UNIVERSIDADE DE LISBOA

INSTITUTO SUPERIOR DE ECONOMIA E GESTÃO

ESSAYS ON THE USE OF INCENTIVES FOR SME MANAGERS

Iryna Berova Alves

Orientadora: Prof. Doutora Sofia Margarida Morais Lourenço

Tese especialmente elaborada para obtenção do grau de Doutor em Gestão

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2018

Ao meu querido filho André

Resumo

A presente tese inclui três ensaios empíricos sobre a utilização de incentivos na remuneração de gestores de pequenas e médias empresas (PMEs). No primeiro ensaio, investigo a relação entre a avaliação subjetiva de desempenho (SPE) e a intenção de saída, a identificação com a organização e o desempenho dos gestores. As minhas hipóteses sugerem que esta relação é mediada pela perceção dos gestores sobre a qualidade do feedback e pela confiança no superior hierárquico. Para testar as minhas hipóteses, recolhi dados primários através de questionário e usei modelos de equações estruturais para analisá-los. Baseando-se nos dados de 663 respostas, este ensaio sugere que o uso de SPE está associado à redução da qualidade percebida do feedback, enquanto a qualidade percebida do feedback está associada ao aumento da confiança no superior hierárquico. Os resultados também mostram que uma maior confiança no superior hierárquico está relacionada com melhor desempenho dos gestores, através do aumento da identificação com a organização e da redução da intenção de saída.

O segundo ensaio tem por objetivo explorar a relação entre os diferentes tipos de incentivos (incentivos monetários, incentivos não monetários, benefícios e punição) e o desempenho e a satisfação no trabalho dos gestores de PMEs. Para tal, recolhi dados primários através de questionário e apliquei a análise comparativa qualitativa usando conjuntos fuzzy (fsQCA). A partir das respostas de 1 206 gestores de PMEs, identifiquei várias combinações (i.e., pacotes de incentivos) que consistentemente estão associadas a um elevado desempenho individual ou satisfação no trabalho. Especificamente, as minhas análises revelam que nenhum incentivo isoladamente é mais eficaz do que uma combinação de incentivos na promoção de um elevado desempenho dos gestores. Em contraste, o uso exclusivo de benefícios ou incentivos monetários está associado a uma elevada satisfação no trabalho dos gestores. Além disso, o meu estudo mostra as combinações de incentivos associadas ao melhor desempenho ou satisfação de gestores proprietários/não proprietários, gestores de pequenas/médias empresas e de empresas familiares/não familiares.

O terceiro e último ensaio explora a relação entre variáveis contextuais (estratégia, ambiente externo, cultura organizacional, descentralização e tecnologia) e o uso de medidas não financeiras de desempenho (NFPM) na remuneração dos gestores de PMEs. Usando dados primários recolhidos a partir de um questionário respondido por 1 088 gestores de PMEs, verifica-se que a envolvente externa e a descentralização estão associados à adoção e uso de NFPM na remuneração dos gestores de PMEs. Especificamente, conclui-se que quanto menor é o dinamismo da incerteza ambiental percebida (PEU), e maior é a hostilidade de PEU e a descentralização, maior é a adoção e o uso de NFPM. Finalmente, o meu estudo destaca as diferenças importantes na adoção e uso de NFPM entre pequenas e médias empresas, e entre CEOs e não-CEOs.

Palavras-chave: medidas de desempenho não financeiras, incentivos, avaliação subjetiva de desempenho, PMEs, desempenho.

Classificação JEL: J32, J33, M12, M41, M52

Abstract

This thesis presents three empirical essays on the use of managerial incentives in small and medium enterprises (SMEs). In the first essay, I investigate the relationship between subjective performance evaluation (SPE) and managerial intention to turnover, organizational identification, and performance. I argue that this relationship is mediated by managerial perception of feedback quality and trust in the supervisor. To test my hypotheses, I collect data via a questionnaire and use structural equation modeling to analyze them. Based on data from 663 responses, this essay suggests that the use of SPE is associated with reduced perceived feedback quality, while perceived feedback quality is associated with increased trust in the supervisor. The results also show that greater trust in the supervisor is related to enhanced managerial performance by increasing identification and reducing intention to turnover.

The second essay aims to explore the interplay among different types of incentives (monetary incentives, non-monetary incentives, benefits and punishment) and managerial performance and job satisfaction in SMEs. I collect data via a questionnaire and use fuzzy-set Qualitative Comparative Analysis (fsQCA) to analyze them. Using data from 1 206 SMEs' managers, I identify multiple combinations of incentives (i.e., incentive packages) that consistently are associated with high individual performance or job satisfaction. Specifically, my analyses reveal that no single incentive in isolation, in comparison to a combination of incentives, is associated with high managerial performance. In contrast, the sole use of benefits or monetary incentives is associated with high managerial job satisfaction. Furthermore, my study provides further evidence of the best-fit incentive packages associated with high performance or satisfaction for owner/non-owner managers, managers in small/medium enterprises, and family/non-family firms.

The third and last essay explores the relationship between contextual variables (strategy, external environment, organizational culture, decentralization and technology) and the use of non-financial performance measures (NFPM) for managerial compensation in SMEs. Using data collected from a questionnaire answered by 1 088 SMEs' managers, I find that external environment and decentralization are associated with the adoption and use of NFPM for managerial compensations in SMEs. Specifically, I find that the lower the dynamism element of perceived environmental uncertainty (PEU), and the greater the PEU hostility and decentralization, the higher the adoption and use of NFPM. Finally, my study highlights important differences in the adoption and use of NFPM between small and medium firms, and between CEOs and non-CEOs.

Keywords: non-financial performance measures, incentives, subjective performance evaluation, SMEs, performance.

JEL Classification: J32, J33, M12, M41, M52

Acknowledgements

My first debt of gratitude must go to my supervisor, Prof. Sofia Margarida Morais Lourenço, whose patience, encouragement and advice made it possible to complete this thesis. With her guidance and mentorship, she has always been there when I needed her. Furthermore, I am indebted to Prof. António Samagaio for his precious help in data collection.

I would like to extend my thanks to Margaret Abernethy, Shannon Anderson and Hanno Roberts from II Research Forum on Challenges in Management Accounting and Control for the helpful comments on an earlier version of the manuscript. I also acknowledge the fruitful suggestions of the participants from XV International Congress of Accounting and Auditing, XV Conference and Grudis Doctoral Colloquium, 1st CSG Research Forum, Manufacturing Accounting Research Conference 2016, ISEG Doctoral Seminar, XVI Conference and Grudis Doctoral Colloquium and 40th Annual Congress of the European Accounting Association. I convey my special thanks to Aldónio Ferreira and Rolf Brühl for their valuable and constructive comments as discussants of my papers. I also would like to acknowledge the helpful insight and feedback of David Bedford, Charles Ragin, Peer Fiss and anonymous referees from the 40th Annual Congress of the European Accounting Association. In addition, my gratitude is extended to my cousin Vladimir Baldurskiy for his editing help.

This research would never have been done, however, without the substantial input of numerous managers of Portuguese SMEs. Hence, I am heavily indebted to them for their commitment in filling the questionnaire.

In addition, I would like to thank my ISOCOR colleagues João Henriques and José Paulo Porfírio, my ISCAL colleagues João Paulo Santos and Prof. Maria Carlos Annes, and my colleagues in the ISEG Management PhD program Sara Gonçalves, José Santos and Victor Barros for their kind help. I am very grateful to my friends Marina Antunes, Fátima Xavier e Patrícia Fernandes for their friendship, encouragement and endless support.

I would like to thank my mother for her unconditional love and for all sacrifices she made on my behalf. I am grateful to my sister for always being there for me as a friend. I am indebted to Paulo for his understanding and patience throughout this intense research journey. Finally, I owe my warmest thanks to my son André for being my main motivation to finish this thesis. This work is for you, André, and I hope that this will make you proud and encourage you to follow your dreams.

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1. INTRODUCTION AND THESIS OVERVIEW

1.1 Introduction

Small and medium enterprises (SMEs) represent "life blood of modern economies" (Ghobadian and Gallear, 1996, p. 83). SMEs can rapidly become global actors on a market place (Oviatt and McDougall, 1994). Due to their unique characteristics, SMEs significantly differ from large organizations (e.g., Hudson, Smart and Bourne, 2001; Smith and Smith, 2007). Despite limited financial and human resources (Pelham, 1999) and the lack of management expertise (Gray and Mabey, 2005), adequate implementation of management accounting practices can provide SMEs with a competitive advantage over their larger and more established competitors (e.g., Garengo, Biazzo and Bititci, 2005; Ogunyomi and Bruning, 2016). Moreover, owing to the pivotal and highly visible role of managers in SMEs (Ates and Bititci, 2011), their hiring, retention and motivation is critical to these firms. Therefore, performance evaluation practices and the use of incentive compensation are crucial issues to enhance performance of SMEs (King-Kauanui, Ngoc and Ashley-Cotleur, 2006).

In the universe of SMEs, family firms are the most common type of ownership, representing the pre-eminent form of business in many countries (Reid et al., 2002). Because ownership and management overlap in family businesses, they are sheltered from agency costs (De Kok, Uhlaner and Thurik, 2006; Jensen and Meckling, 1976; Mazur and Wu, 2016) and as such they must be regarded as a special case (Reid et al., 2002). Family members have strong incentives to maximize the firm value, either because they want to preserve the family's reputation (Corbetta and Salvato, 2004; Davis, Schoorman and Donaldson, 1997; Dyer and Whetten, 2006), or because they want to pass the firm to the family's next generation (Casson, 1999; James, 1999). Therefore, family firms tend to have lower agency costs than non-family firms (Chrisman, Chua and Litz, 2004), which suggests that performance evaluation and compensation practices may be different for both types of businesses.

Various scholars argue that a central topic of modern compensation contracts is SPE (e.g., Bol, 2008; Prendergast, 1999). Prior literature suggests that firms use SPE with objective performance measures in order to capture employee's contribution to a greater extent (Prendergast, 1999), to mitigate distortions in managerial effort, and to enhance incentive contracting (Merchant, 1989). Nevertheless, the use of subjectivity is not always effective (Gibbs et al., 2004) due to the presence of evaluation biases (e.g., Ahn, Hwang and Kim, 2010; Ittner, Larcker and Meyer, 2003; Moers, 2005; Prendergast and Topel, 1996). Previous research suggests two effective solutions to overcome the problems associated with SPE – the presence of trust between the supervisor and the subordinate (Simons, 2000; Van Rinsum and Verbeeten, 2012), and the use of informational feedback regarding subordinate's performance (Van Rinsum and Verbeeten, 2012; Zábojník, 2014). Thereby, the first research question that my thesis intends to investigate is: Whether performance feedback quality and trust in the supervisor mediate the relationship between the use of SPE and managerial outcomes, such as intention to turnover, organizational identification and performance?

My second research question refers to the diversity of incentives available to managers in SMEs. Past literature recognizes that monetary incentives have been widely explored but further research is needed regarding the use of non-monetary incentives (e.g., Eriksson and Villeval, 2012), benefits (Werner and Ward, 2004) and punishment practices (Christ, Sedatole and Towry, 2012; Hannan, Hoffman and Moser, 2005). Overall, the literature lacks an integrated approach regarding the use of different types of incentives in SME executive's compensation (Cole and Mehran, 2016). Therefore, this study adds to the still rather scarce empirical research regarding the relationship between incentive compensation plans and individual work-related outcomes, such as performance and satisfaction (e.g., Bandiera, Barankay and Rasul, 2007; Judge et al., 2010; Knez and Simester, 2001; Lazear, 2000). The effectiveness of different types of incentives is greatly debated in the economics, management and accounting literatures (e.g., Atkinson et al., 2012; Bénabou and Tirole, 2011; Kube, Maréchal and Puppe, 2012). The debate is ongoing and my study contributes to this stream of research by exploring how different combinations of incentives are related to manager's performance and satisfaction in SMEs.

Finally, my third research question refers to the use of performance measures. Agency theory suggests that the implementation of appropriate compensation systems motivates managers to act on behalf of the owner's interests and, therefore, enhance firm's outcome (Holmstrom and Milgrom, 1991; Jensen and Meckling, 1976; Sprinkle, 2003). According to Moers (2005), incentives motivate employees through the performance measures that underlie the incentive plan, directing employees' attention to the most important work features that are measured. The evidence suggests that most organizations use financial and non-financial measures to better link performance to compensation plans (Banker, Potter and Srinivasan, 2000; Ittner and Larcker, 1998a). Various scholars call for further research regarding the determinants that affect the use of performance measures (e.g., Franco-Santos, Lucianetti and Bourne, 2012; Ittner and Larcker, 2001, 2002) and, particularly, the use of non-financial measures (Chenhall, 2003) in compensation contracts. Moreover, despite the growing importance of performance measurement, relatively little empirical evidence exists regarding SMEs (Ahmad and Zabri, 2015; Bititci et al., 2012; Garengo, Biazzo and Bititci, 2005; Garengo and Bititci, 2007). Hence, the third research question that my thesis addresses is: What contextual factors are associated with the use of NFPM in compensation contracts of SMEs' managers?

In sum, this thesis explores the use of managerial incentives in SMEs. Specifically, this thesis uses agency and contingency theories to advance the state of the art regarding the use of SPE, different types of incentives and NFPM in SMEs managers' compensation.

1.2 The importance of SMEs

SMEs constitute a vital force in modern information-based economies (Mitchell and Reid, 2000). There are more than a million and a half SMEs in Europe, excluding micro-enterprises, that employ approximately 37 percent of all European jobs and deliver 36 percent of the gross value added.[1] According to small business literature, SMEs will play a key role on globalization and contribute significantly to the economy at a time of crisis (Herbane, 2010). Moreover, in the future, these firms will play an important role in economic development and organizational innovation (Bititci et al., 2012).

Although SMEs are frequently viewed as an embryonic form of large companies and corporations (Castrogiovanni, 1996), literature differentiates them by several key characteristics. For instance, Welsh and White (1981) argue that small firms are not a little copy of large companies, while Ghobadian and Gallear (1996, p. 86) state that applying concepts of large companies to small firms "may border on the ridiculous". Comparatively to large companies, SMEs are characterized by limited capacity of formal planning and adequate strategic thinking (Sexton and Van Auken, 1982), lack of long-term orientation (Gilmore, 1971), and limited financial and human resources (Pelham, 1999). Some authors argue that this lack of management expertise (Gray and Mabey,

[1] Data taken from "Annual Report on European SMEs 2015/2016", available from https://ec.europa.eu/growth/smes/business-friendly-environment/performance-review-2016_en.

2005; Huang and Brown, 1999) causes limitations in strategic management and restrictions in strategic business planning (Jennings and Beaver, 1997; Smith and Smith, 2007). Furthermore, unlike large companies, SMEs suffer from a lack of formal structure and bureaucracy (Hyvarinen, 1990; Jennings and Beaver, 1997). SMEs have in general a small number of senior managers, which might indicate that the capabilities of one person can have a profound effect on the decision-making process, causing, therefore, a high degree of personal authority among staff and management (Jennings and Beaver, 1997).

Primary competitive advantages of SMEs are their susceptibility, flexibility and size (Nguyen and Bryant, 2004). High susceptibility allows SMEs to rapidly apprehend changing tendencies and external environments (Hill and Stewart, 2000). High flexibility helps SMEs easily adapt to those changes (Garengo, Biazzo and Bititci, 2005) and reach a higher degree of innovation (Qian and Li, 2003; Verhees and Meulenberg, 2004). The small size allows SMEs to be closer to the customer, developing more personal relationships (McAdam, 2000). Furthermore, several researchers argue that the success of SMEs is due to their employees' energy and talent, as well as on performance management practices (e.g., Carlson, Upton and Seaman, 2006; Kotey and Slade, 2005; Tocher and Rutherford, 2009). Others argue that the more direct communication and impact of each employee's work on organizational performance can also be viewed as key factors of success for small and medium businesses (Bacon et al., 1996; Sels et al., 2006).

But not everything works in favor of SMEs. A lack of financial and human resources, as well as lower benefits from economies of scale comparatively to large companies (Sels et al., 2006) preclude SMEs to implement practices (for example, performance evaluation and compensation) which could lead to high work performance (Cassell et al., 2002; Marlow, 2000; Subramony, 2006; Welsh and White, 1981). The literature suggests that, despite a number of limitations and barriers, SMEs could gain competitive advantage through the development of performance management practices (e.g., Cardon and Stevens, 2004; Garengo, Biazzo and Bititci, 2005; Hornsby and Kuratko, 2003). In fact, Deshpande and Golhar (1994) argue that the principal barriers to business success and development of SMEs consist in their ability to attract and retain professional executives and deal with insufficient or poorly trained human capital. Yet, research indicates that SMEs' owners and managers do not pay much attention to this question until it becomes critically important for the firm (Cooper, Ramachandran and Schooman, 1997; McCarthy, Krueger and Schoenecker, 1990).

Some researchers investigating SMEs argue that there are few studies that address management accounting issues in this type of firms (e.g., López and Hiebl, 2015; Mitchell and Reid, 2000). One explanation for this may be the fact that management accounting researchers ignore the specificities of management accounting practices in SMEs relative to those of large companies (López and Hiebl, 2015). Specifically, most existing studies use large companies as the research sample, while studies that explicitly investigate the performance measurement practices in SMEs remain sparse (Bititci et al., 2012; Garengo, Biazzo and Bititci, 2005). Possible explanations for this lack of research can be the difficulties in collecting reliable and systematic data on SMEs. Additionally, there is still no clear picture concerning management accounting practices in SMEs due to disperse results, which are published in a variety of fields such as accounting, small business and entrepreneurship, general management, and operations and production management (López and Hiebl, 2015).

Nevertheless, the small size of SMEs is an advantage for management accounting research by providing greater opportunities to study antecedents, adoption, organization and outcomes of management accounting systems more directly than in large organizations (Mitchell and Reid, 2000). Additionally, Sels et al. (2006) argue that the transparent nature of SMEs (Aldrich and Auster, 1986; Katz et al., 2000) makes them an ideal field for analyzing the relationship between the implementation of management practices and organizational performance.[2]

Overall, the limited empirical and theoretical research on performance measurement systems in SMEs is at odds with the importance of this topic and with the research potential of these companies.

1.3 Family firms

A family firm is characterized by a significant ownership of a single family and participation in the management team by more than one family member either founders or descendants of founders (Chua, Chrisman and Sharma, 1999). Various researchers argue that comparatively to non-family firms, family firms are (a) smaller (Cromie, Stephenson and Monthieth, 1995; Daily and Dollinger, 1993), (b) less complex and specialized (Reid and Adams, 2001), (c) less likely to use formal accounting and planning practices (Jorissen et al., 2005) and (d) less hierarchical (Carney, 2005). In addition, Pollak (1985) argues that family-owned firms have specific organizational culture where employees feel they belong to the family, so their interests are aligned with those of the family. This idea is consistent with the premise of agency theory which suggests that family firms are different because there is some overlap between ownership and management (Jorissen et al., 2005). Moreover, examining Irish SMEs, Reid and Adams

[2] "SMEs can be considered the "fruit flies" of management because they live and die quickly. The process of rapid birth and death gives researchers an opportunity to examine many different types of theories in a unique environment. Important medical discoveries have been made by studying fruit flies because the effect of a drug or intervention on the fly or on subsequent generations can be quickly assessed. The empirical studies […] show that the effects of human resource interventions on firm performance can also be more easily assessed in SMEs" (Katz et al., 2000, p. 8).

(2001) find that family businesses are less likely to have professional management control practices such as appraisal systems or performance-based pay because of more limited organizational capabilities (e.g., improper management of personnel, limited financial and human resources). More recent studies reach similar conclusions: higher influence of the controlling family in the SME is related to lower use of management accounting systems (Alattar, Kouhy and Innes, 2009; García Pérez de Lema and Duréndez, 2007; Neubauer et al., 2012).

The type of ownership is relevant to this thesis because in the traditional view of agency theory the principal offers incentives to the agent to motivate the latter to act in the behalf of the former (Holmstrom, 1979; Holmstrom and Milgrom, 1991; Jensen and Meckling, 1976). Therefore, if the owner and the manager are the same or have similar interests as they belong to the same family (De Kok, Uhlaner and Thurik, 2006), incentives may not play an important role (Mazur and Wu, 2016). Stated differently, the overlapping owner-manager relationship implies lower need to monitor opportunistic managers and, consequently, reduces agency costs (De Kok, Uhlaner and Thurik, 2006). Thus, regarding family firms, agency theory suggests that it is not necessary to offer incentives to family managers because they, as owners, already have their personal wealth closely linked to the value-creation of the firm.

In line with this proposition, studying publicly traded family firms in the U.S., Gomez-Mejia, Larraza-Kintana and Makri (2003) find evidence that family CEOs of family-controlled firms receive lower total income than non-family CEOs, while a comparative study by He (2008) in newly public firms finds that incentive compensation of owner-manager is smaller than of professional manager (non-founder) due to his/her better aligned interests with the organization. Similarly, Bandiera et al. (2015) report that, compared with non-family firms, family firms are more likely to offer lower and flatter compensation schemes to their managers. In the same vein, a recent empirical study by Mazur and Wu (2016) in small U. S. firms provides evidence that the level of CEO incentive pay is lower in family firms than in non-family firms. Nevertheless, other scholars challenge the classical agency theory. For instance, Schulze, Lubatkin and Dino (2003) argue that most of family firms offer employed family members performance-based pay. The authors argue that this can be explained by the presence of an altruistic relationship between parents and children or to maintain equity between family and non-family managers, because the latter commonly receive pay-for-performance. Moreover, using a survey of Chinese private family firms, Cai et al. (2013) find that, within the same firm, family managers receive higher salary and more bonuses, but their pay-for-performance sensitivity is weaker than non-family managers. Consistent with their findings, Nyantakyi (2016) also provides evidence that family managers receive higher performance-based compensation than professional manager. Furthermore, an empirical study by Li, Ryan and Wang (2016) shows that family firms offer lower risk-taking incentives to non-family executives (compared to family executives) with the aim to protect family's concentrated wealth and private benefits of control. Additionally, Carlson, Upton and Seaman (2006) find that cash incentive pay is more important for family firms because they lead to better organizational performance than non-cash incentives and benefits.

In sum, there is contradictory evidence regarding the relationship between incentives and family ownership. Therefore, this thesis will explore differences regarding family and non-family firms with the aim of contributing to a better understanding of the role of family ownership in incentive practices.

1.4 Theoretical underpinning

Even though each essay has its own theory development, there is a common theoretical ground across essays: agency theory.[3] Agency theory is an integrant part of performance measurement research for many scholars (Otley, 1999) and the main theory supporting pay-for-performance practices (Bloom and Milkovich, 1998; Jensen and Meckling, 1976). According to this theory, principles hire agents to delegate on them some tasks (Jensen and Meckling, 1976). However, principals and agents have different preferences - principals are risk-neutral, while agents are risk-averse, effort-averse and self-interested (Eisenhardt, 1989; Fama, 1980; Jensen and Meckling, 1976) - and they will try to maximize their own utility. Therefore, the agent does not always act on the principal's behalf, causing moral hazard type of agency problems. To mitigate agency problems, the principal can implement adequate incentive compensation systems (Holmstrom, 1979; Holmstrom and Milgrom, 1991; Jensen and Meckling, 1976; Sprinkle, 2003). Several managerial accounting experimental studies corroborate agency theory arguments and show that pay linked to performance has positive effects on individual effort and performance (e.g., Bailey, Brown and Cocco, 1998; Chow, 1983; Sprinkle, 2000). However, a large body of empirical research finds contradictory results and indicates that financial incentives frequently do not increase performance (Bonner et al., 2000; Jenkins et al., 1998; Yong and Lewis, 1995). Further research in this area suggests that the type of incentive plan - for instance, financial versus non-financial attributes (Ittner, Larcker and Rajan, 1997), objective versus subjective attributes (Moers, 2005), positive versus

[3] The first essay focusing on SPE also uses goal-setting theory (Locke and Latham, 1990, 2002) and social identity theory (Tajfel, 1972). The second essay, which investigates the interplay among different managerial incentives, also uses motivation crowding theory (Frey, 1994; Frey and Jegen, 2001), cognitive-evaluation theory (Deci et al., 1981; Deci and Ryan, 1985), social exchange theory (Blau, 1964) and prospect theory (Kahneman and Tversky, 1979). Finally, the third essay regarding the use of NFPM is grounded in contingency theory (e.g., Chenhall, 2003; Ferreira and Otley, 2009; Otley, 1980).

negative attributes (Gneezy, Meier and Rey-Biel, 2011) - can explain these mixed results (e.g., Bonner et al., 2000). That is, the use of the multi-criteria indicators (financial and non-financial performance measures, and objective and subjective performance measures), and different types of incentives (positive and negative) can be an effective explanation for the incentive effect on managerial performance.

Consistent with this idea, Fisher (1995) indicates that the performance measures are one of the key attributes of an incentive compensation scheme. In fact, Bushman, Indjejikian and Smith (1996) argue that the incentive component of the managerial compensation plan often includes an annual bonus plan and a long-term incentive plan, wherein both of their payoffs depend on a set of performance measures. Moreover, Moers (2005, p. 69) explains that "the incentive effects of incentive contracts are determined by the performance measures used because employees direct their attention to those aspects of the job that are being measured". Furthermore, according to the informativeness principle of agency theory, measures should be included in these incentive plans if they provide additional information about managerial actions desired by the owner to, first of all, motivate managers acting on behalf of the owner's interests (Banker and Datar, 1989; Feltham and Xie, 1994; Holmstrom, 1979; Ittner, Larcker and Rajan, 1997).

Until recently, management accounting studies emphasized the use of financial performance measures to assess and reward managerial performance (Banker, Potter and Srinivasan, 2000; Eccles, 1991). However, the continuous growth of competitiveness, technological innovations and the emergence of new management practices lead to skepticism regarding the sole use of financial performance measures (e.g., Atkinson et al., 1997; Ittner and Larcker, 1998b; Neely, 1999; Norreklit, 2000; Otley, 1999). Particularly, financial measures revealed to be inefficient to completely mitigate agency problems (e.g., Ittner and Larcker, 2002; Kaplan and Norton, 1992). Additionally, these measures are predictors of short-term financial performance, which discourage long-term investment (Banker, Potter and Srinivasan, 2000; Bushman, Indjejikian and Smith, 1996; Kaplan and Norton, 1992). To overcome these inefficiencies, many firms implement performance measurement systems that supplement financial measures with additional metrics that may vary from non-financial metrics to SPE (Ittner, Larcker and Meyer, 2003).

Management accounting research provides evidence that NFPM are leading indicators of long-term financial performance (Banker, Potter and Srinivasan, 2000; Behn and Riley, 1999; Ittner and Larcker, 1998a; Kaplan and Norton, 1992; Nagar and Rajan, 2001; Sedatole, 2003).[4] Moreover, non-financial measures are able to complete the imperfect and noisy information provided by financial measures regarding managerial effort (Banker and Datar, 1989; Feltham and Xie, 1994; Hemmer, 1996; Ittner, Larcker and Rajan, 1997). These NFPM can be related to customers, internal processes, competitors and intangible assets (Ittner and Larcker, 1998a; Kaplan and Norton, 1992, 1996; Neely et al., 2000; Otley, 1999). In fact, Kaplan and Norton (1996) argue that NFPM provide managers with information that enables them to identify changes in the business environment and contribute to performance goals' achievement. Overall, performance measurement systems in modern organizations include financial measures as well as non-financial leading indicators (e.g., Chenhall, 2005).

Along with objective performance measures, companies also use SPE which represents qualitative judgments by a supervisor regarding the performance of a subordinate (Hartmann, Naranjo-Gil and Perego, 2010; Moers, 2005). Organizations use SPE as another form to overcome the limitations of financial measures. The literature suggests

[4] Literature does not have any clear definition of non-financial measures but rather a description of examples of these measures. For instance, Ittner, Larcker and Rajan (1997) identify such non-financial performance measures as market share, efficiency/productivity, product quality, customer satisfaction and employee satisfaction.

that the use of subjectivity enables supervisors to capture information that is not possible to evaluate with objective measures (Baiman and Rajan, 1995; Baker, Gibbons and Murphy, 1994; Fisher et al., 2005; Prendergast and Topel, 1993).[5] SPE also helps to enhance incentive contracting (Merchant, 1989) and to mitigate distortions in managerial effort by reducing dysfunctional behavior induced by incomplete objective performance measures (Baiman and Rajan, 1995). Thus, the joint use of SPE and objective performance measures enables firms to capture the employee's contribution in a greater extent (Prendergast, 1999).

1.5 Sample and data collection

I collect data from two online questionnaires targeted to managers of Portuguese SMEs. I limit my research to firms with 10 to 249 employees, excluding, therefore, large (250 or more employees) and micro firms (less than 10 employees), which is consistent with the number of employees' criteria used by the European Union to define SMEs.[6] The first questionnaire collects data regarding organizational characteristics, while the second collects information regarding the manager. The choice of a questionnaire method is based on the lack of publicly available archival data to fully respond to my research questions in a SME population.

To assess the construct validity of the questions in both questionnaires, their understandability, the questionnaire length and to search for any further difficulties respondents might have (Van der Stede, Young and Chen, 2007), several experts, SME managers (not included in the sample population of this study) and academics pre-tested

[5] Objective measures are those which express performance in financial and quantitative non-financial measures associated with established goals (Hartmann, Naranjo-Gil and Perego, 2010).
[6] According to European Commission, a firm is regarded as an SME if it has fewer than 250 employees and turnover less than 50 million euros annually or a balance sheet total below 43 million euros (European Commission, 2005).

each questionnaire. Some adjustments were introduced accordingly to their feedback (wording of some items and structure of the questionnaire). To increase the overall quality of the instruments, as well as the response rate, I followed the recommendations by Dillman, Smyth and Christian (2014) and proceeded as follows: (1) research assistants contacted a list of companies to check data accuracy regarding the names and offices of the managers, as well as obtain their e-mail addresses, (2) send an individualized e-mail with a link to the questionnaire and introductory text, explaining the purpose of each study and assuring the participants the confidentiality of their responses and (3) send several reminders after the initial e-mailing of each questionnaire.[7] To encourage completion of the questionnaires, participants were assured that they would have access to a summary of the results, were invited to an open session presenting a summary of the results, and were invited to participate in a lottery of vouchers that varied between €24.90 and €89.90. The initial sample for the first questionnaire was drawn from a list of 33 859 SMEs obtained from Informa DB, a company specialized in corporate information. After eliminating extinct organizations or firms with missing or invalid telephone contact, the final sample comprised 22 997 companies to which the questionnaire was sent. 4 192 usable responses were received, which corresponds to a 18.23% response rate. The 4 192 firms that responded the first questionnaire served as the initial data base for the second questionnaire. Using this data base, a team of research assistants contacted again via telephone each of these firms to collect information about the name and e-mail addresses of the team of directors/managers. This information serves to create a second data base to send a new questionnaire focusing on the managers and not on the companies as the first one. From the initial sample of 4 192 SMEs I obtained 11 748 names with job roles and e-mail addresses (personal or organizational). However, due to refusal of participation,

[7] In the cases where the research assistants could not find a personal e-mail address of director e/or manager, we look for contact e-mail of corresponding firm in the internet.

impossibility to contact the firms, or errors in the sending process, the number of questionnaires sent was 8 180.[8] I received 1 474 responses, which represents a 18.02% response rate. However, the final sample of each essay needs to be restricted to respondents who filled in the main question of that essay (SPE, type of incentives, and NFPM). Thus, the following chapters provide more detailed information regarding the sample used in each essay.

1.6 Thesis overview

The reminder of this thesis is organized as follows: In Chapter 2, I investigate the effect of SPE on managerial intention to turnover, organizational identification and individual performance. I hypothesize and present empirical evidence that trust in the supervisor and quality feedback intervene in this relationship.

Chapter 3 explores the interplay between different types of incentives (monetary incentives, non-monetary incentives, benefits and punishment) and managerial work-related outcomes such as performance and satisfaction.

Chapter 4 focuses on the relationship between contextual variables and the use of NFPM in compensation of SMEs' managers. I predict that strategy, perceived environmental uncertainty, organizational culture, decentralization and technology are associated with the use of NFPM.

Chapter V concludes and offers directions for future research.

[8] The reasons for the impossibility to contact the firm include: extinct organization, missing or invalid telephone contact, and no data available on the internet. Errors in the sending process include: incorrect e-mail address, full mailbox, insufficient capacity of the mailbox, and message considered as spam.

References

Ahmad, K. and Zabri, S. M. (2015). Factors explaining the use of management accounting practices in Malaysian medium-sized firms. *Journal of Small Business and Enterprise Development* 22 (4), 762-781.

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

Alattar, J. M., Kouhy, R. and Innes, J. (2009). Management accounting information in micro enterprises in Gaza. *Journal of Accounting & Organizational Change* 5 (1), 81-107.

Aldrich, H. and Auster, E. (1986). Even dwarfs started small: liabilities of age and size and their strategic implications. In: Staw, B. M. and Cummings, L. L. (Eds). *Research in organizational behavior.* Greenwich: JAI Press, 165-198.

Ates, A. and Bititci, U. (2011). Change process: A key enabler for building resilient SMEs. *International Journal of Production Research* 49 (18), 5601-5618.

Atkinson, A., Balakrisnan, R., Booth, P., Cote, J., Groot, T., Malmi, T., Roberts, H., Uliana, E. and Wu, A. (1997). New directions in management accounting research. *Journal of Management Accounting Research* 9, 79-108.

Atkinson, A., Kaplan, R. S., Matsumura, E. M. and Young, S. M. (2012). *Management accounting: Information for decision-making and strategy execution*. 6th ed. Upper Saddle River, NJ: Pearson Education Inc.

Bacon, N., Ackers, P., Storey, J. and Coates, D. (1996). It's a small world: Managing human resources in small businesses. *The International Journal of Human Resource Management* 7 (1), 82-100.

Bailey, C. D., Brown, L. D. and Cocco, A. F. (1998). The effects of monetary incentives on worker learning and performance in an assembly task. *Journal of Management Accounting Research* 10 (2), 119-131.

Baiman, S. and Rajan, M. V. (1995). The informational advantages of discretionary bonus schemes. *The Accounting Review* 70 (4), 557-579.

Baker, G., Gibbons, R. and Murphy, K. (1994). Subjective performance measures in optimal incentive contracts. *Quarterly Journal of Economics* 109 (4), 1125-1156.

Bandiera, O., Barankay, I. and Rasul, I. (2007). Incentives for managers and inequality among workers: Evidence from a firm-level experiment. *Quarterly Journal of Economics* 122 (2), 729-773.

Bandiera, O., Guiso, L., Prat, A. and Sadun, R. (2015). Matching firms, managers, and incentives. *Journal of Labor Economics* 33 (3), 623-681.

