervisor regarding work and/or projects (SSCO05)	0.1630	**0.8885**
There are conflicts between me and my supervisor about ideas related to my work (SSCO04)	0.1863	**0.8939**
My supervisor often disagrees with me regarding the way my work is done (SSCO03)	0.1711	**0.8222**
There is emotional conflict between me and my supervisor (SSCO02)	0.1473	**0.9199**
Personality conflicts are evident between me and my supervisor (SSCO01)	0.1388	**0.8946**
Psychological empowerment		
I have significant influence over what happens in my business unit (PEMP12)	0.1098	**0.7023**
I have a great deal of control over what happens in my business unit (PEMP11)	0.1083	**0.7236**
My impact on what happens in my business unit is large (PEMP10)	0.1145	**0.7497**
I have considerable opportunity for independence and freedom in how I do my job (PEMP09)	0.1045	**0.7259**
I can decide on my own how to go about doing my work (PEMP08)	0.1119	**0.7670**
I have significant autonomy in determining how I do my job (PEMP07)	0.1139	**0.7501**
I have mastered the skills necessary for my job (PEMP06)	0.0951	**0.5551**
I am self-assured about my capabilities to perform my work activities (PEMP05)	0.1187	**0.6993**
I am confident about my ability to do my job (PEMP04)	0.1252	**0.7773**
The work I do is meaningful to me (PEMP03)	0.1205	**0.7679**
My job activities are personally meaningful to me (PEMP02)	0.1231	**0.7975**
The work I do is very important to me (PEMP01)	0.1201	**0.7309**
Meaning		
The work I do is very important to me (PEMP01)	0.3480	**0.8924**
My job activities are personally meaningful to me (PEMP02)	0.3797	**0.9154**
The work I do is meaningful to me (PEMP03)	0.3656	**0.9351**
Competence		
I am confident about my ability to do my job (PEMP04)	0.4197	**0.9330**
I am self-assured about my capabilities to perform my work activities (PEMP05)	0.3776	**0.9287**
I have mastered the skills necessary for my job (PEMP06)	0.2998	**0.8595**
Influence		

Variable and item	Weight	Loading
I have significant autonomy in determining how I do my job (PEMP07)	0.2078	**0.7917**
I can decide on my own how to go about doing my work (PEMP08)	0.2125	**0.8259**
I have a great deal of control over what happens in my business unit (PEMP11)	0.2005	**0.8744**
I have considerable opportunity for independence and freedom in how I do my job (PEMP09)	0.2011	**0.8664**
I have significant influence over what happens in my business unit (PEMP12)	0.1946	**0.7822**
My impact on what happens in my business unit is large (PEMP10)	0.2077	**0.7616**
Managerial performance		
Your overall performance (MPER09)	0.1755	**0.8362**
Staffing: maintaining the work force of your responsibility area (e.g., selecting and promoting your subordinates) (MPER06)	0.1625	**0.6604**
Supervising: directing, leading, and developing your subordinates (MPER05)	0.1713	**0.6115**
Evaluating: assessment and appraisal of proposals or of reported/observed performance (e.g., employee appraisals, judging financial performance and product inspection) (MPER04)	0.1572	**0.7771**
Coordinating: exchanging information with people in the organisation other than my subordinates in order to relate and adjust procedures, policies and programs (MPER03)	0.1752	**0.7021**
Investigating: collecting and preparing of information usually in the form of records, reports, and accounts (measuring output, record keeping, and job analysis) (MPER02)	0.1504	**0.6288**
Planning: determining goals, policies, and courses of action such as work scheduling, budgeting, and programming (MPER01)	0.2036	**0.7296**
Negotiating: purchasing, selling, or contracting for products or services (e.g., contracting suppliers, collective bargaining) (MPER07)	0.1366	**0.5269**
Representing: advancing the general interests of my organisation through speeches, consultations, or contacts with individuals or groups outside the organisation (MPER08)	0.1423	**0.5684**

After checking the individual item loadings, the next step is to calculate the average variance extracted (AVE) statistic.

5.3.2. Average variance extracted statistics

The average variance extracted can be used as a measure of convergent validity (Fornell & Larcker, 1981). It is a summary measure of convergence among a set of items, being the average percentage of variation explained among the items of a construct (Chin, 1998). Hair et al. (2010) suggest – as a rule of thumb – a minimum AVE of 0.50, which means that more than half of the variance in the observed variable is explained by the latent construct.

In the initial analysis of AVE, the process-based subjectivity in performance evaluation and the managerial performance variable had an AVE slightly lower than 0.50. If the items with

factor loading lower than 0.60 (namely SPEV04, MPER07, and MPER08) were deleted from the variables, the AVE would improve. Therefore the two options available were to remove the low factor loading item to achieve a higher AVE, or maintain that item based on theoretical grounds.

As the process-based subjectivity in performance evaluation is a novel variable it was decided to delete item SPEV04 in order to increase the amount of variance explained by the latent variable. Further analysis was done and – similar to item SPEV03 – item SPEV04 presented a low weight which was statistically insignificant within the outer model. Using bootstrapping, the item's weight of 0.15 had a *t*-statistic of 0.50.[41]

Regarding Mahoney et al.'s (1965) managerial performance scale, it has been extensively used by researchers; for example, see Brownell and McInnes (1986), Parker and Kyj (2006), and Hall (2008). Due to feedback from the survey pre-test, it was given the option for participants to mark 'not applicable' for each item from the managerial performance question. This was undertaken as middle level managers would not necessarily have all the responsibilities listed, thus they could select the 'not applicable' option. The number of 'not applicable' answers and percentage of the total for managerial performance items is shown below in Table 5.11.

Table 5.11 – 'Not applicable' answers from managerial performance items

Activity	Code	N/A	Percentage
Planning	MPER01	6	10%
Investigating	MPER02	3	5%
Coordinating	MPER03	3	5%
Evaluating	MPER04	6	10%

[41] Bootstrapping is a non-parametric resampling technique used for inferring significance levels (Chin, 1998). This method is further utilised in Chapter 6.

Supervising	MPER05	4	7%
Staffing	MPER06	7	12%
Negotiating	MPER07	17	29%
Representing	MPER08	12	21%
Overall performance	MPER09	-	0%

The negotiating (MPER07) and representing (MPER08) activities represented half of the 'not applicable' answers from the managerial performance question. Those 'not applicable' answers were overridden by numerical values with the estimation-maximisation (EM) method for completing missing values (for further explanations please see accounting for missing data, Section 4.3.1, in the research method, Chapter 4). Hall (2008) had similar issues with these two items in his managerial performance variable and both were dropped due to low loadings (negotiating with 0.461 and representing with 0.246 in his factor analysis). Hence, dropping these two items from the managerial performance scale is consistent with prior management accounting research.

Therefore, it was chosen to delete negotiating (MPER07) and representing (MPER08) items due to the low AVE achieved in the managerial performance variable. Below, is the final table with the current loadings and AVE for variables. The AVE was above 0.5 for all constructs, indicating that more than half of the variance in the observed variable is explained by the latent construct. A list of AVE statistics by variable appears in Table 5.12.

Table 5.12 – Average variance extracted statistics

Variable and item	**Loading**	**Standard Error**	***t*-statistic**
Process-based subjectivity in performance evaluation			
Average variance extracted = 0.624			
My performance is evaluated based on what I have done and also on what I should have done (SPEV05)	0.8515	0.1414	6.023
My supervisor has plenty of discretion in conducting my performance evaluation (SPEV01)	0.7233	0.2097	3.448
Supervisor-based subjectivity in performance evaluation			

Variable and item	Loading	Standard Error	*t*-statistic
Average variance extracted = 0.653			
The rules concerning my performance evaluation are clearly set in advance [R] (SPEV06)	0.9211	0.0302	30.535
My performance evaluation could change considerably if I were evaluated by another supervisor (SPEV02)	0.6758	0.1148	5.884
Access to information			
Average variance extracted = 0.581			
I have access to information of my business unit performance in relation to cost management (AINF07)	0.7699	0.0742	10.373
I have access to information regarding my business unit's performance in relation to quality (AINF06)	0.6764	0.0756	8.948
I understand my business unit's cost limits (AINF05)	0.7440	0.0708	10.506
I understand my business unit's quality standards (AINF04)	0.6538	0.0926	7.063
I understand the goals of my organisation (AINF03)	0.8206	0.0679	12.089
I understand my organisation's vision and mission (AINF02)	0.7944	0.0571	13.910
I have access to the strategic information necessary to do my job well (AINF01)	0.8535	0.0264	32.305
Access to strategic information			
Average variance extracted = 0.725			
I have access to the strategic information necessary to do my job well (AINF01)	0.8894	0.0267	33.328
I understand my organisation's vision and mission (AINF02)	0.8806	0.0321	27.419
I understand the goals of my organisation (AINF03)	0.8984	0.0402	22.372
I understand my business unit's quality standards (AINF04)	0.7260	0.0883	8.223
Access to costs and performance information			
Average variance extracted = 0.740			
I understand my business unit's cost limits (AINF05)	0.8761	0.0404	21.665
I have access to information regarding my business unit's performance in relation to quality (AINF06)	0.7858	0.0451	17.419
I have access to information of my business unit performance in relation to cost management (AINF07)	0.9140	0.0206	44.465
Performance-contingent financial rewards			
Average variance extracted = 0.845			
Higher performing employees in my organisation are given larger rewards than lower performing employees (PCFR03)	0.8922	0.0550	16.210
Employees' rewards at my organisation increase as employees perform better, relative to their performance targets (PCFR02)	0.9144	0.0512	17.846
Employee compensation at my organisation is related to an individual's performance relative to their performance targets (PCFR01)	0.9507	0.0203	46.819
Supervisor-subordinate conflict			
Average variance extracted = 0.807			
There is tension between me and my supervisor (SSCO07)	0.9234	0.0249	37.066

Variable and item	**Loading**	**Standard Error**	***t*-statistic**
There is friction between me and my supervisor (SSCO06)	0.9406	0.0126	74.879
There is conflict between me and my supervisor regarding work and/or projects (SSCO05)	0.8888	0.0328	27.134
There are conflicts between me and my supervisor about ideas related to my work (SSCO04)	0.8941	0.0244	36.650
My supervisor often disagrees with me regarding the way my work is done (SSCO03)	0.8222	0.0477	17.226
There is emotional conflict between me and my supervisor (SSCO02)	0.9198	0.0221	41.631
Personality conflicts are evident between me and my supervisor (SSCO01)	0.8944	0.0267	33.526
Psychological empowerment			
Average variance extracted = 0.535			
I have significant influence over what happens in my business unit (PEMP12)	0.7024	0.0594	11.831
I have a great deal of control over what happens in my business unit (PEMP11)	0.7237	0.0654	11.071
My impact on what happens in my business unit is large (PEMP10)	0.7497	0.0494	15.169
I have considerable opportunity for independence and freedom in how I do my job (PEMP09)	0.7261	0.0512	14.174
I can decide on my own how to go about doing my work (PEMP08)	0.7673	0.0590	13.004
I have significant autonomy in determining how I do my job (PEMP07)	0.7503	0.0630	11.901
I have mastered the skills necessary for my job (PEMP06)	0.5548	0.0697	7.954
I am self-assured about my capabilities to perform my work activities (PEMP05)	0.6990	0.0662	10.552
I am confident about my ability to do my job (PEMP04)	0.7772	0.0603	12.887
The work I do is meaningful to me (PEMP03)	0.7679	0.0406	18.922
My job activities are personally meaningful to me (PEMP02)	0.7975	0.0498	16.020
The work I do is very important to me (PEMP01)	0.7307	0.0582	12.564
Meaning			
Average variance extracted = 0.836			
The work I do is very important to me (PEMP01)	0.8924	0.0251	35.494
My job activities are personally meaningful to me (PEMP02)	0.9154	0.0212	43.214
The work I do is meaningful to me (PEMP03)	0.9351	0.0165	56.683
Competence			
Average variance extracted = 0.824			
I am confident about my ability to do my job (PEMP04)	0.9330	0.0109	85.605
I am self-assured about my capabilities to perform my work activities (PEMP05)	0.9287	0.0218	42.626
I have mastered the skills necessary for my job (PEMP06)	0.8595	0.0262	32.777
Influence			
Average variance extracted = 0.669			
I have significant autonomy in determining how I do my job (PEMP07)	0.7917	0.0459	17.239
I can decide on my own how to go about doing my work (PEMP08)	0.8259	0.0481	17.158

Variable and item	**Loading**	**Standard Error**	***t*-statistic**
I have a great deal of control over what happens in my business unit (PEMP11)	0.8744	0.0357	24.508
I have considerable opportunity for independence and freedom in how I do my job (PEMP09)	0.8664	0.0325	26.621
I have significant influence over what happens in my business unit (PEMP12)	0.7822	0.0472	16.559
My impact on what happens in my business unit is large (PEMP10)	0.7616	0.0514	14.813
Managerial performance			
Average variance extracted = 0.521			
Your overall performance (MPER09)	0.8478	0.0363	23.350
Staffing: maintaining the work force of your responsibility area (e.g., selecting and promoting your subordinates) (MPER06)	0.6444	0.0926	6.955
Supervising: directing, leading, and developing your subordinates (MPER05)	0.6380	0.0752	8.478
Evaluating: assessment and appraisal of proposals or of reported/observed performance (e.g., employee appraisals, judging financial performance and product inspection) (MPER04)	0.7625	0.0593	12.862
Coordinating: exchanging information with people in the organisation other than my subordinates in order to relate and adjust procedures, policies and programs (MPER03)	0.7245	0.0755	9.596
Investigating: collecting and preparing of information usually in the form of records, reports, and accounts (measuring output, record keeping, and job analysis) (MPER02)	0.6363	0.0643	9.900
Planning: determining goals, policies, and courses of action such as work scheduling, budgeting, and programming (MPER01)	0.7712	0.0506	15.242

The next step is to analyse the variables' composite reliability.

5.3.3. Composite reliability

Internal consistency tests can be used to ensure that there is composite reliability in each variable (Hair et al., 2010). The objective of these internal consistency tests is to ensure that the individual items which compose the construct are all measuring the same variable and therefore being highly inter-correlated with convergent validity (Fornell & Larcker, 1981). Each set of items were tested accordingly to the measures proposed by Cronbach (1951), and Werts, Linn, and Jöreskog (1974).

The Cronbach alpha is a reliability coefficient widely used, but – as Hair et al. (2010) argue – this reliability coefficient has a positive relation to the number of items in the scale. This benefits variables with a large number of items compared to those with fewer items. As some variables in this study have few items, their Cronbach alphas were expected to be affected. Thus, the measure proposed by Werts et al. (1974) was also adopted, as this measure is usually adopted in PLS analysis and uses the actual loadings from the measurement model (Chin, 1998; Fornell & Larcker, 1981). Furthermore, under PLS there is no assumption that items contribute equally to the measurement of latent variables (Chin, 1998). Table 5.13 provides composite reliability statistics for each variable using both measures.

Table 5.13 – Composite reliability statistics

Variable	Werts et al. (1974) measure	Cronbach's (1951) alpha
Process-based subjectivity in performance evaluation	0.767	0.398
Supervisor-based subjectivity in performance evaluation	0.786	0.503
Access to strategic information	0.913	0.873
Access to costs and performance information	0.895	0.817
Meaning	0.939	0.901
Competence	0.933	0.887
Influence	0.924	0.899
Managerial performance	0.883	0.840
Supervisor-subordinate conflict	0.967	0.959
Performance-contingent financial rewards	0.942	0.907

Nunnally (1978) suggests a lower limit of 0.70 for composite reliability. Considering Cronbach (1951), the statistics suggest that process-based subjectivity in performance evaluation and supervisor-based subjectivity in performance evaluation variables may not have reached a desirable level of reliability. But given that through Werts et al.'s (1974) measure, process-based subjectivity and supervisor-based subjectivity presented loadings higher than 0.70, it was chosen to keep these variables. As previously noted, Cronbach alpha has a positive relation to the number of items in the scale, thus benefiting scales with a larger number of items compared to scales with fewer items (Hair et al., 2010). The statistics suggest that

Cronbach alpha for the two sets of subjectivity in performance evaluation were negatively affected by their small number of items. The measure proposed by Werts et al. (1974) has no relation with the number of items in the scale, and uses the actual loadings from the PLS measurement model (Chin, 1998; Fornell & Larcker, 1981).

Factor loadings from the final PLS measurement model are available in a table in Appendix 8. There is no evidence of high cross-loadings among the variables.

5.3.4. Correlations and discriminant validity

As Hulland (1999) argues, discriminant validity is a traditional methodological complement to composite reliability. Discriminant validity refers to how much one variable is different from the other variables in the same model (Hair et al., 2010). This can be achieved by examining the correlation matrix between those variables within the model (see Table 5.14). The rationale is that the items within a variable should share more variance with other items within the same variable than with other variables (Fornell & Larcker, 1981).

Table 5.14 – Correlation matrix with AVE statistics

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) Process-based subjectivity in performance evaluation	**0.79**									
(2) Supervisor-based subjectivity in performance evaluation	-0.27***	**0.81**								
(3) Performance-contingent	0.25**	-0.32***	**0.92**							

financial rewards										
(4) Supervisor-subordinate conflict	-0.02	0.47***	-0.24**	**0.90**						
(5) Managerial performance	0.14	-0.23**	0.19*	-0.13	**0.72**					
(6) Meaning	0.26***	-0.26***	0.05	-0.31***	0.46***	**0.91**				
(7) Competence	0.15	-0.21**	0.08	-0.29***	0.55***	0.54***	**0.91**			
(8) Influence	0.28***	-0.28***	0.24**	-0.33***	0.47***	0.63***	0.50***	**0.82**		
(9) Access to strategic information	0.35***	-0.42***	0.31***	-0.37***	0.51***	0.48***	0.47***	0.55***	**0.85**	
(10) Access to costs and performance information	0.43***	-0.35***	0.36***	-0.26***	0.50***	0.43***	0.38***	0.56***	0.58***	**0.86**

* p < 0.10; ** p < 0.05; *** p < 0.01 (two-tailed)

As a step further from only examining the correlation matrix, Hulland (1999) suggests the approach presented by Fornell and Larcker (1981), where the square root of the variables' AVE is compared to the correlation between all other variables in the model. If the square root of each variable's AVE is greater than the other variables' correlations, then there is acceptable discriminant validity. This means that the variance shared between a variable and its items is greater than the variance shared with other variables in the model. The square root of the each variable's AVE is shown in the diagonal section of the following matrix.

As shown in the correlation matrix with AVE statistics in Table 5.14 the square root of the variables' AVE are greater than the correlations for each variable. Therefore, it may be argued that the items contained in each variable are part of distinct variables.

5.4. Descriptive statistics

The descriptive statistics presented in Table 5.15 were based on the sum of all items of each variable divided by the total number of items in that variable. Therefore, it is the theoretical average item that represents each average presented in the proposed model. As Chin (1998) argues, this information is the starting point in the iterative estimation process used by PLS-Graph 3.0®.

Table 5.15 – Descriptive statistics from model variables

Variable	Minimum	Maximum	Mean	Std. Deviation
Process-based subjectivity in performance evaluation	2.50	7.00	5.5426	.97522
Supervisor-based subjectivity in performance evaluation	1.00	7.00	3.9265	1.37048
Access to Information*	2.43	7.00	5.8661	.98747
Access to Strategic Information	2.00	7.00	5.8725	1.12836
Access to Costs and Performance Information	2.33	7.00	5.8575	1.07900
Performance-Contingent Financial Rewards	1.00	7.00	4.5327	1.48276
Supervisor-Subordinate Conflict	1.00	6.00	2.3463	1.29830
Psychological Empowerment*	2.83	7.00	5.8843	.72659
Meaning	3.33	7.00	5.9902	.82914
Competence	3.00	7.00	6.0098	.78132
Influence	2.50	7.00	5.7685	.90711
Managerial Performance	2.57	6.86	5.4244	.64963

* These are second-order factors.

It must be noted that due to exploratory factor analysis the original list of antecedent variables presented in Chapter 2 had expanded. Subjectivity in performance evaluation became process-based subjectivity in performance evaluation and supervisor-based subjectivity in performance evaluation. Two variables also have their second-order factors shown in the table, which are access to strategic information and access to costs and performance information for access to information variable, and the dimensions of meaning, competence, and influence for psychological empowerment.

5.5. Summary

This chapter began with the discussion of the measurement of each variable, with special emphasis on subjectivity in performance evaluation, which is a novel measure. There was a description of how each variable used in the model was measured. All other variables were drawn from previous literature and their scales had been shown as being reliable.

Next, there was a description of how the data obtained for these variables was analysed. Exploratory factor analysis was run for all variables. The variables presented acceptable internal consistency through Werts et al.'s (1974) measure of composite reliability. Finally, a discriminant validity test was done and it may be argued that each set of items used in this model measures a distinct variable.

Chapter 6. Results and discussion

6.1. Introduction

The results from testing the hypotheses of the study are presented in this chapter. As discussed in the research method, the hypotheses testing was carried out using PLS.[42]

Section 6.2 of the chapter contains the PLS results for the structural model, a discussion of the results of hypothesis testing, and the explanatory power of the model. Section 6.3 examines the indirect effects and the tensions arising from the structural model, and Section 6.4 presents the model summary of the PLS analysis and answers for the research questions presented in Chapter 1.

6.2. PLS analysis – structural model

The relationships between the latent variables presented in the structural model are shown in this section. Figure 6.1 presents the structural model as depicted in PLS-Graph 3.0®.

[42] Please see Section 4.4.1 in Chapter 4 regarding the choice of PLS.

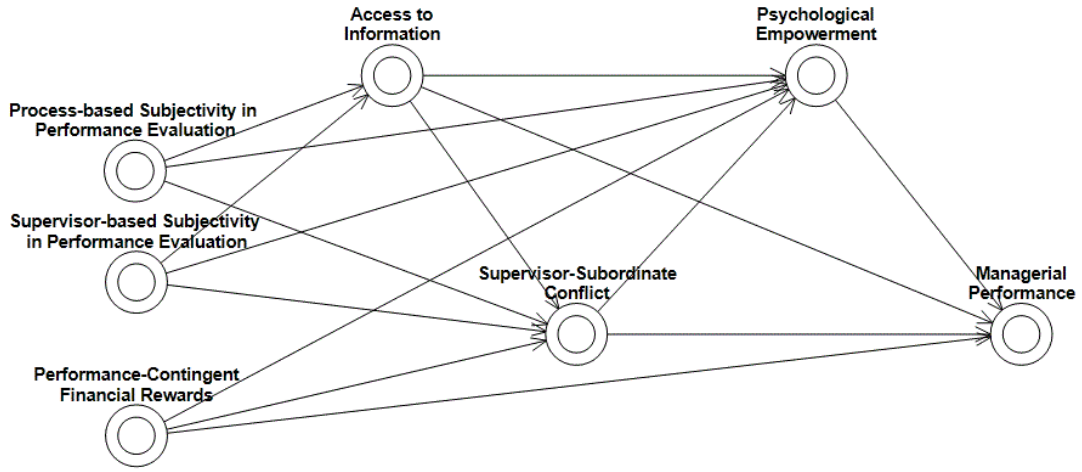


Figure 6.1 – Structural model

The structural model consists of a total of 7 variables and 15 direct paths. Of the 15 direct paths estimated in the structural model 10 are statistically significant. The path coefficients estimates and their significance levels are shown in Table 6.1.

Table 6.1 – PLS path coefficients – structural model[43]

Dependent variables	Independent variables					
	Process-based subjectivity in performance evaluation	Supervisor-based subjectivity in performance evaluation	Access to Information	Performance-Contingent Financial Rewards	Supervisor-Subordinate Conflict	Psychological Empowerment
Access to Information	0.34***	-0.35***	-	-	-	-
Supervisor-Subordinate Conflict	0.22***	0.40***	-0.26**	-0.07	-	-
Psychological Empowerment	0.06	0.05	0.61***	-0.10	-0.21**	-
Managerial Performance	-	-	0.34**	-0.03	0.16*	0.42***

* p < 0.10; ** p < 0.05; *** p < 0.01 (one-tailed)

[43] The one-tailed test was adopted as all hypotheses are directional. If a path coefficient is not statistically significant, there is no association between the variables.

Table 6.1 presents the structural model estimated using PLS-Graph 3.0®. The independent variables for any given path are shown at the top of the table, while dependent variables for any given path are shown on the left side of the table.

As explained in Section 4.4, PLS does not make distributional assumptions. Thus, a resampling procedure is required to estimate significance levels (Chin, 1998). The resampling technique used in this study was bootstrapping.

When performing bootstrapping under PLS analysis, the number of resamples has to be specified. The default value of resamples from PLS-Graph 3.0® is 100, but a higher number may lead to more reasonable standard error estimates (Tenenhaus, Vinzi, Chatelin, & Lauro, 2005). It is common practice in contemporary PLS analyses to use large samples from 200 to 1,000 samples (Lee et al., 2011). As time is no constraint in current computational processing for large resample sizes, 1,000 samples were used for bootstrapping in this study. This approach is consistent with recent PLS analyses, such as Hall and Smith (2009).

6.2.1. Hypothesis testing

Based on the results of exploratory factor analysis the subjectivity in performance evaluation variable was divided into two dimensions.[44] These two dimensions are process-based subjectivity in performance evaluation and supervisor-based subjectivity in performance evaluation. Hence hypotheses 1, 2, and 3, which are related to subjectivity in performance evaluation as a single construct, were tested separately for these two dimensions.

[44] For more information, please see the assessment of individual item loadings in subsection 5.3.1 in Chapter 5.

The hypothesis testing discussed below is separated between the hypotheses related to subjectivity in performance evaluation (hypotheses 1 to 3), access to information (hypotheses 4 to 6), performance-contingent financial rewards (hypotheses 7 to 9), and supervisor-subordinate conflict and psychological empowerment (hypotheses 10 to 12). The results are summarised in Table 6.2 at the end of this section.

6.2.1.1. Subjectivity in performance evaluation (hypotheses 1 – 3)

H1 predicts that subjectivity in performance evaluation is positively associated with supervisor-subordinate conflict. PLS analysis presents a coefficient of 0.22 ($p < 0.01$) for the relationship between process-based subjectivity and supervisor-subordinate conflict. The analysis also shows a coefficient of 0.40 ($p < 0.01$) for the relationship between supervisor-based subjectivity and supervisor-subordinate conflict. Therefore, H1 is supported for both dimensions of subjectivity in performance evaluation. The positive association between subjectivity in performance evaluation and supervisor-subordinate conflict was argued to be due to issues such as perception of inequity in the evaluation process, evaluation bias and perceived favouritism (Keeley, 1978; Prendergast & Topel, 1993; Wall & Nolan, 1986).

The coefficient for the association between supervisor-based subjectivity and supervisor-subordinate conflict is higher than the coefficient found for the association between process-based subjectivity and supervisor-subordinate conflict. The 0.18 difference between the two path coefficients is statistically significant ($p < 0.10$). Therefore, it seems that the supervisor's use of discretion in performance evaluation has stronger impact on conflict between supervisor and subordinate than the use of process-related aspects of subjectivity in performance evaluation. One possible explanation is that subordinates are more inclined to have disagreements with their supervisors if their supervisors decide to change the performance evaluation rules during an evaluation period. From the subordinate's point of

view, it may be easier to accept institutionalised discretion (process-based subjectivity) than decisions from their superior (supervisor-based subjectivity).

H2 predicts that subjectivity in performance evaluation is positively associated with access to information. PLS analysis shows a positive coefficient of 0.34 ($p < 0.01$) for the association between process-based subjectivity and access to information. However, PLS analysis also presents a negative coefficient of -0.35 ($p < 0.01$) for supervisor-based subjectivity and access to information. Hence, H2 is partially supported.

The positive association between process-based subjectivity and access to information was expected and follows the argument that subjectivity can provide incremental information to the subordinate. This is likely to happen as some values such as strategy, vision, and mission are difficult to be measured in an objective way. Thus, having a more process-based subjective performance evaluation allows the subordinate a better understanding of the organisation's values.

The relation between supervisor-based subjectivity and access to information not only does not support H2, but also provides a significant coefficient in the opposite direction to the prediction. This fails to support suggestions that the supervisor's discretionary power might clarify the subordinate's understandings of the organisation's goals. One possible explanation for this negative relation between supervisor-based subjectivity and access to information is that supervisor-based subjectivity may lack specification of objectives. Not only may the supervisor be failing to provide relevant information to the subordinate, but due to use of discretion, the supervisor may be providing mixed signals to the subordinate. Regarding access to information and subjective performance evaluation, Bol (2008) argues that supervisors may provide inaccurate assessments for performance evaluation or no guidelines on expectations for subordinates. Likewise, Gibbs et al. (2004) suggest that

supervisors may withhold information to lessen subordinates' incentive and ability to manipulate the performance evaluation. Therefore, the supervisor-based subjectivity would be actually reducing the subordinate's access to the organisation's information.

H3 predicts that subjectivity in performance evaluation is positively associated with psychological empowerment. PLS analysis presents non-significant paths for the relationship between both process-based subjectivity, and supervisor-based subjectivity and psychological empowerment ($p > 0.10$). As the paths are not statistically significant, H3 is not supported.

Some researchers argue that subjectivity in performance evaluation may improve the dimensions of psychological empowerment (Baiman & Rajan, 1995; Simons, 1995). When subordinates are not limited to formula-based evaluations, they may initiate, continue, or terminate actions and processes according to the belief that such actions are likely to achieve goals and objectives, as evaluated by their supervisors. But, as found in the measurement model analysis in Chapter 5, subjectivity in performance evaluation is a multidimensional variable. Supervisor behaviour within the dimension of supervisor-based subjectivity may be irrelevant to a subordinate's psychological empowerment, as disagreement between them is captured through the supervisor-subordinate conflict variable. Similarly, additional information that process-based subjectivity might have provided to the subordinate's psychological empowerment was captured by access to the information variable in the structural model. Therefore, associations suggested by previous researchers might be actually due to indirect associations through other variables.[45]

[45] PLS analysis was re-run excluding access to information and supervisor-subordinate conflict variables from the structural model. Without these two variables, the two dimensions of subjectivity in performance evaluation presented significant paths to psychological empowerment: process-based subjectivity with a coefficient of 0.21 ($p < 0.10$) and supervisor-based subjectivity with a coefficient of

Figure 6.2 below presents the diagram for hypotheses 1 to 3. The hypotheses supported are represented by continuous lines and the hypotheses not supported are represented by dashed lines.

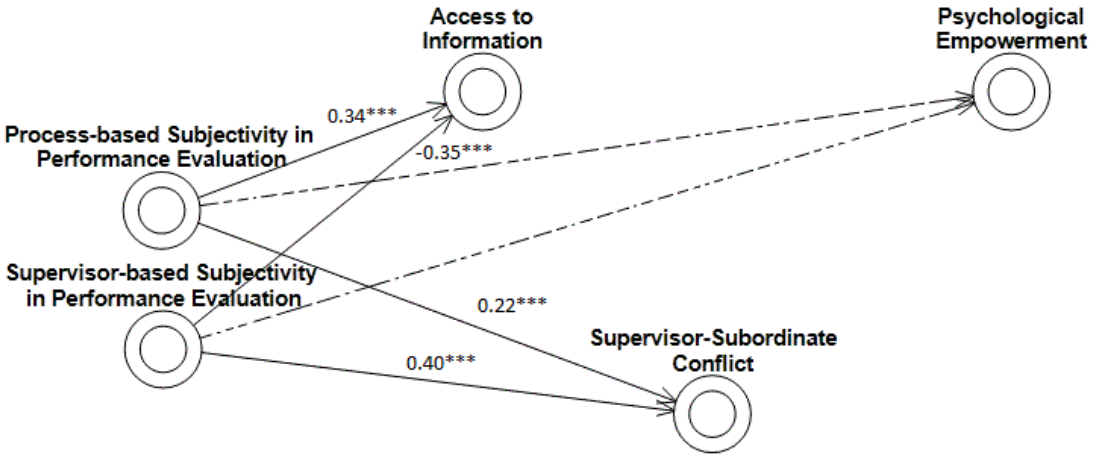


Figure 6.2 – Hypotheses 1 - 3 – diagram

In summary, the findings suggest that the two dimensions of subjectivity in performance evaluation each have a positive direct association with supervisor-subordinate conflict. Regarding access to information, process-based subjectivity has a positive direct association whilst supervisor-based subjectivity has a negative direct association. H3 is not supported as there was neither a significant path between process-based subjectivity nor between supervisor-based subjectivity with psychological empowerment.

6.2.1.2. Access to information (hypotheses 4 – 6)

H4 predicts that access to information is negatively associated with supervisor-subordinate conflict. PLS analysis presents a coefficient of -0.26 ($p < 0.05$) for the relation between access

-0.23 ($p < 0.05$). This supports the argument that direct associations suggested by previous researchers might be actually indirect associations.

to information and supervisor-subordinate conflict. Therefore H4 is supported. This result supports the argument that access to information may decrease the conflict among supervisor and subordinate.