Banker, R. D. and Datar, S. M. (1989). Sensitivity, precision, and linear aggregation of signals for performance evaluation. *Journal of Accounting Research* 27 (1), 21-39.

Banker, R. D., Potter, G. and Srinivasan, D. (2000). An empirical investigation of an incentive plan that includes nonfinancial performance measures. *The Accounting Review* 75 (1), 65-92.

Behn, B. and Riley, R. (1999). Using non-financial information to predict financial performance: The case of the U. S. airline industry. *Journal of Accounting, Auditing and Finance* 14 (Winter), 29-56.

Bénabou, R. and Tirole, J. (2011). Identity, morals, and taboos: Beliefs as assets. *The Quarterly Journal of Economics* 126 (2), 805-855.

Bititci, U. S., Garengo, P., Dörfler, V. and Nudurupati, S. (2012). Performance measurement: Challenges for tomorrow. *International Journal of Management Reviews* 14 (3), 305-327.

Blau, P. M. (1964). *Exchange and Power in Social Life.* New York: John Wiley & Sons.

Bloom, M. and Milkovich, G. T. (1998). Relationships among risk, incentive pay, and organizational performance. *Academy of Management Journal* 41 (3), 283-297.

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

Bonner, S. E., Hastie, R., Sprinkle, G. B. and Young, S. M. (2000). A review of the effects of financial incentives on performance in laboratory tasks: Implications for management accounting. *Journal of Management Accounting Research* 12, 19-64.

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

Cai, H., Li, H., Park, A. and Zhou, L. (2013). Family ties and organizational design: evidence from Chinese private firms. *The Review of Economics and Statistics* 95 (3), 850-867.

Cardon, M. S. and Stevens, D. E. (2004). Managing human resources in small organizations: What do I know? *Human Resource Management Review* 14 (3), 295-323.

Carlson, D. S., Upton, N. and Seaman, S. (2006). The impact of human resource practices and compensation design on performance: An analysis of family-owned SMEs. *Journal of Small Business Management* 44 (4), 531-543.

Carney, M. (2005). Corporate governance and competitive advantage in family-controlled firms. *Entrepreneurship Theory and Practice* 29 (3), 249-265.

Cassell, C., Nadin, S., Gray, M. and Clegg, C. (2002). Exploring human resource management practices in small and medium sized enterprises. *Personnel Review* 31 (5), 671-693.

Casson, M. (1999). The economics of the family firm. *Scandinavian Economic History Review* 47 (1), 10-23.

Castrogiovanni, G. J. (1996). Pre-startup planning and the survival of new small businesses: Theoretical linkages. *Journal of Management* 22 (6), 801-823.

Chenhall, R. H. (2003). Management control systems design within its organizational context: Findings from contingency-based research and directions for the future. *Accounting, Organizations and Society* 28 (2/3), 127-168.

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.

Chow, C. W. (1983). The effects of job standard tightness and compensation scheme on performance: An exploration of linkages. *The Accounting Review* 58 (4), 667-685.

Chrisman, J. J., Chua, J. H. and Litz, R. A. (2004). Comparing the agency costs of family and non-family firms: Conceptual issues and exploratory evidence. *Entrepreneurship Theory and Practice* 28 (4), 335-354.

Christ, M. H., Sedatole, K. L. and Towry, K. L. (2012). Sticks and Carrots: The Effect of Contract Frame on Effort in Incomplete Contracts. *The Accounting Review* 87 (6), 1913-1938.

Chua, J. H., Chrisman, J. J. and Sharma, P. (1999). Defining the family business by behavior. *Entrepreneurship Theory and Practice* 23 (4), 19-39.

Cole, R. A. and Mehran, H. (2016). What do I know about executive compensation at small privately held firms? *Small Business Economics* 46 (2), 215-237.

Cooper, A., Ramachandran, M. and Schooman, D. (1997). Time allocation patterns of craftsmen and administrative entrepreneurs: Implications for financial performance. *Entrepreneurship Theory and Practice* 22 (2), 123-137.

Corbetta, G. and Salvato, C. (2004). Self-serving or self-actualizing? Models of man and agency costs in different types of family firms: A commentary on "comparing the agency costs of 19 family and non-family firms: Conceptual issues and exploratory evidence. *Entrepreneurship Theory and Practice* 28 (4), 355-362.

Cromie, S., Stephenson, B. and Monthieth, D. (1995). The management of family firms: An empirical investigation. *International Small Business Journal* 13 (4), 11-34.

Daily, C. M. and Dollinger, M. J. (1993). Alternative methods for identifying family- versus nonfamily-managed businesses. *Journal of Small Business Management* 31 (2), 79-90.

Davis, J. H., Schoorman, F. D. and Donaldson, L. (1997). Toward a stewardship theory of management. *Academy of Management Review* 22 (1), 20-47.

Deci, E. L., Betley, G., Kahle, J., Abrams, L. and Porac, J. (1981). When trying to win: Competition and intrinsic motivation. *Personality and Social Psychology Bulletin* 7 (1), 79-83.

Deci, E. L. and Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York, NY: Plenum Press.

De Kok, J. M. P., Uhlaner, L. M. and Thurik, A. R. (2006). Professional HRM practices in family owned-managed enterprises. *Journal of Small Business Management* 44 (3), 441-460.

Deshpande, S. P. and Golhar, D. Y. (1994). HRM practices in large and small manufacturing firms: A comparative study. *Journal of Small Business Management* 32 (2), 49-59.

Dillman, D. A., Smyth, J. D. and Christian, L. M. (2014). *Internet, phone, mail and mixed-mode surveys: The tailored design method.* 4th ed. New Jersey: John Wiley Co.

Dyer, W. G. and Whetten, D. A. (2006). Family firms and social responsibility: Preliminary evidence from the S&P 500. *Entrepreneurship Theory and Practice* 30 (6), 785-802.

Eccles, R. (1991). The performance measurement manifesto. *Harvard Business Review* 69 (1), 131-137.

Eisenhardt, K. M. (1989). Agency theory: An assessment and review. *Academy of Management Review* 14 (1), 57-74.

Eriksson, T. and Villeval, M. C. (2012). Respect and relational contracts. *Journal of Economic Behavior and Organization* 81 (1), 286-298.

European Commission. (2005). The new SME definition: User guide and model declaration. *Enterprise and Industry Publications*, 5-50.

Fama, E. (1980). Agency problems and the theory of the firm. *Journal of Political Economy* 88 (2), 288-307.

Feltham, G. A. and Xie, J. (1994). Performance-measure congruity and diversity in multitask principal-agent relations. *The Accounting Review* 69 (3), 429-453.

Ferreira, A. and 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. (1995). Contingency-based research on management control systems: Categorization by level of complexity. *Journal of Accounting Literature* 14, 24-53.

Fisher, J. G., Maines, L. A., Peffer, S. A. and Sprinkle, G. B. (2005). An experimental investigation of employer discretion in employee performance evaluation and compensation. *The Accounting Review* 80 (2), 563-583.

Franco-Santos, M., Lucianetti, L. and Bourne, M. (2012). Contemporary performance measurement systems: A review of their consequences and a framework for research. *Management Accounting Research* 23 (2), 79-119.

Frey, B. S. (1994). How intrinsic motivation is crowded out and in. *Rationality and Society* 6 (3), 334-352.

Frey, B. S. and Jegen, R. (2001). Motivation crowding out theory: A survey of empirical evidence. *Journal of Economic Surveys* 15 (5), 589-611.

García Pérez de Lema, D. and Duréndez, A. (2007). Managerial behaviour of small and medium-sized family businesses: An empirical study. *International Journal of Entrepreneurial Behaviour & Research* 13 (3), 151-172.

Garengo, P., Biazzo, S. and Bititci, U. S. (2005). Performance measurement systems in SMEs: A review for a research agenda. *International Journal of Management Reviews* 7 (1), 25-47.

Garengo, P. and Bititci, U. (2007). Towards a contingency approach to performance measurement: An empirical study in Scottish SMEs. *International Journal of Operations and Production Management* 27 (8), 802-825.

Ghobadian, A. and Gallear, D. (1996). Total quality management in SMEs. *Omega - International Journal of Management Science* 24 (1), 83-106.

Gibbs, M., Merchant, K., Van Der Stede, W. and Vargus, M. (2004). Determinants and effects of subjectivity in incentives. *The Accounting Review* 79 (2), 409-436.

Gilmore, F. (1971). Formulating strategy in small companies. *Harvard Business Review* 47 (May-June), 71-83.

Gneezy, U., Meier, S. and Rey-Biel, P. (2011). When and why incentives (don't) work to modify behavior. *Journal of Economic Perspectives* 25 (4), 191-210.

Gomez-Mejia, L., Larraza-Kintana, M. and Makri, M. (2003). The determinants of executive compensation in family-controlled public corporations. *Academy of Management Journal* 46 (2), 226-237.

Gray, C. and Mabey, C. (2005). Management development: Key differences between small and large businesses in Europe. *International Small Business Journal* 23 (5), 467-485.

Hannan, R. L., Hoffman, V. B. and Moser, D. V. (2005). Bonus versus penalty: Does the contract frame affect employee effort? In: Zwick, R. and Rapoport, A. (Eds). *Experimental Business Research.* Volume 2. Boston, MA: Kluwer, 151-169.

Hartmann, F., Naranjo-Gil, D. and Perego, P. (2010). The effects of leadership styles and use of performance measures on managerial work-related attitudes. *European Accounting Review* 19 (2), 275-310.

He, L. (2008). Do founders matter? A study of executive compensation, governance structure and firm performance. *Journal of Business Venturing* 23 (3), 257-279.

Hemmer, T. (1996). On the design and choice of modern management accounting measures. *Journal of Management Accounting Research* 8 (Fall), 87-116.

Herbane, B. (2010). Small business research: Time for a crisis-based view. *International Small Business Journal* 28 (1), 43-64.

Hill, R. and Stewart, J. (2000). Human resource development in small organizations. *Journal of European industrial* 24 (2-4), 105-117.

Holmstrom, B. (1979). Moral hazard and observability. *Bell Journal of Economics* 10 (1), 74-91.

Holmstrom, B. and Milgrom, P. (1991). Multitask principal-agent analyses: Incentive contracts, asset ownership, and job design. *Journal of Law, Economics and Organization* 7 (special issue), 24-52.

Hornsby, J. S. and Kuratko, D. F. (2003). Human resource management in U.S. small business: A replication and extension. *Journal of Developmental Entrepreneurship* 8 (1), 73-89.

Huang, X. and Brown, A. (1999). An analysis and classification of problems in small business. *International Small Business Journal* 18 (1), 73-85.

Hudson, M., Smart, P. A. and Bourne, M. (2001). Theory and practice in SME performance measurement systems. *International Journal of Operations and Production Management* 21 (8), 1096-1116.

Hyvarinen, L. (1990). Innovativeness and its indicators in small and medium sized industrial enterprises. *International Small Business Journal* 9 (1), 64-79.

Ittner, C. D. and Larcker, D. F. (1998a). Are non-financial measures leading indicators of financial performance? An analysis of customer satisfaction. *Journal of Accounting Research* 36 (3), 1-35.

Ittner, C. D. and Larcker, D. F. (1998b). Innovations in performance measurement: Trends and research implications. *Journal of Management Accounting Research* 10, 205-238.

Ittner, C. D. and Larcker, D. F. (2001). Assessing empirical research in managerial accounting: A value-based management perspective. *Journal of Accounting and Economics* 32 (1-3), 349-410.

Ittner, C. D. and Larcker, D. F. (2002). Determinants of performance measure choices in worker incentive plans. *Journal of Labor Economics* 20 (2), 58-90.

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

Ittner, C. D., Larcker, D. F. and Rajan, M. V. (1997). The choice of performance measures in annual bonus contracts. *The Accounting Review* 72 (2), 231-255.

James, H. S. (1999). Owner as manager, extended horizons and the family firm. *International Journal of the Economics of Business* 6 (1), 41-55.

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

Jennings, P. and Beaver, G. (1997). The managerial dimension of small business failure. *Journal of Strategic Change* 4 (4), 185-200.

Jensen, M. C. and Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics* 3 (4), 305-360.

Jorissen, A., Laveren, E., Martens, R. and Reheul, A. M. (2005). Real versus sample-based differences in comparative family business research. *Family Business Review* 18 (3), 229-246.

Judge, T. A., Piccolo, R. F., Podsakoff, N. P., Shaw, J. C. and Rich, B. L. (2010). The relationship between pay and job satisfaction: A meta-analysis of the literature. *Journal of Vocational Behavior* 77 (2), 157-167.

Kahneman, D. and Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica* 47 (2), 263-291.

Kaplan, R. S. and Norton, D. P. (1992). The balanced scorecard - Measures that drive performance. *Harvard Business Review* 70 (1), 71-79.

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

Katz, J., Aldrich, H., Welbourne T. and Williams, P. (2000). Guest editor's comments. Special issue on human resource management and the SME: Toward a new synthesis. *Entrepreneurship Theory and Practice* 25 (1), 7-10.

King-Kauanui, S., Ngoc, S. D. and Ashley-Cotleur, C. (2006). Impact of human resource management: SME performance in Vietnam. *Journal of Developmental Entrepreneurship* 11 (1), 79-95.

Knez, M. and Simester, D. (2001). Firm-wide incentives and mutual monitoring at continental airlines. *Journal of Labor Economics* 19 (4), 743-772.

Kotey, B. and Slade, P. (2005). Formal human resources management practices in small growing firms. *Journal of Small Business Management* 43 (1), 16-40.

Kube, S., Maréchal, M. and Puppe, C. (2012). The currency of reciprocity - Gift-exchange in the workplace. *The American Economic Review* 102 (4), 1644-1662.

Lazear, E. P. (2000). Performance pay and productivity. *American Economic Review* 90 (5), 1346-1362.

Li, Z., Ryan Jr., H. E. and Wang, L. (2016). Compensation incentives for nonfamily executives in family firms. *Working paper.* Available at SSRN: http://ssrn.com/abstract=1929072.

Locke, E. A. and Latham, G. P. (1990). *A theory of goal setting and task performance*. Englewood Cliffs, NJ: Prentice Hall.

Locke, E. A. and Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation. *American Psychologist* 57 (9), 705-717.

López, O. L. and Hiebl, M. R. W. (2015). Management accounting in small and medium-sized enterprises: Current knowledge and avenues for further research. *Journal of Management Accounting Research* 27 (1), 81-119.

Marlow, S. (2000). Investigating the use of emergent strategic human resource management activity in the small firm. *Journal of Small Business and Enterprise Development* 7 (2), 135-148.

Mazur, M. and Wu, B. H. T. (2016). Founding family firms, CEO incentive pay, and dual agency problems. *Journal of Small Business Management* 54 (4), 1099-1125.

McAdam, R. (2000). Quality models in a SME context. *International Journal of Quality and Reliability Management* 17 (3), 305-323.

McCarthy, A. M., Krueger, D. A. and Schoenecker, T. S. (1990). Changes in the time allocations patterns of entrepreneurs. *Entrepreneurship Theory and Practice* 15 (2), 7-18.

Merchant, K. A. (1989). *Rewarding results: Motivating profit center managers.* Boston, MA: Harvard Business School Press.

Mitchell, F. and Reid, G. C. (2000). Editorial. Problems, challenges and opportunities: The small business as a setting for management accounting research. *Management Accounting Research* 11 (4), 385-390.

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

Nagar, V. and Rajan, M. V. (2001). The revenue implications of financial and operational measures of product quality. *The Accounting Review* 76 (4), 495-513.

Neely, A. (1999). The performance measurement revolution: Why now and what next. *International Journal of Operations and Production Management* 19 (2), 205-228.

Neely, A., Mills, J. F., Platts, K., Richards, H., Gregory, M. J., Bourne, M. and Kennerley, M. P. (2000). Performance measurement system design: Developing and testing a process-based approach. *International Journal of Operations and Production Management* 20 (10), 1119-1145.

Neubauer, H., Mayr, S., Feldbauer-Durstmuller, B. and Duller, C. (2012). Management accounting systems and institutionalization in medium-sized and large family businesses: Empirical evidence from Germany and Austria. *European Journal of Management* 12 (2), 41-60.

Nguyen, T. and Bryant, S. (2004). A study of the formality of human resource management practices in small and medium-size enterprises in Vietnam. *International Small Business Journal 22* (6), 595-618.

Norreklit, H. (2000). The balance on the balanced scorecard-a critical analysis of some of its assumptions. *Management Accounting Research* 11 (1), 65-88.

Nyantakyi, E. B. (2016). Family ties, firm performance and managerial compensations in African SMEs. *Small Business Economics* 46 (3), 493-501.

Ogunyomi, P. and Bruning, N. S. (2016). Human resource management and organizational performance of small and medium enterprises (SMEs) in Nigeria. *The International Journal of Human Resource Management* 27 (6), 612-634.

Otley, D. T. (1980). The contingency theory of management accounting: Achievement and prognosis. *Accounting, Organizations and Society* 5 (4), 413-428.

Otley, D. T. (1999). Performance management: A framework for management control systems research. *Management Accounting Research* 10 (4), 363-382.

Oviatt, B. M. and McDougall, P. P. (1994). Toward a theory of international new ventures. *Journal of International Business Studies* 25 (1), 45-64.

Pelham, A. (1999). Influence of environment, strategy and market orientation on performance in small manufacturing firms. *Journal of Business Research* 45 (1), 33-46.

Pollak, R. (1985). A transaction cost approach to families and households. *Journal of Economic Literature* 23 (2), 581-608.

Prendergast, C. (1999). The provision of incentives in firms. *Journal of Economic Literature* 37 (1), 7-63.

Prendergast, C. and Topel, R. (1993). Discretion and bias in performance evaluation. *European Economic Review* 37 (2-3), 355-365.

Prendergast, C. and Topel, R. (1996). Favoritism in Organizations. *Journal of Political Economy* 104 (5), 958-978.

Qian, G. and Li, L. (2003). Profitability of small and medium-sized enterprises in high-tech industries: The case for biotechnology industry. *Strategic Management Journal* 24 (9), 881-887.

Reid, R. and Adams, J. S. (2001). Human resource management—A survey of practices within family and non-family firms. *Journal of European Industrial Training* 25 (6), 310-320.

Reid, R., Morrow, T., Kelly, B. and McCartan, P. (2002). People management in SMEs: An analysis of human resource strategies in family and non-family businesses. *Journal of Small Business and Enterprise Development* 9 (3), 245-259.

Schulze, W. S., Lubatkin, M. H. and Dino, R. N. (2003). Toward a theory of agency and altruism in family firms. *Journal of Business Venturing* 18 (4), 473-490.

Sedatole, K. L. (2003). The effect of measurement alternatives on a non-financial quality measure's forward-looking properties. *The Accounting Review* 78 (2), 555-580.

Sels, L., De Winne, S., Maes, J., Delmotte, J., Faems, D. and Forrier, A. (2006). Unravelling the HRM-performance link: Value-creating and cost-increasing effects of small business HRM. *Journal of Management Studies* 43 (2), 319-342.

Sexton, D. and Van Auken, P. (1982). Prevalence of strategic planning in small business. *Journal of Small Business Management* 20 (1), 20-26.

Simons, R. (2000). *Performance measurement and control systems for implementing strategy.* Upper Saddle River, NJ: Prentice Hall.

Smith, M. H. and Smith, D. (2007). Implementing strategically aligned performance measurement in small firms. *International Journal of Production Economics* 106 (2), 393-408.

Sprinkle, G. B. (2000). The effect of incentive contracts on learning and performance. *The Accounting Review* 75 (3), 299-326.

Sprinkle, G. B. (2003). Perspectives on experimental research in managerial accounting. *Accounting, Organizations and Society* 28 (2/3), 287-315.

Subramony, M. (2006). Why organizations adopt some human resource management practices and reject others: An exploration of rationales. *Human Resource Management* 45 (2), 195-210.

Tajfel, H. (1972). Experiments in a Vacuum. In: Israel, J. and Tajfel, H. (Eds). *The context of social psychology: A critical assessment.* London: Academic Press, 69-122.

Tocher, N. and Rutherford, M. W. (2009). Perceived acute human resource management problems in small and medium firms: An empirical examination. *Entrepreneurship Theory and Practice* 34 (3), 455-479.

Van der Stede, W. A., Young, M. S. and Chen, C. X. (2007). Doing management accounting survey research**.** In: Chapman, C. S., Hopwood, A. G. and Shields, M. D. (Eds). *Handbook of Management Accounting Research*. Volume 1. London: Elsevier, 445-478.

Van Rinsum, M. and 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.

Verhees, F. J. H. M. and Meulenberg, M. T. G. (2004). Market orientation, innovativeness, product innovation, and performance in small firms. *Journal of Small Business Management* 42 (2), 134-154.

Welsh, J. and White, J. (1981). A small business is not a little big business. *Harvard Business Review* 59 (4), 18-32.

Werner, S. and Ward, S. G. (2004). Recent compensation research: An eclectic review. *Human Resource Management Review* 14 (2), 201-227.

Young, S. M. and Lewis, B. L. (1995). Experimental incentive contracting research in managerial accounting. In: Ashton, R.H. and Ashton, A. H. (Eds). *Judgment and decision* *making research in accounting and auditing.* New York, NY: Cambridge University Press, 55-75.

Zábojník, J. (2014). Subjective evaluations with performance feedback. *RAND Journal of Economics* 45 (2), 341-369.

2. THE SUBJECTIVE PERFORMANCE EVALUATION EFFECT ON MANAGERIAL INTENTION TO TURNOVER, IDENTIFICATION AND PERFORMANCE IN SMES

Abstract

This study analyzes the relationship between subjective performance evaluation (SPE) and managerial intention to turnover, organizational identification, and performance. I argue that this relationship is mediated by managerial perception of feedback quality and trust in the supervisor. To test my hypotheses, I collect data via a questionnaire and use structural equation modeling to analyze them. Based on data from 663 responses, this essay suggests that the use of SPE is associated with reduced perceived feedback quality, while perceived feedback quality is associated with increased trust in the supervisor. The results also show that greater trust in the supervisor is related to enhanced managerial performance by increasing identification and reducing intention to turnover.

Keywords: subjective performance evaluation, feedback quality, trust, performance, turnover intention, identification.

2.1 Introduction

Performance evaluation is an important element of management control systems due to its association to compensation and rewards (Lau, Low and Eggleton, 1995). It also has a critical role in motivating agents to achieve established organizational goals (Kaplan and Atkinson, 1998). Subjective performance evaluation (SPE) is a widely used form of performance evaluation in modern enterprises (Baker, Gibbons and Murphy, 1994; Bol, 2008; Bol and Smith, 2011; Gibbs et al., 2004; Prendergast, 1999). Despite SPE biases and shortcomings (Ahn, Hwang and Kim, 2010; Feldman, 1981; Heneman, 1986), organizations use subjectivity to obtain more complete evaluations of their employees, to exploit relevant information not captured by objective measures (Baiman and Rajan, 1995; Baker, Gibbons and Murphy, 1994; Prendergast and Topel, 1993), to improve managerial effort directed to firm-value creation, and to enhance incentive contracting (Gibbs et al., 2004; Merchant, 1989).

To be effective, SPE needs to occur in conditions of fairness and trust between supervisor and subordinates (Bommer et al., 1995; Milgrom, 1988; Prendergast and Topel, 1993). This issue is particularly important in SMEs where the working relationship is more loose and informal, and the evaluation process is often not standardized (Antony, Kumar and Madu, 2005).

The present study provides evidence regarding the relationship between the use of SPE and intention to turnover, organizational identification, and individual performance of managers in SMEs. However, this relationship may not be a direct one. Instead, it is likely to be explained by two important intervening variables: trust and feedback quality (e.g., Simons, 2000; Van Rinsum and Verbeeten, 2012; Wright, 2004; Zábojník, 2014). Thus, I predict that the relationship between SPE and intention to turnover, identification, and performance is indirect through (1) managers' trust in their supervisors and (2) managers' perception of feedback quality. Figure 2.1 summarizes my research model.

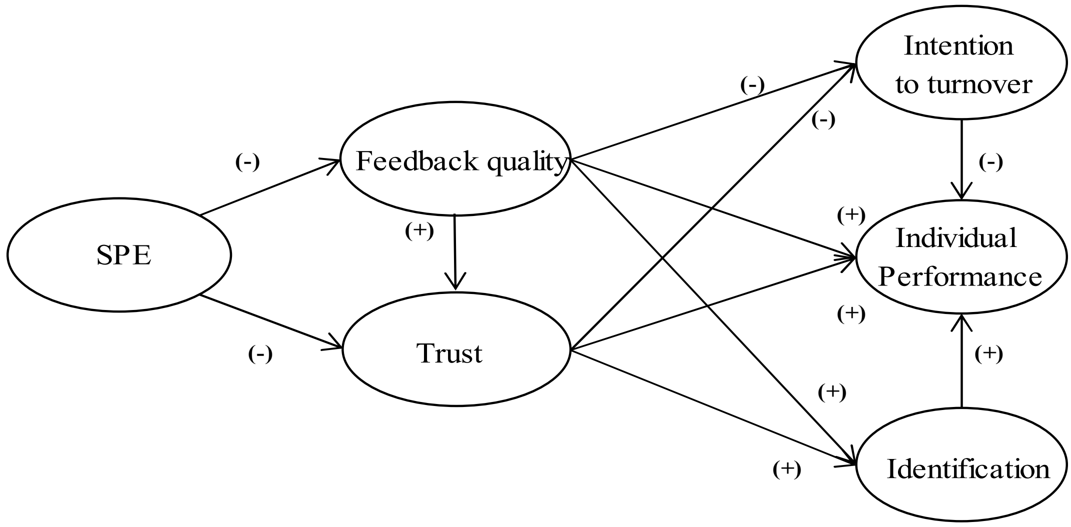

Figure 2.1. Suggested research model.

To develop and empirically test my theoretical model, I use questionnaire data from 663 SMEs' managers. I find that the use of SPE is associated with reduced perceived feedback quality, while perceived feedback quality is associated with increased trust in the supervisor. The results also show that greater trust in the supervisor is related to enhanced managerial performance by increasing identification and reducing intention to turnover.

The present research contributes to the management accounting and incentive literatures in several ways. First, my study provides one of the first analyses that investigates how the use of specific performance evaluation practices – such as SPE - affects managerial intention to turnover, identification and performance using data from questionnaires. The majority of previous studies about SPE comes from experimental or analytical research, while empirical research in this area remains sparse (Bushman, Indjejikian and Smith, 1996; Gibbs et al., 2004). Some authors explain this lack of research with the difficulty in obtaining real world data about subjectivity, which managers generally consider to be highly sensitive and confidential (Bol, 2008; Indjejikian, 1999; Prendergast, 1999). My study takes a further step by extending cross-sectional studies on the use of subjectivity in compensation system (Gibbs et al., 2004; Hartmann, Naranjo-Gil and Perego, 2010; Ittner, Larcker and Meyer, 2003; Moers, 2005). Second, management accounting studies regarding the use of SPE generally focus on the supervisor's viewpoint (Ahn, Hwang and Kim, 2010) while my study focus on the subordinate's. Therefore, I address a gap in the literature by providing evidence regarding the subordinate's reaction to SPE instead of dealing with the supervisor's perspective. Third, there is call in the literature for further research on how performance measurement systems (PMSs) influence managerial behaviors and attitudes (Burney and Widener, 2007; Ittner and Larcker, 1998; Van Rinsum and Verbeeten, 2012; Webb, 2004). I provide new insights into the complex interrelationships between SPE and managerial outcomes. Particularly, I expand the range of behavioral and attitudinal variables used in previous studies to managerial intention to turnover, identification and performance. In addition, I demonstrate that the link between SPE and these variables is more complex than is currently recognized in the literature. Specifically, my investigation shows that the use of SPE affects managerial intention to turnover, identification and performance, through both its effect on feedback quality and trust in the supervisor. Thus, my study significantly differs from prior works which examine the relationship between feedback quality and trust in performance evaluation practices (e.g., Hartmann and Slapnicar, 2009) by analyzing the behavioral consequences of this relationship. Fourth, most of empirical research on incentive literature builds on data obtained from large companies (e.g., Höppe and Moers, 2011), while I extend this line of research to SMEs. Finally, to test my hypotheses, I use structural equation modeling techniques (SEM) that prior research suggests to be more applied in management accounting studies (Chenhall, 2003; Hughes and Kwon, 1990; Shields and Shields, 1998). Compared to traditional regression analyses, this method offers additional flexibility and enhanced research conclusions by i) allowing the use of multiple predictors and latent (unobserved) variables, ii) accounting for model errors in the measurement of observed variables, and iii) testing mediation and moderation relationships in a single model (Blanthorne, Jones-Farmer and Almer, 2006; Hair et al., 2014; Kline, 2016).

2.2 Literature review and hypotheses development

2.2.1 Overview of the literature

Many firms implement SPE to complement objective measures in PMSs (Gibbs et al., 2004; Prendergast, 1999). Objective measures express performance in financial and quantitative information associated with established goals (Hartmann, Naranjo-Gil and Perego, 2010), while subjectivity in performance evaluation and compensation may appear in different ways. SPE can refer to i) subjective judgments about managerial performance (Bol and Smith, 2011; Hartmann, Naranjo-Gil and Perego, 2010; Murphy and Oyer, 2003; Prendergast and Topel, 1996), ii) the application of some flexibility in the weighting of objective performance measures, iii) the use of some qualitative criteria in performance evaluation, or iv) the assessment of factors not initially included in the bonus plan, at sole discretion of the evaluator (Gibbs et al., 2004; Höppe and Moers, 2011; Ittner, Larcker and Meyer, 2003; Moers, 2005).

Evidence suggests that SPE is used more frequently and ubiquitously than objective measurement (Bol, 2008). This fact may be explained by the limitations of traditional objective measures. Objective measures may fail to specify a manager’s contribution towards organizational goals, may distort managerial efforts, and can provide managers with less effective and costlier incentives (Baker, Gibbons and Murphy, 1994; Prendergast, 1999). Moreover, Gibbs et al. (2004) suggest that this type of performance measures distort the incentive effect of compensation due to its incomplete character and propensity to be manipulated, as well as provide employees with undue risk because these measures are influenced by uncontrollable events.

Thus, to overcome objective measures' limitations, many firms implement SPE (Baker, Jensen and Murphy, 1988; Bol, 2008; Gibbs et al., 2004; Moers, 2005; Nisar, 2007; Rajan and Reichelstein, 2009; Van der Stede, Chow and Lin, 2006). In fact, the use of subjectivity in performance evaluation enables the supervisor to capture information that is not possible to evaluate with objective measures (Baiman and Rajan, 1995; Baker, Gibbons and Murphy, 1994; Fisher et al., 2005; Prendergast and Topel, 1993; Woods, 2012). Additionally, subjectivity helps to mitigate distortions in managerial effort and enhances incentive contracting - with objective measures employees may be demotivated if the fixed performance targets become difficult to achieve due to environmental changes (Merchant, 1989; Merchant and Manzoni, 1989). Höppe and Moers (2011) support this idea by showing evidence that subjective weights and discretionary bonus are used by firms to mitigate contracting problems. Therefore, the literature suggests that subjectivity in performance evaluation aims to i) reduce noise in performance measurement, ii) diminish manipulation of objective measures (Bushman, Indjejikian and Smith, 1996; Hayes and Schaefer, 2000), iii) improve incentive alignment, and iv) reduce risk for employees (Gibbs et al., 2004). In addition, Simons (2000) states that SPE is a unique feature that provides flexibility to identify and compensate employee's creativity and enables the recognition of innovative behavior, which is difficult to detect with previously defined performance measures.

Nevertheless, the use of subjectivity is not always effective (Gibbs et al., 2004). Albeit its important role in compensation contracts (Prendergast, 1999), prior research shows that some attributes may limit the informativeness of SPE and undermine its incentive function (e.g., Bol, 2011; Prendergast and Topel, 1993, 1996). Specifically, SPE may be influenced by the human nature of the supervisor, e.g., supervisor's bias such as central tendency, favoritism (Ahn, Hwang and Kim, 2010; Ittner, Larcker and Meyer, 2003; Moers, 2005; Prendergast and Topel, 1996), and leniency bias (Berger, Harbring and Sliwka, 2013; Bol, 2011; Moers, 2005). Central bias occurs because supervisors tend to compress evaluations to the middle of the rating scale, so that the differentiation in grades is small (Golman and Bhatia, 2012; Landy and Farr, 1980). Favoritism appears when supervisors recognize their own power of influence on the subordinates' welfare and assign higher grades of performance evaluation to the preferred subordinates (Prendergast and Topel, 1996). Leniency bias occurs when most employees get exaggerated performance evaluations comparatively to their true or average performance (Golman and Bhatia, 2012). Thus, the use of subjectivity may undermine the incentive effect of performance evaluation on employees' behaviors and attitudes if supervisors do not act appropriately (Ahn, Hwang and Kim, 2010).

One of the effective solutions to overcome the problems associated with SPE is the existence of trust between supervisors and subordinates (Simons, 2000; Van Rinsum and Verbeeten, 2012). Additionally, the literature suggests other important mechanism (Maiga and Jacobs, 2005) to overcome SPE problems – the use of the informational feedback regarding subordinate's performance (Van Rinsum and Verbeeten, 2012; Zábojník, 2014). Specifically, a high degree of trust and the presence of an adequate and comprehensive performance feedback system may ensure the subordinate that SPE is unbiased and is used appropriately (Gibbs et al., 2004; Simons, 2000; Van Rinsum and Verbeeten, 2012).

Large firms have more complex organizational structures and more rigid management control systems than SMEs. Consequently, this formal context of large organizations requires more sophisticated ways to align employee behaviors and attitudes with the organizational goals (Mintzberg, 1979). In contrast, SMEs have a simpler structure which reduces the needs for complex HR systems (Jack, Hyman and Osborne, 2006). For example, MacMahon and Murphy (1999) find that SME owner-managers consider formal PMSs as time consuming because they lack the skills required for an effective performance evaluation of their subordinates. Therefore, SMEs are likely to use more informal (subjective) performance measurement practices (Cardon and Stevens, 2004; De Kok, Uhlaner and Thurik, 2006).

2.2.2 SPE and individual outcomes

Organizations implement performance evaluation to motivate subordinates to enhance their performance (Baker, Jensen and Murphy, 1988; Lau and Buckland, 2001). According to managerial accounting research, the way in which employees' performance is evaluated influences subsequent behaviors and work-related attitudes (Hartmann, 2007; Hopwood, 1972; Otley, 1978). Therefore, SPE should be implemented with caution due to its twofold effect on employees' behaviors and attitudes.