The variable access to information comprises of providing access to strategic information, and costs and performance information, whilst supervisor-subordinate conflict reflects the disagreements between supervisor and subordinate regarding how to accomplish tasks and personal incompatibility. Given the nature of these two variables, the negative association between them may occur because the provision of information regarding objectives and goals to subordinates is likely to clarify their tasks, reducing disagreement between subordinate and supervisor (Jehn, 1995). Prior research suggests that access to information regarding the organisation's objectives and goals, and performance feedback, can align supervisors and subordinates' efforts (Lawler et al., 1995). Also, understanding the organisation's objectives and goals may reduce the risk of disagreements between subordinate and supervisor (Cosier & Rose, 1977).

H5 predicts that access to information is positively associated with managerial performance. PLS analysis shows a coefficient of 0.34 ($p < 0.05$) for the relation between access to information and managerial performance. Hence H5 is supported. This finding supports the argument that access to information improves the performance of managers because sharing the objectives and goals of the organisation allows managers to focus on the issues that are relevant to the organisation, and performance feedback enables managerial learning. The goals and feedback must be provided so that managers can identify problems and opportunities, and coordinate their efforts (Banker et al., 1993).

H6 predicts that access to information is positively associated with psychological empowerment. This hypothesis is supported by a coefficient of 0.61 ($p < 0.01$). Information

may be essential for individuals to believe that their tasks are an important part of an organisation, and information about the results contributes to individual's motivation.

Figure 6.3 below presents the diagram for hypotheses 4 to 6. The hypotheses supported are represented by continuous lines.

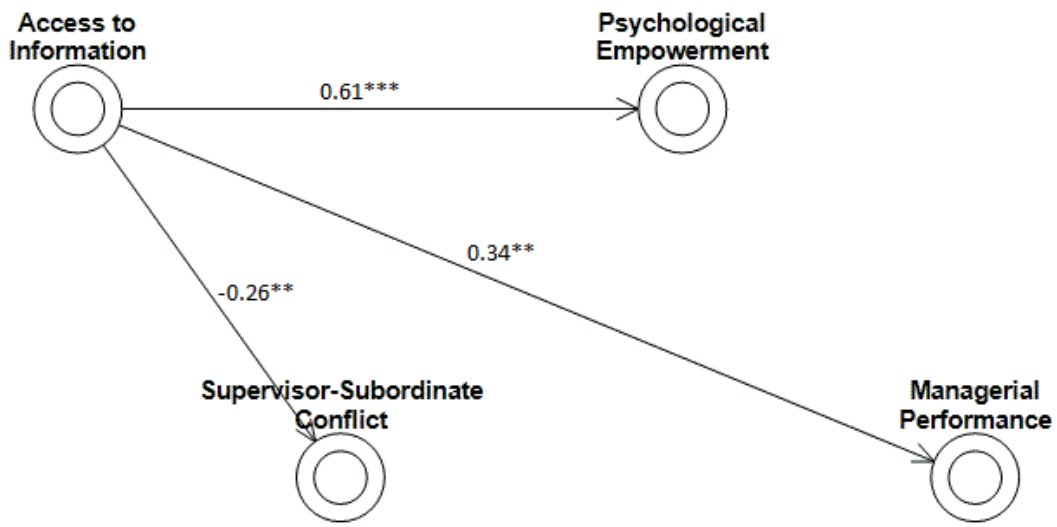


Figure 6.3 – Hypotheses 4 - 6 – diagram

In summary, PLS analysis provides support to all three hypotheses related to access to the information variable (H4, H5, and H6). As predicted by the hypotheses, access to information had a negative association with supervisor-subordinate conflict, and a positive association with psychological empowerment. Also, it was found that access to information had a positive association with managerial performance.

6.2.1.3. Performance-contingent financial rewards (hypotheses 7 – 9)

H7 predicts that the use of performance-contingent financial rewards is positively associated with supervisor-subordinate conflict. PLS analysis presents a non-significant coefficient for the path between performance-contingent financial rewards and supervisor-subordinate

conflict ($p > 0.10$). Hence H7 is not supported. The prediction of a positive association between performance-contingent financial rewards and supervisor-subordinate conflict was due to disagreements of what is a fair financial reward (Thompson & Loewenstein, 1992).

The rationale behind H7 was that supervisor and subordinate would have conflicting interests related to performance-contingent financial rewards. Considering that financial expense is at stake, the more performance-contingent the financial rewards, the more chances of disagreement between supervisor and subordinate. Subordinates are likely to try and maximise their incomes, while supervisors are likely to attempt to minimise their department's expenses. Given that no association was found between the two variables, this indicates that having or not having performance-contingent financial rewards does not influence supervisor-subordinate conflict. A possible explanation is that this financial reward may not be enough to originate conflict between supervisor and subordinate.[46]

H8 predicts that performance-contingent financial rewards are positively associated with managerial performance. PLS analysis shows a non-significant coefficient for the path between performance-contingent financial rewards and managerial performance ($p > 0.10$). Therefore, H8 is not supported. This finding contradicts the arguments presented in Chapter 3 regarding the effects of performance-contingent financial rewards. Banker et al. (2000) have argued that performance-contingent rewards increases an organisation's overall productivity because it encourages less productive individuals to leave and more productive individuals to join or remain in the organisation (selection effect), and motivates individuals to learn more productive solutions for tasks (effort effect).

[46] The participants' average bonus received is 12% of base annual pay, as shown in preliminary data analysis in Chapter 4.

Based on the arguments put forward in support of H8, a possible explanation for a non-significant coefficient for the path between performance-contingent financial rewards and managerial performance is that the performance-contingent financial rewards observed in this study – average bonus received is 12% of base annual pay – are not sufficient to induce effort or selection effect (Banker et al., 2000). It may be that middle level managers are more concerned with non-financial performance-contingent rewards such as positive feedback, recognition, acknowledgment, and personal compliments.[47] Authors such as Deci et al. (1999) and Kohn (1993) argues that financial rewards produce only temporary compliance, and that intrinsic rewards are more powerful and enduring.

Perhaps the most plausible explanation for the lack of association between performance-contingent financial rewards and managerial performance lies in the type of tasks performed by these middle level managers. McGraw (1978) finds that financial incentives are associated with performance for tasks involving simple clerical and physical activities. When employees have to perform complex cognitive activities, McGraw (1978) finds mostly negative or no financial incentive effect. As Jenkins et al. (1998) argue, financial incentives may improve performance quantity, but have no effect on performance quality.

H9 predicts that performance-contingent financial rewards are positively associated with psychological empowerment. PLS analysis presents a non-significant coefficient for the path between performance-contingent financial rewards and psychological empowerment ($p > 0.10$). Hence H9 is not supported.

On the one hand, authors such as Bowen and Lawler (1992) argue that an incentive system such as performance-contingent financial reward should improve a subordinate's

[47] These are examples of contingent reward behaviour presented by Podsakoff et al. (1984).

psychological empowerment. But on the other hand, authors such as Deci (1971) argue that the expectation of financial rewards diminishes the subordinate's intrinsic motivation, thus negatively impacting psychological empowerment. The results from this analysis suggest that there is no association between performance-contingent financial rewards and psychological empowerment. Similarly to the possible explanations listed for the unexpected finding on H8, it may be that the financial reward is not enough to motivate the subordinate, or that the middle level manager is more concerned with non-financial performance-contingent rewards.

Figure 6.4 below presents the diagram for hypotheses 7 to 9. The hypotheses not supported are represented by dashed lines.

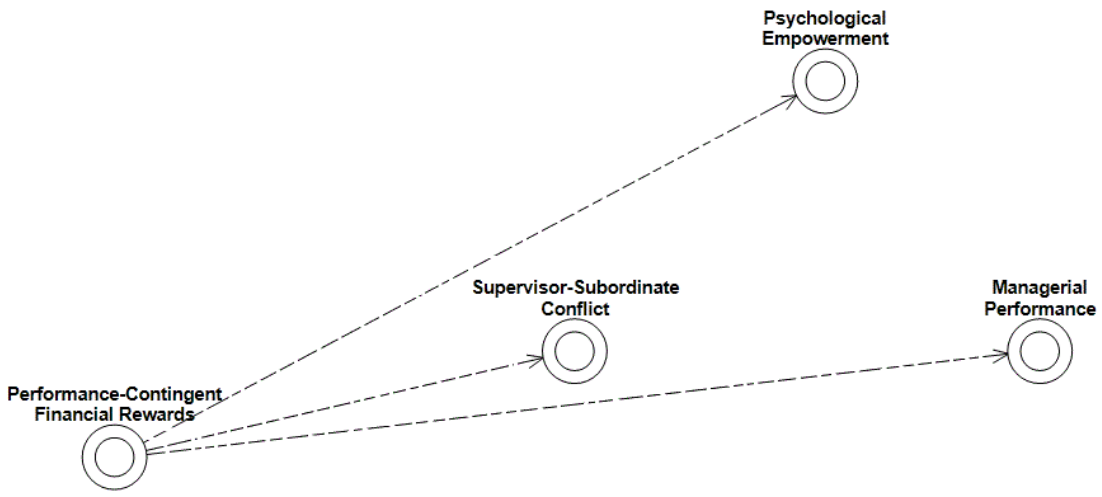


Figure 6.4 – Hypotheses 7 - 9 – diagram

In summary, the performance-contingent financial rewards variable does not exhibit statistically significant paths in the model. None of the hypotheses (H7, H8, and H9) were supported by the data.[48]

In addition to the possible explanations listed before for not having statistically significant paths between the variables, it may be that the proposed framework did not consider variables that might mediate the path between performance-contingent financial rewards and the remaining variables in the model. For instance, Bonner and Sprinkle (2002) suggest a sequence of associations, which starts with financial rewards, followed by effort, and then performance. Cognitive and motivational mechanisms are mediating the relation between financial rewards and effort. Person variables, task variables, environmental variables, and incentive scheme variables are moderating the relation between financial rewards and effort, and the relation between effort and performance. Due to model parsimony those variables were not considered in this model.

6.2.1.4. Supervisor-subordinate conflict and psychological empowerment (hypotheses 10 – 12)

H10 predicts that psychological empowerment is positively associated with managerial performance. PLS analysis presents a positive coefficient of 0.42 ($p < 0.01$) for the association between psychological empowerment and managerial performance. Consequently H10 is supported. The results support the argument that more empowered managers outperform less empowered managers (Conger & Kanungo, 1988; Thomas & Velthouse, 1990).

[48] To examine the robustness of the results, it was decided to replace performance-contingent financial rewards with a proxy, and re-run the PLS analysis. The proxy used was the participants' bonus/incentive received as a percentage of base annual pay. This further analysis provided no additional findings as none of the three hypotheses (H7, H8, and H9) was supported.

H11 predicts that supervisor-subordinate conflict is negatively associated with psychological empowerment. PLS analysis finds a negative coefficient of -0.21 ($p < 0.05$) for the path between supervisor-subordinate conflict and psychological empowerment. Therefore, H11 is also supported. The result supports the argument that conflict hinders the dimensions of psychological empowerment. Supervisor-subordinate conflict is negatively associated with psychological empowerment, given that conflict consists of incompatibilities between people (Jehn, 1995). This means that when supervisor and subordinate have disagreements regarding how to proceed with tasks, tension arises between them, reducing the psychological dimensions of the subordinate's empowerment.

H12 predicts that supervisor-subordinate conflict is negatively associated with managerial performance. PLS analysis found a positive coefficient of 0.16 ($p < 0.10$) for the association between supervisor-subordinate conflict and managerial performance. Hence, H12 is not supported.

The result for H12 shows the opposite of what was hypothesised. The finding suggests that supervisor-subordinate conflict is positively associated with managerial performance, instead of negatively associated. Some researchers argue that small amounts of conflict may be good for managerial performance as subordinates are likely to feel intellectually challenged, while too much conflict is detrimental (Jehn & Chatman, 2000; Xin & Pelled, 2003). A possible explanation is that the relation between supervisor-subordinate conflict and managerial performance is non-linear, where an initial level of conflict increases performance, and further levels reduce performance. As PLS analysis treats all associations as linear (Chin, 1998), a possible change in the direction of the slope cannot be identified by this method.

As shown in Table 5.15 in Section 5.4 for descriptive statistics, in Chapter 5, the supervisor-subordinate conflict variable had an average of 2.35 within a theoretical range from 1 to 7. This indicates that the sample mostly comprises of subjects reporting low-level conflict, as supported by the skewness present in the supervisor-subordinate conflict variable in this study. It is not known if the same association between managerial performance and supervisor-subordinate conflict can be found for a sample experiencing a higher level of supervisor-subordinate conflict.[49] Thus, with the data available, it is not possible to find out what occurs to managerial performance within a higher level of supervisor-subordinate conflict.

An analysis of the correlation between the two variables shows that managerial performance is positively associated with lower levels of conflict, but as the sample encompasses higher levels of conflict, the correlation reduces and become negative.[50] This suggests that supervisor-subordinate conflict has a positive correlation with managerial performance only with lower levels of conflict, and as conflict levels increase, managerial performance diminishes.

Figure 6.6 below presents the diagram for hypotheses 10 to 12. The hypotheses supported are represented by continuous lines and the hypotheses not supported are represented by dashed lines.

[49] To clarify the matter, a scatterplot between supervisor-subordinate conflict and managerial performance was made (please see scatterplot in Appendix 6). The scatterplot clearly shows that most observations are concentrated in one of the quadrants. This indicates that most observations comprise of high managerial performance and low supervisor-subordinate conflict.

[50] Please see graph in Appendix 7 for analysis of the correlation between managerial performance and cumulative level of supervisor-subordinate conflict. This analysis was done as a possible change in the direction of the slope cannot be identified by PLS analysis (Chin, 1998). The graph shows that performance decreases as the cumulative level of conflict increases.

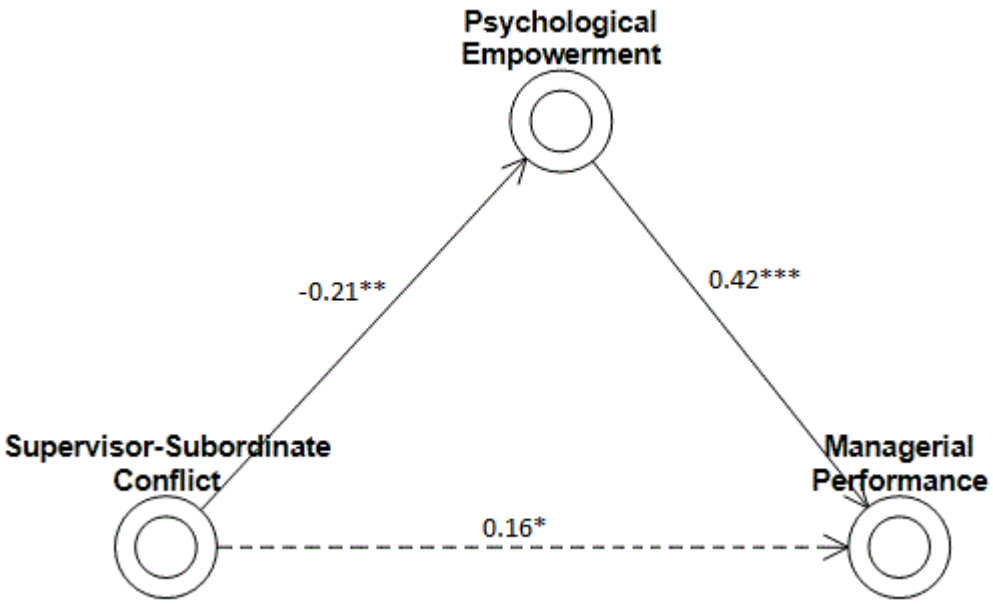


Figure 6.6 – Hypotheses 10 - 12 – diagram

In summary, supervisor-subordinate conflict is negatively associated with psychological empowerment, and psychological empowerment and supervisor-subordinate conflict are positively associated with managerial performance. Thus, H10 and H11 are supported, while H12 is not.

6.2.1.5. Result of hypothesis testing

A summary of results of hypothesis testing is shown in Table 6.2. The table presents the hypotheses related to subjectivity in performance evaluation (hypotheses 1 to 3), access to information (hypotheses 4 to 6), performance-contingent financial rewards (hypotheses 7 to 9), and supervisor-subordinate conflict and psychological empowerment (hypotheses 10 to 12).

Table 6.2 – Result of hypothesis testing

	Hypotheses	Path Coefficient	*t*-statistic	*p*-value	Result
H1	Subjectivity in performance evaluation is **positively associated** with supervisor-subordinate conflict. • Process-based subjectivity in performance evaluation • Supervisor-based subjectivity in performance evaluation	 0.22 0.40	 2.56 4.82	 0.006*** 0.00***	Supported
H2	Subjectivity in performance evaluation is **positively associated** with access to information. • Process-based subjectivity in performance evaluation • Supervisor-based subjectivity in performance evaluation	 0.34 -0.35	 3.37 4.44	 0.00*** 0.00***	Partially supported
H3	Subjectivity in performance evaluation is **positively associated** with psychological empowerment. • Process-based subjectivity in performance evaluation • Supervisor-based subjectivity in performance evaluation	 0.06 0.05	 0.57 0.54	 0.28 0.29	Not supported
H4	Access to information is **negatively associated** with supervisor-subordinate conflict.	-0.26	2.08	0.02**	Supported
H5	Access to information is **positively associated** with managerial performance.	0.34	2.14	0.02**	Supported
H6	Access to information is **positively associated** with psychological empowerment.	0.61	6.96	0.00***	Supported
H7	Performance-contingent financial rewards are **positively associated** with supervisor-subordinate conflict.	-0.07	0.70	0.24	Not supported
H8	Performance-contingent financial rewards are **positively associated** with managerial performance.	0.03	0.35	0.36	Not supported
H9	Performance-contingent financial rewards are **positively associated** with psychological empowerment.	-0.10	1.19	0.12	Not supported

	Hypotheses	Path Coefficient	*t*-statistic	*p*-value	Result
H10	Psychological empowerment is **positively associated** with managerial performance.	0.42	2.84	0.003***	Supported
H11	Supervisor-subordinate conflict is **negatively associated** with psychological empowerment.	-0.21	2.03	0.02**	Supported
H12	Supervisor-subordinate conflict is **negatively associated** with managerial performance.	0.16	1.55	0.06*	Not supported

* p < 0.10; ** p < 0.05; *** p < 0.01 (one-tailed)

As presented in Table 6.2 above, six of the 12 hypotheses are supported, one is partially supported, and five are not supported. The next section discusses the explanatory power of the model.

6.2.2. Explanatory power

As explained in Section 4.4, PLS does not provide a measure of model goodness-of-fit, such as an overall model coefficient of determination, R^2 (Chin, 1998). But similarly to ordinary least squares regression, each dependent variable has a R^2, which represents the amount of variance explained by the model for that variable (Chin, 2010b). Due to the PLS estimation method, the variation in the residual is minimised, thus the coefficient of determination of each dependent variable is maximised (Roos et al., 1997). Table 6.3 shows the coefficient of determination (R^2) for each dependent variable in the model.

Table 6.3 – Explanatory power for dependent variables

Dependent variable	R^2
Access to Information	0.30
Supervisor-Subordinate Conflict	0.30
Psychological Empowerment	0.47
Managerial Performance	0.41

The two dimensions of subjectivity in performance evaluation, which are process-based subjectivity and supervisor-based subjectivity, account for 30% of the variance in access to information. Access to information and the two dimensions of subjectivity in performance evaluation account for 30% of the variance in supervisor-subordinate conflict. And almost half of the variance in psychological empowerment is explained by supervisor-subordinate conflict, access to information, and the two dimensions from subjectivity in performance evaluation. Managerial performance has 41% of its variance explained by supervisor-subordinate conflict, access to information, and psychological empowerment.

There is not a critical value for the coefficient of determination (R^2). As Hair et al. (2010) argue, a higher coefficient of determination provides greater explanatory power of the regression equation and better prediction of the dependent variable.

6.3. Indirect effects

PLS analysis presents the direct effects between the hypothesised variables. For analysing the indirect effects between the variables in the structural model, the output from bootstrapping was used (Hall & Smith, 2009), as explained in Section 4.4.2 regarding indirect effect analysis. The purpose of analysing the indirect effects between the variables in the structural model is to provide answers to the research question and sub-questions presented in Chapter 1. Thus, this section examines the indirect effects between subjectivity in performance evaluation and managerial performance.

Variables responsible for indirect effects may be functioning as mediators in the structural model. Mediation takes place when an independent variable is able to influence the dependent variable through a third variable, which is the mediator (Baron & Kenny, 1986).

Using PLS analysis mediation occurs if there is a valid path between independent variable and dependent variable, and an indirect effect through the mediator.[51]

Figure 6.7 below presents the statistically significant paths from the model, as the structural model in PLS-Graph 3.0®. The dotted lines (•••) represent the negative associations and the dashed lines (– – –) represent the positive associations.

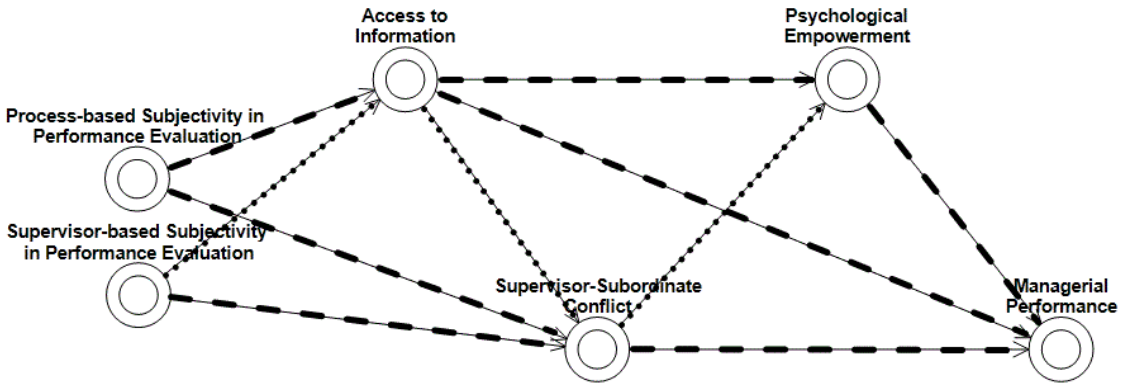


Figure 6.7 – Structural model – significant paths only

Subjectivity in performance evaluation was not hypothesised to be directly related to managerial performance. Nevertheless, considering the significant paths, the dimensions of subjectivity in performance evaluation (process-based subjectivity and supervisor-based subjectivity) may be indirectly associated with managerial performance.[52]

Analysing the coefficients output for each bootstrap, it was found that process-based subjectivity had a positive association with managerial performance through access to

[51] An indirect effect through mediator assumes that there are valid paths between independent variable and mediator, and mediator and dependent variable. For a full mediation in PLS analysis both dependent and independent variables should be correlated, but have no valid path between them.

[52] For more information regarding the bootstrap method adopted for indirect effect analysis, please see Section 4.4.2.

information ($p < 0.01$). Further, process-based subjectivity has an indirect association with managerial performance through supervisor-subordinate conflict ($p < 0.10$). For supervisor-based subjectivity, it had a negative association with managerial performance through access to information ($p < 0.01$). Additionally, supervisor-based subjectivity has a positive indirect association with managerial performance through supervisor-subordinate conflict ($p < 0.10$).

These findings indicate there is an association between subjectivity in performance evaluation and managerial performance, through access to information and supervisor-subordinate conflict. As there is a significant correlation between supervisor-based subjectivity and managerial performance, access to information and supervisor-subordinate conflict are mediating this association. Regarding process-based subjectivity, as there is no significant correlation between this variable and managerial performance, this means that access to information and supervisor-subordinate conflict are not functioning as mediators.[53]

PLS analysis shows that a process-based dimension of subjectivity in performance evaluation is positively associated with supervisor-subordinate conflict through a direct path, but it is also positively associated with access to information, which is negatively associated with supervisor-subordinate conflict. This means that there is an indirect negative association between process-based subjectivity and supervisor-subordinate conflict through access to information, which is confirmed by analysing the bootstrapping output ($p < 0.05$). Hence process-based subjectivity has a direct positive association with supervisor-subordinate conflict and an indirect negative association. Due to PLS and indirect effect analysis, it can be argued that there is a tension between these variables.

[53] Please check correlation matrix in Section 5.3.4 in Chapter 5.

This tension has to be examined considering the complexity of the subjectivity in performance evaluation variable. Process-based subjectivity is similar to supervisor-based subjectivity regarding the effect over supervisor-subordinate conflict, but it is different concerning the effect over access to information. This finding suggests that the institutionalised nature of process-based subjectivity is able to provide more information to the subordinate. And access to information is negatively associated with supervisor-subordinate conflict. Whilst there is an indirect negative association, process-based subjectivity directly increases the disagreement between supervisor and subordinate. The paths are shown in Figure 6.8.

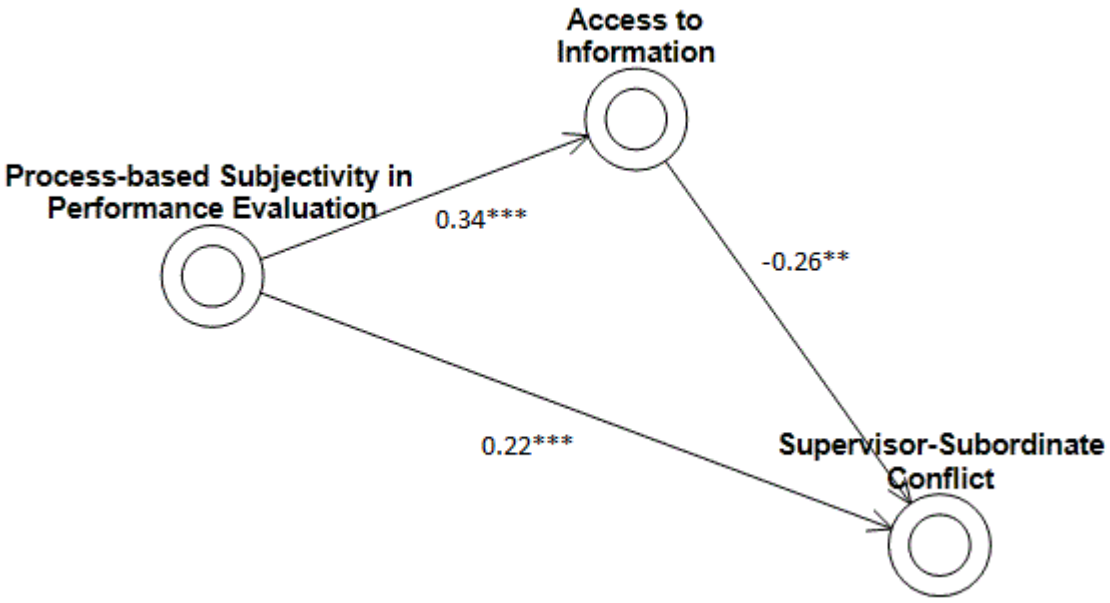


Figure 6.8 – First locus of tension

For access to information, PLS analysis shows this variable has a direct positive association with managerial performance. Access to information also has a positive association with psychological empowerment, which is positively associated with managerial performance, and a direct negative association with supervisor-subordinate conflict, which is positively associated with managerial performance.

Analysis of the indirect effect through bootstrap output supports that psychological empowerment does have a mediating effect between access to information and managerial performance ($p < 0.01$). Hence, access to information is positively associated with managerial performance through a direct path and an indirect path via psychological empowerment. This finding indicates that psychological empowerment is partially mediating the relation between access to information and managerial performance.

The analysis also supports a significant negative indirect effect between access to information and managerial performance through supervisor-subordinate conflict ($p < 0.10$). Hence, the relation between access to information and managerial performance is partially mediated by psychological empowerment and supervisor-subordinate conflict. This finding indicates that there is tension, as one of the mediating variables creates conflicting implications in the relation between access to information and managerial performance. The paths are shown in Figure 6.9.

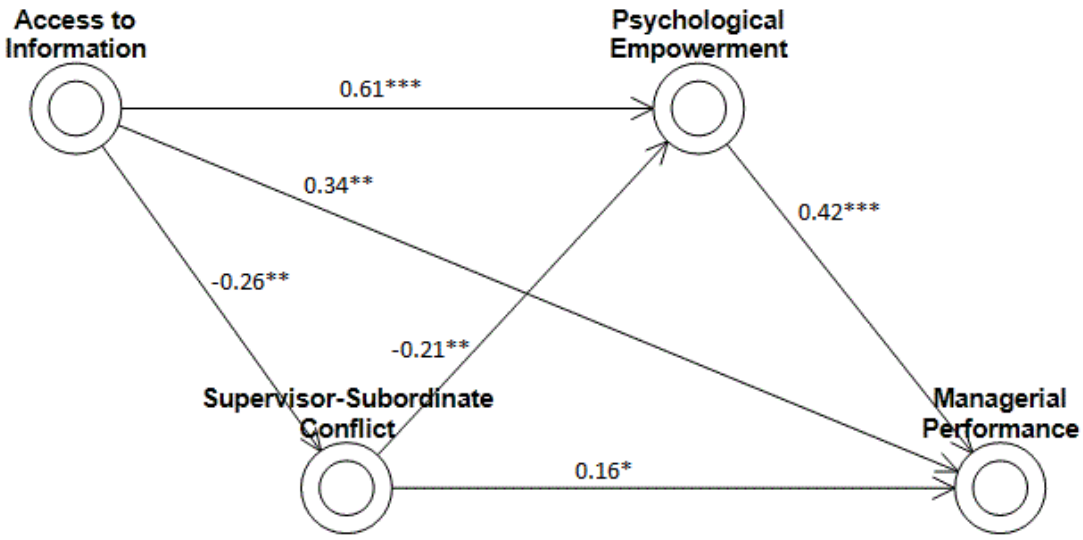


Figure 6.9 – Second locus of tension

Based on the PLS and bootstrap output analysis it can be argued that there are two loci of tension in the model. One is between process-based subjectivity in performance evaluation

and supervisor-subordinate conflict, through access to information, whilst the other is between access to information and managerial performance, through supervisor-subordinate conflict.

Regarding the indirect effects, the analysis indicates that subjectivity in performance evaluation is indirectly associated with managerial performance. The next section presents the model summary.

6.4. Model summary

The results from PLS analysis indicate that subjectivity in performance evaluation is indirectly associated to managerial performance. The indirect paths hypothesised are through access to information, psychological empowerment, and supervisor-subordinate conflict. Following variable measurement, the subjectivity in performance evaluation was split into two dimensions which represent different aspects of subjectivity in performance evaluation: supervisor-based subjectivity and process-based subjectivity. These distinct dimensions of subjectivity in performance evaluation had different associations with the remaining variables of the structural model.

Process-based subjectivity had a positive association with managerial performance through access to information and supervisor-subordinate conflict. This finding suggests that this dimension of subjectivity in performance evaluation enhances the subordinate's access to information, consequently leading to an increase in managerial performance. Process-based subjectivity in performance evaluation also had a positive indirect association with managerial performance through supervisor-subordinate conflict. Therefore there are two indirect paths between process-based subjectivity and managerial performance, one through access to information and another through supervisor-subordinate conflict.

Supervisor-based subjectivity had a negative association with managerial performance through access to information and a positive association with managerial performance through supervisor-subordinate conflict. This finding implies that the two dimensions of subjectivity in performance evaluation have competing effects on managerial performance. Whilst process-based subjectivity indirectly enhances managerial performance, supervisor-based subjectivity has a mixed effect, being negative through access to information and positive through supervisor-subordinate conflict. Due to these findings, it can be argued that access to information and supervisor-subordinate conflict are pivotal to the relation between subjectivity in performance evaluation and managerial performance.

PLS analysis did not show significant associations between performance-contingent financial rewards and the remaining variables in the model. As suggested previously, it may be that the financial reward is immaterial compared to the subordinate's total income or insufficient to stimulate the subordinate, or that the subordinate is mostly doing complex cognitive activities while the rewards may be emphasising performance quantity, and not performance quality (Jenkins et al., 1998; McGraw, 1978).

Regarding access to information, PLS analysis shows that this variable has a direct positive association with managerial performance, an indirect positive association mediated by psychological empowerment, and an indirect negative association mediated by supervisor-subordinate conflict. These findings reinforce the benefits of access to information to psychological empowerment and managerial performance.

With the results from hypothesis testing and indirect effects, the research question and sub-questions discussed in Chapter 1 can be finally addressed:

- Does subjectivity in performance evaluation enhance or hinder managerial performance?

The results indicate that subjectivity in performance evaluation has competing effects in managerial performance. There are positive and negative indirect associations between the two dimensions of subjectivity in performance evaluation and managerial performance. Regarding the positive associations, process-based subjectivity had a positive association with managerial performance through access to information, as well as through supervisor-subordinate conflict. In a similar fashion, supervisor-based subjectivity had a positive indirect association with managerial performance through supervisor-subordinate conflict.

Nonetheless, it was found that supervisor-based subjectivity had a negative association with managerial performance through access to information. Therefore, the two dimensions of subjectivity in performance evaluation have positive and negative associations with managerial performance. The relevant paths regarding the research question are summarised in Table 6.6.