On one hand, when performance is evaluated in a subjective way, which implies discretionary and ambiguous criteria (Ahn, Hwang and Kim, 2010), subordinates may feel confused regarding what constitutes good performance, question whether compensation depends upon their performance and suspect that inconsistencies occur across the organization (Ittner, Larcker and Meyer, 2003). Moreover, phenomena such as favoritism, ignorance of some measures by evaluators, frequently changed criteria of bonus payment, and the presence of biases in subjective evaluation, may reduce motivation, increase the turnover among discontented employees and decrease the performance of employees (Ittner, Larcker and Meyer, 2003; Prendergast and Topel, 1993). Recent accounting studies confirm these negative effects of SPE and show that the presence of biases, untrustworthiness and ambiguity in SPE discourages subordinates from improving their behavior (Ahn, Hwang and Kim, 2010; Golman and Bhatia, 2012; Van Rinsum and Verbeeten, 2012). These findings are consistent with goal-setting theory. This theory suggests that clear and measurable goals lead to higher motivation, while ambiguity in goal perception decreases employee's motivation (Locke and Latham, 1990, 2002).

On the other hand, by minimizing distortions caused by objective measures (Baiman and Rajan, 1995; Baker, Gibbons and Murphy, 1994; Woods, 2012), SPE mitigates performance measurement problems and aligns the interests of the principal with those of the agent (Baker, Jensen and Murphy, 1988; Bol, 2008; Gibbs et al., 2004). More specifically, the introduction of subjectivity to complement objective performance measures (Baker, Gibbons and Murphy, 1994) reduces the noise and the manipulation potential of quantitative performance measures (Gibbs et al., 2004; Murphy and Oyer, 2003). Therefore, "by introducing more subjectivity into performance evaluation practices, supervisors can correct and augment the incomplete objective performance measures to obtain a more complete picture of subordinate performance" (Van Rinsum and Verbeeten, 2012, p. 383). As a result, subordinates may consider subjective feedback as more fair, feel more motivated (Bol and Smith, 2011) and, therefore, express higher organizational identification (e.g., Riketta and Van Dick, 2005).[9] Consistent with this, Merchant and Manzoni (1989) argue that subjectivity in performance evaluation increases subordinate's motivation, when compensation contracts include targets difficult to achieve due to some unforeseen events. In this case, subjectivity appears to be an alternative to keep employees motivated (Gibbs et al., 2004). Moreover, despite predictions of agency theory regarding the negative effect of SPE biases on employees' behaviors, an empirical study by Bol (2011) finds evidence of a positive effect of leniency bias on performance improvement. Bol (2011) explains these results by a higher organizational interest in increasing individual performance than in the accuracy of the performance ratings. A theoretical study by Zábojník (2014) is aligned with Bol's (2011) findings by suggesting that a leniency bias can improve the incentive effect of SPE on individual effort.

In sum, depending on how information is perceived by the agent, subjectivity can cause positive or negative subordinate's attitudes and behaviors (Franco-Santos, Lucianetti and Bourne, 2012; Goffin and Anderson, 2007; Lau, Wong and Eggleton, 2008; Sholihin and Pike, 2009). Specifically, when SPE is perceived as biased or ambiguous, discontent and confusion may deteriorate subordinate's behavior. However, when SPE is perceived as a means to gain flexibility over pre-determined measures that may be outdated by uncontrollable events, it is likely to create positive behaviors among employees.

The extant literature suggests that two variables – feedback quality and trust in supervisor – are important factors affecting managerial intentions, attitudes and performance (e.g., Ashford and Cummings, 1983; Gibbs et al., 2004; Lau and Buckland, 2001; Prendergast

[9] Research that explores individual behavior in the scope of the social identity theory (Tajfel and Turner, 1979, 1986) suggests that employees highly identified with their organization put in extra effort to accomplish their tasks in that organization.

and Topel, 1993; Zábojník, 2014). Moreover, previous research indicates that SPE may affect feedback quality and trust in supervisor (Fulk, Brief and Barr, 1985; Hawkins and Hastie, 1990; Ittner, Larcker and Meyer, 2003; Moers, 2005; Prendergast and Topel, 1993; Van Rinsum and Verbeeten, 2012). The above discussion therefore suggests that the use of SPE is related to managerial outcomes but this relationship is indirect via (1) trust in the supervisor and (2) performance feedback quality. The following discussion provides the theoretical justification for these propositions.

2.2.3 Subjective performance evaluation, feedback quality and individual outcomes

SPE and feedback quality

The literature suggests that performance feedback provided by the supervisor may enhance subordinates' understanding of organizational and individual goals (Locke and Latham, 1990) by giving knowledge to subordinates about results and clarification of job expectations (Wright, 2004).[10] Moreover, Hall (2008) states that informational feedback provides role clarity and reduces ambiguity leading to a better understanding of what has to be done.

In the presence of SPE, supervisors obtain a more complete picture of subordinate's performance (Van Rinsum and Verbeeten, 2012) by complementing information provided by objective measures (Baiman and Rajan, 1995; Baker, Gibbons and Murphy, 1994; Woods, 2012). As a consequence, subordinates consider feedback from SPE as more informative (Wright, 2004) and more fair (Bol and Smith, 2011). Additionally,

[10] Performance feedback refers to information received by subordinates regarding the performance levels they attain and the way in which performance processes are executed (Kluger and DeNisi, 1996).

Baker, Gibbons and Murphy (1994) and Prendergast (1999) argue that SPE provides better feedback when objective performance measures are costly, inaccurate or unavailable. Thus, feedback in SPE can help to provide information about possible improvements of task performance (Deci, Connell and Ryan, 1989; Rynes, Gerhart and Parks, 2005) and increase perceptions of self-competence and self-efficacy (Amabile et al., 1994).

Nevertheless, other stream of research shows that performance feedback from SPE may be considered less useful. Specifically, the presence of evaluation biases in SPE may lead subordinates to perceive supervisor's feedback as vague and uninformative (Fulk, Brief and Barr, 1985; Hawkins and Hastie, 1990; Ittner, Larcker and Meyer, 2003; Prendergast and Topel, 1993). Moreover, because SPE relays on personal judgment of the supervisor, subordinates may consider it as discretional and ambiguous (Ahn, Hwang and Kim, 2010). Deci, Connell and Ryan (1989) also argue that SPE may reduce the quality of feedback by affecting the effectiveness of evaluation practices (Goffin and Anderson, 2007).

In SMEs, informal and interpersonal relationships between supervisors and subordinates (Antony, Kumar and Madu, 2005) reduce or remove the need for formalized control mechanisms (Davila, 2005; De Grip and Sieben, 2009). SME research suggests that performance measurement practices are likely to be informal and continuous due to a more direct control of activities by owner-managers (Kotey, 1999; Mintzberg, Quinn and Voyer, 1995; Wilkinson, 1999). Thus, the informal atmosphere in SMEs leads to a close proximity between owner-managers (supervisors) and subordinates (Kotey and Slade, 2005), which frequently leads supervisors to assign a higher rating to preferred subordinates (Judge and Ferris, 1993; Prendergast and Topel, 1996). The existence of evaluation bias in SPE and a higher use of personal judgment by the supervisor may raise questions of fairness in the performance evaluation (Bird, 1989) and question the quality of feedback provided by the supervisor.

Additionally, SMEs use performance evaluation for monitoring and control rather than development purposes (Cassel et al., 2002). Yet, providing information only for evaluative and control purposes may result in lack of useful developmental information such as clear and helpful feedback (McIntyre, Smith and Hassett, 1984). Finally, SMEs operate with a lack human resources (Pelham, 1999), have insufficient or poorly trained human capital (Deshpande and Golhar, 1994) and their managers have limited time. All these issues create obstacles for an effective performance feedback in SMEs.

Therefore, I predict that the use of SPE in SMEs is negatively related to perceived quality of performance feedback. My hypothesis is as follows:

H1: There is a negative relationship between SPE and perceived quality of performance feedback in SMEs.

Feedback quality and individual outcomes

Effective and constructive feedback is a necessary condition for the success of employees' development in the organization (Fedor, 1991). According to psychology literature, performance feedback is (1) directive because it clarifies specific behaviors that should be accomplished, (2) motivational because it stimulates greater effort in subordinates by providing information about outcomes associated with rewards and (3) error-correcting because it provides information to employees about the extent of errors being made (Cooper et al., 1994). In fact, feedback is considered an essential function of any performance evaluation process because it can help subordinates identifying i) their strengths and weaknesses, ii) what needs to be done to improve performance, and iii) the direction of their future effort (Herold and Parsons, 1985; Steelman, Levy and Snell, 2004; Zábojník, 2014). Organizational behavior research shows that feedback helps to stimulate task-oriented behavior (Ashford and Cummings, 1983; Ilgen, Fisher and Taylor, 1979) and to solve employees' performance problems (Dean and Evans, 1994). Consistent with this research, a large body of literature from diverse disciplines suggests the beneficial effect of performance feedback on individual performance and productivity (Blanes i Vidal and Nossol, 2011; Kluger and DeNisi, 1996; Kuhnen and Tymula, 2012; Locke and Latham, 1990; Stajkovic and Luthans, 1997, 2003; Tafkov, 2013). Additionally, Zábojník (2014) shows analytically that feedback from the supervisor induces higher efficiency and greater effort from subordinates.

Ilgen, Fisher and Taylor (1979) argue that the effectiveness of feedback depends on its informational value and how it is perceived and accepted by the subordinate. Thus, more credible feedback is perceived by subordinates as more accurate and effective and, therefore, leads to more favorable behaviors and attitudes. Likewise, Fuchs (2015) states that subordinates who receive high-quality feedback from supervisors will see their future on the firm as more promising and will be less likely to accept external job offers. Similarly, Wright (2004) provides evidence that high quality performance feedback can enhance employees' work motivation by helping to clarify organizational goals. Moreover, effective supervisor's feedback regarding the subordinates' performance may facilitate learning and appropriate effort allocation by the latter (Kessler and Ashton, 1981; Kluger and DeNisi, 1996), as well as increase their goal commitment (Locke and Latham, 1990). Similarly, Tziner and Latham (1989) demonstrate that the introduction of performance feedback followed by a goal-setting program increases work satisfaction and organizational commitment/identification.

Although prior research examining the relationship between performance feedback and work-related outcomes is mostly accomplished in large companies (e.g., Tziner and Latham, 1989; Wright, 2004), I argue that perceived quality of performance feedback influences intention to turnover, performance and identification in the same way in SMEs. This argument arises from psychological literature which suggests that the relationship between performance feedback and individual behaviors depends on the individual's processing of feedback (e.g., Ilgen, Fisher and Taylor, 1979), instead of organizational characteristics (such as firm size).[11]

The above discussion suggests that perceived quality of performance feedback by SME managers is related to intention to turnover, performance and identification. The following hypotheses are therefore tested in my research context:

H2a: There is a negative relationship between perceived quality of performance feedback and intention to turnover in SMEs.

H2b: There is a positive relationship between perceived quality of performance feedback and individual performance in SMEs.

H2c: There is a positive relationship between perceived quality of performance feedback and identification in SMEs.

[11] Ilgen, Fisher and Taylor (1979) argue that the individual's processing of feedback is divided into four components: (a) the way feedback is perceived, (b) acceptance of feedback by the subordinate, (c) the willingness of the subordinate to respond to the feedback, and d) the relationship between feedback and established goals.

2.2.4 Subjective performance evaluation, trust and individual outcomes

SPE and trust

The literature suggests that pay-for-performance systems are powerful motivators of human actions but the lack of trust between supervisor and subordinates may make organizations avoid systems based on subjective judgments (Baker, Jensen and Murphy, 1988). Moreover, the use of SPE can also influence the level of trust between supervisors and subordinates. Specifically, the use of subjectivity comes with a probability that the supervisor may bias the process of evaluation (Hawkins and Hastie, 1990), which can create uncertainty on subordinates regarding the fairness of the assessment (Fulk, Brief and Barr, 1985; Prendergast and Topel, 1993). Conversely, the subordinate may attempt to influence the supervisor to obtain a better classification (Milgrom, 1988; Prendergast, 1993) or distort his/her efforts with the aim to win favor from the supervisor (Prendergast, 1993). Thus, greater mutual trust is needed for an adequate performance evaluation (Baker, Gibbons and Murphy, 1994; McAllister, 1995), especially when SPE is used. Therefore, the evidence regarding the relationship between the use of SPE and trust is twofold.

On one hand, trust is one of the most important determinants of employee feelings toward performance appraisals (Henderson, 1980). *Ex ante,* trust between supervisor and subordinate must be high to guarantee to the latter high “confidence that the subjective judgment is fair and will be used appropriately” (Simons, 2000, p. 235). *Ex post,* SPE may increase subordinate’s trust in the supervisor because (1) permits the supervisor to consider events which the subordinate cannot control but that influence her/his performance (Van Rinsum and Verbeeten, 2012), and (2) disregards the evaluation based only on explicit measures that focused on few tasks, allowing, therefore, to obtain a more complete picture of the subordinate's performance (De Bruijn, 2002).

On the other hand, a negative relationship between trust and SPE could occur due to the presence of biases (e.g., Hopwood, 1972; Lau and Buckland, 2001; Ross, 1994; Van Rinsum and Verbeeten, 2012). For instance, supervisors can (i) assign exaggerated performance evaluations to some employees comparatively to their true or average performance (Golman and Bhatia, 2012), (ii) provide decreased dispersion in performance ratings (Bol, 2011; Golman and Bhatia, 2012; Moers, 2005), an (iii) assign higher grades of performance evaluation to the preferred subordinates (Prendergast and Topel, 1996). Moers (2005) documents that due to biases in SPE this type of performance evaluation is at odds with the social norms of honesty, accuracy and consistency (e.g., Rousseau et al., 1998; Whitener et al., 1998). Therefore, the use of subjectivity may decrease (rather than increase) the incentive role of performance evaluation (Ahn, Hwang and Kim, 2010).

Empirical research demonstrates that flexible, non-accounting performance evaluation is likely to be associated with greater mistrust in supervisors than inflexible, accounting-based evaluation. For instance, Hopwood (1972) and Lau and Buckland (2001) report a positive effect of formal (budget-related) systems on trust. Using non-financial performance measures, Lau and Shohilin (2005) show that this type of formal performance evaluation also positively affects subordinates' trust. Furthermore, Hartmann and Slapnicar (2009) find that subordinate's trust in the supervisor depends on the degree of formality (as opposed to subjectivity) of the performance evaluation.[12] Van

[12] A high level of formality means stating quantitative and written targets, the use of objective and quantitative performance measures, and formulaic determination of rewards and bonuses. On the other hand, informal performance evaluation implies the existence of implicit and qualitative targets, the use of

Rinsum and Verbeeten (2012), using a sample of public sector organizations, corroborate these findings and demonstrate that subjectivity in performance evaluation practices negatively affects subordinates' trust in their supervisor due to existence of evaluation biases.

SME research is consistent with results suggesting a negative association between SPE and trust in large companies (e.g., Van Rinsum and Verbeeten, 2012). SME employers disregard formal performance measurement practices (MacMahon and Murphy, 1999) because they believe that their close proximity to subordinates guarantees fair treatment and, therefore, employees' loyalty (Rowden, 2002). However, contrary to the employers' expectations, the lack of formal performance measurement practices in SMEs (Kotey, 1999) raises questions of fairness in the evaluation of subordinates (Bird, 1989). Moreover, the informal atmosphere in SMEs approximates supervisors and subordinates (Kotey and Slade, 2005) originating evaluation biases in SPE (e.g., assigning a higher rating to preferred subordinates by supervisors) (Judge and Ferris, 1993; Prendergast and Topel, 1996). Therefore, the perception of unfairness in informal performance evaluation by agents and the presence of biases in SPE may decrease interpersonal trust in SMEs.

Hence, my third hypothesis is:

H3: There is a negative relationship between SPE and trust in the supervisor in SMEs.

Trust and individual outcomes

Trust plays a critical role in the development of behavioral norms among individuals (Macneil, 1980). The lack of trust can originate negative attitudes and behaviors. For example, Hamner (1975) argues that employees are often dissatisfied with SPE because

qualitative and subjective measures, and the use of untraceable personal judgment (Hartmann and Slapnicar, 2009).

they do not trust their supervisor. A person who does not trust his/her supervisor tends to either believe that his/her performance is undervalued or consider unfair the results of his/her evaluation, which can lead to lower effort and a higher propensity to quit (Prendergast and Topel, 1993). Mistrust of the subordinates creates environments characterized by a lack of transparency, which lead to high levels of anxiety, stress, frustration (Lau and Buckland, 2001) and demotivation (Gibbs et al., 2004).

Conversely, greater trust in the supervisor i) increases the effectiveness of incentive contracts (Lawler, 1971), ii) provides additional support and attention (Klein and Kim, 1998), iii) helps to enhance the process of communication between subordinates and supervisors, and iv) contributes to a more open atmosphere in the firm (Read, 1962). Moreover, a "high level of trust in the supervisors is likely to be translated into a favorable attitude towards the organization" (Lau, Wong and Eggleton, 2008, p. 126). Accordingly, prior research shows that a higher degree of trust between subordinates and supervisors i) improves the level of job satisfaction associated with performance evaluation (Folger and Konovsky, 1989; Gibbs et al., 2004; Lau and Shohilin, 2005; Ross, 1994), ii) increases motivation (Van Rinsum and Verbeeten, 2012), iii) improves individual performance (Gibbs et al., 2004; Reina and Reina, 1999; Sholihin, Na'im and Lau, 2004), and iv) enhances organizational commitment (Sholihin and Pike, 2009) and, therefore, identification. Lau and Buckland (2001) and Lau and Tan (2006) also find that both procedural fairness and trust reduce job related tension.

Although prior studies analyzing the relationship between trust in the supervisor and work-related outcomes is mostly performed in large organizations (e.g., Gibbs et al., 2004; Sholihin, Na'im and Lau, 2004; Van Rinsum and Verbeeten, 2012), I argue that trust in the supervisor influences intention to turnover, individual performance and organizational identification in the same way in SMEs. This argument arises from psychological literature which suggests that this relationship is affected by i) subordinates' perception about supervisor's characteristics – trustworthiness, honesty, integrity and benevolence, or ii) subordinates' willingness to reciprocate care and consideration that a supervisor may express in a relationship (e.g., Ferrin and Dirks, 2002), instead of organizational characteristics (such as firm size).

The above discussion suggests that trust in the supervisor is negatively related to intention to turnover, and positively related to individual performance and organizational identification in SMEs. The following hypotheses are therefore tested:

H4a: There is a negative relationship between trust and intention to turnover in SMEs.

H4b: There is a positive relationship between trust and individual performance in SMEs.

H4c: There is a positive relationship between trust and identification in SMEs.

2.2.5 Feedback quality and trust

An effective evaluation process should encompass good performance feedback which ensures an open dialogue and a high level of communication (e.g., Colquitt and Jackson, 2006; Erdogan, 2002). Useful performance information reduces uncertainty, origins a healthy work environment and provides subordinates with confidence in their supervisor's capacity to manage and evaluate appropriately and effectively subordinates' performance (Lau and Berry, 2010). Hence, the management literature suggests that informational feedback is effective if the following conditions are assured: (1) targets are set clearly (e.g., Hartmann, 2007; Locke and Latham, 1990), (2) evaluation of performance is accurate and understandable (Steelman, Levy and Snell, 2004), and (3) the compensation allocation process is transparent and traceable (Moers, 2005). In fact, Ilgen, Fisher and Taylor (1979) highlight trust in supervisor as an essential element of performance evaluation processes, which influences individual acceptance of feedback and its accurate processing. Lau and Berry (2010, p. 295) also argue that "providing the subordinates with appropriate, truthful, and timely information is crucial in order to establish a trustworthy environment".

Prior laboratory and field studies provide evidence that the effectiveness of feedback is higher when subordinates have greater trust in supervisor (e.g., O'Reilly, 1977, 1978; O'Reilly and Anderson, 1980; Zand, 1972). For example, O'Reilly and Anderson (1980) find that high-trusting subordinates perceive feedback as more relevant and accurate, and greater in quantity than the low-trust subordinates. Similarly, O'Reilly (1978) shows that the absence of trust between subordinates and supervisors leads to a lower perception of feedback accuracy. Hartmann and Slapnicar (2009) provide further evidence of this relationship and show that perceived quality of performance feedback enhances trust both directly and indirectly, through higher perceptions of procedural justice. In fact, Coletti, Sedatole and Towry (2005) argue that high-quality feedback positively influences trust because subordinates consider supervisors' attempts to provide good feedback as an indication of supervisors' desire to help subordinates to improve.

Although prior research examining the effect of feedback quality on trust is mostly accomplished in large companies (e.g., Hartmann and Slapnicar, 2009), I argue that perceived quality of performance feedback influences trust in the same way in SMEs. This argument arises from psychological literature which suggests that the effectiveness of feedback and its relationship to trust depends on individual characteristics of subordinates (e.g., Ilgen, Fisher and Taylor, 1979), instead of organizational characteristics (such as firm size).[13]

Hence, the above discussion suggests that perceived quality of performance feedback is positively related to trust in the supervisor in SMEs. The following hypothesis is therefore tested:

H5: There is a positive relationship between perceived quality of performance feedback and trust in the supervisor in SMEs.

2.2.6 Relationships among outcome variables

Intention to turnover and individual performance

Most of prior research focuses on the antecedents of turnover intentions (Bluedorn, 1982; Jackofsky, 1984; Kalliath and Beck, 2001; Peters, Bhagat and O'Connor, 1981; Saks, 1996). Some consider specifically the impact of employees' performance on their intention to turnover (e.g., Jones et al., 2007; Zimmerman and Darnold, 2009). However, few scholars consider turnover intention as a possible antecedent of individual performance (e.g., Bowen, 1982; Hui, Wong and Tjosvold, 2007) and recognize the need for further research on this issue (Arthur, 1994).

A conceptual model of organizational adaptation by Hulin, Roznowski and Hachiya (1985) proposes a general withdrawal construct wherein the employee may reduce job input as a result of his/her turnover intention. An analytical study by Bowen (1982) is consistent with this proposition indicating that job performance may suffer of employees' intention to turnover. Particularly, Bowen (1982, p. 12) argues that "if employees

[13] Ilgen, Fisher and Taylor (1979) argue that the way feedback is perceived depends on such factors as subordinate's locus of control, self-esteem and social anxiety.

intending to quit are performing tasks where they have a great deal of control over their productivity, then I/Q (i.e., intention to turnover) may lead to lower job performance". This author explains that an employee may perceive the current work situation as more free of external constraints and, thereby, feel more control over his/her productivity, when he/she faces a variety of external job offers during his/her searches for a new job. Hui, Wong and Tjosvold (2007) propose an alternative view of the relationship between intention to turnover and performance, based on an investment perspective. This perspective suggests that employees may regard job performance as a form of investment in the organization. From this viewpoint, it is unlikely that employees who intend to leave the organization will make a substantial investment in it.[14] Instead, employees with a high intention to turnover develop low performance expectations which, in turn, undermine their current performance (Curry et al., 1998).

Moreover, dissatisfaction and disappointment felt by the employee before or after the turnover decision may also affect the relationship between intention to turnover and performance. For instance, if employee's desire to quite emerges due to a dissatisfying and stressful current job situation (Mobley, 1977), he/she may engage in alternative forms of withdrawal behavior such as absenteeism and tardiness (Porter and Steers, 1973), which undermine his/her performance. Furthermore, in the case that an employee, who intends to leave the organization, fails to find a new attractive job, he/she may experience decreased self-esteem and self-confidence (Wortman and Brehm, 1976), which ultimately may deteriorate individual performance (Korman, 1977).

[14] Investigating antecedents of turnover intention and job performance in a toy manufacturing factory of China, Hui, Wong and Tjosvold (2007) hypothesize and find evidence that intention to turnover decreases employee's performance. However, unlike the present study, they measure performance of employees basing on supervisors' judgment but not information provided by employees (i.e., self-report measure). Nevertheless, prior research recognizes that self-report measures of performance tend to be less biased than supervisor ratings (Dunk, 1993; Marginson and Ogden, 2005; Parker and Kyj, 2006).

Among a few studies that empirically test the effect of intention to turnover on individual performance, most of them use data obtained from large companies (e.g., Hui, Wong and Tjosvold, 2007). However, the relationship between intention to turnover and performance depends on personal expectations of the subordinate (i.e., how strongly a subordinate expects the relationship to continue and whether or not the end-point is indeterminate) (Heide and Miner, 1992), rather than on organizational characteristics (such as firm size). Hence, basing on an investment perspective and similarly to large companies, I propose that SMEs' managers with high intention to turnover will perform worse than those with low intention to turnover. Thus, my hypothesis is as follows:

H6a: Intention to turnover is negatively related to individual performance in SMEs.

Organizational identification and individual performance

Existent literature regarding the relationship between organizational identification and individual performance is based heavily on social identity theory (Tajfel, 1972). According to this theory, organizational identity represents a form of social identity. Social identity makes the individual - who is a member of a particular social group - stand out from individuals in other groups through the social group's distinguishing characteristics (Ashforth and Mael, 1989). A main concept of social identity theory is that the "extent to which people identify with a particular social group determines their inclination to behave in terms of their group membership" (Ellemers, Kortekaas and Ouwerkerk, 1999, p. 372). That is, when an individual perceives him/herself as a part of a particular group, it "makes the individual perceive characteristic group features as self-descriptive and leads him or her to adopt distinctive group norms as guidelines for his or her own behavior" (Ellemers, De Gilder and Haslam, 2004, p. 462). Moreover, Olkkonen and Lipponen (2006) argue that a high identification with the group lead an individual to act in accordance with group's expectations and is associated with more positive group-related attitudes and behaviors. This argument is consistent with Ellemers, Kortekaas and Ouwerkerk (1999) who state that strongly identified individuals are more committed, more involved with the group and invest more effort into the group to which they belong. Thus, the more an employee identifies with the organization, the more likely he/she will act in accordance with the organizational beliefs, norms and values (Ashforth and Mael, 1989; Dutton, Dukerich and Harquail, 1994). Van Knippenberg (2000) suggests that employees with a high identification with the organization consider the organization's mission and goals as their own and, therefore, become more motivated to achieve organizational goals. In fact, strongly identified employees are more inclined to obey to organizational requirements and act in the interests of the organization (Liu, Loi and Lam, 2011), considering the successes and failures of the organization as their own (Ashforth and Mael, 1989; Riketta, 2005; Tajfel and Turner, 1979). As a result, employees with high organizational identification will expend greater effort on the job than employees with low organizational identification (Dukerich, Golden and Shortell, 2002; Dutton, Dukerich and Harquail, 1994; Tajfel and Turner, 1979, 1986). Similarly, Liu, Loi and Lam (2011) argue that strongly identified employees make greater job effort because they want to help the organization to stand out among other, maintaining, therefore, the distinctiveness of their membership in the organization. Particularly, employees who feel a strong sense of belongingness to the organization, have more positive beliefs about the organization, cooperate more with their peers and exhibit a higher performance (e.g., Abrams, Ando and Hinkle, 1998; Ashforth and Mael, 1989; Carmeli, Gilat and Waldman, 2007; Mael and Ashforth, 1995; Tyler, 1999; Van Dick et al., 2006; Walumbwa, Avolio and Zhu, 2008; Wieseke et al., 2009).

Among several studies that empirically test the effect of organizational identification on individual performance, most of them use data obtained from large organizations (e.g., Carmeli, Gilat and Waldman, 2007; Walumbwa, Avolio and Zhu, 2008). However, the relationship between organizational identification and performance depends on the subordinate's sense of belongingness to this organization (e.g., Abrams, Ando and Hinkle, 1998; Mael and Ashforth, 1995; Tyler, 1999) and his/her member adjustment (Carmeli, Gilat and Waldman, 2007), instead of organizational characteristics such as firm size. Thus, basing on social identity theory (Tajfel, 1972) and similarly to large companies, I propose that managers of SMEs with high organizational identification will exhibit higher performance than those with low organizational identification. Thus, my hypothesis is as follows:

H6b: Identification is positively related to individual performance in SMEs.

2.3 Empirical study

2.3.1 Sample and data description

I collect data from two questionnaires targeted to SME managers.[15] The first questionnaire collects data regarding organizational characteristics and the second regarding the manager.

[15] My study relies on the number of employees to define SMEs, excluding micro-enterprises. Specifically, SMEs are those with 10-249 employees. This criterion is consistent with the European Commission definition (European Commission, 2005). I obtain a list of Portuguese SMEs from Informa DB, a firm specialized in corporate information.

The first questionnaire was successfully sent to 22 997 SMEs and 4 192 useable responses were received. This corresponds to an overall response rate of 18.23%. Using this database, a team of research assistants contacted via telephone each of these firms to collect information about the name and e-mail addresses of the directors/managers. This information serves to create a second database to send a new questionnaire. Thus, from the initial sample of 4 192 SMEs I obtain 11 748 names with job roles and e-mail addresses (personal or organizational). However, due to refusal of participation, impossibility to contact the firms, or error in the sending process, the number of questionnaires sent was 8 180.[16] I receive 1 474 usable responses, but because I have to restrict my sample to respondents who filled in the question about SPE, the number of observations falls to 1 147. This corresponds to a usable response rate of 14.02%.[17] However, 484 respondents indicate that they do not have supervisor (and consequently do not have SPE), which reduces the final sample size to 663.

To test for a potential (non-) response bias I apply two procedures (Armstrong and Overton, 1977). First, I compare the size, region and industry representation of the 487 companies of the 663 respondents to the 2 484 companies of the 7 517 non-respondents from the list of 8 180 e-mails sent successfully.[18] A chi-square test shows that the proportion of respondents in each industry and in each region category is not significantly different between the respondents' sample and the non-respondents' sample. Nevertheless, an independent sample t-test regarding the firm size (measured as the

[16] The reasons for the impossibility to contact the firm include: extinct organization, missing or invalid telephone contact, and no data available on the internet. Errors in the sending process include: incorrect e-mail address, full mailbox, insufficient capacity of the mailbox, and message considered as spam.
[17] Previous survey studies report similar response rate: 14.9% for Auzair and Langfield-Smith (2005), 12.5% for Widener (2007), 16.9% for Gong and Ferreira (2014).
[18] Because the total sample of 663 responses may include more than one observation from the same firm, I eliminate the duplicated rows. The sample of 487 observations that includes only one observation for each firm is used to test for non-response bias.

number of employees) shows a difference between respondents ($\overline{X}$ = 73.23) and non-respondents ($\overline{X}$ = 33.06) and this difference is statistically significant ($p < 0.01$ for a two-tailed t-test). This difference in sample means by size is one of the limitations of this study.

Second, based on the response return date, I compare early respondents (first 15%) to late respondents (last 15%), for all constructs of interest (demographic and model variables). Overall, the results indicate that there are no statistically significant differences between groups for the variables examined in my model, except for the individual performance variable (measured in a 7 point Likert scale). Early respondents have a mean of 5.02 while late respondents a mean of 4.73 and the difference is statistically significant at 0.05 level. This implies that non-respondents might be different from the actual sample regarding individual performance. This is also a limitation of this study.

To mitigate the concern of common method bias in measures (Mossholder et al., 1998; Podsakoff and Organ, 1986), I apply Harman's one-factor test as well as a confirmatory factor analysis (CFA). The factor solution yields four factors with eigenvalues greater than one. Together they account for 66% of the total variance. The first factor explains 27% of the total variance, which means that it does not account for a majority of the variance. The confirmatory factor analysis shows that the single-factor model does not fit the data well: $X^2(152) = 3610.128$; $p < 0.01$; the root mean square error of approximation (RMSEA) = 0.185; the comprehensive fit index (CFI) = 0.425; Tucker-Lewis Index (TLI) = 0.354.[19] In sum, the results of both procedures do not indicate any significant common method bias.

[19] CFI compares how much better an implied model fits as compared to a null model, TLI contains a penalty for lack of parsimony and RMSEA adjusts for both sample size and number of degrees of freedom (Chen, Gully and Eden, 2001). CFI and TLI close to 1 (Hu and Bentler, 1999), RMSEA less than 0.08 (Browne and Cudeck, 1989) and CMINDF ratio less than 5 (Wheaton et al., 1977) reflect a good model fit. Although

Table 2.1. Descriptive statistics for demographic variables (N = 663).

Panel A: Demografic information of respondents and firms				
Variable	Min	Mean	Max	St Dev
Age (years)	25	43.96	73	8.70
Job tenure (years)	0.5	21.30	52	9.05
Company tenure (years)	0.5	14.53	47	8.69
Firm size (no. of employees)	10	80.88	249	63.43

Panel B: Job titles		
	Number	Percentage
CEO	85	12.82
CFO	181	27.30
Comercial/Sales/Billing Manager	67	10.11
Human Resources Manager	38	5.73
Logistic/Marketing Manager	39	5.88
Production/Quality Manager	66	9.95
Other Managers	128	19.31
Executive member of the Board of Directors	59	8.90

Panel C: Breakdown of responses by industry		
	Number	Percentage
Accommodation and food service activities	31	4.68
Administrative and support service activities	19	2.87
Agriculture, forestry and fishing	7	1.06
Construction	26	3.92
Financial and insurance activities	34	5.13
Information and communication	43	6.49
Manufacturing	236	35.60
Professional, scientific and technical activities	33	4.98
Real estate activities	8	1.21
Transport and storage	31	4.68
Water supply; sewerage, waste management and remediation activities	16	2.41
Wholesale and retail trade; repair of motor vehicles and motorcycles	179	27.00

Table 2.1 reports the descriptive statistics for the demographic variables. The respondents are on average 43.96 years-old, have 21.30 years of job tenure and 14.53 years of tenure in the company. Sample firms have an average of 81 employees. Most occupy the position of chief financial officer (CFO) and chief executive officer (CEO) (27% and 13%,

the chi-square statistic is significant, prior research shows that it may occur due to high sensitivity of this statistic to large sample sizes such as mine (Lawrence, Mulaik and Brett, 1982).

respectively). Table 2.1 also shows that respondents come mainly from the manufacturing and wholesale and retailing industries (36% and 27%, respectively).

2.3.2 Measurement of variables

To increase the overall quality of the instrument, I use variables validated in prior studies. In some cases, I make slight modifications with the aim to fit the measures to the present research context. In addition, I draft the full version of questionnaire in English and after that translate it into the local language of the managers following the procedures used in intercultural research (e.g., Ady, 1994). First, I carefully translate the questionnaire from its original English version to the local language of the managers. Second, other researchers fluent in both languages review my translation. Third, other researcher performs a retranslation of the instrument. Finally, researchers compare the retranslation wording with the original wording and resolve differences between the two. Below, I present more details on the measurement of variables. Appendix A presents the questions and items used to measure the main constructs. Table 2.2 presents descriptive statistics for the measurement instruments.

Subjective performance evaluation (SPE)

I measure SPE as the percentage of the subjective elements in the overall assessment of respondent's performance (SPE_PERC), which may vary from 0 to 100%.

Feedback quality

I assess perceived quality of performance feedback (FBQ) by using an instrument employed in prior psychology and accounting literature (e.g., Hartmann and Slapnicar, 2009; Steelman, Levy and Snell, 2004). I ask respondents to indicate on a 5-point Likert scale (1 = completely disagree, 5 = completely agree) the level of agreement with each of 4 items.