Table 6.6 – Relevant paths regarding the research question[54]

Management control	**Intervening variable**	**Relation to managerial performance**	***p*-value**
Process-based subjectivity in performance evaluation	Access to information	Positive indirect association	0.05**
Process-based subjectivity in performance evaluation	Supervisor-subordinate conflict	Positive indirect association	0.07*
Supervisor-based subjectivity in performance evaluation	Access to information	Negative indirect association	0.004***
Supervisor-based subjectivity in performance evaluation	Supervisor-subordinate conflict	Positive indirect association	0.06*

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$ (one-tailed)

As there are no direct associations between subjectivity in performance evaluation and managerial performance, the answer to the research question is that subjectivity in

[54] The direct associations are tested with PLS analysis and the indirect associations are tested by examining the samples from bootstrapping.

performance evaluation is indirectly associated with managerial performance, with competing effects through access to information and supervisor-subordinate conflict.[55]

The answer for this study's research question also addresses the two sub-questions discussed in Chapter 1. The first sub-question regards whether the adoption of subjective performance evaluations is associated with supervisor-subordinate conflict:

- Is subjectivity in performance evaluation associated with supervisor-subordinate conflict? Is supervisor-subordinate conflict associated with managerial performance?

The results presented in the hypothesis testing section indicate that both dimensions of subjectivity in performance evaluation are associated with supervisor-subordinate conflict, and supervisor-subordinate conflict is associated with managerial performance. The second sub-question addresses the association between subjectivity in performance evaluation and psychological empowerment:

- Is subjectivity in performance evaluation associated with psychological empowerment? Is psychological empowerment associated with managerial performance?

The results presented in the hypothesis testing section indicate that subjectivity in performance evaluation does not have association with psychological empowerment.

[55] For examining a direct association between subjectivity in performance evaluation and managerial performance a path model was run considering direct paths among the two dimensions of subjectivity in performance evaluation and managerial performance. The direct paths between both dimensions of subjectivity in performance evaluation and managerial performance are not statistically significant. It is noteworthy that all other associations among variables in the model remain unaltered. As there is no theory backing a direct association among subjectivity in performance evaluation and managerial performance this study does not assume such a relationship.

Nevertheless, results in hypothesis testing show that psychological empowerment is associated with managerial performance.

The next chapter presents the conclusions.

Chapter 7. Conclusion, limitations, and suggestions for future research

7.1. Introduction

This chapter contains a thesis overview, main findings, contributions to the literature, implications of the research, limitations of the thesis, suggestions for future research, and conclusion. Section 7.2 summarises each chapter of the thesis. Section 7.3 discusses the main findings of the study. Section 7.4 presents how this thesis contributes to the management accounting literature. Section 7.5 outlines the implications of the current research. Section 7.6 discusses the limitations of this thesis. Section 7.7 advances some suggestions for future research, and Section 7.8 summarises the chapter and presents conclusions of this thesis.

7.2. Thesis overview

This thesis is comprised of seven chapters. Chapter 1, the introductory chapter, presents the research question of the study together with the purpose of the research and motivation. The first chapter also puts forward an overview of the study and expected contributions to the literature.

Chapter 2 began with definitions for management control system, followed by a literature review for subjectivity in performance evaluation, and a presentation of the proposed framework. The chapter referred to the very nature of the management control systems approached in this thesis, as well as the proposed framework adopted. This was followed by a description of the variables used in the study.

Chapter 3 developed the 12 hypotheses comprised in the study's framework. The first set of hypotheses (H1, H2, and H3) related to outcomes of subjectivity in performance evaluation. The second set of hypotheses (H4, H5, and H6) related to outcomes of access to information. The third set of hypotheses (H7, H8, and H9) related to outcomes of performance-contingent financial rewards. Finally, the fourth and last set of hypotheses related to outcomes of psychological empowerment (H10), and supervisor-subordinate conflict (H11 and H12).

Chapter 4 discussed the research method pursued in this study. In this chapter the data collection process was described, and data analysis performed. Survey was the research method adopted in this thesis, with data being collected from a random sample of middle level managers drawn from a business database. PLS was chosen to test the thesis' path model, and reasons for this choice were presented.

Chapter 5 began with the presentation of the measurement properties of each variable, with special emphasis placed on subjectivity in performance evaluation due to the novelty of the measure. All other variables were drawn from previous literature and their scales had been shown as being reliable. Due to exploratory factor analysis conducted, subjectivity in performance evaluation was split into two dimensions, supervisor-based subjectivity and process-based subjectivity. Therefore, this chapter focused on how the variables used in this thesis were measured and how the measurement model analysis panned out. It also contained the descriptive statistics of the variables.

Chapter 6 provided the results of the data analysis and discussion. First, the results of the hypotheses testing were presented, and this was followed by a brief discussion of the explanatory power of the model. Additional analyses were done to complement some of the hypotheses testing, and an analysis of the indirect effects and tensions between the variables

was carried out. The chapter ended with a model summary and the answers for the research questions introduced on Chapter 1.

7.3. Main findings

There are five main findings for this thesis, as follows. The first main finding refers to subjectivity in performance evaluation, which was found to be a multidimensional variable. Following the variable measurement analysis subjectivity in performance evaluation was split into two dimensions that represent different aspects of subjectivity in performance evaluation. The first dimension is process-based subjectivity in performance evaluation, which captures what supervisors are able to do with the organisation's current performance evaluation system, and reflects the characteristics of the performance evaluation itself. The second dimension is supervisor-based subjectivity, which represents the uniqueness of each supervisor while evaluating her or his subordinate.

The second main finding is that both dimensions of subjectivity in performance evaluation have indirect and competing effects upon managerial performance. Process-based subjectivity has positive indirect association with managerial performance, whilst supervisor-based subjectivity has both positive and negative indirect associations with managerial performance.

The third main finding of this study is that no significant associations were found between performance-contingent financial rewards and supervisor-subordinate conflict, psychological empowerment, and managerial performance. As suggested previously, it may be that the financial rewards are insufficient to stimulate the participants, or maybe the financial incentives are emphasising performance quantity, and not performance quality, while the participants are mostly performing complex cognitive tasks.

The fourth main finding is that a positive association was found between conflict and performance. Contrary to what was hypothesised, supervisor-subordinate conflict had a positive association with managerial performance. As previously discussed, this may occur because the sample for this study mostly comprises of subjects reporting low level conflict.

The fifth and last main finding is that access to information and supervisor-subordinate conflict fully mediate the association between subjectivity in performance evaluation and psychological empowerment.[56] It was hypothesised that subjectivity in performance evaluation would have a direct association with psychological empowerment, as supported in theory. Nonetheless, this study finds that the association between subjectivity and empowerment is fully mediated by access to information and supervisor-subordinate conflict.

7.4. Contributions to the literature

This study contributes to management accounting literature in four main ways. The first contribution of this study to the literature is to put forward a scale to measure subjectivity in performance evaluation. No known previous research attempted to measure subjectivity in performance evaluation using a survey instrument. This study finds that subjectivity in performance evaluation is a two dimensional construct.

[56] Both dimensions of subjectivity in performance evaluation are correlated to psychological empowerment but have no valid direct paths in PLS analysis. The only valid paths are through access to information and supervisor-subordinate conflict, therefore acting as full mediators (Baron & Kenny, 1986).

The second contribution of this study to the literature is providing additional empirical evidence regarding the effects of subjectivity in performance evaluation on managerial performance.

The third contribution is the positive association found between supervisor-subordinate conflict and managerial performance, whilst most studies from management accounting argue that conflict is likely to reduce performance. Nevertheless, some studies from psychology find a positive association between conflict and performance under specific situations (Jehn & Chatman, 2000). Considering the claim from Ittner, Larcker, and Meyer (2003) regarding the relevance of psychology-based explanations for management accounting issues, it is reasonable for researchers in management accounting to search for answers in psychology literature.[57] Besides current variables from management accounting literature, this study also used supervisor-subordinate conflict, which is a variable from psychology.

The fourth and last main contribution is that access to information and supervisor-subordinate conflict fully mediate the association between subjectivity in performance evaluation and psychological empowerment. Whilst theory argues that subjectivity in performance evaluation and psychological empowerment are directly positively associated, findings from this study show that there is an indirect effect through access to information and supervisor-subordinate conflict. Therefore, when analysing the association between subjectivity in performance evaluation and psychological empowerment, researchers should consider supervisor-subordinate conflict and access to information as intervening variables.

[57] Ittner, Larcker, and Meyer (2003, p. 754) stated that 'The evidence suggests that psychology-based explanations may be equally of more relevant than economics-based explanations in understanding measurement practices in some settings.'

7.5. Implications of the research

The results of this research offer four key implications for theory. The first implication is that subjectivity in performance evaluation is a two-dimensional construct comprising of process-based subjectivity and supervisor-based subjectivity that requires to be dealt separately. The concept of subjectivity in performance evaluation as a single variable did not translate in practice. As the two dimensions of subjectivity in performance evaluation exhibit distinct associations within other variables in the model, researchers should be cautious with findings due to subjectivity in performance evaluation.

The second implication refers to the role of supervisor-subordinate conflict and access to information as intervening variables for the association between subjectivity in performance evaluation and psychological empowerment. The findings suggest that supervisor-subordinate conflict and access to information fully mediate the association between subjectivity and psychological empowerment. Therefore, research with direct paths between subjectivity in performance evaluation and psychological empowerment might suffer from model misspecification. [58]

The third implication relates to the direct positive association between supervisor-subordinate conflict and managerial performance. This positive association must be interpreted with caution, as most theory and research argue that a large amount of conflict is detrimental to managerial performance. Nevertheless, a small amount of conflict may be helpful for improving managerial performance in certain situations, such as non-routine managerial tasks (Jehn & Chatman, 2000). Therefore, for fostering performance, small

[58] Subjectivity in performance evaluation is only directly associated with psychological empowerment if PLS analysis is done removing supervisor-subordinate conflict and access to information from the model.

amounts of conflict between supervisor and subordinate may be tolerable within organisations.[59]

The fourth and last implication pertains to the adoption of subjective performance evaluation within organizations. The findings from study are of interest to senior management in organizations. The reason is that the use of subjective performance evaluation may be positively associated with an improved managerial performance to the extent that it increases supervisor-subordinate conflict. Therefore, senior management need to consider the trade-off between performance and conflict when implementing a performance evaluation policy. This study provides some evidence that small levels of conflict are positively associated with managerial performance, but it is unknown which is the optimal level. As a practical implication, senior managers who shun conflict should avoid much subjectivity in subordinates' performance evaluation. For contrast, senior managers who are willing to increase subordinates' performance by risking an increase at the current level of supervisor-subordinate conflict should allow more subjectivity in subordinates' performance evaluation.

7.6. Limitations of the thesis

This study shares limitations common to all survey studies, such as common method bias, participants' self-rating, halo effect, and response rates. In addition, there is also a concern with omitted variables in the framework. This section explains how these limitations were approached.

[59] The discussion regarding the ideal amount of conflict for maximising performance is beyond the scope of this thesis. This study does not endorse supervisor-subordinate conflict as method for improving subordinate performance. Fostering conflict between people within organisations is reckoned as a bad internal policy (Sutton, 2007).

Common method bias occurs when the survey items' variances are related to the measurement method rather than to the variables which they should represent (Podsakoff et al., 2003). A Harman's single-factor test was carried out to examine common method variance. The results do not indicate a single factor structure that accounts for majority of the variance, suggesting common method bias is not a concern. For further analysis regarding common method bias a common method factor was included in a PLS path model considering all variables' items (Liang, Saraf, Hu, & Xue, 2007). The common method factor had an AVE of 0.31 and most factor loadings were not significant. The results demonstrate that given the small magnitude and insignificance of method variance, common method bias is unlikely to be a serious concern in this study.

Regarding participants' self-rating in surveys, this is a major concern presented in academic literature as participants might not be the best source of information for measuring variables (Van der Stede et al., 2006). But researchers such as Heneman (1974) argue that self-rating is a reliable source of information as it is highly correlated to superiors' ratings. This argument suggests that a participant's self-rating of performance should be similar to the supervisor's rating of the subordinate's performance, thus being an accurate source of information.

A halo effect takes place when participants are unable to properly rate different dimensions of a single construct. Authors such as Brownell (1982) argue that superiors have more chances of making global assessments of subordinates' performance, but are unable to differentiate their assessments on the various dimensions of performance. In this study managerial performance was measured using a multidimensional scale; therefore, subordinates' self-ratings are less subject to halo effect.

Regarding response rate, the data obtained was tested for non-response bias, as described in Chapter 4. Non-response bias analysis was performed and no response bias was found. Although the analysis provided sufficient confidence in the representativeness of the data, it is acknowledged that a higher response rate could yield more generalisable results. [60]

The limitation regarding omitted variables is that the framework adopted may have omitted some variables that may have been relevant for the analysis. For instance, Bonner and Sprinkle (2002) suggest that performance-contingent financial rewards and managerial performance are associated through effort, with moderating effects from person variables, task variables, environmental variables, and incentive scheme variables. On the grounds of model parsimony, not all variables from management accounting could be considered in the analysis.

In spite of the above limitations, the author is confident in the results obtained in this thesis. The next section suggests avenues for future research.

7.7. Suggestions for future research

The findings and limitations of this thesis provide two avenues for further studies. As mail surveys have some limitations, such as those listed previously, the first suggestion is to approach similar hypotheses and variables using case study as the research method. A case study would complement the findings of this study. For instance, it is known that tension between subordinates and supervisors can build over time, so through a case study the researcher could capture the development of this tension and the interplay with other

[60] The response rate of 14.61% is similar to contemporary response rates in surveys related to management accounting, such as Moores and Yuen (2001), Baines and Langfield-Smith (2003), and Auzair and Langfield-Smith (2005).

elements of a management control system. Longitudinal data would be helpful for a more definitive test of the hypotheses. Moreover, compared to a mail survey, the researcher can collect much more information through a case study regarding the organisation and its members, looking for answers as to why performance-contingent financial rewards may not have associated with other variables in the model.

The second and last suggestion for future research is a survey with closer examination of subjectivity in performance evaluation, as there are no previous scales in the management accounting literature for measuring subjectivity in performance evaluation. This posed a challenge in the development of the instrument and later during the variable measurement chapter. Although the instrument exhibited satisfactory psychometric properties, future researchers should refine the scales and approach subjectivity in performance evaluation as a two-dimensional variable, thus developing two different scales, one for process-based subjectivity and another for supervisor-based subjectivity, further validating the instrument.

7.8. Conclusion

The objective of this chapter was to list the conclusions, limitations, and suggestions for future research. The objective of this study was to answer whether subjectivity in performance evaluation was associated with managerial performance and/or indirectly associated through supervisor-subordinate conflict and psychological empowerment. The results of this thesis show that subjectivity in performance evaluation is indirectly associated with managerial performance.

Appendices

Appendix 1 – Presentation letter

The presentation letter had to be adapted to fit the margin setting.

MONASH University

Explanatory Statement

Vicente Bicudo de Castro is a postgraduate student from the Department of Accounting and Finance of Monash University. Along with his supervisors – Professor David Smith and Dr Aldónio Ferreira – Vicente is conducting the following research project towards a PhD:

The effect of management control systems on empowerment, conflict and performance

This is a national survey designed to identify the direct and indirect effects of management control systems and behavioural attributes on employees' performance. This important study is the first of its kind and will provide a valuable contribution to a deeper understanding of the interplay among the variables of interest and assist managers to make better performance evaluation decisions and choices. This study will contribute by examining how much management control systems add to employees' feelings of psychological empowerment and interpersonal incompatibilities among subordinates and supervisors and, ultimately, how these relationships affect performance.

You are invited to participate in this research as part of a carefully selected sample of experienced Australian managers. Your participation in this study will involve answering a survey that will take approximately 15 minutes to complete.

In appreciation for your contribution, should you choose to participate, we will **donate $1.00 to the Ron Evans Cancer Research Fellowship for each completed questionnaire** received November 14, 2011 and provide you with a copy of the study's main **findings report on completion of the research**. This study may contribute a donation of up to $1,000 for cancer research!

We greatly appreciate you taking the time to complete our survey. Please do so by November 14, 2011. The results are expected to be available in March 2012 and can be accessed at http://www.buseco.monash.edu.au/aaf/research/. Your response is anonymous and your personal details will not be used for purposes other than those stated in this project. If you have queries or concerns about this research, please feel free to call Vicente on [redacted] or mail [redacted]

Data from this survey will be used for a postgraduate thesis and in the future might also be used for journal articles and conference presentations, but it will be in aggregated form and **nobody can be identified in any way**. We also assure you that:

- Your participation in this survey is voluntary. We have designed the survey not to ask for any personal or sensitive information. You may avoid answering questions if you find them too personal or intrusive. The decision to complete and return the survey will be taken to imply informed consent on your behalf to participate in this research project.
- Records that permit identification of participants will be removed and destroyed as soon as possible, while all data will be destroyed five years after completion of the study.

- All identifiable data will remain strictly confidential and will be secured, by using locked filing cabinets and file passwords, in the Department of Accounting and Finance, Faculty of Business and Economics, Monash University.
- This survey will be the only procedure where we require your involvement.
- Your contact information was obtained from a publicly available database.

Should you have any complaint concerning the manner in which this research (project number CF10/3442 – 2010001813) is conducted, please do not hesitate to contact the Monash University Standing Committee on Ethics in Research Involving Humans at the address indicated at the end of this letter.

If you would like to contact the researchers about any aspect of this study, please contact the Chief Investigator:	If you have a **complaint** concerning the manner in which this research (project number CF10/3442 – 2010001813) is being conducted, please contact:
Professor David Smith Monash University Department of Accounting and Finance Caulfield East, PO Box 197 VIC 3145 Australia [redacted]	Human Ethics Officer Standing Committee on Ethics in Research Involving Humans (SCERH) Building 3d, Research Office Monash University VIC 3800 [redacted]

<u>This information sheet is for you to keep.</u>

Appendix 2 – Questionnaire

The questionnaire had to be adapted to fit the margin setting.

SURVEY

Purpose of the study

The purpose of this study is to assist in determining the extent to which management control systems contribute to employees' perceptions of her/his job and influence interpersonal incompatibilities among subordinates and supervisors. This study is the first of its kind and will provide a valuable contribution to a deeper understanding of the interplay among subordinates and supervisors and assist supervisors to make better organisational design decisions.

In appreciation for your contribution, should you choose to participate, we will **donate $1.00 to the Ron Evans Cancer Research Fellowship for each completed questionnaire** received by November 14. This study may contribute a donation of up to $1,000 for cancer research!

Brief instructions

1. There are no correct or incorrect answers to questions included in this survey;
2. Although some questions may contain statements that appear similar to others, they express differences that are important to this study;
3. The questions in this survey refer to the organisation you work for. If your organisation has multiple business units, please answer these questions in relation to the business unit you work in or have greater involvement with; and
4. Please circle one response for each item.

Any comments that you might have are much appreciated. You can either write these comments at the end of the survey in the space provided or include them on a separate sheet.

Now that you have read the instructions, you are ready to commence the survey.

1. Please indicate the extent to which you agree or disagree with the following statements:

	Strongly disagree			Neither agree nor disagree			Strongly agree
My supervisor's experience with previous performance evaluations influences how s/he evaluates my current performance	1	2	3	4	5	6	7
My supervisor conducts my performance evaluation according to what s/he personally expects from me	1	2	3	4	5	6	7
The rules concerning my performance evaluation are clearly set in advance	1	2	3	4	5	6	7
My performance evaluation excludes unexpected occurrences that are beyond my control but influence my current performance	1	2	3	4	5	6	7
My performance is evaluated based on what I have done and also on what I should have done	1	2	3	4	5	6	7
My performance evaluation could change considerably if I were evaluated by another supervisor	1	2	3	4	5	6	7
My supervisor has plenty of discretion in conducting my performance evaluation	1	2	3	4	5	6	7

2. Please indicate the extent to which you agree or disagree with the following statements regarding your role:

	Strongly disagree			Neither agree nor disagree			Strongly agree
I understand my business unit's quality standards	1	2	3	4	5	6	7
I have access to information of my business unit performance in relation to cost management	1	2	3	4	5	6	7
I understand my business unit's cost limits	1	2	3	4	5	6	7
I have access to information regarding my business unit's performance in relation to quality	1	2	3	4	5	6	7
I understand my organisation's vision and mission	1	2	3	4	5	6	7
I have access to the strategic information necessary to do my job well	1	2	3	4	5	6	7
I understand the goals of my organisation	1	2	3	4	5	6	7

3. Please indicate the extent to which you agree or disagree with the following statements regarding your organisation's practice:

	Strongly disagree			Neither agree nor disagree			Strongly agree
Employees' rewards at my organisation increase as employees perform better, relative to their performance targets	1	2	3	4	5	6	7
Employee compensation at my organisation is related to an individuals' performance relative to their performance targets	1	2	3	4	5	6	7
Higher performing employees in my organisation are given larger rewards than lower performing employees	1	2	3	4	5	6	7

4. Please indicate the approximate bonus/incentive you receive as a percentage of your base annual pay:

   My bonus/incentive is approximately _____ % of base annual pay.

5. Please indicate the extent to which you agree or disagree with the following statements regarding the way you feel about your job:

	Strongly disagree			**Neither agree nor disagree**			**Strongly agree**
I have significant autonomy in determining how I do my job	1	2	3	4	5	6	7
The work I do is very important to me	1	2	3	4	5	6	7
I can decide on my own how to go about doing my work	1	2	3	4	5	6	7
My job activities are personally meaningful to me	1	2	3	4	5	6	7
I have a great deal of control over what happens in my business unit	1	2	3	4	5	6	7
I have considerable opportunity for independence and freedom in how I do my job	1	2	3	4	5	6	7
I have mastered the skills necessary for my job	1	2	3	4	5	6	7
I am self-assured about my capabilities to perform my work activities	1	2	3	4	5	6	7
I have significant influence over what happens in my business unit	1	2	3	4	5	6	7
I am confident about my ability to do my job	1	2	3	4	5	6	7
The work I do is meaningful to me	1	2	3	4	5	6	7
My impact on what happens in my business unit is large	1	2	3	4	5	6	7

6. Compared to the average manager, please rate your own performance in relation to each of the following aspects:

	Performance well below average			Average performance		Performance well above average		Not applicable
Coordinating: exchanging information with people in the organisation other than my subordinates in order to relate and adjust procedures, policies and programs	1	2	3	4	5	6	7	N/A
Staffing: maintaining the work force of your responsibility area (e.g., selecting and promoting your subordinates)	1	2	3	4	5	6	7	N/A
Negotiating: purchasing, selling, or contracting for products or services (e.g., contracting suppliers, collective bargaining)	1	2	3	4	5	6	7	N/A
Representing: advancing the general interests of my organisation through speeches, consultations, or contacts with individuals or groups outside the organisation	1	2	3	4	5	6	7	N/A
Evaluating: assessment and appraisal of proposals or of reported/observed performance (e.g., employee appraisals, judging financial performance and product inspection)	1	2	3	4	5	6	7	N/A
Planning: determining goals, policies, and courses of action such as work scheduling, budgeting, and programming	1	2	3	4	5	6	7	N/A
Investigating: collecting and preparing of information usually in the form of records, reports, and accounts (measuring output, record keeping, and job analysis)	1	2	3	4	5	6	7	N/A
Supervising: directing, leading, and developing your subordinates	1	2	3	4	5	6	7	N/A
Your overall performance	1	2	3	4	5	6	7	

7. Please indicate the extent to which each of the following statements apply to you:

	Strongly disagree			Neither agree nor disagree			Strongly agree
There is conflict between me and my supervisor regarding work and/or projects	1	2	3	4	5	6	7
There is emotional conflict between me and my supervisor	1	2	3	4	5	6	7
Personality conflicts are evident between me and my supervisor	1	2	3	4	5	6	7
There are conflicts between me and my supervisor about ideas related to my work	1	2	3	4	5	6	7
There is tension between me and my supervisor	1	2	3	4	5	6	7
There is friction between me and my supervisor	1	2	3	4	5	6	7
My supervisor often disagrees with me regarding the way my work is done	1	2	3	4	5	6	7

8. Compared to the average manager, please indicate the extent to which the following statements apply to you:

	Strongly disagree			Neither agree nor disagree			Strongly agree
I frequently share my tasks with other employees	1	2	3	4	5	6	7
My tasks' priorities frequently change because of new deadlines	1	2	3	4	5	6	7
My deadlines severely impact the quality of my tasks	1	2	3	4	5	6	7

9. Please indicate the following:

- Your job title: _____
- Time in your current position: _____ (years)
- Time in the current organisation: _____ (years)
- Approximate number of full-time equivalent employees that work in your organisation: _____
- Approximate number of full-time equivalent employees that work in your business unit: _____
- Approximate number of employees you have responsibility for: _____

_

10. Please indicate the main industry of your organisation (tick one):

Agriculture or Mining	☐	Manufacturing	☐
Communication Services	☐	Services	☐
Construction	☐	Transport & Storage	☐
Electricity, Gas or Water Supply	☐	Wholesale & Retail Trade	☐
Finance, Insurance and Real Estate	☐	Other, please specify: _____	

Any other comments you would like to make?

If there is anything else you would like to tell us about this survey please do so in the space provided below.

Thank you for your contribution to this study.

Please return your completed survey in the enclosed reply-paid envelope to:

Vicente Bicudo de Castro
Department of Accounting and Finance
Monash University
900 Dandenong Road
Caulfield East, VIC 3145

Appendix 3 – Reminder postcard

Dear Sir/Madam,

About two weeks ago I have mailed you a letter inviting you to participate in the study I am conducting on the issues of direct and indirect effects of management control variables and behavioural variables on employees' performance. This study has been sent to a carefully selected sample of experienced managers in Australian companies and will have important implications for practice. I appreciate that you may not have had the opportunity to complete the survey yet, but I would be very grateful if you could spare some 15 minutes to do so. If you have already completed and returned the survey, thank you for your valuable assistance.

I would like to take this opportunity to remind you that in appreciation for your time I will be **donating $1.00 to the Ron Evans Cancer Research Fellowship** from the Monash Institute of Medical Research for each completed questionnaire returned by November 14, 2011. We also offer you as a participant a copy of the study's **main findings report**, which will be available at http://www.buseco.monash.edu.au/aaf/research/ by March 2012. Again, if you have already returned the survey, please accept my sincere thanks. Alternatively, if you did not receive our previous letter (or have misplaced it), please call me on [redacted] or email [redacted] and I will forward a new copy to you. I greatly appreciate you taking the time to complete this important survey.

Yours sincerely,

[redacted]

(Vicente Bicudo de Castro)

Appendix 4 – Receipt from the Monash Institute of Medical Research

MONASH INSTITUTE OF MEDICAL RESEARCH

Director:
Professor Bryan Williams

Centre Directors:
Professor David Healy
Professor Paul Hertzog
Professor Justin St. John
Professor Euan Wallace

Patron:
Professor Richard Larkins AC

8 February 2012

Mr Vincente Bicudo De Castro
900 Dandenong Rd
CAULFIELD EAST VIC 3145

Dear Mr Bicudo De Castro,

Please accept our sincere thanks for your gift towards cancer research at the Monash Institute of Medical Research.

Our scientists are conducting groundbreaking research to develop a greater understanding of different cancers, with the ultimate aim of improving treatments and outcomes for patients.

Your interest and support is greatly appreciated by all of us.

Yours sincerely

[redacted]

Susie Bass
Philanthropic Relations Manager

MONASH INSTITUTE OF MEDICAL RESEARCH

OFFICIAL RECEIPT
(Donations of $2 and over are tax deductible)

Reference No.	Date	Official Receipt Number:
363453	08/02/2012	7253
Received From	**Particulars**	**Amount**
Mr Vincente Bicudo De Castro	Donation	$200.00

Received with thanks

[redacted]114
Street address: 27-31 Wright Street, Clayton, Vic, 3168, Australia
Postal address: P.O. Box 5418, Clayton, Vic, 3168, Australia
ABN: 12 377 614 012
www.monashinstitute.org

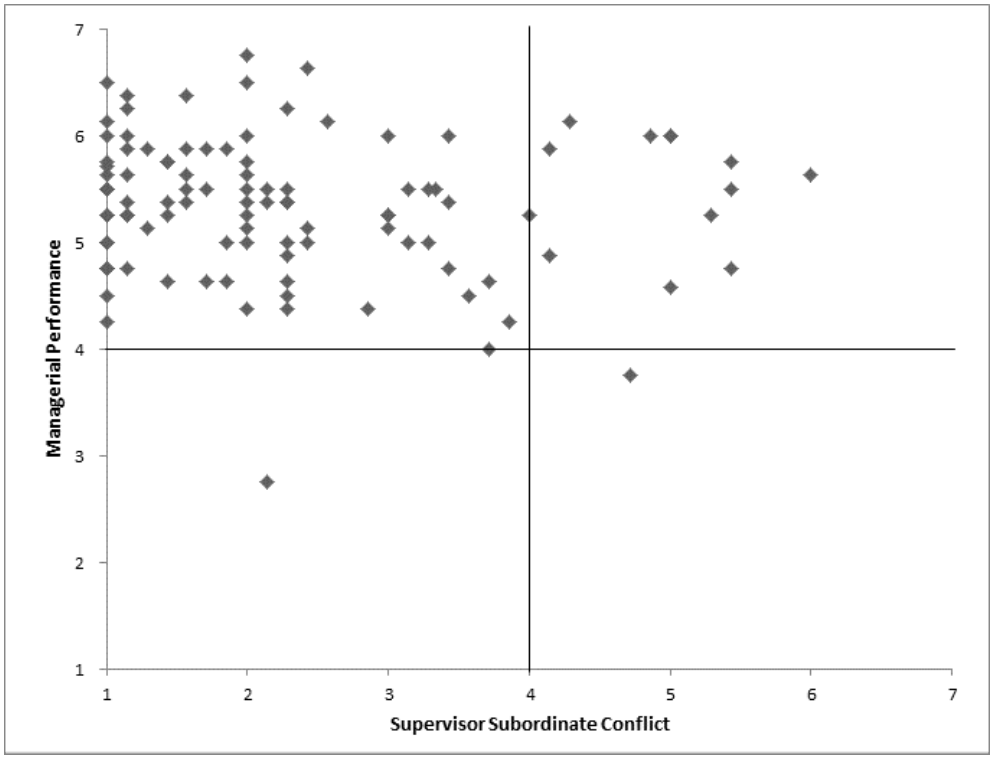
MONASH University

Appendix 5 – Harman's single-factor test

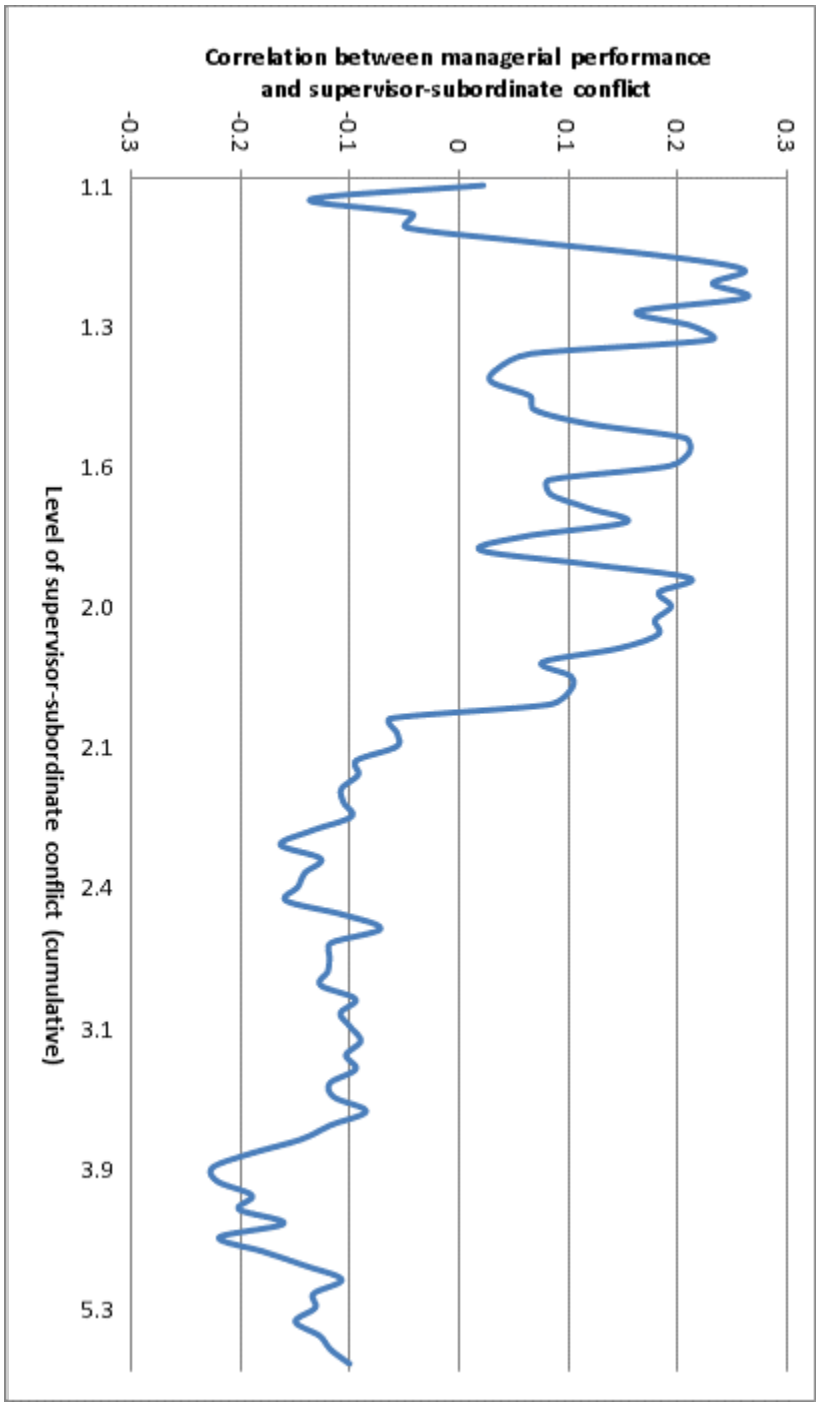
Total Variance Explained

Component	Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	12.981	28.847	28.847
2	5.205	11.566	40.413
3	3.063	6.807	47.219
4	2.561	5.691	52.910
5	1.962	4.361	57.271
6	1.787	3.971	61.241
7	1.505	3.345	64.587
8	1.412	3.139	67.725
9	1.271	2.824	70.549
10	1.197	2.659	73.208
11	1.057	2.349	75.557