Trust in the supervisor

I assess trust in the supervisor (TRUST) by using an instrument employed in prior psychology and accounting literatures (e.g., Hartmann and Slapnicar, 2009; Read, 1962). The instrument for trust captures the extent to which respondents agree to each of 3 items, where 1 = completely disagree and 5 = completely agree.

Managerial performance

To measure managerial performance (PERF) I use self-reported survey questions developed by Mahoney, Jerdee and Carroll (1965) and recurrently used in prior accounting studies (Chalos and Poon, 2000; Chong and Chong, 2002; Hall, 2008; Marginson and Ogden, 2005; Otley and Pollanen, 2000; Parker and Kyj, 2006).[20] The original scale assesses managerial performance along eight dimensions related to planning, investigating, coordinating, evaluating, supervising, staffing, negotiating and representing, and also includes an overall assessment of performance. Hall (2008) reduces the scale to 7 items by excluding 2 items (negotiating and representing) because of low factor loadings and not belonging to a unidimensional managerial performance scale. I follow his procedure and ask respondents to indicate on a 7-point Likert scale (1 = well below average to 7 = well above average) the extent to which their performance was below average or above average on each of the 7 remaining items.

[20] According to some prior studies, self-report measures of performance are valid and tend to be less biased than supervisor ratings (Dunk, 1993; Marginson and Ogden, 2005; Parker and Kyj, 2006). Moreover, self-rated subjective measures of subordinate performance are highly correlated with supervisors' subjective ratings of subordinate performance, as well as with objective measures of subordinate performance (Furnham and Stringfield, 1994; Heneman, 1974).

Intention to turnover

To measure managerial intention to turnover (TURNOV), I use 3 items from the Michigan Organizational Assessment Questionnaire developed by Cammann et al. (1979). The responses for the first and second items ("I often think about quitting" and "I will probably look for a new job in the next year") are based upon a 7-point Likert-scale with a range between 1 = strongly disagree and 7 = strongly agree. The responses for the third item ("How likely is it that you will actively look for a new job in the next year?") are based upon a 7-point Likert-scale with a range between 1 = not at all likely to 7 = extremely likely.

Additionally, I use a dummy variable for short horizon in the firm (SHORTHORIZ), developed by Abernethy et al. (2015), as a proxy for intention to turnover, since it may closely approximate to the latent construct. This variable assumes the value of 1 if respondent has short horizon in firm, and zero otherwise. Respondents are considered to have a short horizon in the firm if they report a lower than 50 percent probability that they will still be working at their current firms 10 years from now.

Identification

To measure organizational identification (IDENT), I use one of the theoretical components of Cook and Wall's Organizational Commitment Instrument (1980). Respondents indicate their agreement with each of 3 items on a 7-point Likert scale ranging from 1 = strongly disagree to 7 = strongly agree.

Table 2.2. Descriptive statistics for the measurement instruments (N = 663).

Variable	N	Min	Mean	Median	Max	St Dev
SPE	663	0	20.00	0.00	100	27.53
Trust in supervisor	645	1	3.57	3.67	5	0.79
Feedback quality	649	1	3.71	4.00	5	0.79
Individual performance	614	1	4.86	4.71	7	0.87
Intention to turnover	659	1	2.55	2.00	7	1.58
Identification	662	1	6.16	6.00	7	0.84

Note: The number of observations on the variables is fewer than in the total sample (N = 663) due to missing data.

Control variables

I consider several control variables in this study, specifically risk attitude, family ownership, manager's tenure, professional experience, position, age and firm size.

I use the variable risk attitude (RISK) to control for risk seeking behaviors in the intention to turnover. Prior research suggests that intention to turnover may be an indicator of willingness to engage in risky behavior (MacCrimmon and Wehrung, 1985). Moreover, analyzing the relationship between turnover intentions and turnover, Allen, Weeks and Moffitt (2005) find that this relation is stronger for individuals with low risk aversion. I assess risk attitude by adapting to my sample an instrument developed by Pennings and Smidts (2000). I ask respondents to indicate on a 7-point Likert scale the level of agreement with each of 3 items related to risk attitude, ranging from 1 = strongly disagree to 7 = strongly agree.

The variable family ownership (FAM_OWN) is used to account for the possibility that family firms exhibit different properties, which can affect the level of subjectivity. Prior research suggests that family businesses make less use of professional management control practices such as appraisal systems due to limited organizational capabilities (e.g., improper management of personnel, limited financial and human resources) (Alattar, Kouhy and Innes, 2009; Neubauer et al., 2012; Reid and Adams, 2001). To measure family ownership, I ask respondents to indicate the percentage of the company's equity held by family members. The response may vary from 0 to 100%.

Since past research shows that demographic characteristics influence individual perceptions, behaviors and attitudes (e.g., Burdett, Carrillo-Tudela and Coles, 2011; Lok and Crawford, 2001; Martin and Edwards, 2009), I control for their effects. The respondent's tenure (TENURE), professional experience (EXPROF) and age (AGE) are self-reported measures collected through the questionnaire and transformed into their natural logarithms, which mitigates their high skewness and kurtosis. I also control for position (POSITION) by including dummy variables for CEO (CEO), CFO (CFO), production and quality manager (PRODQLMAN), logistics and marketing manager (LGMKTMAN), commercial, sales and billing manager (COMMAN), human resource manager (HRMAN) and board member (BOARDMEM), the default is other managers (OTHERMAN).

Finally, controlling for firm size accounts for the possibility that small and medium companies can exhibit different properties, affecting the level of subjectivity, perceived feedback and trust in supervisor, as well as job-related outcomes. Prior literature suggests that firm size influences the quality of employee relations (e.g., Talacchi, 1960; Thomas, 1959). To measure firm size (SIZE), I use the natural logarithm of the number of employees (e.g., Davila and Foster, 2007), which also mitigates the high skewness and kurtosis of the original variable.

2.3.3 Data analysis and results

To investigate my hypothesized model, I employ structural equation modeling (SEM), using STATA 14.1. My empirical method uses SEM because it accounts for the measurement error in the latent variables and allows for the examination of relationships among multiple dependent variables. Moreover, "it is still generally true that SEM is a large-sample technique" which forces a decision regarding the satisfactory level of the whole model (Kline, 2016, p. 14).

Consistent with generally accepted practices (e.g., Bagozzi and Yi, 2012; Hair et al., 2014), I adopt a two-step method which encompasses: (1) evaluation of the measurement model to assure its fit and (2) examines the structural model. I use the full information maximum likelihood (FIML) estimation method for both the measurement model and full structural model. FIML is superior to other imputation techniques as it gives unbiased estimates of means, variances and other parameters (Arbuckle, 1996; Wothke, 2000). Multivariate normality of data is a principal assumption of the FIML in SEM. However, Kline (2016) notes that multivariate non-normality can usually be identified through univariate procedures. An examination of kurtosis and skewness reveals that all variables indicated in Figure 2.1 are well below 10.0 and 3.0, respectively, demonstrating that the data is within tolerable levels of univariate normality (Kline, 2016).[21]

2.3.3.1 Measurement model and assessment of model fit

In a first step, I evaluate the measurement model with a confirmatory factor analysis (CFA) (Gerbing and Anderson, 1988). In the initial approach, I eliminate two items from further analyses. First, I remove one item of the feedback quality scale (FBQ2) due to low standardized loading (factor loading = 0.23; possibly due to reversed scaling, e.g., Rodebaugh et al., 2011; Roszkowski and Soven, 2010). Second, I exclude one reverse

[21] I perform the examination of kurtosis and skewness for respondent's tenure, professional experience and age, and firm size after their logarithmic transformation.

score item of the identification scale (IDENT3) with the largest measurement error variance, which causes both low composite reliability (CR) and low average extracted variance (AVE).

Table 2.3 shows the results of CFA (after removing the two problematic items) supporting the unidimensionality of the constructs and their convergent validity, since (1) all standardized loadings are significant ($p < 0.05$) and greater than 0.5; (2) AVE of each constructs is greater than 0.5 and (3) composite reliability (CR) is greater than 0.7 (Hair et al., 2014). Despite the implementation of preventive procedures, the identification construct exhibits slightly lower AVE, which may be caused by the reduced number of items (only two). All loadings are significant at the 0.001 level. Table 2.4 provides further support for the discriminant validity of the questionnaire constructs, since the Cronbach's alphas (on the diagonal) exceed the bi-variate correlations in all cases (Bagozzi, Yi and Phillips, 1991; Churchill, 1979). Overall, all Cronbach's alphas are comfortably above lower limits of acceptability, generally considered to be around 0.50 – 0.60 (Nunnally, 1978). In sum, the measurement model exhibits strong psychometric properties.

Furthermore, the confirmatory factor analysis shows that the measurement model fits well on all fit indicators: $X^2(137) = 349.847$, $p < 0.01$; CMINDF = 2.55; CFI = 0.965; TLI = 0.956; RMSEA = 0.048. According to chi-square test, the data fit the model when chi-square is non-significant. However, according to Lawrence, Mulaik and Brett (1982), chi-square test is sensitive to sample size and, therefore, may be misleading. Specifically, large samples inflate the chi-square and decrease the likelihood of achieving a good model fit. Thus, although the chi-square is significant, the CMINDF is less than five, indicating an acceptable fit of the model (Grabner and Speckbacher, 2016). Moreover, according to

Browne and Cudeck (1989), the model should be rejected only if RMSEA is above 0.1. Therefore, my measurement model clearly satisfies these basic criteria.

Table 2.3. Results of confirmatory factor analysis (N = 663).

Construct indicators	Factor loadings	AVE	CR
Trust in supervisor		0.583	0.810
TRUST1	0.741		
TRUST2	0.867		
TRUST3	0.669		
Feedback Quality		0.596	0.846
FBQ1	0.879		
FBQ3	0.799		
FBQ4	0.615		
Individual performance		0.592	0.910
PERF1	0.768		
PERF2	0.697		
PERF3	0.789		
PERF4	0.795		
PERF5	0.805		
PERF6	0.772		
PERF7	0.756		
Intention to turnover		0.730	0.892
TURNOV1	0.703		
TURNOV2	0.941		
TURNOV3	0.901		
Identification		0.484	0.728
IDENT1	0.678		
IDENT2	0.713		

Note: Result of Kaiser–Meyer–Olkin test is 0.878, indicating good sampling adequacy (greater than 0.80) and the Bartlett test of Sphericity is highly significant ($p < 0.01$).

Table 2.4. Multi-trait matrix[a] (N = 663).

Variable	1	2	3	4	5	6
1. SPE	n.a.					
2. Trust in supervisor	-0.14***	**0.80**				
3. Feedback quality	-0.16***	0.67***	**0.83**			
4. Individual performance	0.03	0.03	-0.02	**0.91**		
5. Intention to turnover	0.12***	-0.46***	-0.40***	0.07	**0.88**	
6. Identification	-0.14***	0.48***	0.43***	0.10**	-0.52***	**0.65**

[a] The diagonal of the matrix is the Cronbach's Alpha for each variable. The remainder of the table reports the bi-variate correlation coefficients. n.a. is non-applicable.
** and *** indicate the significance of the p-value at < 0.05 and < 0.01, respectively, all p-values are two-tailed.

2.3.3.2 Structural model results and hypotheses testing

In the second step, I establish the structural model by adding the proposed structural paths to the measurement model (as specified in the hypotheses). Moreover, I allow the endogenous variables of intention to turnover and identification to be correlated. This correlation is supported by prior psychological and management literature. For instance, a meta-analytic review of behavioral studies reports that identification exhibits strong and negative correlations with turnover intention (e.g., Meyer et al., 2002; Riketta, 2005). Drawing on social identity approach, Van Dick et al. (2004) and Moura et al. (2009) also find a negative relationship between these two variables. These findings confirm the idea that identification is a more proximal predictor of turnover intention, i.e. "organizational identification offers a strong psychological anchor that discourages turnover intention" (Moura et al., 2009, p. 540). Furthermore, following extant literature (e.g., Fullerton, Kennedy and Widener, 2013; Groen, Wouters and Wilderom, 2016), I also allow for covariance of the error terms of two items of the feedback quality measure ("The feedback I receive from my supervisor helps me do my job" and "I value the feedback I receive from my supervisor") as suggested by STATA and theoretically justified - these two items are very similar (especially in the Portuguese language) in that they both deal with the value and usefulness of the supervisor's feedback.

Table 2.5 presents the results of the structural model in terms of path coefficients and goodness-to-fit indices. Overall, fit indices indicate that the base model is a good fit of the data. However, the existence of a well-fitting model does not ensure that it is the only appropriate model (Kline, 2016). Accordingly, I compare the base model to alternative theory-based models, that are more parsimonious, to rule out alternative model specifications. The first alternative model (Model1) is a non-mediated model, the second alternative model (Model2) considers trust as the only mediator and the third alternative model (Model3) considers feedback quality as the only mediator.[22] The results presented in Table 2.5 show that the base model exhibits better fit than all the other models. Significant results of the base model are presented in Figure 2.2**.**

Next, I perform several validity tests to ensure that the SEM model results are robust. First, I run the SEM model adding one control path from family ownership to SPE and find that the statistical inferences are unaffected by this procedure. The association between family ownership and SPE is not significant, which suggests that ownership structure does not influence the level of subjectivity in SMEs.

Second, I run the SEM model adding one control path from risk attitude to intention to turnover.[23] I find the results remain qualitatively unchanged since all the results that were previously significant are still significant and the paths that were not significant remain unchanged. The results also show a positive and significant relationship between risk

[22] Although the alternative Model1 shows insignificant association between SPE and performance ($p > 0.10$), prior research indicates that significant indirect effects can be detected, even when the total effect is not statistically significant (Kenny and Judd, 2014; Rucker et al., 2011).

23 Factor analysis of the variable RISK reveals that the three questions load on a single factor. All standardized loadings are significant ($p < 0.05$) and greater than 0.59, AVE is 0.608 and CR is 0.84.

attitude and intention to turnover (coeff. = 0.223, $p < 0.01$), which indicates that managers with a larger risk tolerance have a higher intention to turnover (e.g., MacCrimmon and Wehrung, 1985).

Third, I run a series of SEM models that control for manager's tenure, professional experience, position and age. I implement these controls by modeling paths between each of the control variables and each of the five endogenous variables (feedback quality, trust, performance, intention to turnover and identification). I find that the results are inferentially identical, with similar significance levels for the hypothesized paths. I observe significant associations between the following control variables and the endogenous variables: i) age and feedback quality (coeff. = - 0.070, $p < 0.10$), age and trust (coeff. = - 0.064, $p < 0.05$), age and performance (coeff. = 0.076, $p < 0.10$), age and intention to turnover (coeff. = - 0.069, $p < 0.10$); ii) tenure and intention to turnover (coeff. = - 0.136, $p < 0.01$), tenure and identification (coeff. = 0.145, $p < 0.01$); iii) professional experience and identification (coeff. = 0.085, $p < 0.05$); iv) CEO and performance (coeff. = 0.013, $p < 0.05$), board member and intention to turnover (coeff. = - 0.010, $p < 0.05$), CEO and identification (coeff. = 0.164, $p < 0.01$), CFO and identification (coeff. = 0.010, $p < 0.10$), logistics and marketing manager and identification (coeff. = 0.087, $p < 0.10$), commercial, sales and billing manager and identification (coeff. = 0.080, $p < 0.10$), board member and identification (coeff. = - 0.165, $p < 0.01$). These results indicate that older managers perform better and have lower intention to turnover, despite their lower perception of feedback quality and lower trust in supervisor. Moreover, more tenured and more experienced managers have higher organizational identification, and more tenured managers have lower intention to turnover. Regarding the position, the results show that CEOs have better performance, while board members exhibit lower intention to turnover.

Furthermore, CEOs, CFOs, logistics and marketing managers, and commercial, sales and billing managers have higher organizational identification, while board members are less identified with the organization.

Fourth, I run the SEM model including a control path between firm size and each of the six variables of the model. I find that the results are also inferentially identical, with similar significance levels for the hypothesized paths. I also observe positive and significant relationship between firm size and individual performance (coeff. = 0.083, $p < 0.10$). This result suggests that managers perform better in large firms.

Additionally, I investigate the results' sensitivity to the variable intention to turnover used. I substitute the latent construct of intention to turnover by the directly observed variable of short horizon probability to be in the current firm ten years from today (SHORTHORIZ). I find that the statistical inferences are almost unchanged.[24]

[24] The only relevant difference is that the path between SHORTHORIZ and PERF becomes insignificant.

Table 2.5. Structural model.

Pred. sign	Independent variables	Dependent variables	Base model	Model1	Model2	Model3
			Coeff.	Coeff.	Coeff.	Coeff.
-	SPE	Feedback Quality	-0.182***	-	-	-0.194***
-		Trust in supervisor	-0.020	-	-0.172***	
		Individual performance	-	0.048	-	-
		Intention to turnover	-	0.122***	-	-
		Identification	-	-0.170***	-	-
+	Trust in supervisor	Individual performance	0.073	-	-0.060	-
-		Intention to turnover	-0.465***	-	-0.532***	-
+		Identification	0.661***	-	0.690***	-
+	Feedback Quality	Trust in supervisor	0.830***	-	-	-
+		Individual performance	-0.166	-	-	-0.125*
-		Intention to turnover	-0.079	-	-	-0.468***
+		Identification	0.033	-	-	0.586***
-	Intention to turnover	Individual performance	0.270***	0.273***	0.274***	0.266***
+	Identification	Individual performance	0.362***	0.320***	0.358***	0.387***
	Model fit	N	663	663	663	663
		X^2	352.667	209.652	272.984	277.445
		Df	140	60	98	97
		p-value	0.000	0.000	0.000	0.000
		CMINDF	2.52	3.49	2.79	2.86
		CFI	0.965	0.961	0.963	0.963
		TLI	0.957	0.950	0.955	0.954
		RMSEA	0.048	0.061	0.052	0.053

Note: *, **, *** Indicates $p < 0.10$, $p < 0.05$, and $p < 0.01$, respectively, two-tailed test. First column reports predicted sign of the relationships.

2.4 Discussion of hypotheses

I find strong support for H1, since SPE is negatively associated with the perceived quality of feedback ($p < 0.01$). This finding supports the argument that subordinates perceive supervisor's feedback from SPE as vague and uninformative due to the presence of evaluation biases (Fulk, Brief and Barr, 1985; Hawkins and Hastie, 1990; Ittner, Larcker and Meyer, 2003; Prendergast and Topel, 1993).

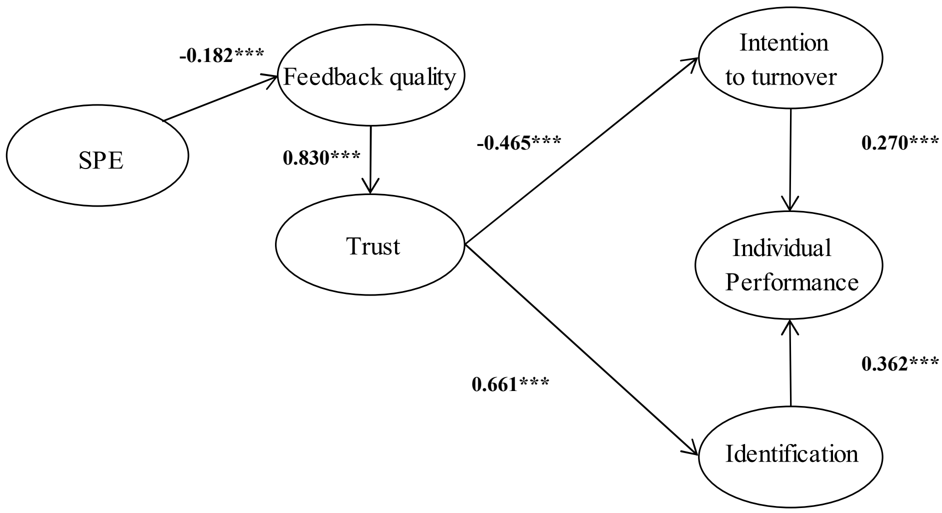

Figure 2.2. Graphical depiction of significant results.

Contrary to my expectation, data does not support hypotheses 2a, 2b and 2c. The relationships between feedback quality and intention to turnover (2a), feedback quality and individual performance (2b), and feedback quality and identification (2c) are not statistically significant. The result regarding negative relationship between feedback quality and individual performance is rather unexpected but can possibly be explained by the argument that when feedback from SPE is perceived as unclear and imprecise (e.g., Ittner, Larcker and Meyer, 2003; Prendergast and Topel, 1993), it may hamper individual performance (Jackson and Schuler, 1985). The lack of significant association between feedback quality and individual outcomes - intention to turnover, identification and performance - is a notable empirical result since a large body of research from accounting, psychology, economics and management literature proposes a positive effect of performance feedback on individual behaviors and attitudes (Ashford and Cummings, 1983; Blanes i Vidal and Nossol, 2011; Fuchs, 2015; Grant and Gino, 2010; Ilgen, Fisher and Taylor, 1979; Kluger and DeNisi, 1996; Locke and Latham, 1990; Stajkovic and Luthans, 1997, 2003; Tafkov, 2013; Tziner and Latham, 1989; Wright, 2004; Zábojník, 2014). Rather, my empirical evidence suggests a more complex relationship as high quality performance feedback leads to positive outcomes indirectly via trust in the supervisor. In fact, as Model 3 shows, when perceived feedback quality is considered as the only mediator all the relationships between perceived feedback quality and job related outcomes are significant and with the predicted sign, except for performance. Specifically, feedback quality is negatively and significantly associated with individual performance (coeff. = - 0.125, $p < 0.10$) and intention to turnover (coeff. = - 0.468, $p < 0.01$), and positively and significantly associated with identification (coeff. = 0.586, $p < 0.01$).

Interestingly, I find no evidence to support H3 that predicts a negative relationship between SPE and trust in supervisor. A possible explanation for this is that the relationship between SPE and trust is not linear; instead this relationship is indirect through feedback quality. In fact, Model 2 corroborates this speculation. That is, when I consider trust as the only mediator, the negative relation between SPE and trust becomes significant (coeff. = - 0.172, $p < 0.01$). Moreover, untabulated results show that when the base model does not include the path between feedback quality and trust, the relationship between both SPE and feedback quality (coeff. = - 0.191, $p < 0.01$) and SPE and trust (coeff. = - 0.167, $p < 0.01$) is negative and significant.

In the ensuing set of hypotheses, I predict that trust in the supervisor is related to intention to turnover, performance and identification. The results of the structural model are partially consistent with these predictions. Specifically, I observe the hypothesized negative relationship between trust and intention to turnover, and a positive relationship between trust and identification, thus supporting H4a and H4c ($p < 0.01$). These results corroborate extant management accounting literature highlighting the importance of trust in enhancing organizational commitment and identification (Sholihin and Pike, 2009) and reducing the intention to turnover (Prendergast and Topel, 1993). However, I do not find statistical evidence to support H4b which expected a positively association between trust and individual performance ($p = 0.590$). This is consistent with Dirks and Ferrin (2001), which argue that the effect of trust on performance is weak and inconsistent.

Furthermore, I find strong support for H5, since feedback quality is positively related to trust ($p < 0.01$). This finding substantiates previous research, which suggests that effective feedback leads to high trust towards supervisors (e.g., Hartmann and Slapnicar, 2009; O'Reilly, 1978; O'Reilly and Anderson, 1980; Zand, 1972).

Regarding the relationships among the outcome variables, I do not find support for H6a that predicts a negative relationship between intention to turnover and individual performance. Instead, I observe a positive association between these two variables (coeff. = 0.270, $p < 0.01$). This result is consistent with prior literature which suggests that intention to turnover may lead to an increase in individual performance if this performance is visible to potential employers (Bowen, 1982) or if the employee's attitude towards change is less favorable (Pinto et al., 2015). Finally, I find strong support for H6b, since identification is positively related to individual performance (coeff. = 0.362, $p < 0.01$). This result corroborates extant literature based on social identity theory which shows a positive effect of identification on managerial performance (e.g., Carmeli, Gilat and Waldman, 2007; Liu, Loi and Lam, 2011; Walumbwa, Avolio and Zhu, 2008).

Additionally, although not hypothesized, I find a significant positive relationship between SPE and intention to turnover (coeff. = 0.122, $p < 0.01$) and a significant negative relationship between SPE and identification (coeff. = -0.170, $p < 0.01$) (see Model 1 in Table 2.5). These findings support the argument that various drawbacks of SPE such as favoritism, ignorance of some measures by evaluators, frequently changed criteria of bonus payment, and the presence of biases in subjective evaluation, may negatively influence employee behavior (for example, increase the turnover and decrease identification among discontented employees) (Ittner, Larcker and Meyer, 2003; Prendergast and Topel, 1993).

2.5 Conclusion

The purpose of this study is to investigate the effect of specific performance evaluation practices on managerial behaviors and attitudes. The existing literature shows conflicting results when investigating the relationship between the use of SPE and individual behaviors and attitudes (e.g., Van Rinsum and Verbeeten, 2012). On one hand, the presence of bias in SPE may reduce managerial motivation, increase turnover and decrease performance (Ahn, Hwang and Kim, 2010; Golman and Bhatia, 2012; Ittner, Larcker and Meyer, 2003; Prendergast and Topel, 1993; Van Rinsum and Verbeeten, 2012). On the other hand, when the use of subjectivity in performance evaluation is perceived by subordinates as flexible and thorough, it leads to an increase in motivation, higher organizational identification and greater effort (e.g., Bol, 2011; Gibbs et al., 2004; Merchant and Manzoni, 1989; Riketta and Van Dick, 2005; Van Rinsum and Verbeeten, 2012; Zábojník, 2014).

These contradicting results may be explained by other intervening variables in these relationships, not previously considered in the prior literature. In my study, I consider feedback quality and trust as those intervening variables. My findings indicate that SPE is a relevant attribute in evoking managerial intentions, attitudes and performance. In particular, I find that a greater use of SPE decreases feedback quality. The negative effect of SPE on feedback quality is consistent with the extant literature that argues that feedback from SPE may be considered as ambiguous (Ahn, Hwang and Kim, 2010), vague and uninformative (Fulk, Brief and Barr, 1985; Hawkins and Hastie, 1990; Ittner, Larcker and Meyer, 2003; Prendergast and Topel, 1993). I also find that SPE negatively affects trust via feedback quality. This result corroborates prior research, which suggests an undermining effect of SPE on trust in the supervisor (Van Rinsum and Verbeeten, 2012) and provides further explanation for this effect. Hence, my findings are in line with an argument that comprises perceived quality of performance feedback as a second mechanism by which performance evaluation affects trust in supervisor (e.g., Coletti, Sedatole and Towry, 2005; Hartmann and Slapnicar, 2009; Lau and Buckland, 2001). Furthermore, I find that perceived quality of performance feedback affects intention to turnover and identification because it enhances trust in supervisor. These results are consistent with effective feedback within organizations leading to high trust towards supervisors (e.g., O'Reilly, 1978; O'Reilly and Anderson, 1980; Zand, 1972). Additionally, trust plays an essential role in enhancing individual performance by increasing identification and decreasing intention to turnover. This finding contributes to a better understanding of the mechanism by which trust translates potential benefits to managerial performance (Dirks and Ferrin, 2001). Overall, the use of SPE affects intention to turnover, identification and managerial performance through both its effect on feedback quality and trust in the supervisor. This is an important finding because it links two streams of research. One stream emphasizes the central role of feedback quality (e.g., Fuchs, 2015; Zábojník. 2014), while the other focuses on the role of trust in performance evaluation practices (e.g., Baker, Gibbons and Murphy, 1994; Hopwood, 1972; Van Rinsum and Verbeeten, 2012). Moreover, although the effect of feedback quality on trust is documented in the management accounting literature (see Hartmann and Slapnicar, 2009), I advance this analysis by showing the behavioral consequences of this relationship, specifically in managerial intention to turnover, organizational identification and performance. Overall, my results show that the link between SPE and job-related outcomes is more complex than is currently recognized in the literature. Specifically, feedback quality and trust in the supervisor need to be considered when analyzing the effect of SPE on managerial intention to turnover, organizational identification and performance. Moreover, my study is among the first empirical analyses (using survey data) examining the effect of SPE on job-related outcomes of SME managers.

My study has three implications for practice. First, top-managers designing reporting and incentive systems should be aware of the critical role of performance feedback when using SPE. Better performance feedback reduces uncertainty regarding the performance evaluation and enhances subordinate's trust in the supervisor. Second, managers should be aware of the importance of developing a high trust environment between supervisors and subordinates. High trust reduces intention to turnover, promotes higher identification and enhances individual performance. Third, top-managers and owners should not ignore the effects of identification and intention to turnover on managerial performance.

Notwithstanding, my results have to be interpreted in light of their potential limitations. These limitations are avenues for future research. First, and although I take several steps to ensure the reliability of the data (i.e., pre-test of instrument, verifying of the construct and content validity) my study shares common drawbacks of survey studies. One of them is a (non-)response bias in terms of firm size. This limitation may be explained by the higher propensity of large organizations to participate in surveys, while small firms prefer to ignore them. The variable individual performance also exhibits response bias suggesting that there may be a difference between non-respondents and respondents in this regard. Therefore, the results related to performance should be generalized with caution. Second, this study does not consider the possibility that SPE may not be exogenous, but, instead, an endogenous choice of the firm. For instance, firms are motivated or even forced to use SPE (as substitutes or complements to objective performance measures), when objective performance measures are noisy or difficult to obtain to clearly mirror managers' effort. Thus, the investigation of SPE as an endogenous variable may represent a fruitful avenue for subsequent studies. Third, this study does not consider how performance evaluation practices and managerial intention to turnover, identification and performance evolve over time. Future research can investigate the dynamic relationship between SPE and managerial behaviors and attitudes. Fourth, I concentrate my research in SMEs. A useful extension of my study might be to directly compare the differences between SMEs and large companies regarding the behavioral consequences of SPE. Furthermore, I use SPE as an unidimensional construct (percentage of the subjective elements in the overall assessment of respondent's performance), while future research could consider SPE as a multidimensional construct (e.g., process-based subjectivity and supervisor-based subjectivity as used by Castro, 2016). Future studies can also extend my research by including the effect of biases (e.g., central and leniency biases, favoritism) in the analyses regarding the relationship between SPE and individual behaviors.

References

Abernethy, M. A., Bouwens, J., Hofmann, C. and van Lent, L. (2015). Social norms, agents' choices and incentive contract design. *Working Paper*. Available at SSRN: https://ssrn.com/abstract=2067040.

Abrams, D., Ando, K. and Hinkle, S. (1998). Psychological attachment to the group: cross-cultural differences in organizational identification and subjective norms as predictors of workers' turnover intentions. *Personality and Social Psychology Bulletin* 24 (10), 1027-39.

Ady, J. C. (1994). Minimizing threats to the validity of cross-cultural organization research. In: Wiseman, R. L. and Shuter, R. (Eds). *Communicating in multinational organizations.* Thousand Oaks, CA: Sage Publications, 30- 42.

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

Alattar, J. M., Kouhy, R. and Innes, J. (2009). Management accounting information in micro enterprises in Gaza. *Journal of Accounting & Organizational Change* 5 (1), 81-107.

Allen, D. G., Weeks, K. P. and Moffitt, K. R. (2005). Turnover intentions and voluntary turnover: The moderating roles of self-monitoring, locus of control, proactive personality, and risk aversion. *Journal of Applied Psychology* 90 (5), 980-990.

Amabile, T. M., Hill, K. G., Hennessey, B. A. and Tighe, E. M. (1994). The work preference inventory-assessing intrinsic and extrinsic motivational orientations. *Journal of Personality and Social Psychology* 66 (5), 950-967.

Antony, J., Kumar, M. and Madu, C. N. (2005). Six sigma in small- and medium-sized UK manufacturing enterprises: Some empirical observations. *International Journal of Quality & Reliability Management* 22 (8), 860-874.

Arbuckle, J. L. (1996). Full information estimation in the presence of missing data. In: Marcoulides, G. A. and Schumaker, R. E. (Eds). *Advanced structural equation modeling: Issues and techniques.* Mahwah, NJ: Erlbaum, 243-277.

Armstrong, J. S. and Overton, T. S. (1977). Estimating nonresponse bias in mail surveys. *Journal of Marketing Research* 14, 396-402.

Arthur, J. R. (1994). Effects of human resource systems on manufacturing performance and turnover. *Academy of Management Journal* 37 (3), 670-687.

Ashford, S. J. and Cummings, L. L. (1983). Feedback as an individual resource: Personal strategies of creating information. *Organizational Behavior and Human Performance* 32 (3), 370-398.

Ashforth, B. E. and Mael, F. (1989). Social identity theory and the organization. *Academy of Management Review* 14 (1), 20-39.

Auzair, S. M. and 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.

Bagozzi, R. P. and Yi, Y. (2012). Specification, evaluation, and interpretation of structural equation models. *Journal of the Academy of Marketing Science* 40 (1), 8-34.

Bagozzi, R. P., Yi, Y. and Phillips, L. W. (1991). Assessing construct validity in organizational research. *Administrative Science Quarterly* 36 (3), 421-458.

Baiman, S. and Rajan, M. V. (1995). The informational advantages of discretionary bonus schemes. *The Accounting Review* 70 (4), 557-579.

Baker, G. P., Gibbons, R. and Murphy, K. (1994). Subjective performance measures in optimal incentive contracts. *Quarterly Journal of Economics* 109 (4), 1125-1156.

Baker, G. P., Jensen, M. C. and Murphy, K. J. (1988). Compensation and incentives: Practice vs. theory. *The Journal of Finance* 43 (3), 593-616.

Berger, J., Harbring, C. and Sliwka, D. (2013). Performance appraisals and the impact of forced distribution: An experimental investigation. *Management Science* 59 (1), 54-68.

Bird, B. (1989). *Entrepreneurial Behavior.* Illinois: Scott Foresman and Company.

Blanes i Vidal, J. and Nossol, M. (2011). Tournaments without prizes: Evidence from personnel records. *Management Science* 57 (10), 1721-1736.

Blanthorne, C., Jones-Farmer, L. A. and Almer, E. D. (2006). Why you should consider SEM: A guide to getting started. In: Arnold, V, Clinton, B. D., Luckett, P. Roberts, R., C. and Wright, S. (Eds). *Advances in Accounting Behavioral Research*. Volume 9. Amsterdam, Netherlands: JAI Press, 179-207.

Bluedorn, A. C. (1982). A unified model of turnover from organizations. *Human Relations* 35 (2), 135-153.

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. *The Accounting Review* 86 (5), 1549-1575.

Bol, J. C. and Smith, S. D. (2011). Spillover effects in subjective performance evaluation: Bias and the asymmetric influence of controllability. *The Accounting Review* 86 (4), 1213-1230.

Bommer, W. H., Johnson, J. L., Rich, G. A., Podsakoff, P. M. and MacKenzie, S.B. (1995). On the interchangeability of objective and subjective measures of employee performance: A meta-analysis. *Personnel Psychology* 48 (3), 587-605.