Appendix 6 – Scatterplot of performance and conflict



Appendix 7 – Correlation graph of performance and conflict



Appendix 8 – Factor loadings from the final PLS measurement model

	Access to Information	Managerial Performance	Performance-Contingent Financial Rewards	Process-based Subjectivity	Psychological Empowerment	Supervisor-Subordinate Conflict	Supervisor-based Subjectivity
AINF01	**0.856**	0.481	0.270	0.373	0.594	-0.393	-0.424
AINF02	**0.793**	0.473	0.291	0.171	0.451	-0.316	-0.318
AINF03	**0.820**	0.374	0.298	0.387	0.500	-0.317	-0.319
AINF04	**0.661**	0.413	0.169	0.252	0.512	-0.210	-0.363
AINF05	**0.741**	0.431	0.249	0.389	0.524	-0.182	-0.317
AINF06	**0.674**	0.354	0.351	0.348	0.417	-0.242	-0.317
AINF07	**0.767**	0.485	0.345	0.368	0.522	-0.256	-0.263
MPER01	0.461	**0.772**	0.129	0.227	0.505	-0.070	-0.192
MPER02	0.371	**0.637**	0.061	0.052	0.359	-0.079	-0.165
MPER03	0.385	**0.724**	0.212	0.085	0.435	-0.070	-0.198
MPER04	0.409	**0.763**	0.100	-0.041	0.333	-0.028	-0.171
MPER05	0.371	**0.637**	0.206	0.099	0.463	-0.145	-0.038
MPER06	0.397	**0.645**	0.121	0.138	0.390	-0.091	-0.190
MPER09	0.452	**0.848**	0.123	0.111	0.426	-0.166	-0.195
PCFR01	0.317	0.144	**0.951**	0.228	0.159	-0.251	-0.259
PCFR02	0.361	0.162	**0.914**	0.236	0.160	-0.242	-0.313
PCFR03	0.337	0.223	**0.892**	0.223	0.160	-0.164	-0.297
SPEV01	0.295	-0.004	0.120	**0.722**	0.190	0.072	-0.018
SPEV05	0.381	0.200	0.258	**0.852**	0.256	-0.075	-0.361
PEMP01	0.512	0.433	0.010	0.274	**0.730**	-0.300	-0.280
PEMP02	0.465	0.428	0.115	0.281	**0.790**	-0.200	-0.150
PEMP03	0.439	0.402	0.011	0.163	**0.762**	-0.364	-0.298
PEMP04	0.483	0.492	0.079	0.168	**0.780**	-0.303	-0.153
PEMP05	0.476	0.570	0.098	0.151	**0.704**	-0.206	-0.208
PEMP06	0.359	0.429	0.016	0.063	**0.563**	-0.291	-0.233
PEMP07	0.502	0.417	0.292	0.225	**0.748**	-0.386	-0.320
PEMP08	0.486	0.317	0.164	0.218	**0.763**	-0.304	-0.178
PEMP09	0.451	0.305	0.185	0.189	**0.722**	-0.313	-0.154
PEMP10	0.558	0.380	0.112	0.229	**0.750**	-0.175	-0.252
PEMP11	0.532	0.385	0.240	0.272	**0.727**	-0.246	-0.183
PEMP12	0.533	0.495	0.204	0.255	**0.709**	-0.200	-0.280
SSCO01	-0.258	-0.068	-0.202	-0.011	-0.244	**0.894**	0.428
SSCO02	-0.244	-0.028	-0.247	-0.015	-0.289	**0.920**	0.455
SSCO03	-0.386	-0.244	-0.176	-0.032	-0.377	**0.822**	0.387
SSCO04	-0.405	-0.166	-0.232	-0.065	-0.371	**0.894**	0.508
SSCO05	-0.344	-0.116	-0.178	-0.054	-0.414	**0.889**	0.386
SSCO06	-0.345	-0.098	-0.245	0.015	-0.358	**0.941**	0.423
SSCO07	-0.256	-0.052	-0.223	0.092	-0.248	**0.923**	0.370
SPEV06	-0.439	-0.272	-0.368	-0.329	-0.318	0.465	**0.921**
SPEV02	-0.228	-0.037	-0.065	-0.026	-0.146	0.265	**0.676**

References

Ahn, T. S., Hwang, I., & Kim, M. I. (2010). The impact of performance measure discriminability on ratee incentives. *Accounting Review, 85*(2), 389-417.

Ancona, D. G., & Caldwell, D. F. (1992). Demography and Design - Predictors of New Product Team Performance. *Organization Science, 3*(3), 321-341.

Anthony, R. N. (1965). *Planning and control systems: a framework for analysis*. Boston, NY: Division of Research, Graduate School of Business Administration, Harvard University.

Armstrong, J. S., & Overton, T. S. (1977). Estimating Nonresponse Bias in Mail Surveys. *Journal of Marketing Research, 14*(3), 396-402.

Ashton, R. H. (1990). Pressure and Performance in Accounting Decision Settings: Paradoxical Effects of Incentives, Feedback, and Justification. *Journal of Accounting Research, 28*, 148-180.

Auzair, S. M., & Langfield-Smith, K. (2005). The effect of service process type, business strategy and life cycle stage on bureaucratic MCS in service organizations. *Management Accounting Research, 16*(4), 399-421.

Awasthi, V., & Pratt, J. (1990). The effects of monetary incentives on effort and decision performance: The role of cognitive characteristics. *Accounting Review, 65*(4), 797-811.

Baiman, S., & Rajan, M. V. (1995). The Informational Advantages of Discretionary Bonus Schemes. *The Accounting Review, 70*(4), 557-579.

Baines, A., & Langfield-Smith, K. (2003). Antecedents to management accounting change: a structural equation approach. *Accounting, Organizations and Society, 28*(7–8), 675-698.

Baker, G. (1990). Pay-For-Performance for Middle Managers: Causes and Consequences. *Journal of Applied Corporate Finance, 3*(3), 50-61.

Baker, G., Gibbons, R., & Murphy, K. J. (1994). Subjective Performance Measures in Optimal Incentive Contracts. *The Quarterly Journal of Economics, 109*(4), 1125-1156.

Banker, R. D., Lee, S. Y., Potter, G., & Srinivasan, D. (2000). An empirical analysis of continuing improvements following the implementation of a performance-based compensation plan. *Journal of Accounting & Economics, 30*(3), 315-350.

Banker, R. D., Potter, G., & Schroeder, R. G. (1993). Reporting manufacturing performance measures to workers: an empirical study. *Journal of Management Accounting Research, 5*(1), 33-55.

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173-1182.

Becerra, M., & Gupta, A. K. (2003). Perceived trustworthiness within the organization: The moderating impact of communication frequency on trustor and trustee effects. *Organization Science, 14*(1), 32-44.

Bisbe, J., Batista-Foguet, J.-M., & Chenhall, R. (2007). Defining management accounting constructs: A methodological note on the risks of conceptual misspecification. *Accounting, Organizations and Society, 32*(7–8), 789-820.

Bol, J. C. (2008). Subjectivity in compensation contracting. *Journal of Accounting Literature, 27*, 1-32.

Bol, J. C. (2011). The Determinants and Performance Effects of Managers' Performance Evaluation Biases. *Accounting Review, 86*(5), 1549-1575.

Bol, J. C., Hecht, G., & Smith, S. D. (2012). Managers' Discretionary Adjustments: The Influence of Uncontrollable Events and Compensation Interdependence. *Working Paper Tulane University, University of Wisconsin - Madison, and Brigham Young University*.

Bol, J. C., Keune, T. M., Matsumura, E. M., & Jae Yong, S. (2010). Supervisor Discretion in Target Setting:An Empirical Investigation. *Accounting Review, 85*(6), 1861-1886.

Bol, J. C., & Smith, S. D. (2011). Spillover Effects in Subjective Performance Evaluation: Bias and the Asymmetric Influence of Controllability. *Accounting Review, 86*(4), 1213-1230.

Bommer, W. H., Johnson, J. L., Rich, G. A., Podsakoff, P. M., & Mackenzie, S. B. (1995). On the Interchangeability of Objective and Subjective Measures of Employee Performance - a Metaanalysis. *Personnel Psychology, 48*(3), 587-605.

Bonner, S. E., & Sprinkle, G. B. (2002). The effects of monetary incentives on effort and task performance: theories, evidence, and a framework for research. *Accounting, Organizations and Society, 27*(4-5), 303-345.

Bowen, D., & Lawler, E. E. (1992). The empowerment of service workers: what, why, how, and when. *Sloan Management Review, 33*(3), 31-39.

Brownell, P. (1982). The Role of Accounting Data in Performance Evaluation, Budgetary Participation, and Organizational Effectiveness. *Journal of Accounting Research, 20*(1), 12-27.

Brownell, P., & McInnes, M. (1986). Budgetary Participation, Motivation, and Managerial Performance. *The Accounting Review, 61*(4), 587-600.

Burris, E. R., Rodgers, M. S., Mannix, E. A., Hendron, M. G., & Oldroyd, J. B. (2009). Playing Favorites: The Influence of Leaders' Inner Circle on Group Processes and Performance. *Personality and Social Psychology Bulletin, 35*(9), 1244-1257.

Bushman, R. M., Indjejikian, R. J., & Smith, A. (1996). CEO compensation: The role of individual performance evaluation. *Journal of Accounting and Economics, 21*(2), 161-193.

Camerer, C., & Hogarth, R. (1999). The Effects of Financial Incentives in Experiments: A Review and Capital-Labor-Production Framework. *Journal of Risk & Uncertainty, 19*(1-3), 7-42.

Campbell, D. (2008). Nonfinancial performance measures and promotion-based incentives. *Journal of Accounting Research, 46*(2), 297-332.

Chalos, P., & Poon, M. C. C. (2000). Participation and Performance in Capital Budgeting Teams. *Behavioral Research in Accounting, 12*, 199-229.

Chenhall, R. H. (2005). Integrative strategic performance measurement systems, strategic alignment of manufacturing, learning and strategic outcomes: an exploratory study. *Accounting Organizations and Society, 30*(5), 395-422.

Chenhall, R. H. (2006). Theorizing Contingencies in Management Control Systems Research. In A. G. H. Christopher S. Chapman & D. S. Michael (Eds.), *Handbook of Management Accounting Research* (Vol. Volume 1, pp. 163-205): Elsevier.

Chenhall, R. H., & Brownell, P. (1988). The Effect of Participative Budgeting on Job-Satisfaction and Performance - Role Ambiguity as an Intervening Variable. *Accounting Organizations and Society, 13*(3), 225-233.

Chin, W. W. (1998). The Partial Least Squares Approach to Structural Equation Modeling. In G. A. Marcoulides (Ed.), *Modern methods for business research* (pp. 295-336). Mahwah, NJ: Lawrence Erlbaum.

Chin, W. W. (2010a). Bootstrap Cross-Validation Indices for PLS Path Model Assessment. In V. E. Vinzi, W. W. Chin, J. Henseler & H. Wang (Eds.), *Handbook of Partial Least Squares: Concepts, Methods and Applications* (pp. 83-97): Springer.

Chin, W. W. (2010b). How to Write Up and Report PLS Analyses. In V. E. Vinzi, W. W. Chin, J. Henseler & H. Wang (Eds.), *Handbook of Partial Least Squares: Concepts, Methods and Applications* (pp. 655-690): Springer.

Chow, C. W., Shields, M. D., & Wu, A. (1999). The importance of national culture in the design of and preference for management controls for multi-national operations. *Accounting, Organizations and Society, 24*(5-6), 441-461.

Collins, F. (1982). Managerial Accounting Systems and Organizational Control - a Role Perspective. *Accounting Organizations and Society, 7*(2), 107-122.

Conger, J. A., & Kanungo, R. N. (1988). The Empowerment Process: Integrating Theory and Practice. *The Academy of Management Review, 13*(3), 471-482.

Cosier, R. A., & Rose, G. L. (1977). Cognitive conflict and goal conflict effects on task performance. *Organizational Behavior and Human Performance, 19*(2), 378-391.

Cronbach, L. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16*(3), 297-334.

De Vaus, D. A. (2002). *Surveys in Social Research*. Melbourne, VIC: Allen & Unwin.

Deci, E. L. (1971). Effects of externally mediated rewards on intrinsic motivation. *Journal of Personality and Social Psychology, 18*(1), 105-115.

Deci, E. L., Koestner, R., & Ryan, M. T. (1999). A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation. *Psychological Bulletin, 125*(6), 627-668.

Dempster, A. P., Laird, N. M., & Rubin, D. B. (1977). Maximum Likelihood from Incomplete Data via the EM Algorithm. *Journal of the Royal Statistical Society. Series B (Methodological), 39*(1), 1-38.

Dillman, D. A., Smyth, J. D., & Christian, L. M. (2009). *Internet, mail, and mixed-mode surveys: The tailored design method* (3rd edition ed.). Hoboken, NJ: John Wiley & Sons, Inc.

Drake, A., Wong, J., & Salter, S. (2007). Empowerment, Motivation, and Performance: Examining the Impact of Feedback and Incentives on Nonmanagement Employees. *Behavioral Research in Accounting, 19*, 71-89.

Evan, W. M. (1965). Toward a Theory of Inter-Organizational Relations. *Management Science, 11*(10), B217-B230.

Ferreira, A., & Otley, D. (2009). The design and use of performance management systems: An extended framework for analysis. *Management Accounting Research, 20*(4), 263-282.

Fisher, J. G. (1998). Contingency Theory, Management Control Systems and Firm Outcomes: Past Results and Future Directions. *Behavioral Research in Accounting, 10*, 47-64.

Fornell, C., & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research, 18*(1), 39-50.

Frederickson, J. R., Peffer, S. A., & Pratt, J. (1999). Performance evaluation judgments: Effects of prior experience under different performance evaluation schemes and feedback frequencies. *Journal of Accounting Research, 37*(1), 151-165.

Fulford, M. D., & Enz, C. A. (1995). The Impact Of Empowerment On Service Employees. *Journal of Managerial Issues, 7*(2), 161-175.

Garvey, G. T., & Milbourn, T. T. (2006). Asymmetric benchmarking in compensation: Executives are rewarded for good luck but not penalized for bad. *Journal of Financial Economics, 82*(1), 197-225.

Gibbs, M., Merchant, K. A., Van der Stede, W. A., & Vargus, M. E. (2004). Determinants and Effects of Subjectivity in Incentives. *The Accounting Review, 79*(2), 409-436.

Gladstein, D. L. (1984). Groups in Context: A Model of Task Group Effectiveness. *Administrative Science Quarterly, 29*(4), 499-517.

Götz, O., Liehr-Gobbers, K., & Krafft, M. (2010). Evaluation of Structural Equation Models Using the Partial Least Squares (PLS) Approach. In V. E. Vinzi, W. W. Chin, J. Henseler & H. Wang (Eds.), *Handbook of Partial Least Squares: Concepts, Methods and Applications* (pp. 691-711): Springer.

Govindarajan, V., & Gupta, A. K. (1985). Linking Control-Systems to Business Unit Strategy - Impact on Performance. *Accounting Organizations and Society, 10*(1), 51-66.

Groves, R. M. (2006). Nonresponse Rates and Nonresponse Bias in Household Surveys. *Public Opinion Quarterly, 70*(5), 646-675.