Bowen, D. (1982). Some unintended consequences of intention to quit. *Academy of Management Review* 7 (2), 205-211.

Browne, M. W. and Cudeck, R. (1989). Single sample cross validation indices for covariance structures. *Multivariate Behavioral Research* 24 (4), 445-455.

Burdett, K., Carrillo-Tudela, C. and Coles, M. G. (2011). Human capital accumulation and labor market equilibrium. *International Economic Review* 52 (3), 657-677.

Burney, L. and Widener, S. (2007). Strategic performance measurement systems. Job-relevant information, and managerial behavioral responses--role stress and performance. *Behavioral Research in Accounting* 19 (1), 43-69.

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

Cammann, C., Fichman, M., Jenkins, D. and Klesh, J. (1979). *The Michigan Organizational Assessment Questionnaire.* Unpublished manuscript. University of Michigan: Ann Arbor.

Cardon, M. S. and Stevens, C. E. (2004). Managing human resources in small organizations: What do we know? *Human Resource Management Review* 14 (3), 295−323.

Carmeli, A., Gilat, G. and Waldman, D. A. (2007). The role of perceived organizational performance in organizational identification, adjustment and job performance. *Journal of Management Studies* 44 (6), 972-992.

Cassell, C., Nadin, S., Gray, M. and Clegg, C. (2002). Exploring human resource management practices in small and medium sized enterprises. *Personnel Review* 31 (6), 671-692.

Castro, V. C. B. (2016). The relationship between subjectivity in performance evaluation and subordinate performance. *Working paper,* Monash University.

Chalos, P. and Poon, M. C. C. (2000). Participation and performance in capital budgeting teams. *Behavioral Research in Accounting* 12 (1), 199-229.

Chen, G., Gully, S. M. and Eden, D. (2001). Validation of a new general self-efficacy scale. *Organizational Research Methods* 4 (1), 62-83.

Chenhall, R. H. (2003). Management control systems design within its organizational context: Findings from contingency-based research and directions for the future. *Accounting, Organizations and Society* 28 (2/3), 127-168.

Chong, V. K. and Chong, K. M. (2002). Budget goal commitment and informational effects of budget participation on performance: A structural equation modeling approach. *Behavioral Research in Accounting* 14 (1), 65-86.

Churchill, G. A. (1979). A paradigm for developing better measures of marketing constructs. *Journal of Marketing Research* 16 (Feb), 64-73.

Coletti, A. L., Sedatole, K. L. and Towry, K. L. (2005). The effect of control systems on trust in collaborative environments. *The Accounting Review* 80 (2), 477-500.

Colquitt, J. A. and Jackson, C. L. (2006). Justice in teams: The context-sensitivity of justice rules across individual and team contexts. *Journal of Applied Social Psychology* 36 (4), 870-901.

Cook, J. and Wall, T. (1980). New work attitude measures of trust, organizational commitment and personal need non-fulfillment. *Journal of Occupational Psychology* 53 (1), 39-52.

Cooper, M. D., Phillips, R. S., Sutherland, V. J. and Makin, P. J. (1994). Reducing accidents using goal setting and feedback: A field study. *Journal of Occupational and Organizational Psychology* 67 (3), 219-240.

Curry, L. A., Snyder, C. R., Cook, D. L., Ruby, B. C. and Rehm, M. (1998). Role of hope in academic and sport achievement. *Journal of Personality and Social Psychology* 73 (6), 1257-1267.

Davila, T. (2005). An exploratory study on the emergence of management control systems: Formalizing human resources in small growing firms. *Accounting, Organizations and Society 30* (3), 223-248.

Davila, T. and Foster, G. (2007). Management control systems in early-stage startup companies. *The Accounting Review* 82 (4), 907-937.

Dean, J. W. and Evans, J. R. (1994). *Total quality: Management, organization, and strategy.* Minneapolis/St. Paul, MN: West Publishing.

De Bruijn, H. (2002). Performance measurement in the public sector: Strategies to cope with the risks of performance measurement. *International Journal of Public Sector Management* 15 (6-7), 578-594.

Deci, E. L., Connell, J. P. and Ryan, R. M. (1989). Self-determination in a work organization. *Journal of Applied Psychology* 74 (4), 580-590.

De Grip, A. and Sieben, I. (2009). The effectiveness of more advanced human resource systems in small firms. *International Journal of Human Resource Management* 20 (9), 1914-1928.

De Kok, J. M. P., Uhlaner, L. M. and Thurik, A. R. (2006). Professional HRM Practices in family owned-managed enterprises. *Journal of Small Business Management* 44 (3), 441-460.

Deshpande, S. P. and Golhar, D. Y. (1994). HRM practices in large and small manufacturing firms: A comparative study. *Journal of Small Business Management* 32 (2), 49-59.

Dirks, K. T. and Ferrin, D. L. (2001). The role of trust in organizational settings. *Organization Science* 12 (4), 450-467.

Dukerich, J. M., Golden, B. R. and Shortell, S. M. (2002). Beauty is in the eye of the beholder: The impact of organizational identification, identity and image on the cooperative behaviors of physicians. *Administrative Science Quarterly* 47 (3), 507-533.

Dunk, A. S. (1993). The effects of job-related tension on managerial accounting performance in participative budgetary settings. *Accounting, Organizations and Society* 18 (7), 575-585.

Dutton, J. E., Dukerich, J. M. and Harquail, C. V. (1994). Organizational images and member identification. *Administrative Science Quarterly* 39 (2), 239-263.

Ellemers, N., De Gilder, D. and Haslam, S. A. (2004). Motivating individuals and groups at work: A social identity perspective on leadership and group performance. *Academy of Management Review* 29 (3), 459-478.

Ellemers, N., Kortekaas, P. and Ouwerkerk, J. W. (1999). Self-categorisation, commitment to the group and group self-esteem as related but distinct aspects of social identity. *European Journal of Social Psychology* 29 (2-3), 371-389.

Erdogan, B. (2002). Antecedents and consequences of justice perceptions in performance appraisals. *Human Resource Management Review* 12 (4), 555-578.

European Commission. (2005). The new SME definition: User guide and model declaration. *Enterprise and Industry Publications*, 5-50.

Fedor, D. B. (1991). Recipient responses to performance feedback: A proposed model and its implications. *Research in Personnel and Human Resources Management* 9, 73-120.

Feldman, J. M. (1981). Beyond attribution theory: Cognitive processes in performance appraisal. *Journal of Applied Psychology* 66 (2), 127-148.

Ferrin, D. L. and Dirks, K. T. (2002). Trust in leadership: Meta-analytic findings and implications for research and practice. *Journal of Applied Psychology* 87 (4), 611-628.

Fisher, J. G., Maines, L. A., Peffer, S. A. and Sprinkle, G. B. (2005). An experimental investigation of employer discretion in employee performance evaluation and compensation. *The Accounting Review* 80 (2), 563-583.

Folger, R. and Konovsky, M. A. (1989). Effects of procedural and distributive justice on reactions to pay raise decisions. *Academy of Management Journal* 32 (1), 115-130.

Franco-Santos, M., Lucianetti, L. and Bourne, M. (2012). Contemporary performance measurement systems: A review of their consequences and a framework for research. *Management Accounting Research* 23 (2), 79-119.

Fuchs, W. (2015). Subjective evaluations: Discretionary bonuses and feedback credibility. *American Economic Journal: Microeconomics* 7 (1), 99-108.

Fulk, J., Brief, A. P. and Barr, S. H. (1985). Trust-in-supervisor and perceived fairness and accuracy of performance evaluations. *Journal of Business Research* 13 (4), 301-313.

Fullerton, R. R., Kennedy, F. A. and Widener, S. K. (2013). Management accounting and control practices in a lean manufacturing environment. *Accounting, Organizations and Society* 38 (1), 50-71.

Furnham, A. and Stringfield, P. (1994). Congruence of self and subordinate ratings of managerial practices as a correlate of supervisor evaluation. *Journal of Occupational and Organizational Psychology* 67 (1), 57-67.

Gerbing, D. W. and Anderson, J. C. (1988). An updated paradigm for scale development incorporating unidimensionality and its assessment. *Journal of Marketing Research* 25 (2), 186-192.

Gibbs, M., Merchant, K., Van Der Stede, W. and Vargus, M. (2004). Determinants and effects of subjectivity in incentives. *The Accounting Review* 79 (2), 409-436.

Goffin, R. D. and Anderson, D. W. (2007). The self-rater's personality and self-other disagreement in multisource performance ratings. *Journal of Managerial Psychology* 22 (3), 271-289.

Golman, R. and Bhatia, S. (2012). Performance evaluation inflation and compression. *Accounting, Organizations and Society* 37 (8), 534-543.

Gong, M. Z. and Ferreira, A. (2014). Does consistency in management control systems design choices influence firm performance? An empirical analysis. *Accounting and Business Research* 44 (5), 497-522.

Grabner, I. and Speckbacher, G. (2016). The cost of creativity: A control perspective. *Accounting, Organizations and Society* 48 (C), 31-42.

Grant, A. M. and Gino, F. (2010). A little thanks goes a long way: Explaining why gratitude expressions motivate prosocial behavior. *Journal of Personality and Social Psychology* 98 (6), 946-955.

Groen, B. A. C., Wouters, M. J. F. and Wilderom, C. P. M. (2016). Employee participation, performance metrics, and job performance: A survey study based on self-determination theory. *Management Accounting Research* [In Press]. Available from: http://dx.doi.org/10.1016/j.mar.2016.10.001 [Accessed 04 04 2017].

Hair, J., Black, W., Babin, B. and Anderson, R. (2014). *Multivariate Data Analysis.* 7th ed. London, UK: Pearson Education Limited.

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.

Hamner, W. C. (1975). How to ruin motivation with pay. *Compensation & Benefits Review* 7 (3), 17-27.

Hartmann, F. (2007). Do accounting performance measures indeed reduce managerial ambiguity under uncertainty? In: Lee, J. Y. and Epstein, M. J. (Eds). *Advances in Management Accounting Research*. Volume 16. Oxford: Elsevier JAI, 159-180.

Hartmann, F., Naranjo-Gil, D. and Perego, P. (2010). The effects of leadership styles and use of performance measures on managerial work-related attitudes. *European Accounting Review* 19 (2), 275-310.

Hartmann, F. and Slapnicar, S. (2009). How formal performance evaluation affects trust between supervisor and subordinate managers. *Accounting, Organizations and Society* 34 (6-7), 722-737.

Hawkins, S. and Hastie, R. (1990). Hindsight-biased judgments of past events after the outcomes are known. *Psychological Bulletin* 107 (3), 311-327.

Hayes, R. and Schaefer, S. (2000). Implicit contracts and the explanatory power of top executive compensation for future performance. *RAND Journal of Economics* 31 (2), 273-293.

Heide, J. B. and Miner, A. S. (1992). The shadow of the future: Effects of anticipated interaction and frequency of contact on buyer-seller cooperation. *Academy of Management Journal* 35 (2), 265-291.

Henderson, R. I. (1980). *Performance appraisal: Theory to practice*. Reston: Reston Publishing Co.

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

Heneman, R. L. (1986). The relationship between supervisory ratings and results-oriented measures of performance: A meta-analysis. *Personnel Psychology* 39 (4), 811-826.

Herold, D. M. and Parsons, C. K. (1985). Assessing the feedback environment in work organizations: Development of the job feedback survey. *Journal of Applied Psychology* 70 (2), 290-305.

Höppe, F. and Moers, F. (2011). The choice of different types of subjectivity in CEO annual bonus contracts. *The Accounting Review* 86 (6), 223-246.

Hopwood, A. G. (1972). An empirical study of the role of accounting data in performance evaluation. Empirical research in accounting: selected studies. *Journal of Accounting Research* 10 (Sup), 156-182.

Hu, L. and Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling* 6 (1), 1-55.

Hughes, M. A. and Kwon, S. (1990). An integrative framework for theory construction and testing. *Accounting, Organizations and Society* 15 (3), 179-191.

Hui, C., Wong, A. and Tjosvold, D. (2007). Turnover intention and performance in China: The role of positive affectivity, Chinese values, perceived organizational support and constructive controversy. *Journal of Occupational and Organizational Psychology* 80 (4) 735-751.

Hulin, C., Roznowski, M. and Hachiya, D. (1985). Alternative opportunities and withdrawal decisions: Empirical and theoretical discrepancies and an integration. *Psychological Bulletin* 97 (2), 233-250.

Ilgen, D. R., Fisher, C. D. and Taylor, M. S. (1979). Consequences of individual feedback on behavior in organizations. *Journal of Applied Psychology* 64 (4), 349-369.

Indjejikian, R. J. (1999). Performance evaluation and compensation research: An agency perspective. *Accounting Horizons* 13 (2), 147-157.

Ittner, C. D. and Larcker, D. F. (1998). Innovations in performance measurement: Trends and research implications. *Journal of Management Accounting Research* 10, 205-238.

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

Jack, S., Hyman, J. and Osborne, F. (2006). Small entrepreneurial ventures culture, change and the impact on HRM: A critical review. *Human Resource Management Review* 16 (4), 456-466.

Jackofsky, E. F. (1984). Turnover and Job Performance: An Integrated Process Model. *The Academy of Management Review* 9 (1), 74-83.

Jackson, S. and Schuler, R. (1985). A meta-analysis and conceptual critique of research on role ambiguity and role conflict in work settings. *Organizational Behaviour and Human Decision Processes* 36 (1), 16-78.

Jones, E., Chonko, L., Rangarajan, D. and Roberts, J. (2007). The role of overload on job attitudes, turnover intentions, and salesperson performance. *Journal of Business Research* 60 (7), 663-671.

Judge, T. A. and Ferris, G. R. (1993). Social Context of Performance Evaluation Decisions. *The Academy of Management Journal* 36 (1), 80-105.

Kalliath, T. J. and Beck, A. (2001). Is the path to burnout and turnover paved by a lack of supervisory support: a structural equations test. *New Zealand Journal of Psychology* 30 (2), 72-78.

Kaplan, R. S. and Atkinson, A. A. (1998). *Advanced Management Accounting*. 3rd ed. Upper Saddle River, NJ: Prentice Hall Inc.

Kenny, D. A. and Judd, C. M. (2014). Power anomalies in testing mediation. *Psychological Science* 25 (2), 334-339.

Kessler, L. and Ashton, R. H. (1981). Feedback and prediction achievement in financial analysis. *Journal of Accounting Research* 19 (1), 146-162.

Klein, H. J. and Kim, J. S. (1998). A field study of the influence of situational constraints, leader-member exchange, and goal commitment on performance. *Academy of Management Journal* 41 (1), 88-95.

Kline, R. B. (2016). *Principles and practice of structural equation modeling.* 4th ed. New York: Guilford Press.

Kluger, A. N. and DeNisi, A. (1996). The effects of feedback interventions on performance. *Psychological Bulletin* 119 (2), 254-284.

Korman, A. K. (1977). *Organizational behavior.* Englewood Cliffs, N.J.: PrenticeHall.

Kotey, B. (1999). Human resource management practices of sunshine coast small firms with reference to the prescribed models. *International Journal of Employment Studies* 7 (1), 79-104.

Kotey, B. and Slade, P. (2005). Formal Human resource management practices in small growing firms. *Journal of Small Business Management* 43 (1), 16-40.

Kuhnen, C. M. and Tymula, A. (2012). Feedback, self-esteem, and performance in organizations. *Management Science* 58 (1), 94-113.

Landy, F. J. and Farr, J. L. (1980). Performance rating. *Psychological Bulletin* 87 (1), 72-107.

Lau, C. M. and Berry, E. (2010). Nonfinancial performance measures: How do they affect fairness of performance evaluation procedures? In: Epstein, M. J., Manzoni, J. and Davila, A. (Eds). *Performance Measurement and Management Control: Innovative Concepts and Practices.* Volume 20. UK: Emerald Group Publishing Limited, 285-307.

Lau, C. M. and Buckland, C. (2001). Budgeting - Role of trust and participation: A research note. *ABACUS* 37 (3), 369-388.

Lau, C. M., Low, L. C. and Eggleton, I. R. (1995). The impact of reliance on accounting performance measures on job-related tension and managerial performance: Additional evidence. *Accounting, Organizations and Society* 20 (5), 359-381.

Lau, C. M. and Shohilin, M. (2005). Financial and nonfinancial performance measures: How do they affect job satisfaction? *The British Accounting Review* 37 (4), 389-413.

Lau, C. M. and Tan, S. L. C. (2006). The effects of procedural fairness and interpersonal trust on job tension in budgeting. *Management Accounting Research* 17 (2), 171-186.

Lau, C. M., Wong, K. M. and Eggleton, I. R. C. (2008). Fairness of performance evaluation procedures and job satisfaction: The role of outcome-based and non-outcome-based effects. *Accounting and Business Research* 38 (2), 121-135.

Lawler, E. E. (1971). *Pay and organizational effectiveness.* New York, NY: McGraw-Hill.

Lawrence, R. J., Mulaik, S. A. and Brett, J. M. (1982). *Causal analysis: Assumptions, models, and data.* Beverly Hills, CA: Sage.

Liu, Y., Loi, R. and Lam, L. W. (2011). Linking organizational identification and employee performance in teams: The moderating role of team-member exchange. *The International Journal of Human Resource Management* 22 (15), 3187-3201.

Locke, E. A. and Latham, G. P. (1990). *A theory of goal setting and task performance*. Englewood Cliffs, NJ: Prentice Hall.

Locke, E. A. and Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation. *American Psychologist* 57 (9), 705-717.

Lok, P. and Crawford, J. (2001). Antecedents of organizational commitment and the mediating role of job satisfaction. *Journal of Managerial Psychology* 16 (8), 594-613.

MacCrimmon, K. R. and Wehrung, D. A. (1985). A portfolio of risk measures. *Theory and Decisions* 19 (1), 1-29.

MacMahon, J. and Murphy, E. (1999). Managerial effectiveness in small enterprises: Implications for HRD. *Journal of European Industrial Training* 23 (1), 25-35.

Macneil, I. R. (1980). *The new social contract.* New Haven, CT: Yale University Press.

Mael, F. and Ashforth, B. E. (1995). Loyal from day one: Biodata, organizational identification, and turnover among newcomers. *Personnel Psychology* 48 (2), 309-333.

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

Maiga, A. S. and Jacobs, F. A. (2005). Antecedents and consequences of quality performance. *Behavioral Research in Accounting* 17 (1), 111-131.

Marginson, D. and Ogden, S. (2005). Coping with ambiguity through the budget: The positive effects of budgetary targets on managers' budgeting behaviours. *Accounting, Organizations and Society* 30 (5), 435-456.

Martin, R. and Edwards, H. R. (2009). Perceived organizational support and organizational identification: an analysis after organizational formation. *Human Resource Management Journal* 19 (1), 110-118.

McAllister, D. J. (1995). Affect- and cognition-based trust as foundation of interpersonal cooperation in organizations. *Academy of Management Journal* 38 (1), 24-59.

McIntyre, R. M., Smith, D. E. and Hassett, C. E. (1984). Accuracy of performance ratings as affected by rater training and perceived purpose of rating. *Journal of Applied Psychology* 69 (1), 147-156.

Merchant, K. A. (1989). *Rewarding results: Motivating profit center managers*. Boston, MA: Harvard Business School Press.

Merchant, K. A. and Manzoni, J. F. (1989). The achievability of budget targets in profit centers: A field study. *The Accounting Review* 64 (3), 539-558.

Meyer, J. P., Stanley, D. J., Herscovitch, L. and Topolnytsky, L. (2002). Affective, continuance, and normative commitment to the organization: A meta-analysis of antecedents, correlates, and consequences. *Journal of Vocational Behavior* 61 (1), 20-52.

Milgrom, P. (1988). Employment contracts, influence activities, and efficient organization design. *Journal of Political Economy* 96 (1), 42-60.

Mintzberg, H. (1979). *The Structuring of organizations.* Englewood Cliffs, NJ: Prentice-Hall.

Mintzberg, H., Quinn, J. and Voyer, J. (1995). *The strategy process.* Englewood Cliffs, NJ: Prentice Hall.

Mobley, W. H. (1977). Intermediate linkages in the relationship between job satisfaction and employee turnover. *Journal of Applied Psychology* 62 (2), 237-240.

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

Mossholder, N., Bennett, E., Kemery, R. and Wesolowski, M. A. (1998). Relationships between bases of power and work reactions: The mediational role of procedural justice. *Journal of Management* 24 (4), 533-552.

Moura, G. R., Abrams, D., Retter, C., Gunnarsdottir, S. and Ando, K. (2009). Identification as an organizational anchor: How identification and job satisfaction combine to predict turnover intention. *European Journal of Social Psychology* 39 (4), 540-557.

Murphy, K. and Oyer, P. (2003). Discretion in executive incentive contracts. *Working Paper*, Marshall School of Business, University of Southern California.

Neubauer, H., Mayr, S., Feldbauer-Durstmuller, B. and Duller, C. (2012). Management accounting systems and institutionalization in medium-sized and large family businesses: Empirical evidence from Germany and Austria. *European Journal of Management* 12 (2), 41-60.

Nisar, T. M. (2007). Evaluation of subjectivity in incentive pay. *Journal of Financial Services Research* 31 (1), 53-73.

Nunnally, J. C. (1978). *Psychometric Theory*. 2nd ed. New York: McGraw-Hill.

Olkkonen, M. and Lipponen, J. (2006). Relationships between organizational justice, identification with organization and work unit, and group-related outcomes. *Organizational Behavior and Human Decision Processes* 100 (2), 202-215.

O'Reilly, C. (1977). Superiors and peers as information sources, work group supportiveness, and individual decision-making performance. *Journal of Applied Psychology* 62 (5), 632-635.

O'Reilly, C. (1978). The intentional distortion of information in organizational communication: A laboratory and field approach. *Human Relations* 31 (2), 173-193.

O'Reilly, C. and Anderson, J. C. (1980). Trust and the communication of performance appraisal information: The effect of feedback on performance and job satisfaction. *Human Communication Research* 6 (4), 290-298.

Otley, D. T. (1978). Budget use and managerial performance. *Journal of Accounting Research* 16 (1), 12-148.

Otley, D. and Pollanen, R. M. (2000). Budgetary criteria in performance evaluation: A critical appraisal using new evidence. *Accounting, Organizations and Society* 25 (4-5), 483-496.

Parker, R. J. and Kyj, L. (2006). Vertical information sharing in the budgeting process. *Accounting, Organizations and Society* 31 (1), 27-45.

Pelham, A. (1999). Influence of environment, strategy and market orientation on performance in small manufacturing firms. *Journal of Business Research* 45 (1), 33-46.

Pennings, J. M. E. and Smidts, A. (2000). Assessing the construct validity of risk attitude. *Management Science* 46 (10), 1337-1348.

Peters, L., Bhagat, R. and O'Connor, E. J. (1981). An examination of the independent and joint contribution of organizational commitment and job satisfaction on employee intention to quit. *Group & Organization Management* 6 (1), 73-82.

Pinto, J., Bui, H., Srivastava, A. and Nguyen, T. (2015). Moderators of the relationship between turnover intentions and performance. In: *Academy of Management Proceedings* 1. Vancouver, CA.

Podsakoff, P. M. and Organ, D. W. (1986). Self-reports in organizational research: Problems and prospects. *Journal of Management* 12 (4), 531-544.

Porter, L. W. and Steers, R. M. (1973). Organizational, work and personal factors in employee turnover and absenteeism. *Psychological Bulletin* 80 (2), 151-176.

Prendergast, C. (1999). The provision of incentives in firms. *Journal of Economic Literature* 37 (1), 7-63.

Prendergast, C. and Topel, R. (1993). Discretion and bias in performance evaluation. *European Economic Review* 37 (2-3), 355-365.

Prendergast, C. and Topel, R. (1996). Favoritism in Organizations. *Journal of Political Economy* 104 (5), 958-978.

Rajan, M. and Reichelstein, S. (2009). Objective versus subjective indicators of managerial performance. *The Accounting Review* 84 (1), 209 -237.

Read, W. H. (1962). Upward communication industrial hierarchies. *Human Relations* 15 (1), 3-15.

Reid, R. and Adams, J. S. (2001). Human resource management—A survey of practices within family and non-family firms. *Journal of European Industrial Training* 25 (6), 310-320.

Reina, D. S. and Reina, M. J. (1999). *Trust and betrayal in the workplace: Building effective relationships in your organization.* San Francisco: Berrett-Koehler Publishers, Inc.

Riketta, M. (2005). Organizational identification: A meta-analysis. *Journal of Vocational Behavior* 66 (2), 358-384.

Riketta, M. and Van Dick, R. (2005). Foci of identification in organizations: A meta-analytic comparison of the strength and correlates of workgroup versus organizational identification and commitment. *Journal of Vocational Behavior* 67 (3), 490-510.

Rodebaugh, T. L., Heimberg, R. G., Brown, P. J., Fernandez, K. C., Blanco, C., Schneier, F. R. and Liebowitz, M. R. (2011). More reasons to be straightforward: Findings and norms for two scales relevant to social anxiety. *Journal of Anxiety Disorders* 25 (5), 623-630.

Ross, A. (1994). Trust as a moderator of the effect of performance evaluation style on job related tension: A research note. *Accounting, Organizations and Society* 19 (7), 629-635.

Roszkowski, M. J. and Soven, M. (2010). Shifting gears: Consequences of including two negatively worded items in the middle of a positively worded questionnaire. *Assessment and Evaluation in Higher Education* 35 (1), 113-130.

Rousseau, D. M., Sitkin, S. B., Byrt, R. S. and Camerer, C. (1998). Not so different after all: A cross-discipline view of trust. *Academy of Management Review* 23 (3), 393-404.

Rowden, R. W. (2002). High performance and human resource characteristics of successful small manufacturing and processing companies. *Leadership and Organizational Development Journal* 23 (2), 79-83.

Rucker, D. D., Preacher, K. J., Tormala, Z. L. and Petty, R. E. (2011). Mediation analysis in social psychology: Current practices and new recommendations. *Social and Personality Psychology Compass* 5 (6), 359-371.

Rynes, S. L., Gerhart, B. and Parks, L. (2005). Personnel psychology: Performance evaluation and pay for performance. *Annual Review of Psychology* 56 (1), 571-600.

Saks, A. M. (1996). The relationship between the amount of helpfulness of entry training and work outcomes. *Human Relations* 49 (4), 429-451.

Shields, J. F. and Shields, M. D. (1998). Antecedents of participative budgeting. *Accounting, Organization and Society* 23 (1), 49-76.

Sholihin, M., Na'im, A. and Lau, C. M. (2004). The effects of multiple measures-based performance evaluation on managers' performance: The role of procedural fairness and interpersonal trust. In: Epstein, M. J. and Manzoni, J. (Eds). *Studies in Managerial and Financial Accounting*. Volume 14. London: Elsevier, 235-258.

Sholihin, M. and Pike, R. (2009). Fairness in performance evaluation and its behavioral consequences. *Accounting and Business Research* 39 (4), 397-413.

Simons, R. (2000). *Performance measurement and control systems for implementing strategy.* Upper Saddle River, NJ: Prentice Hall.

Stajkovic, A. D. and Luthans, F. (1997). A meta-analysis of the effects of organizational behavior modification on task performance, 1975-1995. *Academy of Management Journal* 40 (5), 1122-1149.

Stajkovic, A. D. and Luthans, F. (2003). Behavioral management and task performance in organizations: Conceptual background, meta-analysis, and test of alternative models. *Personnel Psychology* 56 (1), 155-194.

Steelman, L. A., Levy, P. E. and Snell, A. F. (2004). The feedback environment scale: Construct definition, measurement and validation. *Educational and Psychological Measurement* 64 (1), 165-184.

Tafkov, I. D. (2013). Private and public relative performance information under different compensation contracts. *The Accounting Review* 88 (1), 327-350.

Tajfel, H. (1972). Experiments in a Vacuum. In: Israel, J. and Tajfel, H. (Eds). *The context of social psychology: A critical assessment.* London: Academic Press, 69-122.

Tajfel, H. and Turner, J. C. (1979). An integrative theory of intergroup conflict. In: Austin, W. G. and Worchel, S. (Eds). *The social psychology of intergroup relations.* Monterey: Brooks/Cole, 33-47.

Tajfel, H. and Turner, J. C. (1986). The social of identity theory of intergroup behaviour. In: Worchel, S. and Austin, W. G. (Eds). *Psychology of intergroup relations*. Chicago: Nelson, 7-24.

Talacchi, S. (1960). Organization size, individual attitudes and behavior: An empirical study. *Administrative Science Quarterly* 5 (3), 398-420.

Thomas, E. J. (1959). Role conceptions and organizational size. *American Sociological Review* 24 (1), 30-37.

Tyler, T. R. (1999). Why people cooperate with organizations: An identity-based perspective. *Research in Organizational Behavior* 21 (1), 201-246.

Tziner, A. and Latham, G. (1989). The effects of appraisal instrument, feedback and goal setting on worker satisfaction and commitment. *Journal of Organizational Behavior* 10 (2), 145-153.

Van der Stede, W. A., Chow, C. W. and Lin, T. W. (2006). Strategy, choice of performance measures, and performance. *Behavioral Research in Accounting* 18 (1), 185-205.

Van Dick, R., Christ, O., Stellmacher, J., Wagner, U., Ahlswede, O. and Grubba, C. (2004). Should I stay or should I go? Explaining turnover intentions with organizational identification and job satisfaction. *British Journal of Management* 15 (4), 351-360.

Van Dick, R., Grojean, M. W., Christ, O. and Wieseke, J. (2006). Identity and the extra mile: Relationships between organizational identification and organizational citizenship behaviour. *British Journal of Management* 17 (4), 283-301.

Van Knippenberg, D. (2000). Work motivation and performance: A social identity perspective. *Applied Psychology: An International Review* 49 (3), 357-371.

Van Rinsum, M. and 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.

Walumbwa, F. O., Avolio, B. J. and Zhu, W. (2008). How transformational leadership weaves its influence on individual job performance. *Personnel Psychology* 61 (4), 793-825.

Webb, R. A. (2004). Managers' commitment to the goals contained in a strategic performance measurement system. *Contemporary Accounting Research* 21 (4), 925-958.

Wheaton, B., Muthen, B., Alwin, D. F. and Summers, G. F. (1977). Assessing reliability and stability in panel models. In: Heise, D. R. (Eds). *Sociology methodology*. San Francisco, CA: Jossey-Bass, 84-136.

Whitener, E. M., Brodt, S. E., Korsgaard, M. A. and Werner, J. M. (1998). Managers as initiators of trust: An exchange relationship framework for understanding managerial trustworthy behavior. *Academy of Management Review* 23 (3), 513-530.

Widener, S. K. (2007). An empirical analysis of the levers of control framework. *Accounting, Organizations and Society* 32 (7-8), 757-788.

Wieseke, J., Ahearne, M., Lam, S. K. and Van Dick, R. (2009). The role of leaders in internal marketing. *Journal of Marketing* 73 (2), 123-145.

Wilkinson, A. (1999). Employment relations in SMEs. *Employee Relations* 21 (3), 206-217.

Woods, A. (2012). Subjective adjustments to objective performance measures: The influence of prior performance. *Accounting, Organizations and Society* 37 (6), 403-425.

Wortman, C. B. and Brehm, J. W. (1976). Responses to uncontrollable outcomes: An integration of reactance theory and the learned helplessness model. In: Berkowitz, L. (Eds). *Advances in Experimental Social Psychology.* New York: Academic Press.

Wothke, W. (2000). Longitudinal and multigroup modeling with missing data. In: Little, T. D., Schnable, K. U. and Baumert, J. (Eds). *Modeling longitudinal and multilevel data.* Mahwah, NJ: Erlbaum, 219-240.

Wright, B. E. (2004). The role of work context in work motivation: A public sector application of goals and social cognition theories. *Journal of Public Administration Research and Theory* 14 (1), 59-78.

Zábojník, J. (2014). Subjective evaluations with performance feedback. *RAND Journal of Economics* 45 (2), 341-369.

Zand, D. E. (1972). Trust and managerial problem solving. *Administrative Science Quarterly* 17 (2), 229-240.

Zimmerman, R. D. and Darnold, T. C. (2009). The impact of job performance on employee turnover intentions and the voluntary turnover process: A meta-analysis and path model. *Personnel Review* 38 (2), 142-158.

Appendix A. Measurement instrument

Subjective performance evaluation *(from 0 to 100%)*
What was the weight of the subjective elements in the overall evaluation of your performance?

Family ownership *(from 0 to 100%)*
Indicate the percentage of the company's equity held by family members.

Short horizon in firm *(from 0 to 100%)*
Assign a probability to the following: What is the likelihood that you will be in your current firm 10 years from today?

Feedback quality *(1 = I completely disagree, 5 = I completely agree)*
Indicate your level of agreement with the statements:

Item	Label
My supervisor gives me useful feedback about my job performance.	FBQ1
The performance information I get from my supervisor is generally not very meaningful. (R)	FBQ2
The feedback I receive from my supervisor helps me do my job.	FBQ3
I value the feedback I receive from my supervisor.	FBQ4

Trust in supervisor *(1 = I completely disagree, 5 = I completely agree)*
Indicate your level of agreement with the statements:

Item	Label
My supervisor will always act in my favor if he has the chance.	TRUST1
I am convinced that my supervisor will always fully and honestly keep me up to date of everything that is important to me.	TRUST2
If my supervisor takes a decision that is against my interest, I am convinced that this decision is justified for other reasons.	TRUST3

Intention to turnover *(1 = Strongly disagree, 7 = Strongly agree)*
Indicate your level of agreement with the following statements:

Item	Label
I often think about quitting.	TURNOV1
I will probably look for a new job in the next year.	TURNOV2

(1 = Not at all likely, 7 = Extremely likely)	
How likely is it that you will actively look for a new job in the next year?	TURNOV3

Identification *(1 = No, I strongly disagree, 7 = Yes, I strongly agree)*
Indicate your level of agreement with the following statements:

Item	Label
I am quite proud to be able to tell people who it is I work for.	IDENT1
I feel myself to be part of the organization.	IDENT2
I would not recommend a close friend to join our staff. (R)	IDENT3

Managerial performance *(1 = Well below average, 7 = Well above average)*
Indicate to what extent your performance, compared with other managers in your company in similar positions, was below or above the average in the following dimensions:

Item	Label
Planning: determining goals, policies, and courses of action such as work scheduling, budgeting, and programming.	PERF1
Investigating: collecting and preparing of information usually in the form of records, reports, and accounts (measuring output, record keeping, and job analysis).	PERF2
Coordinating: exchanging information with people in the organization other than my subordinates in order to relate and adjust procedures, policies and programs.	PERF3
Evaluating: assessment and appraisal of proposals or of reported/ observed performance (e.g., employee appraisals, judging financial performance and product inspection).	PERF4
Supervising: directing, leading, and developing your subordinates	PERF5
Staffing: maintaining the work force of your responsibility area (e.g., selecting and promoting your subordinates).	PERF6
Overall, how do you rate your performance?	PERF7

Risk Attitude *(1 = Strongly disagree, 7 = Strongly agree)*
Indicate your level of agreement with the following statements:

Item	Label
I am willing to take high financial risks in order to realize higher average yields.	RISK1
I like taking big financial risks.	RISK2
In my professional life, I am willing to take risks in order to realize higher average yields.	RISK3

3. A FUZZY-SET ANALYSIS OF MANAGERS' INCENTIVES IN SMES: THE RELATIONSHIP WITH PERFORMANCE AND SATISFACTION

Abstract

This study aims to explore the interplay among different types of incentives (monetary incentives, non-monetary incentives, benefits and punishment) and managerial performance and job satisfaction in SMEs. I collect data via a questionnaire and use fuzzy-set Qualitative Comparative Analysis (fsQCA) to analyze them. Using data from 1 206 SME managers, I identify multiple combinations of incentives (i.e., incentive packages) that consistently are associated with high individual performance or job satisfaction. Specifically, my analyses reveal that no single incentive in isolation, in comparison to a combination of incentives, is associated with high managerial performance. In contrast, the sole use of benefits or monetary incentives is associated with high managerial job satisfaction. Furthermore, my study provides further evidence of the best-fit incentive packages associated with high performance or satisfaction for owner/non-owner managers, managers in small/medium enterprises, and family/non-family firms.

Keywords: non-monetary incentives, benefits, performance, satisfaction, qualitative comparative analysis, fuzzy sets.

3.1 Introduction

Incentives play a fundamental role in motivating individuals to achieve organizational goals and objectives (Ashton, 1990; Bonner et al., 2000; Bonner and Sprinkle, 2002; Sprinkle, 2003). However, extant literature offers mixed evidence regarding the effectiveness of incentives as drivers of individual effort and performance (e.g., Awasthi and Pratt, 1990; Libby and Lipe, 1992; Sprinkle, 2000). Therefore, it is not surprising that today's organizations attempt to redesign their compensation contracts (Brink and Rankin, 2013). Specifically, firms cut bonuses and introduce punishment practices into compensation contracts to make managers enhance their performance and act in the best interest of shareholders (Bialik, 2009; Brink and Rankin, 2013).

The modification of compensation contracts to better motivate individual behaviors is particularly important for SMEs, which significantly differ from large organizations (e.g., Hudson, Smart and Bourne, 2001; Smith and Smith, 2007). For example, SMEs have limited financial and human resources (Pelham, 1999), and lack management expertise (Gray and Mabey, 2005). Moreover, owing to the pivotal and highly visible role of managers in SMEs (Ates and Bititci, 2011), their hiring and retention is critical to these firms. Hence, one of the challenges faced by SMEs is to create attractive compensation contracts which will reconcile the interests of managers, who act as dominant leaders in these companies (Ates and Bititci, 2011), with those of the organization, with its limited resources (Pelham, 1999).

I focus on a broad set of incentives – monetary, non-monetary, benefits and punishment – for managers in SMEs for a number of reasons. First, while monetary incentives have long been examined in psychology, economics and management literatures, research regarding the use of non-monetary incentives is still sparse (Eriksson and Villeval, 2012), despite its wide implementation in organizations (Frey, 2006). This is recognized by management accounting and economics scholars who claim that further examination of the impact of non-monetary incentives on performance is needed (Bonner et al., 2000; Kunz and Linder, 2012; Long and Shields, 2010; Neckermann, Cueni and Frey, 2014). Second, several management accounting researchers allege that additional analysis of the joint effect of monetary and non-monetary incentives in a multi-action setting is required (e.g., Bruggen and Moers, 2007). Bonner and Sprinkle (2002) also suggest that future research investigates the effects of combinations of incentives. Third, benefits, and especially benefits for executives, have received little attention in management research (Werner and Ward, 2004). Fourth, there is scope for further research with regard to how punishment practices (Christ, Sedatole and Towry, 2012; Hannan, Hoffman and Moser, 2005) or a combination of punishment with positive incentives (monetary incentives, non-monetary incentives and benefits) (Brink and Rankin, 2013; Frederickson and Waller, 2005) affect individual behaviors.[25] . Finally, despite the importance of SMEs, most scholars focus their research on executive pay levels for large, publicly traded corporations (Knox, Blankmeyer and Stutzman, 2004), while studies regarding executive pay in small firms represent “virtual vacuum” due to the lack of publicly available data about compensation (Cole and Mehran, 2016, p. 215).

Therefore, the aim of my study is to providence evidence on the interplay among different types of incentives (monetary incentives, non-monetary incentives, benefits and punishment) and manager’s work-related outcomes such as performance and satisfaction in SMEs. Specifically, I propose two research questions in this study:

[25] Positive reinforcers strength new behaviors by adding rewards and incentives (Catania, 2001), while negative reinforcers (punishment) motivate desirable behavior by eliminating benefits (Catania, 2001) and can be manifested in a form of reduced privileges, extra work, unpleasant job assignments, low performance evaluation or fines for rule violation (Howell and Costley, 2001).

(1) Which combinations of incentives (i.e., incentive packages) are associated with high managerial performance in SMEs?

(2) Which combinations of incentives (i.e., incentive package) are associated with high job satisfaction in SMEs?

I do not state specific hypotheses regarding the effects of different incentive packages on performance and satisfaction due to the exploratory nature of this study and the lack of research and theory on this issue.

By drawing on questionnaire data from a sample of 1 206 SME managers, I identify multiple configurations (i.e., incentive packages) that consistently are associated with high individual performance or job satisfaction. Specifically, my analyses suggest that no single incentive in isolation, in comparison to a combination of incentives, is associated with high managerial performance. In contrast, the sole use of benefits or monetary incentives is associated with high managerial job satisfaction. I also find that combining punishment practices with each of positive incentives - either monetary incentives, non-monetary incentives or benefits - allows managers to achieve high individual performance.

Furthermore, my findings suggest that incentive packages associated with either high individual performance or high job satisfaction of owner managers/small firms/family firms are distinct from those of non-owner managers/medium firms/non-family firms, respectively. Moreover, in opposition to non-owners and managers in medium firms, owner managers and managers in small firms may achieve high performance when they receive an incentive package that encompasses more than two types of incentives - monetary incentives, benefits and punishment. Other notable finding is that owner managers and managers in small firms may achieve high job satisfaction receiving solely benefits, while non-owner managers and managers in medium firms can be highly satisfied with their job if they receive exclusively monetary incentives. In addition, I find that family and non-family firms have similar incentive packages that are associated with high individual performance, but different incentive packages that are associated with high job satisfaction.

I contribute to the literature in several important ways. First, this study responds to calls in accounting, economics and management literatures to explore the design of compensation systems (e.g., Atkinson et al., 2012; Bonner and Sprinkle, 2002; Christ, Sedatole and Towry, 2012; Long and Shields, 2010; Werner and Ward, 2004) and its relation with individual behaviors (Bonner et al., 2000; Kunz and Linder, 2012; Long and Shields, 2010). Particularly, I examine how a broad set of incentives – monetary, non-monetary, benefits and punishment – may be combined into successful incentive packages. Second, my study reinforces performance measurement and accounting literatures by focusing on individual behaviors and attitudes, and not organizational outcomes (e.g., Hannan, Krishnan and Newman, 2008; Kunz and Linder, 2012; Lourenço, 2016; Presslee, Vance and Webb, 2013; Sprinkle, 2000; Tafkov, 2013). Third, my study provides additional empirical evidence regarding the relationship between punishment practices and individual behaviors. While, there is mixed evidence regarding how punishment affects individual behaviors and attitudes (e.g., Arvey, Davis and Nelson, 1984; Christ, Sedatole and Towry, 2012; Johnson, 1972), my study suggests that punishment leads to high performance or high satisfaction, when is accompanied by other incentives. Fourth, to the best of my knowledge, I am the first to explore managerial incentive packages and their relationship with individual performance and satisfaction in SMEs. Fifth, my study draws on theories from different disciplines, instead of a single discipline, which allows to provide a better understanding of the phenomena of interest (Merchant, Van der Stede and Zheng, 2003). Finally, I introduce fuzzy-set Qualitative Comparative Analysis (fsQCA) as a novel empirical method for examining complex relationships among managerial incentives and behaviors. This method has only recently been used in managerial accounting for analyzing different management controls systems packages (Bedford, Malmi and Sandelin, 2016; Bedford and Sandelin, 2015; Erkens and Van der Stede, 2015).

3.2 Literature review

3.2.1 Monetary incentives

Monetary incentives are a vital element of management control systems that are used to link compensation to performance (Bonner et al., 2000). Monetary incentives involve providing a monetary reward such as bonuses, commissions, pay increases or other monetary benefits according to the performance achieved (De Cenzo, Robbins and Stephen, 1996). Traditional economic principal-agent models assume that when individuals have available monetary incentives, they receive the necessary and sufficient motivation to exert effort aligned with the interests of the firm (e.g., Baiman, 1990; Eisenhardt, 1989; Jensen and Meckling, 1976). The individual will be motivated to exert effort to the extent that it becomes more costly to shirk (Holmstrom and Milgrom, 1991). Thereby, monetary incentives induce individuals to exert additional effort and, therefore, to better perform a task (Atkinson et al., 2012; Prendergast, 1999). Prior empirical studies corroborate the prediction of the principal-agent theory and show, in workplace settings, that the introduction of monetary incentives leads to increased individual performance (Banker et al., 2001; Lazear, 2000; Presslee, Vance and Webb, 2013; Shearer, 2004).

Nevertheless, analytical and empirical work in accounting and other literatures call the assumption of the principal-agent model into question. Specifically, this stream of research shows that monetary incentives can lead to de-motivation, decreased effort and weak performance (e.g., Ashton, 1990; Awasthi and Pratt, 1990; Bonner et al., 2000; Bonner and Sprinkle, 2002; Ellingsen and Johannesson, 2008; Gneezy and Rustichini, 2000; Gubler, Larkin and Pierce, 2016; Libby and Lipe, 1992; Pokorny, 2008; Wong-on-Wing, Guo and Lui, 2010), as well as to low pay satisfaction among managers (e.g., Jansen, Merchant and Van der Stede, 2009). One possible explanation for this is proposed by motivation crowding theory (Frey, 1994; Frey and Jegen, 2001). This theory suggests that monetary incentives can have a negative effect on performance due to a motivation crowding out effect. That is, if individuals execute a task for its own sake, without any external influence and interference, offering extrinsic incentives (e.g., monetary incentives) may undermine their intrinsic motivation and satisfaction, i.e., withdraw the enjoyment of doing the work itself (Frey, 1994; Frey and Jegen, 2001; Frey and Oberholzer-Gee, 1997).[26] In other words, monetary incentives may diminish intrinsic motives that individuals have to execute a certain task or job (Gneezy, Meier and Rey-Biel, 2011). Similarly, the introduction of monetary incentives can reduce an image motivation (e.g., Ariely, Bracha and Meier, 2009) or generate demotivation due to a perception of unfairness (Akerlof and Yellen, 1988, 1990; Cooper, Dyck and Frohlich, 1992; Larkin, Pierce and Gino, 2012), and ultimately lead to decrease in individual

[26] Intrinsic incentives come directly from the work itself and are self-reinforcing (Chiang and Birtch, 2006). That is, they arise from within the person and lead to feelings of enjoyment, achievement, challenge, and personal and professional growth (Aletraris, 2010; Eisenberger and Aselage, 2009). In contrast, extrinsic incentives are external to the work. They are given *ex-post* to the individual after doing a certain task. Examples of this type of incentives are variable compensation, career progression, geographic mobility, educational assistance, and life insurance (Malik, Butt and Choi, 2015).

performance.[27] Some researchers attempt to explain this mixed evidence regarding the effect of monetary incentives on individual effort and performance. For instance, Bonner and Sprinkle's (2002) review proposes that specific variables from each of the person, task, environmental and incentive scheme categories - such as individual skills, task complexity, assigned goals and the rewarded dimensions of performance - are able to explain the monetary incentives' effect on effort direction, duration and intensity. A meta-analytical literature review by Gneezy, Meier and Rey-Biel (2011) also suggests that the performance effect of incentives depends on their form, design, interaction with intrinsic and social motivations, and on events that occur after the removal of incentives.

Regarding job satisfaction, extant literature also provides ambiguous evidence. Motivational literature suggests that monetary incentives can improve individual satisfaction of employees (Johnston, 1975; Locke and Latham, 2002; Maslow, 1943; Vroom, 1964). In line with this, some organizational behaviorists and economists find positive effects of monetary incentives on job satisfaction (e.g., Green and Heywood, 2008; Heywood and Wei, 2006; McCausland, Pouliakas and Heodossiou, 2005). However, other empirical studies show that this type of incentives is only marginally related to job satisfaction (Judge et al., 2010). Organizational behavior scholars attempt to explain these mixed findings. For instance, Herzberg (1966) argues that monetary incentives do not provide satisfaction but, in contrast, the lack of money can cause dissatisfaction. Other scholars suggest that the influence of monetary incentives on job satisfaction depends on whether money is the primary reason for an individual to engage in a task (Locke and Bryan, 1966; Locke and Latham, 1990). Judge et al. (2010) state that

[27] In this situation, the perception of unfairness can arise if employees, who perform rightly their job, question why monetary incentives were necessary to promote their behavior (Gubler, Larkin and Pierce, 2016).

after employees achieve a certain level of income, which can well support their living habits, monetary incentives fail to affect job satisfaction.

Firm size can also explain the mixed evidence regarding the effects of monetary incentives on performance and satisfaction. Artz (2008) argues that monetary incentives may hamper or have no effect on job satisfaction (as well as on individual performance) of SME employees, because these employees may interpret this type of incentives as controlling and redundant. Due to the flexible and horizontal management structure of SMEs, the effort of employees is closely monitored and, therefore, already adjusted to the optimal level. Hence, monetary incentives in SMEs are unnecessary to ensure the link between pay and employees' effort since individual productivity is already transparent to the manager/owner. Consistent with this idea, Artz (2008) does not find a significant association between monetary incentives and job satisfaction in small firms but finds a positive relationship for medium firms. MacDermid et al. (2001) show that SMEs provide lower salaries, fewer benefits and less education to their employees comparatively to large firms. But, in contrast, SME employees experience less discrimination, more desirable work hours and supportive work environments, more flexibility between work and family time, and shorter commutes. Consistent with these findings, the executive literature suggests that smaller firms provide lower compensation and offer fewer benefits to their executives (Cole and Mehran, 2016; Dennis, 2000; Kalleberg and Van Buren, 1996), but in contrast, provide them greater autonomy than large companies (Kalleberg and Van Buren, 1996). Additionally, Brown and Medoff (1989) argue that SMEs provide lower compensation to their employees because they are less qualified than employees in large organizations.

3.2.2 Non-monetary incentives

Non-monetary incentives represent an alternative form of motivating individual behaviors and attitudes (Long and Shields, 2010). Non-monetary incentives do not involve any direct payments or benefits to the employee and are mostly related to psychological and emotional fulfillment (Assaf, 1999). Organizations use an enormous range of non-monetary incentives that can vary in the nature, objectives and form (Brun and Dugas, 2008). Examples of non-monetary rewards include recognition, verbal feedback, participation in decision-making, promotions, receiving praise in public, greater job autonomy and responsibility, more interesting work, training and development, and attendance to seminars and conferences.

Although cognitive-evaluation theory (e.g., Deci et al., 1981; Deci and Ryan, 1985) suggests that non-monetary incentives may have a negative effect on individual performance (Deci et al., 1981; Frey and Jegen, 2001), the literature offers evidence that non-monetary incentives, as a whole, enhance performance (Dur, Non and Roelfsema, 2010; Gagné and Deci, 2005; Humphrey, Nahrgang and Morgeson, 2007; Werner and Ward, 2004).[28] The reasons for this positive effect are the motivational power (Kosfeld and Neckermann, 2011) induced by social recognition, status and improved self-esteem (Ellingsen and Johannesson, 2007). However, to date, empirical research in economics on non-monetary incentives mainly focuses on gift exchange games (e.g., Kube, Maréchal and Puppe, 2012; Lacetera and Macis, 2010), whilst accounting and psychology research focuses essentially on feedback (e.g., Deci, Koestner and Ryan, 1999; Eisenberger and Cameron, 1996; Lourenço, 2016; Stajkovic and Luthans, 2003; Tafkov,

[28] According to cognitive-evaluation theory (e.g., Deci et al., 1981; Deci and Ryan, 1985), non-monetary incentives, as extrinsic motivators, may decrease individual performance due to its motivation crowding out effect (Frey, 1994; Frey and Jegen, 2001; Frey and Oberholzer-Gee, 1997).

2013) and recognition (e.g., Bandura, 1999; Lourenço, 2016; Stajkovic and Luthans, 2003). Aditionally, some field experiments in economics investigate the effect of recognition on individual performance (e.g., Bradler et al., 2016; Kosfeld and Neckermann, 2011; Kosfeld, Neckermann and Yang, 2017).

Regarding feedback, which is information about past performance, a large body of studies from accounting, psychology, economics and management literature suggests that this non-monetary incentive has positive effects on performance (Blanes i Vidal and Nossol, 2011; Kluger and DeNisi, 1996; Locke and Latham, 1990; Stajkovic and Luthans, 1997, 2003; Tafkov, 2013). However, some researchers find that, in some settings, feedback does not lead to performance improvements (e.g., Ashton, 1990; Barankay, 2012; Kluger and DeNisi, 1996; Lourenço, 2016). Ashton (1990) argues that performance decreases when feedback provides information about a low probability of achieving the target by the employee. Moreover, extant literature suggests that feedback has a complex mechanism of influencing individual motivation and behavior. Its complexity is due to the (1) possibility to be given in variety of different forms and ways (Kluger and DeNisi, 1996), (2) capacity to provide information about past performance and possible ways to improve future performance (Komaki, Heinzmann and Lawson, 1980), and (3) possibility of using the information as a self-regulatory mechanism, as the employee can adjustment effort in order to minimize discrepancies between current performance and goals (Stajkovic and Luthans, 2003).

Regarding recognition, various psychologists advocate that this non-monetary incentive has a positive effect on individual performance, as well as on job satisfaction (e.g., Bandura, 1999; Herzberg, 1966; Maslow, 1943; Vroom, 1964). The motivational effect of the recognition on individual behaviors can be explained through several psychological mechanisms. Particularly, recognition may motivate employee's effort through the desire to succeed in a status-based competition and social comparison (Kosfeld and Neckermann, 2011; Moldovanu, Sela and Shi, 2007) and by increasing identity with the employer (Akerlof and Kranton, 2005; Neckermann, Cueni and Frey, 2014). Empirical studies are consistent with the argument of theorist regarding the favorable influence of recognition on individual behaviors and attitudes. Thus, meta-analytical studies in psychology show that recognition leads to performance improvements (Stajkovic and Luthans, 1997, 2003). In line with this, the practitioners' literature shows that recognition programs frequently help to reduce turnover (Davidson, 1999; Wallsten, 1998) and increase job satisfaction (Davidson, 1999). Moreover, recent experimental studies in management, economics and accounting also report that recognition increases individual performance (Bradler et al., 2016; Kosfeld and Neckermann, 2011; Lourenço, 2016; Neckermann, Cueni and Frey, 2014), while psychological research demonstrates that recognition diminishes absenteeism (e.g., Markham, Scott and McKee, 2002). Additionally, Gubler, Larkin and Pierce (2016) find that recognition improves individual performance (i.e., attendance) for employees with poor prior performance. However, employees with previous internal motivation decrease their performance once the recognition program is introduced, which suggests the presence of a crowding out effect similar to that described for monetary incentives.

Other non-monetary incentive that is examined in the literature is a promotion.[29] Chiang and Birtch (2008) argue that although a promotion may signal forthcoming monetary

[29] Although some of researchers propose promotion as an implicit incentive as it translates into money in the long term (e.g., Campbell, 2008; Ederhof, 2011), others assume that promotion is a non-monetary incentive (e.g., Merchant and Van der Stede, 2012). Moreover, implicit incentives should be taken into consideration in designing explicit incentive contracts (Ederhof, 2011; Gibbons and Murphy, 1992; Gibbs, 1995).

returns (e.g., pay raise), they do not provide employees with a direct or instant material benefit. Tournament theory suggests that promotions increase the employee's status and, consequently, augments his/her extrinsic motivation (Lazear and Rosen, 1981).

Additionally, some psychology and economics researchers argue that promotions increase intrinsic motivation as they i) are a signal of trust, ii) lead to employee empowerment (Deci and Ryan, 1985), and iii) improve self-esteem (Bénabou and Tirole, 2003). Van Herpen, Cools and Van Praag (2006) find a positive effect of promotions on both intrinsic and extrinsic motivations. The authors show that an expected promotion increases extrinsic motivation, while a realized promotion augments intrinsic motivation. An accounting study of Campbell (2008) in a U.S.-based fast-food retailer also shows that high *ex ante* probability of promotion and a high potential reward upon promotion lead to performance improvements. Other authors show that promotion packages are positively related to employee job satisfaction (Artz, 2008; Heywood and Wei, 2006).

Human resources and management literatures also suggest that participation in decision-making is one form of non-monetary incentives. Empirical research shows that participation in decision-making is positively related to job satisfaction and individual performance (Black and Gregersen, 1997; Cotton et al., 1988; Lam, Chen and Schaubroeck, 2002).

SME literature suggests that non-monetary incentives may be as effective as monetary incentives, in addition to be less expensive and, therefore, more viable for this type of firms (Howard, 2008). Moreover, the use of non-monetary incentives may help SMEs to gain an advantage towards large companies in increasing firm attractiveness, as they allow recruiting and maintaining valuable employees (Appelbaum and Kamal, 2000). Comparatively to large companies, small firms offer an advantage to owners and top-managers to closely deal with each employee. This closeness allows owners and top-managers to know better their employees, gain their confidence and learn what motivates them (Howard, 2008). For instance, "the things that employees might value, such as being treated with respect and having a flexible work schedule, might be an advantage that small businesses can offer, which might increase the ability of small business owners to attract and retain quality employees" (Howard, 2008, p. 17). Thus, this author argues that non-monetary incentives such as personal feedback, recognition, and participation in decision making play a fundamental role in motivating SME employees. Moreover, the use of these non-monetary incentives makes subordinates more committed to the organization (Rosen, 2004) and promotes a greater trust in the supervisor (Howard, 2006; Tzafrir and Dolan, 2004). Subsequently, a greater trust in the supervisor allows reducing conflicts within organizations and leads to increased productivity and performance among employees (Ferres, Connel and Travaglione, 2004; Perren, 1998; Sharif, Kalafatis and Samouel, 2005). Similarly, a survey study in 45 small firms, by Appelbaum and Kamal (2000), shows that non-financial incentives (e.g., recognition) significantly affect employee job satisfaction. These authors argue that SMEs must emphasize the use of non-monetary incentives to maintain an effective and productive employee base.

3.2.3 Benefits

Organizational literature considers benefits as an indirect form of compensation intended to improve the quality of the work and the personal lives of the employees (Milkovich, Newman and Milkovich, 2005). Similarly, human resource literature postulates that benefits are a useful form of motivating, retainaing and attracting qualified employees (e.g., McCaffrey, 1990). However, from an economic standpoint "benefits are attractive to management but are of no interest to shareholders - in fact they reduce firm value" (Hart, 2001, p. 1081). Extant works in economics corroborate this argument and point out that benefits conduce to an escalation of conflicts of interest between managers and investors (Grossman and Hart, 1980; Hart, 2001; Jensen, 1986; Jensen and Meckling, 1976). Specifically, benefits can be a way of managers misappropriating some of the profit generated by the organization (Grossman and Hart, 1980; Jensen, 1986; Jensen and Meckling, 1976). Rajan and Wulf (2006) argue that managers do so because (1) it is difficult to observe these benefits by outsiders and (2) the value of the benefits is generally underreported or not disclosed at all. Consistent with this argument, Yermack (2006) provides evidence that benefits are a form of executive's compensation excess (e.g., jets) because they use benefits for leisure. Nevertheless, Marino and Zábojník (2008) argue that benefits should be viewed as components of a complex incentive package, designed to optimally balance conflicting insurance and incentive roles. Similarly, Rajan and Wulf (2006) suggest that it is incorrect to treat benefits purely as managerial compensation excess because benefits can promote managerial productivity by improving work conditions, inducing time-saving behaviors and enhancing overall well-being (for instance, the use of corporate cars). These authors behold that benefits provide more motivation than an equivalent amount of monetary incentives because they enhance individual status.

Traditional theory of organizational behavior considers benefits as an extrinsic job characteristic that can increase job satisfaction but not individual performance (Lambert, 2000). In fact, despite the speculation that benefits may be directly related to employees' performance (Mobley, 1982), several authors argue that there is only a weak theoretical reasoning for this relationship (e.g., Muse and Wadsworth, 2012). Thus, Muse et al.

(2008) show that the relationship between the use of benefits and task performance is not direct, but instead is mediated by affective commitment. Muse and Wadsworth (2012) find that non-traditional benefits such as employee assistance program, employee in crisis program, scholarship program and cancer plans are positively related to task performance through perceived organizational support. However, they fail to find any relationship between traditional benefits (e.g., health insurance, retirement plan) and performance.

Empirical research regarding the relationship between benefits and job satisfaction also provides mixed evidence. For instance, some researchers find that the use of benefits (e.g., pensions, retirement plans, paid vacation, sick pay, career, family-friendly benefits) positively impacts job satisfaction (Bender, Donohue and Heywood, 2005; Breaugh and Frye, 2007; Dreher, Ash and Bretz, 1988; Heywood and Wei, 2006; Leavitt, 1996). Others scholars find no significant impact of benefits on job satisfaction (Artz, 2008; Donohue and Heywood, 2004). Still others find that benefits (e.g., pensions) reduce job satisfaction (Heywood, Siebert and Wei, 2002; Luchak and Gellatly, 2002). Saltzstein, Ting and Saltzstein (2001) also provide mixed evidence in this regard. They find that both flexible and compressed work schedules significantly reduce job satisfaction, whereas child care and the ability to work at home significantly increase job satisfaction. Artz (2010) concludes that benefits can increase subordinate's satisfaction if he/she finds the benefit as essential. However, when subordinates consider benefits as an unnecessary element, their satisfaction may decrease. This is consistent with a tenet of social exchange theory (Blau, 1964), which suggests that subordinates may value the same benefit in different ways and, therefore, it may incite different obligations (reciprocities) from subordinates relative to the organization.[30] Lambert (2000, p. 802) argues that "the more useful workers find the extra benefits provided by a company, the more they should want to give something extra back to it". Additionally, the argument of cognitive-evaluation theory which considers benefits as extrinsic motivators (Deci et al., 1981; Deci and Ryan, 1985), may justify their negative impact on individual behaviors by crowding out intrinsic motivation (Frey, 1994; Frey and Jegen, 2001; Frey and Oberholzer-Gee, 1997).

Empirical evidence regarding the use of benefits within SMEs is scarce. Howard (2008) suggests that benefits is a stimulus that motivates subordinates and is advantageous for SMEs since benefits do not cost a lot relatively to permanent increases in fixed compensation. Moreover, this author argues that the size of SME offers managers a great opportunity to identify subordinate's specific interests and, therefore, provide to the latter the benefits that match their interests. One of the benefits suggested by this author is the offer of flexible work schedule that is absent of a financial cost for the firm but can increase subordinate's productivity. Additionally, Tsai and Wang (2005) argue that benefit plans in SMEs are more diversified than in large companies, which implies a greater effect of benefits in employee's behaviors and attitudes in SMEs than in large firms.

3.2.4 Punishment

Early behavioral literature recognizes that punishment, along with rewards, represents one of the most powerful modulator of human behavior (Skinner, 1938). However, so far the argument of operant conditioning theory (Skinner, 1971) that punishment is

[30] Social exchange theory presupposes that individuals feel obligated to reciprocate in return, when they benefit from other individual or organization (Lambert, 2000).

counterproductive for individual behaviors dominates a literature (Trevino, 1992). For instance, many management and economics scholars defend that punishment may produce negative side effects on individuals such as resentment and low motivation (e.g., Trevino and Weaver, 1998; Wheeler, 1976). In fact, Arvey and Ivancevich (1980, p. 125) argue that:

> The use of punishment by an employer will result in undesirable emotional side effects (e.g., anxiety, aggressive acts or feelings toward the punishing agent, or passivity or withdrawal). In addition, employees might attempt to escape or avoid (e.g., turnover, absenteeism) or show aggression toward (e.g., sabotage) the punishing agent.

Consistent with this argument, Luthans and Kreitner (1985) behold that punishing discourages subordinates because it produces undesirable behavioral, attitudinal, and affective side effects that outweigh any benefits. This is consistent with psychology literature which suggests that negative events are more salient and lead to stronger reactions than positive events (Baumeister et al., 2001; Ito et al., 1998). Similarly, an accounting study by Christ, Sedatole and Towry (2012), investigating the incentive contract effect on subordinate's effort in an incomplete contract setting, shows that the use of punishment decreases subordinate's effort on tasks because it is interpreted as intrusive and autonomy-reducing.[31]

[31] Incomplete contract settings allow principals "some degree of discretion over the agent's monetary rewards" (Christ, Sedatole and Towry, 2012, p. 1914).

However, empirical evidence regarding the negative punishment effect on individual behaviors is weak. Thus, Johnson's (1972) review finds only one, among innumerous studies, which corroborates the negative behavioral effect of punishment. Furthermore, empirical research in management and psychology literatures reports a positive effect of punishment on individual outcomes such as satisfaction (Arvey, Davis and Nelson, 1984; Sims and Szilagyi, 1975) and performance (Baum and Youngblood, 1975; Beyer and Trice, 1984; Sims and Szilagyi, 1975). Accounting literature is consistent with these findings. For instance, Coletti, Sedatole and Towry (2005) report that punishment and monitoring systems improve cooperation among managers by reducing the incentives for opportunistic behavior. Román (2009) shows that the inclusion of punishment in compensation contracts decreases the absenteeism of employees. Moreover, experimental studies grounded on prospect theory (Kahneman and Tversky, 1979), show that agents exert greater effort under penalty contracts than bonus contracts (Hannan, Hoffman and Moser, 2005; Hossain and List, 2012).[32]

3.2.5 Interplay between incentives

Ever since the pioneering work by Taylor (1911) regarding individual motivation at work, monetary incentives have been considered has the main stimulus to induce desired individual behavior. However, since Herzberg's (1966) and Deci's (1975) works, non-monetary incentives, benefits, and punishment begin to gain emphasis as alternative forms of motivating desired behaviors. Despite the importance of each type of incentive, most of empirical studies do not explicitly analyze interaction effects among them (e.g.,

[32] Prospect theory predicts that "individuals receive greater disutility from losses than the utility they receive from equivalent gains" (Brink and Rankin, 2013, p. 148).

Ashraf, Bandiera and Jack, 2014; Handgraaf, Van Lidth de Jeude and Appelt, 2013; Kelly, Presslee and Webb, 2017; Presslee, Vance and Webb, 2013; Stajkovic and Luthans, 2001). The few studies that consider that possibility tend to focus on the interrelationship of only two types of incentives, with a strong emphasis on monetary incentives due to their proven importance for employees' motivation (Dur, Non and Roelfsema, 2010).

There are two views prevalent in prior theoretical and empirical literature regarding the interplay between different types of incentives. One stream of the incentive literature focuses on comparing the effectiveness of other types of rewards relative to monetary incentives. For instance, Stajkovic and Luthans (2001) show that monetary incentives are more effective than non-monetary incentives (i.e., recognition) in improving performance. However, recent experimental studies provide opposite results. For instance, a laboratory study by Jeffrey (2009) shows that working adults, who engaged in a challenging mental task, have a better performance under non-monetary incentives than under monetary incentives. A field experimental study by Kube, Maréchal and Puppe (2012) also finds that non-monetary incentives (e.g., in-kind gifts) are more effective in increasing employee's performance than monetary incentives. These authors show that although the subordinates prefer monetary incentives, they reciprocate better when receive non-monetary incentives. Handgraaf, Van Lidth de Jeude and Appelt (2013) and Ashraf, Bandiera and Jack (2014) provide similar evidence showing a stronger performance effect of non-monetary incentives when compared to monetary incentives. These mixed results in terms of effectiveness of monetary and non-monetary incentives can be interpreted in the light of Ashton's (1990) argument which suggests that, on one hand, both monetary and non-monetary incentives generate pressure for greater performance by leading individuals to increase attention and effort. But, on the other hand, excessive pressure can originate psychological arousal that can hurt performance. Kube, Maréchal and Puppe (2012) argue that individuals exert more effort when receiving non-monetary incentives because they appreciate the effort and time invested in the non-monetary gift by the employer. Additionally, Kosfeld, Neckermann and Yang (2017) show that individuals perform better when they perceive that their work is of high meaning.[33] Particularly, they show that monetary incentives affect individual performance independently of task meaning (either low or high meaning). In contrast, meaning and non-monetary incentives interact negatively: recognition increases performance only if individuals perceive that their work has low meaning.

Other studies investigate the effectiveness of monetary incentives compared to punishment practices. Thus, although individuals prefer to receive monetary incentives instead of punishment (Brink and Rankin, 2013), they provide greater effort under a penalty contract (i.e., punishment) than in a bonus contract (i.e., monetary incentives) (Hannan, Hoffman and Moser, 2005; Hossain and List, 2012). These authors state that agents exert greater effort under penalty contracts to avoid the loss associated with paying a penalty than in a bonus contract where they can gain a positive incentive.

Other stream of research in the incentive literature focuses on the examination of substitution or complementarity effects among different types of incentives on individual behaviors, with the main emphasis being placed on monetary incentives and feedback. Interestingly, prior empirical studies do not find any interaction between monetary incentives and feedback regarding task performance (e.g., Arkes, Dawes and Christensen, 1986; Chung and Vickery, 1976; Hogarth et al., 1991; Phillips and Lord, 1980; Weiner

[33] Ariely, Kamenica and Prelec (2008) consider meaningful work as a task that is recognized by others and/or has some point or purpose.

and Mander, 1978). Likewise, a recent managerial accounting study in a retail services company by Lourenço (2016) shows that performance feedback does neither interact with monetary nor with recognition. Nevertheless, other recent experimental studies in accounting suggest a complementarity effect between monetary incentives and feedback (both absolute and relative to peers) on individual performance (e.g., Buchheit et al., 2012; Hannan, Krishnan and Newman, 2008; Sprinkle, 2000; Tafkov, 2013). Similarly, exploring the effect of a team-based incentive plan on labor productivity, product quality and worker absenteeism, Román (2009) finds that complementing monetary incentives with other management control practices (such as performance feedback or punishment for deficient worker behavior) leads to better results. Likewise, other scholars find a complementarity effect of non-contingent verbal motivation and monetary incentives on individual performance (Kvaløy, Nieken and Schöttner, 2015; Kvaløy and Schöttner, 2015). Moreover, meta-analyses indicate that although both monetary and non-monetary incentives (feedback and recognition) have a positive impact on individual performance (Stajkovic and Luthans, 1997, 2003), the use of these incentives in combination produces a stronger effect (Stajkovic and Luthans, 2003). Lourenço (2016) provides opposite evidence regarding the interaction effect between monetary incentives and recognition. This author shows that monetary incentives and recognition have a substitution effect on individual performance due to different motivation mechanisms (tangible payoffs versus social esteem) that underlie each of these incentives.