Guzzo, R. A., Jette, R. D., & Katzell, R. A. (1985). The Effects of Psychologically Based Intervention Programs on Worker Procuctivity: A Meta-Analysis. *Personnel Psychology, 38*(2), 275-291.

Hair, J. F., Black, W. C., & Babin, B. J. (2010). *Multivariate data analysis: a global perspective*: Pearson Education.

Hall, M. (2008). The effect of comprehensive performance measurement systems on role clarity, psychological empowerment and managerial performance. *Accounting, Organizations and Society, 33*(2-3), 141-163.

Hall, M., & Smith, D. A. (2009). Mentoring and turnover intentions in public accounting firms: A research note. *Accounting, Organizations and Society, 34*(6-7), 695-704.

Hancer, M., George, R. T., & Kim, B. (2005). An Examination of Dimensions of Psychological Empowerment Scale for Service Employees. *Psychological Reports, 97*(2), 667-672.

HassabElnaby, H. R., Said, A. A., & Wier, B. (2005). The Retention of Nonfinancial Performance Measures in Compensation Contracts. *Journal of Management Accounting Research, 17*, 23-42.

Heneman, H. (1974). Comparisons of self- and superior ratings of managerial performance. *Journal of Applied Psychology, 59*(5), 638-642.

Heneman, R. (1986). The Relationship Between Supervisory Ratings and Results-Oriented Meadures of Performance: A Meta-Analysis. *Personnel Psychology, 39*(4), 811-826.

Henri, J.-F. (2006). Management control systems and strategy: A resource-based perspective. *Accounting Organizations and Society, 31*(6), 529-558.

Henri, J.-F., & Journeault, M. (2010). Eco-control: The influence of management control systems on environmental and economic performance. *Accounting, Organizations and Society, 35*(1), 63-80.

Hölmstrom, B. (1979). Moral hazard and observability. *The Bell Journal of Economics*, 74-91.

Höppe, F., & Moers, F. (2011). The Choice of Different Types of Subjectivity in CEO Annual Bonus Contracts. *The Accounting Review, 86*(6), 2023-2046.

Hulland, J. (1999). Use of partial least squares (PLS) in strategic management research: A review of four recent. *Strategic Management Journal, 20*(2), 195-204.

IBM. (2011). IBM SPSS Missing Values 20 Retrieved 01/06/2012, 2012, from ftp://public.dhe.ibm.com/software/analytics/spss/documentation/statistics/20.0/en/client/Manuals/IBM_SPSS_Missing_Values.pdf

Ittner, C. D., Larcker, D. F., & Meyer, M. W. (2003). Subjectivity and the weighting of performance measures: Evidence from a balanced scorecard. *Accounting Review, 78*(3), 725-758.

Ittner, C. D., Larcker, D. F., & Randall, T. (2003). Performance implications of strategic performance measurement in financial services firms. *Accounting Organizations and Society, 28*(7-8), 715-741.

Jehn, K. A. (1994). Enhancing Effectiveness - an Investigation of Advantages and Disadvantages of Value-Based Intragroup Conflict. *International Journal of Conflict Management, 5*(3), 223-238.

Jehn, K. A. (1995). A Multimethod Examination of the Benefits and Detriments of Intragroup Conflict. *Administrative Science Quarterly, 40*(2), 256-282.

Jehn, K. A. (1997). Qualitative analysis of conflict types and dimensions in organizational groups. *Administrative Science Quarterly, 42*(3), 530-557.

Jehn, K. A., & Chatman, J. A. (2000). The influence of proportional and perceptual conflict composition on team performance. *International Journal of Conflict Management, 11*(1), 56-73.

Jehn, K. A., Greer, L., Levine, S., & Szulanski, G. (2008). The Effects of Conflict Types, Dimensions, and Emergent States on Group Outcomes. *Group Decision and Negotiation, 17*(6), 465-495.

Jehn, K. A., & Mannix, E. A. (2001). The dynamic nature of conflict: A longitudinal study of intragroup conflict and group performance. *Academy of Management Journal, 44*(2), 238-251.

Jenkins, G. D., Gupta, N., Mitra, A., & Shaw, D. (1998). Are financial incentives related to performance? A meta-analytic review of empirical research. *Journal of Applied Psychology, 83*(5), 777-787.

Kabanoff, B. (1985). Potential influence structures as sources of interpersonal conflict in groups and organizations. *Organizational Behavior and Human Decision Processes, 36*(1), 113-141.

Kaplan, R., & Norton, D. (1996). Translating strategy into action: The balanced scorecard. *Harvard Business School Press, Boston, MA*.

Keating, A. S. (1997). Determinants of divisional performance evaluation practices. *Journal of Accounting and Economics, 24*(3), 243-273.

Keeley, M. (1977). Subjective Performance Evaluation and Person-Role Conflict under Conditions of Uncertainty. *The Academy of Management Journal, 20*(2), 301-314.

Keeley, M. (1978). A Contingency Framework for Performance Evaluation. *The Academy of Management Review, 3*(3), 428-438.

Keeter, S., Kennedy, C., Dimock, M., Best, J., & Craighill, P. (2006). Gauging the Impact of Growing Nonresponse on Estimates from a National RDD Telephone Survey. *Public Opinion Quarterly, 70*(5), 759-779.

Keeter, S., Miller, C., Kohut, A., Groves, R. M., & Presser, S. (2000). Consequences of Reducing Nonresponse in a National Telephone Survey. *Public Opinion Quarterly, 64*(2), 125-148.

Kline, R. B. (2010). *Principles and Practice of Structural Equation Modeling* (Third Edition ed.). New York: Guilford Press.

Kohn, A. (1993). Why Incentive Plans Cannot Work. *Harvard Business Review, 71*(5), 54-63.

Kunz, A. H., & Pfaff, D. (2002). Agency theory, performance evaluation, and the hypothetical construct of intrinsic motivation. *Accounting Organizations and Society, 27*(3), 275-295.

Lawler, E. E., Mohrman, S. A., Ledford, G. E., & Association for Quality and Participation. (1995). *Creating high performance organizations : practices and results of employee involvement and Total Quality Management in Fortune 1000 companies* (1st ed.). San Francisco, CA: Jossey-Bass.

Lee, L., Petter, S., Fayard, D., & Robinson, S. (2011). On the use of partial least squares path modeling in accounting research. *International Journal of Accounting Information Systems, 12*(4), 305-328.

Liang, H., Saraf, N., Hu, Q., & Xue, Y. (2007). Assimilation of Enterprise Systems: The Effect of Institutional Pressures and the Mediating Role of Top Management. *MIS Quarterly, 31*(1), 59-87.

Liden, R. C., Wayne, S. J., & Sparrowe, R. T. (2000). An examination of the mediating role of psychological empowerment on the relations between the job, interpersonal relationships, and work outcomes. *Journal of Applied Psychology, 85*(3), 407-416.

Lowe, E. A. (1971). On the idea of a management control system: Integrating accounting and management control. *Journal of Management Studies, 8*(1), 1-12.

Luckett, P. F., & Eggleton, I. R. C. (1991). Feedback and Management Accounting - a Review of Research into Behavioral Consequences. *Accounting Organizations and Society, 16*(4), 371-394.

MacLeod, W., & Parent, D. (1998). Job Characteristics, Wages and the Employment Contract. *Review - Federal Reserve Bank of St Louis, 81*, 13-28.

Mahama, H. (2006). Management control systems, cooperation and performance in strategic supply relationships: A survey in the mines. *Management Accounting Research, 17*(3), 315-339.

Mahoney, T. A., Jerdee, T. H., & Carroll, S. J. (1965). The Job(s) of Management. *Industrial Relations, 4*(2), 97-110.

Malmi, T., & Brown, D. (2008). Management control systems as a package--Opportunities, challenges and research directions. *Management Accounting Research, 19*(4), 287-300.

Marsh, C. (1982). *The Survey Method: The Contribution of Surveys to Sociological Explanation*: Allen & Unwin.

Mathieu, J. E., Gilson, L. L., & Ruddy, T. M. (2006). Empowerment and team effectiveness: An empirical test of an integrated model. *Journal of Applied Psychology, 91*(1), 97-108.

McGraw, K. O. (1978). The detrimental effects of reward on performance: A literature review and a prediction model. In D. G. M. R. Lepper (Ed.), *The hidden costs of reward* (pp. 33-60). Hillsdale, NJ: Lawrence Erlbaum.

Merchant, K. A. (1982). The control function of management. *Sloan Management Review, 23*(4), 43-55.

Merchant, K. A., Chow, C. W., & Wu, A. (1995). Measurement, Evaluation and Reward of Profit Center Managers - a Cross-Cultural Field-Study. *Accounting Organizations and Society, 20*(7-8), 619-638.

Merchant, K. A., & Otley, D. T. (2006). A Review of the Literature on Control and Accountability. In A. G. H. Christopher S. Chapman & D. S. Michael (Eds.), *Handbooks of Management Accounting Research* (Vol. 2, pp. 785-802): Elsevier.

Merchant, K. A., & Van der Stede, W. A. (2003). *Management Control Systems: Performance Measurement, Evaluation and Incentives*. Harlow/GB: Pearson Education Limited.

Meyer, H. H. (1975). The pay-for-performance dilemma. *Organizational Dynamics, 3*(3), 39-50.

Mithas, S., Krishnan, M. S., & Fornell, C. (2005). Why Do Customer Relationship Management Applications Affect Customer Satisfaction? *Journal of Marketing, 69*(4), 201-209.

Moers, F. (2005). Discretion and bias in performance evaluation: the impact of diversity and subjectivity. *Accounting, Organizations and Society, 30*(1), 67-80.

Moores, K., & Yuen, S. (2001). Management accounting systems and organizational configuration: a life-cycle perspective. *Accounting, Organizations and Society, 26*(4–5), 351-389.

Murphy, K. J., & Oyer, P. (2003). Discretion in executive incentive contracts: Theory and evidence. *Working Paper, University of Southern California and Stanford University*.

Nunnally, J. C. (1978). *Psychometric Theory (Second Edition)*. New York: McGraw-Hill.

Otley, D. T. (1978). Budget Use and Managerial Performance. *Journal of Accounting Research, 16*(1), 122-149.

Otley, D. T. (1994). Management control in contemporary organizations: towards a wider framework. *Management Accounting Research, 5*(3–4), 289-299.

Otley, D. T. (1999). Performance management: a framework for management control systems research. *Management Accounting Research, 10*(4), 363-382.

Ouchi, W. G. (1979). Conceptual-Framework for the Design of Organizational Control Mechanisms. *Management Science, 25*(9), 833-848.

Parker, R. J., & Kyj, L. (2006). Vertical information sharing in the budgeting process. *Accounting Organizations and Society, 31*(1), 27-45.

Podsakoff, P. M., MacKenzie, S. B., Jeong-Yeon, L., & Podsakoff, N. P. (2003). Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies. *Journal of Applied Psychology, 88*(5), 879-903.

Podsakoff, P. M., Todor, W. D., Grover, R. A., & Huber, V. L. (1984). Situational moderators of leader reward and punishment behaviors: Fact or fiction? *Organizational Behavior and Human Performance, 34*(1), 21-63.

Preacher, K., & Hayes, A. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior research methods, 36*(4), 717-731.

Prendergast, C. (1993). A Theory of "Yes Men". *The American Economic Review, 83*(4), 757-770.

Prendergast, C., & Topel, R. (1993). Discretion and Bias in Performance Evaluation. *European Economic Review, 37*(2-3), 355-365.

Prendergast, C., & Topel, R. (1996). Favoritism in organizations. *Journal of Political Economy, 104*(5), 958-978.

Pritchard, R. D., Jones, S. D., Roth, P. L., Stuebing, K. K., & Ekeberg, S. E. (1988). Effects of Group Feedback, Goal Setting, and Incentives on Organizational Productivity. *Journal of Applied Psychology, 73*(2), 337-358.

Rajan, M. V., & Reicheistein, S. (2009). Objective versus Subjective Indicators of Managerial Performance. *Accounting Review, 84*(1), 209-237.

Roos, J., Yip, G. S., & Johanson, J. K. (1997). Using partial least squares and LISREL to research international strategies. In M. Ghertman, J. Obadia & J. L. Arregle (Eds.), *Statistical models for strategic management*. Dordrecht, The Netherlands: Kluwer Academic Publishers.

Schweiger, D. M., Sandberg, W. R., & Ragan, J. W. (1986). Group Approaches for Improving Strategic Decision Making: A Comparative Analysis of Dialectical Inquiry, Devil's Advocacy, and Consensus. *The Academy of Management Journal, 29*(1), 51-71.

Shields, J., & Shields, M. (1998). Antecedents of participative budgeting. *Accounting Organizations and Society, 23*(1), 49-76.

Shields, M., & Young, S. M. (1993). Antecedents and Consequences of Participative Budgeting: Evidence on the Effects of Asymmetrical Information. *Journal of Management Accounting Research, 5*, 365-380.

Simons, R. (1987). Accounting control systems and business strategy: An empirical analysis. *Accounting, Organizations and Society, 12*(4), 357-374.

Simons, R. (1995). *Levers of control: how managers use innovative control systems to drive strategic renewal*. Boston, MA: Harvard Business School Press.

Smith, D., & Langfield-Smith, K. (2004). Structural equation modeling in management accounting research: critical analysis and opportunities. *Journal of Accounting Literature, 23*, 49-86.

Smith, K. G., Smith, K. A., Olian, J. D., Sims, H. P., Obannon, P., & Scully, J. A. (1994). Top Management Team Demography and Process - the Role of Social Integration and Communication. *Administrative Science Quarterly, 39*(3), 412-438.

Spreitzer, G. M. (1995). Psychological Empowerment in the Workplace - Dimensions, Measurement, and Validation. *Academy of Management Journal, 38*(5), 1442-1465.

Sprinkle, G. B. (2000). The Effect of Incentive Contracts on Learning and Performance. *The Accounting Review, 75*(3), 299-326.

Sutton, R. (2007). Building the civilized workplace. *McKinsey Quarterly*(2), 30-39.

Temme, D., Kreis, H., & Hildebrandt, L. (2010). A Comparison of Current PLS Path Modeling Softwares: Feaures, Ease-of-Use, and Performance. In V. E. Vinzi, W. W. Chin, J. Henseler & H. Wang (Eds.), *Handbook of Partial Least Squares: Concepts, Methods and Applications* (pp. 737-756): Springer.

Tenenhaus, M., Vinzi, V. E., Chatelin, Y.-M., & Lauro, C. (2005). PLS path modeling. *Computational Statistics & Data Analysis, 48*(1), 159-205.

Thomas, K. W., & Velthouse, B. A. (1990). Cognitive Elements of Empowerment: An "Interpretive" Model of Intrinsic Task Motivation. *The Academy of Management Review, 15*(4), 666-681.

Thompson, L., & Loewenstein, G. (1992). Egocentric interpretations of fairness and interpersonal conflict. *Organizational Behavior and Human Decision Processes, 51*(2), 176-197.

Van der Stede, W., Young, M., & Chen, C. (2006). Doing management accounting survey research. *Handbook of Management Accounting Research, Volume 1*, 445-478.

Van Rinsum, M., & Verbeeten, F. H. M. (2012). The impact of subjectivity in performance evaluation practices on public sector managers' motivation. *Accounting and Business Research, 42*(4), 377-396.

Vinzi, V. E., Trinchera, L., & Amato, S. (2010). PLS Path Modeling: From Foundations to Recent Developments and Open Issues for Model Assessment and Improvement

Handbook of Partial Least Squares. In V. Esposito Vinzi, W. W. Chin, J. Henseler & H. Wang (Eds.), *Handbook of Partial Least Squares: Concepts, Methods and Applications* (pp. 47-82): Springer.

Visser, P. S., Krosnick, J. A., Marquette, J., & Curtin, M. (1996). Mail Surveys for Election Forecasting? *Public Opinion Quarterly, 60*(2), 181-227.

Wall, V., & Nolan, L. (1986). Perceptions of inequity, satisfaction, and conflict in task-oriented groups. *Human Relations, 39*(11), 1033-1051.

Werts, C. E., Linn, R. L., & Jöreskog, K. G. (1974). Intraclass Reliability Estimates: Testing Structural Assumptions. *Educational and Psychological Measurement, 34*(1), 25-33.

Xin, K. R., & Pelled, L. H. (2003). Supervisor-subordinate conflict and perceptions of leadership behavior: a field study. *The Leadership Quarterly, 14*(1), 25-40.

Young, S., & Selto, F. H. (1993). Explaining cross-sectional workgroup performance differences in a JIT facility: A critical appraisal of a field-based study. *Journal of Management Accounting Research, 5*, 300-326.

Zimmerman, M. (1995). Psychological empowerment: Issues and illustrations. *American Journal of Community Psychology, 23*(5), 581-599.