Importantly, most of the economics and accounting literatures focus on the impact of incentives (or their interaction) on individual effort and performance. Thus, despite the argument that extrinsic reinforcers may interfere with intrinsic motivation and job satisfaction (e.g., Deci et al., 1981; Deci and Ryan, 1985; Frey, 1994; Frey and Jegen, 2001; Frey and Oberholzer-Gee, 1997), little is known about the incentive effect on the latter. Several researchers highlight the importance of three types of incentives - monetary incentives, non-monetary incentives and benefits - in increasing employee job satisfaction (e.g., Kalleberg, 1977; Nielsen and Smyth, 2008). Particularly, Nielsen and Smyth (2008) provide evidence that the effect of non-monetary incentives on job satisfaction is larger than the effect of monetary incentives. Nevertheless, other scholars provide opposite evidence, showing that monetary incentives are more effective in increasing job satisfaction than non-monetary incentives (Erbasi and Arat, 2012; Malik, Danish and Munir, 2012). Behavioral researchers explain these mixed results by the distinct effect of individual differences in terms of work values on individual behavior (e.g., Hofmans, De Gieter and Pepermans, 2013). That is, individuals who value more monetary issues may feel high job satisfaction due to high monetary reward satisfaction. Conversely, individuals who value more recognition may show a strong link between job satisfaction and psychological reward satisfaction. In addition, a managerial study using a SME sample suggests that non-monetary and monetary incentives are complements for improving employee job satisfaction (Appelbaum and Kamal, 2000).

Notably, most of aforementioned studies regarding the interplay between different types of incentives are experimental and, therefore, are limited in their manipulations (Neuman, 2014). Particularly, experimental designs presuppose removing participants from their natural settings and conducting the study in contrived and artificial environments (Aguinis and Lawal, 2012; Hageman, 2008). Although field experiments are more generalizable than laboratory experiments (Neuman, 2014), they suffer from reduced level of true randomization (Hageman, 2008). These experimental design’s characteristics result in a loss of external validity which can hamper the generalizability of the study (Aguinis and Lawal, 2012; Hageman, 2008). In contrast, my study is survey based which means that there is no manipulation involved that allow garnering a higher degree of realism and external validity than in experimental settings (Hageman, 2008).

Overall, the literature regarding substitution or complementarity effects among different types of incentives on individual behaviors provides mixed evidence. Therefore, it is a theoretical and empirical question why and how companies use incentive packages, instead of one type of incentive in isolation. On one hand, this concept of incentives packages is consistent with accounting studies which examine relations among multiple elements, instead of individual elements in isolation, to better understand the effectiveness of management control systems design (Chenhall, 2003; Grabner and Moers, 2013; Malmi and Brown, 2008; Merchant and Van der Stede, 2012). On the other hand, the examination of behavioral effects of incentive packages, instead of each incentive in isolation, has a psychological foundation as each type of incentive can appeal to different motivations and incite diverse behaviors. Thus, according to contract theory, monetary incentives serve to align agents' interests with those of the principal (Jensen and Meckling, 1976) and generate a motivational effect on individuals' behaviors (Bonner and Sprinkle, 2002) via tangible payoff mechanism (Baker, Jensen and Murphy, 1988).

Due to a great diversity within non-monetary incentives, they provoke differential motivational effects on individuals. For example, feedback has cognitive (learning) effects on individuals' behaviors (e.g., Kessler and Ashton, 1981; Nelson, 1993) by providing information for self-improvement (Sedikides and Hepper, 2009; Wood, 1989) and self-regulation (Bandura, 1986, 1991). Recognition appeals to individuals' desire for social distinction (Frey, 2006), status (Besley and Ghatak, 2008), image motivation

(Ariely, Bracha and Meier, 2009) and respect (Ellingsen and Johannesson, 2007). Promotions represent a self-enforcing incentive scheme (Malcomson, 1984) that motivates individuals by improving self-esteem (Bénabou and Tirole, 2003) and enhancing reputation (Gibbons and Murphy, 1992; MacLeod and Malcomson, 1988). Additionally, employees' participation in decision-making increases their moral and contributes to trust and a sense of control (Chang and Lorenzi, 1983). Moreover, employees involved in decision-making processes derive greater enjoyment from work because they receive the opportunity to use their intellectual abilities and, therefore, perceive their role in the organization as more fair (Williamson, 2008).

Benefits contribute to the well-being of the individual, not just as an employee but also as a person with other outside interests (Muse et al., 2008). Additionally, benefits may influence individual intrinsic motivation (Marino and Zabojník, 2008), status (Rajan and Wulf, 2006) and elicit employee's obligation toward the organization (Lambert, 2000).

The psychological device that underlies the punishment differs from those of positive incentives. Punishment may affect individual behaviors via a mechanism of loss aversion (Kahneman and Tversky, 1979) and social learning (Bandura, 1971; Davis and Luthans, 1980).[34]

Interestingly, and particularly relevant for the purposes of my study, despite the diversity of the psychological mechanisms activated by different incentives and their importance in motivating individuals, the extant literature gives little emphasis to examining the

[34] Loss aversion implies that losses are more salient than equivalent gains, i.e., the absolute value of disutility from losses is greater than the utility from gains that are of the same magnitude (Brink and Rankin, 2013). Thus, agents exert greater effort under penalty contracts to avoid the loss associated with paying a penalty than effort aimed at receiving the gain of a positive incentive (Hannan, Hoffman and Moser, 2005; Hossain and List, 2012). In turn, social learning theory presupposes that when individuals observe someone to be punished, they are less likely to engage in unfavorable behaviors (e.g., Bandura, Ross and Ross, 1963). For instance, Schnake (1986) finds that employees increase their productivity after observing the pay reduction for low output of their peers.

interplay among different types of incentives (within different incentive packages) in workplace settings (Baker, Gibbons and Murphy, 1994; Holmstrom and Milgrom, 1994; Long and Shields, 2010; Milgrom and Roberts, 1990, 1995). Hence, my study aims to explore existing incentive packages that are provided to managers in SMEs and analyze their relationship with work-related outcomes such as performance and job satisfaction.

3.3 Research method

3.3.1 Sample and data description

I collect data from a questionnaire targeted to SME managers.[35] This questionnaire is a part of a unique research project, which includes two questionnaires. The first questionnaire collects data regarding organizational characteristics and the second (applied in this study) regarding managerial features.

The first questionnaire was successfully sent to 22 997 SMEs and 4 192 useable responses were received. This corresponds to an overall response rate of 18.23%. Using this database, a team of research assistants contacted via telephone each of these firms to collect information about the name and e-mail addresses of directors/managers. This information serves to create a second database to send a new questionnaire. Thus, from the initial sample of 4 192 SMEs I obtain 11 748 names with job roles and e-mail addresses (personal or organizational). However, due to refusal of participation, impossibility to contact the firms, or error in the sending process, the number of

[35] My study relies on the number of employees to define SMEs, excluding micro-enterprises. Specifically, SMEs are those with 10-249 employees. This criterion is consistent with the European Commission definition (European Commission, 2005). I obtain a list of Portuguese SMEs from Informa DB, a firm specialized in corporate information.

questionnaires sent was 8 180.[36] I receive 1 474 usable responses, but because I have to restrict my sample to respondents who filled in the questions about incentives, the number of observations falls to 1 206. This corresponds to a usable response rate of 14.74%.[37]

To test for a potential (non-) response bias I apply two procedures (Armstrong and Overton, 1977). First, I compare the size, region and industry representation of the 888 companies of the 1 206 respondents to the 2 083 companies of the 6 974 non-respondents from the list of 8 180 e-mails sent successfully.[38] A chi-square test shows that the proportion of respondents in each region category is not significantly different between the respondents' sample and the non-respondents' sample. Nevertheless, a chi-square test regarding industry shows significant differences between the two groups. An independent sample t-test regarding the firm size (measured as a number of employees) also shows a difference between respondents ($\overline{X}$ = 55.33) and non-respondents ($\overline{X}$ = 32.96) and this difference is statistically significant (p-value < 0.01 for two-tailed t-test). These differences in sample means by size and industry are limitations of this study.

Second, based on the response return date, I compare early respondents (first 15%) to late respondents (last 15%), for all constructs of interest (demographic and model variables). The results indicate that there are no statistically significant differences between groups for the variables examined in my model.

To mitigate the concern of common method bias in measures (Mossholder et al., 1998; Podsakoff and Organ, 1986), I apply Harman's one-factor test as well as a confirmatory

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[36] The reasons for the impossibility to contact the firm include: extinct organization, missing or invalid telephone contact, and no data available on the internet. Errors in the sending process include: incorrect e-mail address, full mailbox, insufficient capacity of the mailbox, and message considered as spam.

[37] Previous survey studies report similar response rate: 14.9% for Auzair and Langfield-Smith (2005), 16.9% for Gong and Ferreira (2014), 13% for Leischnig, Henneberg and Thornton (2016), 12.5% for Widener (2007).

[38] Because the total sample of 1 206 responses may include more than one observation from the same firm, I eliminate the duplicated rows. The sample of 888 observations that includes only one observation for each firm is used to test for non-response bias.

factor analysis (CFA). The factor solution yields four factors with eigenvalues greater than one. Together they account for 64% of the total variance. The first factor explains 31% of the total variance, which means that it does not account for a majority of the variance. The confirmatory factor analysis shows that the single-factor model does not fit the data well: $X^2(90) = 1580.191$; p-value < 0.01; CMINDF = 17.56; the root mean square error of approximation (RMSEA) = 0.141; the comprehensive fit index (CFI) = 0.697; Tucker-Lewis Index (TLI) = 0.647.[39] In sum, the results of both procedures do not indicate any significant common method bias.

Table 3.1 reports the descriptive statistics for the demographic variables of the respondents and firms. The respondents are on average 46.27 years-old, have 23.84 years of job tenure and 16.61 years of tenure in the company. Most occupy the position of chief executive officer (CEO) (35%). Sample firms have an average of 81 employees, 39% of the ownership and 56% of family ownership. Table 3.1 also shows that respondents come mainly from the manufacturing and wholesale and retailing industries (33.25% and 27.94% respectively).

Panel A (B) in Table 3.2 shows the frequency, sorted by descending order, of each type of non-monetary incentives (benefits) offered by the organizations.

[39] CFI compares how much better an implied model fits as compared to a null model, TLI contains a penalty for lack of parsimony and RMSEA adjusts for both sample size and number of degrees of freedom (Chen, Gully and Eden, 2001). CFI and TLI close to 1 (Hu and Bentler, 1999), RMSEA less than 0.08 (Browne and Cudeck, 1989) and CMINDF ratio less than 5 (Wheaton et al., 1977) reflect a good model fit.

Table 3.1. Descriptive statistics for demographic variables (N = 1 206).

Panel A: Demografic information of respondents and firms						
Variable	N	Min	Mean	Med	Max	St Dev
Age (years)	1206	25	46.27	45	84	9.77
Job tenure (years)	1206	0.5	23.84	23	60	10.19
Company tenure (years)	1206	0.5	16.61	16	84	9.46
Firm size (no. of employees)	1206	10	63.20	41	249	59.20
Ownership (%)	446	0	38.80	33	100	29.44
Family ownership (%)	932	0	56.24	94.5	100	47.89

Panel B: Job titles		
	Number	Percentage
CEO	440	36.48
CFO	246	20.40
Comercial/Sales/Billing Director	83	6.88
Human Resources Director	48	3.98
Logistic/Marketing Director	45	3.73
Production/Quality Director	88	7.30
Other Directors	152	12.60
Executive member of the Board of Directors	104	8.62

Panel C: Breakdown of responses by industry		
	Number	Percentage
Accommodation, catering and similar	50	4.15
Administrative activities and support services	39	3.23
Agriculture	15	1.24
Communication services	65	5.39
Construction	65	5.39
Consulting, scientific, technical activities and similar	85	7.05
Finance and insurance	60	4.98
Human health activities and social support	1	0.08
Manufactoring	401	33.25
Real state	17	1.41
Transport and storage	45	3.73
Water supply	26	2.16
Wholesale and retail trade	337	27.94

Note: The number of observations on the variables ownership and family ownership is fewer than in the total sample (N = 1 206) due to missing data.

Table 3.2. Frequency of the non-monetary incentives and benefits.

Panel A: Type of non-monetary incentive	Number	%
Recognition of the organization	564	11.69
Participation in the decision making process	563	11.67
Recognition of coworkers	497	10.30
Assignment of additional responsibilities	407	8.44
Private recognition	380	7.88
Recognition of my supervisor	375	7.77
Training	349	7.23
Allocation of increased autonomy	349	7.23
Public recognition	346	7.17
Participation in seminars, conferences, other events	333	6.90
Feedback	279	5.78
Geographic Mobility	190	3.94
Career progression	170	3.52
Others	23	0.48
Panel B: Type of benefit	**Number**	**%**
Mobile phone	976	15.82
Vehicle	722	11.70
Workplace flexibility	690	11.18
Health/life insurance	628	10.18
Participation in seminars, conferences, other events	555	9.00
Free parking	444	7.20
Subsidized meals / Eating facilities for employees	443	7.18
Discounts at company products	315	5.11
Paid Time Off (PTO) or Long-Term Disability (LTD) benefit pay	268	4.34
Moving expenses reimbursement	227	3.68
Parties / gifts for employees' children	206	3.34
Sports facilities	149	2.42
Travel, tours and excursions	125	2.03
Educational assistance	110	1.78
Pension Supplement	107	1.73
Financial support for geographic mobility	79	1.28
Possibility of geographic mobility	71	1.15
Housing Benefit	32	0.52
Others	22	0.36

Note: The total number of non-monetary incentives/benefits does not correspond to the number of managers in the total sample because each respondent can choose multiple types of non-monetary incentives/benefits or not choose any.

3.3.2 Construct measurement

To increase the overall quality of the instrument, when possible I used items to measure my constructs from the extant literature. In some cases, I make slight modifications with the aim to fit measures to the present research context. In addition, I draft the full version of questionnaire in English and after that translate it into the local language of the managers following the procedures used in intercultural research (e.g., Ady, 1994).

Monetary incentives

I measure monetary incentives as percentage of incentives (MONINC) in the annual compensation package. I ask respondents to indicate which would have been the weight of his/her variable compensation, i.e., indexed to the performance at his/her total annual compensation if he/she had fulfilled all the established objectives / targets. The response is comprised between 0 and 100%.

Non-monetary incentives

To measure non-monetary incentives (NONMINC), I ask respondents to choose from a list of non-monetary incentives those which are offered by their company and are indexed to their performance but that have no expression on their annual compensation. Examples of the items are: public recognition, feedback, training, geographic mobility. NONMINC is a count variable resulting from the sum of all items marked by the respondents. Thus, it may vary from 0 (the respondent does not have any non-monetary incentive) to 13 (maximum number of non-monetary incentives indicated by the respondent).

Benefits

To measure benefits (BENEF), I ask respondents to choose from a list of benefits that are available in their company. Examples of these items are: health/life insurance, pension supplement, educational assistance, mobile phone. BENEF is a count variable resulting from the sum of all items marked by the respondents. Thus, it may vary from 0 (the respondent does not have any benefit) to 16 (the maximum number of benefits indicated by the respondent).

Punishment

To assess punishment (PUNISH), I use survey questions developed by Gibbs et al. (2004). On a 5-point Likert scale (1 = not at all to 5 = very high) I ask respondents to indicate their perceptions about the extent to which failing-to-achieve the target adversely affects their (1) operating autonomy, (2) pay raise, (3) prospects for promotion, and (4) continued employment. Exploratory factor analysis returns a single factor with items loadings greater than 0.50 and satisfactory reliability (average extracted variance (AVE) is 0.51; composite reliability (CR) is 0.80; Cronbach's Alhpa (Cr.A.) is 0.80). Therefore, I compute the average of responses to these survey items to form the final score for the variable.

Individual performance

To measure individual performance (PERF) of managers, I use self-reported survey questions developed by Mahoney, Jerdee and Carroll (1965) and recurrently used in prior accounting studies (Chalos and Poon, 2000; Chong and Chong, 2002; Hall, 2008; Marginson and Ogden, 2005; Otley and Pollanen, 2000; Parker and Kyj, 2006).[40] The original scale assesses managerial performance along eight dimensions related to planning, investigating, coordinating, evaluating, supervising, staffing, negotiating and

[40] According to some prior studies, self-report measures of performance are valid and tend to be less biased than supervisor ratings (Dunk, 1993; Marginson and Ogden, 2005; Parker and Kyj, 2006). Moreover, self-rated subjective measures of subordinate performance are highly correlated with supervisors' subjective ratings of subordinate performance, as well as with objective measures of subordinate performance (Furnham and Stringfield, 1994; Heneman, 1974).

representing and also includes an overall assessment of performance. Hall (2008) reduces the scale to 7 items by excluding 2 items (negotiating and representing) because of low factor loadings and not belonging to a unidimensional managerial performance scale. I ask respondents to indicate on a 7-point Likert scale (1 = well below average to 7 = well above average) the extent to which their performance was below average or above average on each item. All items load significantly (greater than 0.63) on a single factor (AVE is 0.61; CR is 0.91; Cr.A. is 0.80). Hence, I compute an average score of all items of this variable and use it for further analyses.

Satisfaction

To assess satisfaction (SATISF), I use a single-item measure of overall job satisfaction used in psychology and management research (e.g., Trevor, 2001; Wanous, Reichers and Hudy, 1997). Although single-item measures are commonly criticized because of their supposed low reliability, Scarpello and Campbell (1983) concluded that, for overall job satisfaction, a single-item measure may be a better choice than a summated scale of facet responses. Furthermore, a meta-analysis by Wanous, Reichers and Hudy (1997) shows that single-item measures of overall job satisfaction has substantial convergent validity with scales and may be more robust than scale measures. On a 5-point Likert scale (1 = very dissatisfied to 5 = very satisfied), I ask respondents to indicate their overall satisfaction with their job.

Table 3.3 presents descriptive statistics and Table 3.4 shows bivariate correlations for the measurement instruments. Appendix B presents the instruments used to measure the main constructs.

Table 3.3. Descriptive statistics for the measurement instruments.

Variable	N	Min	P25	Mean	Median	P75	Max	St Dev
Monetary incentives	1206	0	0	18.37	6	25	100	27.56
Non-monetary incentives	1206	0	1	3.98	4	6	13	3.14
Benefits	1206	0	3	5.10	5	7	16	3.01
Punishment	1097	1	1.5	2.37	2.25	3	5	0.96
Individual performance	1000	1	4	4.91	4.86	5.67	7	0.91
Job satisfaction	1131	1	4	4.09	4	5	5	0.87

Note: The number of observations on punishment, individual performance and job satisfaction is fewer than in the total sample (N = 1206) due to missing data.

Table 3.4. Correlations between variables.

Variable	1	2	3	4	5	6
1. Monetary incentives	1.00					
2. Non-monetary incentives	0.02	1.00				
3. Benefits	0.06**	0.35***	1.00			
4. Punishment	0.04	0.03	-0.08**	1.00		
5. Individual performance	0.08**	0.06*	0.11***	-0.04	1.00	
6. Job satisfaction	0.09***	0.13***	0.20***	-0.14***	0.13***	1.00

Note: *, ** and *** indicate the significance of the p-value at <0.1, < 0.05 and < 0.01, respectively, all p-values are two-tailed.

I evaluate my reflective constructs (performance and punishment) with a confirmatory factor analysis (CFA) (Gerbing and Anderson, 1988). The results of CFA presented in Table 3.5 support the unidimensionality of the constructs and their convergent validity. All factor loadings are significant at the 0.001 level and greater than 0.5, AVE of each construct is greater than 0.5 and CR is greater than 0.7 (Hair et al., 2014).

Furthermore, according to the recommendations in the literature (Bagozzi, Yi and Phillips, 1991; Gerbing and Anderson, 1988; Hair et al., 2014), I perform the measurement validation procedure based on the maximum likelihood (ML) estimation method. The results indicate an acceptable overall model fit of the data ($X^2(79)$ =

351.401; p-value < 0.01; CMINDF = 4.45; RMSEA = 0.064; CFI = 0.943; TLI = 0.929).[41] The principal assumption of the ML is a multivariate normality of data that may be identified through univariate procedures (Kline, 2016). Thus, an examination of kurtosis and skewness reveals that all variables in my model are well below 10.0 and 3.0, respectively, demonstrating that the data is within tolerable levels of univariate normality (Kline, 2016).

Table 3.5. Results of confirmatory factor analysis.

Construct indicators	Factor loadings	AVE	CR	Cr. A.
Punishment		0.51	0.80	0.80
PUNISH1	0.508			
PUNISH2	0.760			
PUNISH3	0.908			
PUNISH4	0.622			
Individual performance		0.61	0.91	0.91
PERF1	0.743			
PERF2	0.631			
PERF3	0.791			
PERF4	0.809			
PERF5	0.865			
PERF6	0.786			
PERF7	0.778			

Note: N = 833. Result of Kaiser–Meyer–Olkin test is 0.859, indicating good sampling adequacy (greater than 0.80) and the Bartlett test of Sphericity is highly significant (p < 0.01).

3.3.3 Calibration and data analysis

I employ set-theoretic method termed qualitative comparative analysis (fsQCA) by using STATA 14.1.[42] fsQCA identifies combinations of independent variables that can lead to

[41] According to chi-square test, the data fit the model when chi-square is non-significant. However, according to Lawrence, Mulaik and Brett (1982), chi-square test is sensitive to sample size and, therefore, may be misleading.

[42] STATA allows performing fsQCA by applying a new command called fuzzy, which uses the Quine–McCluskey algorithm to logically reduce the configurations (Longest and Vaisey, 2008).

the outcomes of interest (dependent variables). fsQCA distinguishes from other exploratory approach (e.g., cluster analysis) by allowing to examine the combination contribute of different independent variables on the outcome of interest (Fiss, 2011). That is, instead of one independent variable alone, fsQCA detect multiple combinations of these independent variables that may lead to a high level of the outcome (Ragin, 2008). Moreover, this method determines combinations of independent variables that are necessary (i.e., those that produce the outcome but by themselves may not be enough) and sufficient (i.e., those that always lead to the outcome) for high outcome's level (Chari, Tarkiainen and Salojärvi, 2016; Ragin, 2000, 2008). Additionally, this approach includes statistics for coverage (similar to an R-squared value) and consistency (similar to a p-value), which are lacking in other exploratory methods such as cluster analyses (Bedford, Malmi and Sandelin, 2016). Fuzzy set is a particular variant of QCA (fsQCA), more appropriate for variables measured as continuous values (Ragin, 2008).

The first step in performing fsQCA corresponds to calibration of the construct measures. Calibration involves the specification of the degree of membership that a particular variable takes in a specific category (Chari, Tarkiainen and Salojärvi, 2016). Variables can be calibrated to either crisp sets (i.e., the membership of a variable in the category is binary: 0 for non-membership and 1 for membership) or fuzzy sets (i.e., variables take varying degrees of memberships from 0 to 1) (Skarmeas, Leonidou and Saridakis, 2014). To calibrate non-binary measures, I follow Ragin's (2008) recommendation and employ a direct calibration method, which converts specified thresholds variables to fuzzy set scores through a logistic function. This method presupposes the specification of the three threshold values that correspond to full membership (1), full non-membership (0), and a crossover point (0.5). The value of 0.5 indicates neither membership nor non-membership in the category (i.e., the point of maximum ambiguity) (Fiss, 2011; Woodside, 2013). When fuzzy-set membership scores meet the crossover point (i.e., 0.5), this may cause difficulties in intersecting sets (Ragin, 2008). To avoid the problem of dropping these cases from the analysis, I add a constant of 0.001 to all calibrated values equal to 0.5 (Fiss, 2011).

I follow prior literature to calibrate managerial incentives - monetary incentives (MONINC), non-monetary incentives (NONMINC), benefits (BENEFITS) and punishment (PUNISH) (Bedford, Malmi and Sandelin, 2016; Erkens and Van der Stede, 2015; Fiss, 2011). For MONINC I set 25th (i.e., raw score of 0) and 75th percentiles (i.e., raw score of 25) for, respectively, full non-membership and full membership. The crossover is the midpoint of 12.5. The examination of the descriptive statistics of the non-monetary incentives (NONMINC) shows that its mean is 3.98 and standard deviation is 3.14. As such I use 25th percentile (i.e., raw score of 1), median (i.e., raw score of 4) and 75th percentile (i.e., raw score of 6) for the full non-membership, crossover point, and full-membership thresholds, respectively. Considering the mean of 5.10 and standard deviation of 3.01 for the benefits (BENEFITS), I use 25th percentile (i.e., raw score of 3), median (i.e., raw score of 5) and 75th percentile (i.e., raw score of 7) for the full non-membership, crossover point, and full-membership thresholds, respectively. Similar to the procedure that Erkens and Van der Stede (2015) and Fiss (2011) use for the calibration of 5-point scale variables, I calibrate punishment (PUNISH) by using the endpoints of the scale (i.e., raw scores of 1 and 5) corresponding to full non-membership and full membership respectively, and scale midpoints (i.e., a raw score of 3) corresponding to the crossover point. Considering the mean (2.37) and standard deviation (0.96) for punishment, it is not meaningful to use percentiles (1.5 for 25th percentile and 3.0 for

75th percentile) and median (2.25), as it suggests that almost all managers in the sample have low level of punishment. Given this, an empirically more meaningful distinction is to represent set membership in punishment as either “very high” or “very low” (as opposed to “very low” and “not very low”).

Finally, I calibrate the two outcome variables also following the extant literature (e.g., Bedford, Malmi and Sandelin, 2016). Thus, analyzing the descriptive statistic of the variable satisfaction (SATISF), I verify that its mean is 4.09 (on a scale 1 to 5) and standard deviation is 0.87. This indicates that managers feel high satisfaction rather than low satisfaction about their job. Given that, I categorize this variable as either “very high” or “not very high” (as opposed to “very high” and “very low”), considering that this is an empirically more meaningful. Therefore, I codded very high job satisfaction as fully in (1) for a raw score of 5 and fully out (0) for a raw score of 3. The crossover is the midpoint of 4. I apply the same procedure for the performance (PERF) variable. The descriptive information of PERF indicates the mean of 4.91 (on a scale 1 to 7) and standard deviation of 0.91. This suggests that managers consider themselves as high performers rather than low performers. Given that and similar to variable satisfaction, I categorize this variable as either “very high” or “not very high” instead of “very high” and “very low”, respectively. Thus, I codded very high performance as fully in (1) for a raw score of 7 and fully out (0) for a raw score of 3. The crossover is the midpoint of 5 (Bedford, Malmi and Sandelin, 2016).

The second step in performing fsQCA consists into the construction of the truth table (Ragin, 2008). The truth table represents all possible combinations of incentives for each of the outcome variables – individual performance and satisfaction. Each truth table contain 16 rows that corresponds to 2^k, where k is a number of attributes in the analysis.

In the next step, I refine the truth table (i.e., reduce the number of truth table rows) by applying the thresholds to: 1) frequency and 2) consistency (Ragin, 2008). First, the establishment of the frequency threshold corresponds to the setting of the minimum number of cases required for a solution to be considered (Fiss, 2011). To avoid inferences from single observations I use a frequency threshold of at list two observations (Bedford, Malmi and Sandelin, 2016; Maggetti and Levi-Faur, 2013).[43] This frequency threshold used is quite consistent with Ragin's (2008) suggestion that the threshold adopted should capture at least 75 – 80 percent of the cases. Second, the establishment of the consistency threshold allows determining those configurations (rows in the truth table) that have consistency levels significantly higher than a threshold value. Thus, in order to restrict the number of conditions that fulfill the requirement, I employ minimum consistency threshold of 0.80 suggested by Fiss (2011) and Ragin (2008).

3.4 Results of fsQCA

Table 3.6 presents the results of the fsQCA parsimonious solution after applying the criterion of minimum frequency and the consistency thresholds described above.[44] Consistent with previous literature (Bedford, Malmi and Sandelin, 2016; Fiss, 2011; Ragin and Fiss, 2008), solid circles (●) refer to the presence of an incentive and circles with a cross (⊗) designate its absence. Blank spaces indicate redundant incentives as the outcome is unaffected by its presence or absence.

[43] Frequency threshold indicates the number of observations (i.e., managers) required for it to be considered valid empirical evidence. Thus, I retain configurations that have at least two observations.

[44] The untabulated results reveal that there is no necessary condition for achieving either high performance or high job satisfaction as the consistency score of each attribute does not exceed 0.75 (Ragin, 2008; Woodside, 2013).

Table 3.6. Results of the fsQCA for high performance and satisfaction.

	Performance				*Satisfaction*				
	1a	1b	1c	1d	2a	2b	2c	2d	2e
Monetary incentives	●			●	⊗		●		
Non-monetary incentives	●		●			●			●
Benefits	⊗	●			●		⊗	●	●
Punishment		●	●	●		●		●	
Raw coverage	0.201	0.368	0.395	0.340	0.391	0.324	0.251	0.304	0.456
Unique coverage	0.035	0.022	0.050	0.029	0.069	0.040	0.087	0.018	0.076
Consistency	0.801	0.811	0.799	0.820	0.765	0.827	0.740	0.843	0.779
Overall solution consistency	0.752				0.723				
Overall solution coverage	0.530				0.751				

The measures for consistency and coverage are also reported. Coverage is similar to a R-square value, as it indicates the degree to which a particular configuration explains the outcome. That is, the higher a configuration's coverage (closer to 1), the more empirically relevant the configuration is for reaching the outcome of interest (high individual performance or high satisfaction). In addition, raw coverage indicates which share of the outcome is explained by a configuration, and unique coverage indicates which share of the outcome is exclusively explained by a configuration (i.e., without overlap with other configurations). Consistency score is analogous to a p-value in regression analyses. In other words, the higher a configuration's consistency, the stronger the evidence for a configuration being related to the outcome (high individual performance or high satisfaction) (Bedford, Malmi and Sandelin, 2016; Erkens and Van der Stede, 2015).

Overall, I find four configurations explaining high individual performance and five configurations explaining high satisfaction. Each resulting configuration - which represents simplified combination from the truth table rows - displays a consistency not lower than 0.740. The overall solution consistency is 0.752 for individual performance and 0.723 for satisfaction, indicating that the identified configurations are quite strongly related to high individual performance and high satisfaction, respectively.[45] Coverage is also in the acceptable range, with a total raw coverage of 0.530 and 0.751 for individual performance and satisfaction, respectively. This indicates that the combined solutions of each outcome account for about 53.0% of membership in individual performance and 75.1% in job satisfaction. Moreover, the satisfaction solution is empirically more powerful, as the coverage of the solution explaining performance (0.530) is lower than that of the solution explaining satisfaction (0.751).[46]

Moreover, the findings suggest that all sufficient configurations are empirically relevant since unique coverage for all solutions exceed 0.0 (Ragin, 2006; Santos and Baptista, 2016; Schneider, Schulze-Bentrop and Paunescu, 2010). Configuration 1c, with an individual raw coverage of 0.395, is the configuration that accounts for the higher number of cases associated with high individual performance. Configuration 2e, with an individual raw coverage of 0.456, is the configuration that accounts for the higher number of cases related to high satisfaction.

Solution 1a indicates that managers show high performance when they receive monetary incentives accompanied by non-monetary incentives, but do not receive benefits. Solutions 1b, 1c and 1d suggest that the use of punishment is associated with high individual performance but only if the organization complements also uses other incentives – benefits (1b), non-monetary incentives (1c) or monetary incentives (1d). Solution 2a suggests that managers have high job satisfaction when they receive benefits

[45]Although the consistency score for satisfaction is below 0.75 (value appointed by Ragin (2008) and Woodside (2013) as a rough benchmark for the existence of robustness), Schneider and Wagemann (2013) argue that a high number of cases allows for lower consistency values.

[46] Lower overall coverage for individual performance may occur due to the solutions presented in Table 3.6 do not cover all possible configurations associated with high individual performance. There are other configurations that do not pass the consistency or frequency thresholds imposed but that still lead to high individual performance (García-Castro, Aguilera and Ariño, 2013).

without any monetary incentives. Solution 2b indicates that the use of non-monetary incentives is associated with high managerial satisfaction but only when organizations also use punishment. Moreover, when managers receive monetary incentives without any benefits (2c), they may have high individual satisfaction. Finally, solutions 2d and 2e indicate that the use of benefits jointly with punishment (2d) or with non-monetary incentives (2e) is also associated with high job satisfaction.

3.5 Additional evidence

Prior research suggests that there are differences in compensation practices for owner and non-owner managers (e.g., Chourou, 2010; Cohen and Lauterbach, 2008). Thus, given that my sample includes owner managers and non-owner managers, I replicate my analysis partitioning my sample into two groups of managers according to their ownership.[47]

Table 3.7. Results of the fsQCA for the subsamples of owners and non-owners.

	Owners (N = 502)				Non-owners (N = 704)					
	Performance		*Satisfaction*		*Performance*			*Satisfaction*		
	1a	1b	2a	2b	1a	1b	1c	2a	2b	2c
Monetary incentives		●	⊗	●			●			●
Non-monetary incentives	●		⊗	●		●			●	
Benefits	⊗	●	●		●			●	●	⊗
Punishment	●	●			●	●	●	●		
Raw coverage	0.206	0.262	0.252	0.295	0.369	0.431	0.349	0.328	0.489	0.268
Unique coverage	0.091	0.147	0.192	0.234	0.022	0.066	0.026	0.039	0.197	0.135
Consistency	0.884	0.870	0.846	0.836	0.816	0.789	0.811	0.849	0.765	0.735
Overall solution consistency	0.863		0.828			0.768			0.727	
Overall solution coverage	0.353		0.486			0.523			0.677	

[47] To measure ownership, I ask respondents the following: "In addition to the management position you hold, do you participate in the company's equity?" Based on this information, I build a dummy variable, where ownership is equal to one if respondent indicates "Yes", zero otherwise.

Regarding the subsample of owner managers, Table 3.7 shows two configurations associated with high individual performance and two configurations related to high satisfaction. Each resulting configuration displays a consistency not lower than 0.836. The overall solution consistency is 0.863 for individual performance and 0.828 for satisfaction, indicating that the identified configurations are quite strongly related to high individual performance and high satisfaction, respectively. A total raw coverage indicates that the combined solutions of each outcome account for about 35.3% of membership in individual performance and 48.6% in job satisfaction.

Solution 1a indicates that owner managers can achieve high performance when firms provide non-monetary incentives and punishment but do not provide benefits. Solution 1b suggests that the use of monetary incentives is associated with high individual performance of owner managers only when the organization also uses other incentives – punishment and benefits. Solution 2a suggests that owner managers have high job satisfaction when they receive benefits with neither monetary nor non-monetary incentives. Solution 2b indicates that the use of monetary incentives is associated with high managerial satisfaction only when organizations also use non-monetary incentives.

As shown in Table 3.7, I find three configurations that are associated with high individual performance and three configurations are associated with high satisfaction for the subsample of non-owner managers. Each resulting configuration displays a consistency not lower than 0.735. The identified configurations are quite strongly related to high individual performance and high satisfaction, since the overall solution consistency is 0.768 for individual performance and 0.727 for satisfaction, respectively. The combined solutions of each outcome account for about 52.3% of membership in individual performance and 67.7% in job satisfaction.

Solutions 1a, 1b and 1c for the subsample of non-owner managers are similar to solutions 1b, 1c and 1d, respectively, for the entire sample. Likewise, solutions 2a, 2b and 2c are analogous to solutions 2d, 2e and 2c, respectively, for the entire sample. Hence, I do not describe these results in detail.

Overall, the results in Table 3.7 suggest that owner and non-owner managers have distinct incentive packages that are associated with either high individual performance or job satisfaction. Specifically, in opposition to non-owners, owner managers may achieve high performance when they receive an incentive package that encompasses more than two types of incentives - monetary incentives, benefits and punishment. However, in contrast to all positive incentives, punishment is present in all incentive packages associated with high individual performance for both owner and non-owner managers. Other notable finding is that owner managers can achieve high job satisfaction receiving solely benefits, while non-owner needs to receive non-monetary incentives or punishment in addition to benefits to be highly satisfied. In contrast, non-owner managers can be highly satisfied with their job if they receive exclusively monetary incentives, while owner manager can achieve high job satisfaction receiving non-monetary incentives in addition to monetary incentives.

Furthermore, given the heterogeneity of the sample in terms of size, I replicate my analysis partitioning my sample into two groups of firms regarding their size: small firms (10-49 employees) and medium firms (50-249 employees). The results of this analysis are shown in Table 3.8.

Table 3.8. Results of the fsQCA for the subsamples of small and medium firms.

	Small firms (N = 656)					Medum firms (N = 550)					
	Performance		*Satisfaction*			*Performance*				*Satisfaction*	
	1a	1b	2a	2b	2c	1a	1b	1c	1d	2a	2b
Monetary incentives		●	●	⊗	⊗			●	●		●
Non-monetary incentives	●		●	⊗		⊗	●	●		●	
Benefits	⊗	●		●	●	●	⊗	⊗		●	⊗
Punishment	●	●			⊗	●	●		●		
Raw coverage	0.243	0.252	0.331	0.221	0.338	0.219	0.268	0.196	0.349	0.484	0.239
Unique coverage	0.125	0.134	0.237	0.018	0.101	0.027	0.075	0.028	0.096	0.375	0.130
Consistency	0.836	0.865	0.812	0.842	0.831	0.878	0.850	0.807	0.831	0.754	0.756
Overall solution consistency	0.831		0.800			0.784				0.731	
Overall solution coverage	0.377		0.594			0.504				0.613	

The solution for the subsample of small firms encompasses two configurations that are associated with high individual performance and three configurations that are associated with high satisfaction. Each resulting configuration displays a consistency not lower than 0.812. The identified configurations are quite strongly related to high individual performance (solution consistency = 0.831) and high satisfaction (solution consistency = 0.800). Moreover, the combined solutions of each outcome account for about 37.7% of membership in individual performance and 59.4% in job satisfaction.

The results reveal that the set of solutions (1a and 1b) for high performance in small firms is similar to the set of solutions (1a and 1b, respectively) for the subsample of owner managers. Similarly, as the solutions 2a and 2b for high satisfaction in small firms are analogous to the solutions 2b and 2a, respectively, for the subsample of owner managers, I refrain from describing these results in detail. This similarity of results between the subsamples of owners and small firms can be explained by the overlap of these two samples. Specifically, performing a chi-square test to examine the independence between the groups, I find that the groups are dependent (chi-square = 225.31, $p < 0.01$), as the majority of owner mangers (401 out of 502 managers) come from small firms, and a majority of non-managers (448 out of 702 managers) come from medium firms. Correlation analysis also confirms this relationship between size and ownership (corr. = -0.257; $p < 0.01$).

Additionally, solution 2c indicates that the use of benefits is associated with high managerial satisfaction in small firms but only when organizations do neither use monetary incentives nor punishment practices.

Regarding the subsample of medium firms, I find four configurations that are associated with high individual performance and two configurations that are associated with high satisfaction. Each resulting configuration has a consistency not lower than 0.754. The overall solution consistency is 0.784 for individual performance and 0.731 for satisfaction, indicating that the identified configurations are quite strongly related to high individual performance and high satisfaction, respectively. A total raw coverage indicates that the combined solutions of each outcome account for about 50.4% of membership in individual performance and 61.3% in job satisfaction.

Solution 1a indicates that managers can achieve high performance if they receive benefits accompanied by punishment, but do not receive non-monetary incentives. Solution 1b is consistent with solution 1a for the subsample of owner managers and with solution 1a in small firms. Solutions 1 c and 1d are similar to solutions 1a and 1d, respectively, for the entire sample. Moreover, the set of solutions (2a and 2b) for high job satisfaction is analogous to solutions 2e and 2c, respectively, for the entire sample and to solutions 2b and 2c for the subsample of non-owner managers. Finally, the solution 1d for the subsample of medium firms is consistent with solution 1c for the subsample of non-owner managers. Therefore, I again refrain from describing these results in detail. Notably, I find some similarity of results between the subsamples of non-owners and medium firms that can be explained by the overlap of these two samples.[48] Overall, the results in Table 3.8 show different incentive packages associated with high individual performance or high job satisfaction for the subsamples of small firms and medium firms. Interestingly, there is a wider range of incentive packages associated with high individual performance in medium firms that in small firms. Moreover, high individual performance in small firms is associated with an incentive package combining three types of incentives (monetary incentives, benefits and punishment), while in medium firms is sufficient to have only two types of incentives. Another distinguishing finding is that managers in small firms can achieve high job satisfaction by receiving solely benefits, while managers in medium firms require non-monetary incentives in addition to benefits. In contrast, managers in medium firms can achieve high job satisfaction by receiving solely monetary incentives, while managers in small firms require non-monetary incentives in addition to monetary incentives. The only incentive package that is similar for both types of firms is that associated with high individual performance which combines non-monetary incentives with punishment and does not include benefits.

According to extant literature, managerial compensation schemes in family firms differ from those of non-family firms (e.g., Bandiera et al., 2015; Mazur and Wu, 2016). Thus, given that my sample includes both family and non-family firms, I replicate my analysis partitioning my sample into two groups of firms regarding family ownership.[49]

[48] I provide empirical evidence regarding the overlap of the subsamples of owner/non-owner managers and small/medium firms, when discussing the solution for the subsample of small firms.

[49] To measure family ownership, I ask respondents to indicate whether the firm is family owned. Based on this information, I build a dummy variable, where ownership is equal to one if respondent indicates "Yes", zero otherwise.

To examine the overlap of the subsamples of owner/non-owner managers and family/non-family firms, I perform a chi-square test that aims to explore the independence between these groups. I find that the groups are dependent (chi-square = 23.60, $p < 0.01$), as the majority of owner mangers (270 out of 393 managers) come from family firms. Correlation analysis also confirms this relationship between ownership and family ownership (corr. = 0.153; $p < 0.01$). Additionally, the proportion of non-owner managers in family firms (289 out of 546 managers) is very similar to the proportion of non-owner managers in non-family firms (257 out of 546 managers). Furthermore, I perform a chi-square test to explore the independence between the subsamples of small/medium and family/non-family firms. The results also suggest that these groups are dependent (chi-square = 28.63, $p < 0.01$), as the majority of family firms (346 out of 560) are small firms and the majority of non-family firms (213 out of 381) are medium firms. Correlation analysis also confirms this relationship as the percentage of family ownership is negatively correlated with firms' size (corr. = -0.148; $p < 0.01$).

Table 3.9. Results of the fsQCA for the subsamples of family and non-family firms.[50]

	Family firms (N = 560)					Non-family firms (N = 381)				
	Performance		*Satisfaction*			*Performance*			*Satisfaction*	
	1a	1b	2a	2b	2c	1a	1b	1c	2a	2b
Monetary incentives		●			●			●		●
Non-monetary incentives	⊗			●		⊗	●		⊗	●
Benefits	●		●	●	⊗	●	⊗		●	
Punishment	●	●	●			●	●	●	●	
Raw coverage	0.200	0.318	0.263	0.432	0.260	0.233	0.229	0.356	0.203	0.354
Unique coverage	0.055	0.174	0.033	0.192	0.143	0.034	0.059	0.105	0.099	0.250
Consistency	0.855	0.817	0.860	0.809	0.758	0.842	0.892	0.824	0.864	0.787
Overall solution consistency	0.808		0.764			0.814			0.797	
Overall solution coverage	0.374		0.618			0.466			0.453	

[50] The information about family ownership was collected through the first questionnaire described in an earlier section. Thus, to perform fsQCA with the subsamples of family and non-family firms, I merge the data from the two questionnaires. Due to missing data, the sample size for this analysis reduces to 941 observations.

The results in Table 3.9 show two configurations that are associated with individual performance and three configurations that are associated with high satisfaction for the subsample of family firms. Each resulting configuration has a consistency not lower than 0.758. The identified configurations are quite strongly related to high individual performance (solution consistency = 0.808) and high satisfaction solution consistency = 0.764. The combined solutions of each outcome account for about 37.4% of membership in individual performance and 61.8% in job satisfaction.

I find that solutions 1a and 1b for high individual performance in family firms are consistent with solutions 1a and 1d, respectively, for the subsample of medium firms. Moreover, solution 1b is also analogous to solution 1c for the subsample of non-owners and to solution 1d for the entire sample. In the same way, the set of solutions (2a, 2b and 2c) for high job satisfaction is similar to the set of solutions (2a, 2b and 2c, respectively) for the subsample of non-owners and to the set of solutions (2d, 2e and 2c, respectively) of the entire sample. Yet, solutions 2b and 2c for the subsample of family firms are consistent with solutions 2a and 2b for the subsample of medium firms. Hence, I do not describe these results in detail. Interestingly, despite the overlap of the subsamples of owner managers and family firms, and the subsamples of small and family firms, I do not find similar results between the paired subsamples.

Regarding the subsample of non-family firms, I find three configurations that are associated with high individual performance and two configurations that are associated with high satisfaction. Each resulting configuration displays a consistency not lower than 0.787. The overall solution consistency is 0.814 for individual performance and 0.797 for satisfaction, indicating that the identified configurations are quite strongly related to high individual performance and high satisfaction, respectively. A total raw coverage indicates that the combined solutions of each outcome account for about 46.6% of membership in individual performance and 45.3% in job satisfaction.

I find that solutions 1a, 1b and 1c for high individual performance in non-family firms are consistent with solutions 1a, 1b and 1d, respectively, for the subsample of medium firms. Moreover, solution 1b is analogous to solution 1a for the subsample of owner managers and for the subsample of small firms, while solution 1c is similar to solution 1d for the entire sample, and to solution 1c for subsample of non-owner managers. Contrasting the results for the two subsamples, I find that there are some solutions that are identical for both family and non-family firms. For instance, solutions 1a and 1b for the subsample of family firms are analogous to solutions 1a and 1c for the subsample of non-family firms.

Regarding job satisfaction, solution 2a indicates that managers in non-family firms can achieve high satisfaction when firms provide punishment and benefits, but do not offer non-monetary incentives. Solution 2b is analogous to solution 2b for the subsample of owner managers, and to solution 2a for the subsamples of small firms. Thus, I refrain from describing solution 2b in detail. The similarity of results between the subsamples of non-owners and medium firms for high individual performance can be explained by the overlap of these two samples.

In sum, the results in Table 3.9 indicate that the incentive packages associated with high individual performance in family firms are also applicable to non-family firms. Particularly, managers from both firms can achieve high performance when receiving either benefits and punishment (and not receiving non-monetary incentives) or punishment and monetary incentives. However, there is an additional incentive package associated with high performance in non-family firms that is not applicable to family firms (the use of non-monetary incentives, punishment and the absence of benefits). Furthermore, incentive packages that are associated with high job satisfaction in family firms are different from those in non-family firms. Specifically, managers in family firms can achieve high job satisfaction by receiving solely monetary incentives, while managers in non-family firms require non-monetary incentives in addition to monetary incentives. Moreover, while managers in family firms need the combination of benefits with punishment or with non-monetary incentives to be highly satisfied, managers in non-family firms require the absence of non-monetary incentives in addition to the combination of benefits with punishment.

3.6 Discussion and conclusions

The purpose of this study is to explore the interplay between different types of incentives and two work-related outcomes – individual performance and job satisfaction – for SME managers. Prior research suggests that each type of incentive in isolation affects individual behaviors (e.g., Blanes i Vidal and Nossol, 2011; Bonner and Sprinkle, 2002; Grant and Gino, 2010; Kluger and DeNisi, 1996; Locke and Latham, 1990). However, little is known about how combinations of incentives (i.e., incentive packages) may be associated with higher performance and higher job satisfaction.

My analyses indicate that there are multiple, equally effective, ways by which incentives may be combined in packages to achieve high individual performance or high job satisfaction of SME managers. I find that no single incentive in isolation, in comparison to a combination of incentives, is associated with high managerial performance. This somewhat contradicts the assumption of contract theory which suggests that monetary incentives provide the necessary and sufficient motivation for agents to exert effort aligned with the interests of the principal (e.g., Baiman, 1990; Eisenhardt, 1989; Jensen and Meckling, 1976). However, this finding is in line with the argument of scholars that advocate that the use of incentive packages, instead of one type of incentive in isolation, may be more beneficial in motivating individual behaviors (e.g., Stajkovic and Luthans, 2003). Conversely, I find that the use of benefits or monetary incentives in isolation is associated with high managerial job satisfaction. On the one hand, this result is consistent with traditional theory of organizational behavior which considers benefits as an extrinsic job characteristic that can reinforce job satisfaction but not individual performance (Lambert, 2000). On the other hand, this finding adds to ongoing debate regarding the relationship between monetary incentives and job satisfaction. Particularly, my study does not suggest that monetary incentives have a negative effect on job satisfaction (Frey and Jegen, 2001; Frey and Oberholzer-Gee, 1997; Gneezy, Meier and Rey-Biel, 2011). Additionally, my analyses show that there are at least three different incentive packages that are associated with high job satisfaction: (i) non-monetary incentives and punishment; (ii) benefits and punishment and (iii) non-monetary incentives and benefits. I also find that the use of punishment jointly with all positive incentives (monetary incentives, non-monetary incentives and benefits) is associated with high managerial performance. This finding is consistent with prospect theory (Kahneman and Tversky, 1979) as managers, assumed to have loss aversion and outweigh (possible) bad events in comparison to good events (Baumeister et al., 2001), have high performance in all combinations of incentives that include punishment. My analyses also reveal that combining monetary incentives with non-monetary incentives in an incentive package is associated with high performance. This finding is in line with prior studies which show performance improvements in the presence of both monetary and non-monetary incentives (Buchheit et al., 2012; Hannan, Krishnan and Newman, 2008; Kvaløy, Nieken and Schöttner, 2015; Kvaløy and Schöttner, 2015; Román, 2009; Sprinkle, 2000; Tafkov, 2013).

Furthermore, my findings suggest that owner and non-owner managers have distinct incentive packages that are associated with either high individual performance or job satisfaction. Importantly, in opposition to non-owners, owner managers may achieve high performance when they receive an incentive package that encompasses more than two types of incentives - monetary incentives, benefits and punishment. This finding may be explained by the fact that owner managers may choose to exploit their power to influence their own compensation schemes (Cohen and Lauterbach, 2008). In fact, prior studies show that owner managers receive higher compensation than non-owners (e.g., Chourou, 2010; Cohen and Lauterbach, 2008). However, in contrast to all positive incentives, punishment is present in all incentive packages associated with high individual performance for both owner and non-owner managers. This is an interesting result because it may indicate that although owner managers may influence their own compensation schemes (Cohen and Lauterbach, 2008) they are still driven by loss aversion. Other notable finding is that owner managers can achieve high job satisfaction receiving solely benefits, while non-owner managers can be highly satisfied with their job if they receive exclusively monetary incentives. This is an important finding because it points out for different motivational mechanisms that drive owner and non-owner manager' satisfaction.

Comparing small and medium enterprises, I find different incentive packages associated with high individual performance or high job satisfaction. The exception is an incentive package combining non-monetary incentives with punishment and not using benefits.

This package is associated with high individual performance for both small and medium firms. Interestingly, there is a wider range of incentive packages associated with high individual performance in medium firms that in small firms. Another important finding is that managers in small firms can achieve high job satisfaction by receiving solely benefits, while managers in medium firms require solely monetary incentives.

Finally, analyzing family and non-family firms, I find that the incentive packages associated with high individual performance in family firms are also applicable to non-family firms. Notably, similar to owner/non-owner managers, all incentive packages for family/non-family firms that are associated with high individual performance include punishment practices. Furthermore, incentive packages that are associated with high job satisfaction in family firms are different from those in non-family firms. Interestingly, each of the packages that are associated with high job satisfaction includes different pairs of incentives, except one package that includes only monetary incentives. This suggests that managers in family firms are sufficiently satisfied with their when they only receive monetary incentives.

My study has important implications for practice. First, owners and top-managers should be aware of the different incentive packages because these packages are associated with high managerial performance or job satisfaction. Second, my study shows that there is no need to solely base incentive plans on monetary incentives, which can imply a large cost to the companies. Instead, high performance can be achieved with a combination of punishment with i) monetary incentives, ii) non-monetary, or iii) benefits, or with a combination of monetary incentives with non-monetary incentives. Third, decision makers designing incentive systems should be aware that high managerial satisfaction can be achieved with the joint use of non-monetary incentives and benefits, or benefits and punishment, or non-monetary incentives and punishment is as effective as the sole use of benefits or monetary incentives. Fourth, these decision makers should also be aware that the implementation of punishment practices is associated with high performance or high job satisfaction only when they are accompanied by other positive incentives (monetary incentives, non-monetary or benefits). Finally, decision makers should consider various factors - such as firm size, family ownership and managerial ownership - when designing incentive systems because each of these factors is related to the composition of incentive packages associated with high performance or high satisfaction.

The findings of this study should be interpreted in light of its limitations. First, and although I take several steps to ensure the reliability of the data (i.e., pre-test of instrument, construct and content validity) my study shares common drawbacks of survey studies. One of them is a (non-)response bias in terms of firm size. This limitation may be explained by the higher propensity of large organizations to participate in surveys, while small firms prefer to ignore them. Additionally, I have (non-)response bias in terms of industry suggesting that there may be a difference between non-respondents and respondents in this regard. Second, due to theoretic nature, QCA should not be applied mechanically. Instead, all conclusions are drawn upon researchers' subjective judgement. Thus, to overcome this limitation, researchers should be transparent in the choices they make (Bedford and Sandelin, 2015). Third, this study does not incorporate the evolution of incentive practices and managerial behavioral outcomes over time. Future research can investigate the dynamic relationship between incentives and managerial behaviors and attitudes. Fourth, my study examines four specific punishment practices (i.e., in terms of operating autonomy, pay rise, prospects for promotion and continued employment). A useful extension of this study might be to examine the effect of other punishment practices on individual behaviors (e.g., verbal warnings, loss of privileges, reassignments in terms of telecommuting, teleworking or flexible work schedules). Moreover, future studies can also extend my research by including other managerial behaviors and attitudes in the analyses (e.g., turnover, absenteeism, organizational commitment, job involvement). In addition, a more detailed examination of benefits, non-monetary incentives and punishment could be fruitful for further understanding of the relationship between different incentive packages and managerial behavior. Despite these limitations, this study contributes to the limited body of research examining the interplay of different incentives and managerial outcomes.

References

Ady, J. C. (1994). Minimizing threats to the validity of cross-cultural organization research. In: Wiseman, R. L. and Shuter, R. (Eds). *Communicating in multinational organizations.* Thousand Oaks, CA: Sage Publications, 30-42.

Aguinis, H. and Lawal, S. O. (2012). Conducting field experiments using eLancing's natural environment. *Journal of Business Venturing* 27 (4), 493-505.

Akerlof, G. A. and Kranton. R. E. (2005). Identity and the economics of organizations. *The Journal of Economic Perspectives* 19 (1), 9-32.

Akerlof, G. A. and Yellen, J. L. (1988). Fairness and unemployment. *The American Economic Review* 78 (2), 44-49.

Akerlof, G. A. and Yellen, J. L. (1990). The fair wage-effort hypothesis and unemployment. *The Quarterly Journal of Economics* 105 (2), 255-283.

Aletraris, L. (2010). How satisfied are they and why? A study of job satisfaction, job rewards, gender and temporary agency workers in Australia. *Human Relations* 63 (8), 1129-1155.

Appelbaum, S. H. and Kamal, R. (2000). An analysis of the utilization and effectiveness of non-financial incentives in small business. *Journal of Management Development* 19 (9), 733-763.

Ariely, D., Bracha, A. and Meier, S. (2009). Doing good or doing well? Image motivation and monetary incentives in behaving prosocially. *American Economic Review* 99 (1), 544-555.

Ariely, D., Kamenica, E. and Prelec, D. (2008). Man's search for meaning: The case of legos. *Journal of Economic Behavior & Organization* 67 (3-4), 671-677.

Arkes, H. R., Dawes, R. M. and Christensen, C. (1986). Factors influencing the use of a decision rule in a probabilistic task. *Organizational Behavior and Human Decision Processes* 37 (1), 93-110.

Armstrong, J. S. and Overton, T. S. (1977). Estimating nonresponse bias in mail surveys. *Journal of Marketing Research* 14, 396-402.

Artz, B. (2008). The role of firm size and performance pay in determining employee job satisfaction. *Labour: Review of Labor Economics and Industrial Relations* 22 (2), 315-343.

Artz, B. (2010). Fringe benefits and job satisfaction. *International Journal of Manpower* 31 (6), 626-644.

Arvey, R., Davis, G. A. and Nelson, S. M. (1984). Use of discipline in an organization: A field study. *Journal of Applied Psychology* 69 (3), 448-460.

Arvey, R. and Ivancevich, J. (1980). Punishment in organizations: A review, propositions and research suggestions. *Academy of Management Review* 5 (1), 123-132.

Ashraf, N., Bandiera, O. and Jack, K. (2014). No margin, no mission? A field experiment on incentives for public service delivery. *Journal of Public Economics* 120 (C), 1-17.

Ashton, R. H. (1990). Pressure and performance in accounting decision settings: Paradoxical effects of incentives, feedback, and justification. *Journal of Accounting Research* 28 (3), 148-180.

Assaf, A. (1999). *Managerial behavior in contemporary organizations.* Amman: Dar Zahran.

Ates, A. and Bititci, U. (2011). Change process: A key enabler for building resilient SMEs. *International Journal of Production Research* 49 (18), 5601-5618.

Atkinson, A. A., Kaplan, R. S., Matsumura, E. M. and Young, S. M. (2012). *Management accounting: Information for decision-making and strategy execution*. 6th ed. Upper Saddle River, NJ: Pearson Education Inc.

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

Bagozzi, R. P., Yi, Y. and Phillips, L. W. (1991). Assessing construct validity in organizational research. *Administrative Science Quarterly* 36 (3), 421-458.

Baiman, S. (1990). Agency theory in managerial accounting: A second look. *Accounting, Organizations and Society* 15 (4), 341-371.

Baker, G., Gibbons, R. and Murphy, K. (1994). Subjective performance measures in optimal incentive contracts. *Quarterly Journal of Economics* 109 (4), 1125-1156.

Baker, G., Jensen, M. and Murphy, K. J. (1988). Compensation and incentives: Practice vs theory. *Journal of Finance* XLIII (3), 593-616.

Bandiera, O., Guiso, L., Prat, A. and Sadun, R. (2015). Matching firms, managers, and incentives. *Journal of Labor Economics* 33 (3), 623-681.

Bandura, A. (1971). *Social learning theory.* Morristown, NJ: General Learning Press.

Bandura, A. (1986). *Social foundations of Thought and Action*. Englewood Cliffs, NJ: Prentice Hall.

Bandura, A. (1991). Social cognitive theory of self-regulation. *Organizational Behavior and Human Decision Processes* 50 (2), 248-287.

Bandura, A. (1999). Social cognitive theory of personality. In: Pervin, L. and Jonh, O. (Eds). *Handbook of Personality.* 2nd ed. New York: Guilford, 154-196.

Bandura, A., Ross, D. and Ross, S. A. (1963). Vicarious reinforcement and imitative learning. *Journal of Abnormal and Social Psychology* 67 (6), 601-607.

Banker, R. D., Lee, S. Y., Potter, G. and Srinivasan, D. (2001). An empirical analysis of continuing improvements following the implementation of a performance-based compensation plan. *Journal of Accounting and Economics* 30 (3), 315-350.

Barankay, I. (2012). Rank Incentives: Evidence from a randomized workplace experiment. *Working paper,* University of Pennsylvania. Available online: http://www.usc.edu/schools/business/FBE/seminars/papers/AE_9-7-12_BARANKAY.pdf.

Baum, J. F. and Youngblood, S. A. (1975). Impact of an organizational control policy on absenteeism, performance, and satisfaction. *Journal of Applied Psychology* 60 (6), 688-694.

Baumeister, F. R., Bratslavsky, E., Finkenauer, C. and Vohs, K. (2001). Bad is stronger than good. *Review of General Psychology* 5 (4), 323-370.

Bedford, D. S., Malmi, T. and Sandelin, M. (2016). Management control effectiveness and strategy: An empirical analysis of packages and systems. *Accounting, Organizations and Society* (51), 12-28.

Bedford, D. S. and Sandelin, M. (2015). Investigating management control configurations using qualitative comparative analysis: An overview and guidelines for application. *Journal of Management Control* 26 (1), 5-26.

Bénabou, R. and Tirole, J. (2003). Intrinsic and extrinsic motivation. *Review of Economic Studies* 70 (3), 489-520.

Bender, K. A., Donohue, S. M. and Heywood, J. S. (2005). Job satisfaction and gender segregation. *Oxford Economic Papers* 57, 479-496.

Besley, T. and Ghatak, M. (2008). Status incentives. *The American Economic Review* 98 (2), 206-211.

Beyer, J. M. and Trice, H. M. (1984). A field study of the use and perceived effects of discipline in controlling work performance. *Academy of Management Journal* 27 (4), 743-764.

Bialik, C. (2009). What's in a Wall Street bonus figure? Not accuracy. *Wall Street Journal* (February 20). Available at: http://online.wsj.com/article/SB123509366925028921.html.

Black, J. S. and Gregersen, H. B. (1997). Participative decision making: an integration of multiple dimensions. *Human Relations* 50 (7), 859-879.

Blanes i Vidal, J. and Nossol, M. (2011). Tournaments without prizes: Evidence from personnel records. *Management Science* 57 (10), 1721-1736.

Blau, P. M. (1964). *Exchange and Power in Social Life.* New York: John Wiley & Sons.

Bonner, S. E., Hastie, R., Sprinkle, G. B. and Young, S. M. (2000). A review of the effects of financial incentives on performance in laboratory tasks: Implications for management accounting. *Journal of Management Accounting Research* 12 (1), 19-64.

Bonner, S. E. and 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.

Bradler, C., Dur, R., Neckermann, S. and Non, A. (2016). Employee recognition and performance: A field experiment. *Management Science* 62 (11), 3085-3099.

Breaugh, J. A. and Frye, N. K. (2007). An examination of the antecedents and consequences of the use of family-friendly benefits. *Journal of Managerial Issues* 19 (1), 35-52.

Brink, A. G. and Rankin, F. W. (2013). The effects of risk preference and loss aversion on individual behavior under bonus, penalty, and combined contract frames. *Behavioral Research in Accounting* 25 (2), 145-170.

Brown, C. and Medoff, J. (1989). The employer size-wage effect. *Journal of Political Economy* 97 (5), 1027-1059.

Browne, M. W. and Cudeck, R. (1989). Single sample cross validation indices for covariance structures. *Multivariate Behavioral Research* 24 (4), 445-455.

Bruggen, A. and Moers, F. (2007). The role of financial incentives and social incentives in multi-task settings. *Journal of Management Accounting Research* 19 (1), 25-50.

Brun, J-P. and Dugas, N. (2008). An analysis of employee recognition, perspectives on human resources practices. *International Journal of Human Resource Management* 19 (4), 716-730.

Buchheit, S., Dalton, D., Downen, T. and Pippin, S. (2012). Outcome Feedback, Incentives, and Performance: Evidence from a Relatively Complex Forecasting Task. *Behavioral Research in Accounting* 24 (2), 1-20.

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

Catania, A. (2001). Positive psychology and positive reinforcement. *American Psychologist* 56 (1), 86-87.

Chalos, P. and Poon, M. C. C. (2000). Participation and performance in capital budgeting teams. *Behavioral Research in Accounting* 12, 199-229.

Chang, G. S. and Lorenzi, P. (1983). The effects of participative versus assigned goal setting on intrinsic motivation. *Journal of Management* 9 (1), 55-64.

Chari, S., Tarkiainen, A. and Salojärvi, H. (2016). Alternative pathways to utilizing customer knowledge: A fuzzy-set qualitative comparative analysis. *Journal of Business Research* 69 (11), 5494-5499.

Chen, G., Gully, S. M. and Eden, D. (2001). Validation of a new general self-efficacy scale. *Organizational Research Methods* 4 (1), 62-83.

Chenhall, R. H. (2003). Management control systems design within its organizational context: Findings from contingency-based research and directions for the future. *Accounting, Organizations and Society* 28 (2/3), 127-168.

Chiang, F. F. and Birtch, T. A. (2006). An empirical examination of reward preferences within and across national settings. *Management International Review* 46 (5), 573-596.

Chiang, F. F. and Birtch, T. (2008). Achieving task and extra-task-related behaviors: A case of gender and position differences in the perceived role of rewards in the hotel industry. *International Journal of Hospitality Management* 27 (4), 491-503.

Chong, V. K. and Chong, K. M. (2002). Budget goal commitment and informational effects of budget participation on performance: A structural equation modeling approach. *Behavioral Research in Accounting* 14 (1), 65-86.

Chourou, L. (2010). Compensation of owner managers in Canadian family-owned businesses: Expropriation of minority shareholders. *Canadian Journal of Administrative Sciences* 27 (2), 95-106.

Christ, M. H., Sedatole, K. L. and Towry, K. L. (2012). Sticks and Carrots: The Effect of Contract Frame on Effort in Incomplete Contracts. *The Accounting Review* 87 (6), 1913-1938.

Chung, K. H. and Vickery, W. D. (1976). Relative effectiveness and joint effects of three selected reinforcements in a repetitive task situation. *Organizational Behavior and Human Performance* 16 (1), 114-142.

Cohen, S. and Lauterbach, B. (2008). Differences in pay between owner and non-owner CEOs: Evidence from Israel. *Journal of Multinational Financial Management* 18 (1), 4-15.

Cole, R. A. and Mehran, H. (2016). What do I know about executive compensation at small privately held firms? *Small Business Economics* 46 (2), 215-237.

Coletti, A. L., Sedatole, K. L. and Towry, K. L. (2005). The effect of control systems on trust in collaborative environments. *The Accounting Review* 80 (2), 477-500.

Cooper, C. L., Dyck, B. and Frohlich, N. (1992). Improving the effectiveness of gainsharing: The role of fairness and participation. *Administrative Science Quarterly* 37 (3), 471-490.

Cotton, J. L., Vollrath, D. A., Froggat, K. L., Lengnick-Hall, M. L. and Jennings, K. R. (1988). Employee participation: diverse forms and different outcomes. *Academy of Management Review* 13 (1), 8-22.

Davidson, L. (1999). The power of personal recognition. *Workforce* 78 (7), 44-48.

Davis, T. R. and Luthans, F. (1980). A social learning approach to organizational behavior. *Academy of Management Review* 5 (2), 281-290.

De Cenzo, D., Robbins, A. and Stephen, P. (1996). *Human Resource Management*. New York: John Wiley & Sons, Inc.

Deci, E. L. (1975). *Intrinsic Motivation.* New York: Plenum Press.

Deci, E. L., Betley, G., Kahle, J., Abrams, L. and Porac, J. (1981). When trying to win: Competition and intrinsic motivation. *Personality and Social Psychology Bulletin* 7 (1), 79-83.

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

Deci, E. L. and Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York, NY: Plenum Press.

Dennis, W. J. Jr. (2000). Wages, health insurance and pension plans: The relationship between employee compensation and small business owner income. *Small Business Economics* 15 (4), 247-263.

Donohue, S. M. and Heywood, J. S. (2004). Job Satisfaction and Gender: An Expanded Specification from the NLSY. *International Journal of Manpower* 25 (2), 211-234.

Dreher, G. F., Ash, R. A. and Bretz, R. D. (1988). Benefit coverage and employee cost: Critical factors in explaining compensation satisfaction. *Personnel Psychology* 41 (2), 237-254.

Dunk, A. S. (1993). The effects of job-related tension on managerial accounting performance in participative budgetary settings. *Accounting, Organizations and Society* 18 (7), 575-585.

Dur, R., Non, A. and Roelfsema, H. (2010). Reciprocity and incentive pay in the workplace. *Journal of Economic Psychology* 31 (4), 676-686.

Ederhof, M. (2011). Incentive Compensation and Promotion-Based Incentives of Mid-Level Managers: Evidence from a Multinational Corporation. *The Accounting Review* 86 (1), 131-153.

Eisenberger, R. and Aselage, J. (2009). Incremental effects of reward on experienced performance pressure: Positive outcomes for intrinsic interest and creativity. *Journal of Organizational Behavior* 30 (1), 95-117.

Eisenberger, R. and Cameron, J. (1996). The detrimental effects of reward: Myth or reality? *American Psychologist* 51 (11), 1153-1166.

Eisenhardt, K. M. (1989). Agency theory: An assessment and review. *Academy of Management Review* 14 (1), 57-74.

Ellingsen, T. and Johannesson, M. (2007). Paying respect. *Journal of Economic Perspectives* 21 (4), 135-150.

Ellingsen, T. and Johannesson, M. (2008). Pride and prejudice: The human side of incentive theory. *American Economic Review* 98 (3), 990-1008.

Erbasi, A. and Arat, T. (2012). The effect of financial and non-financial incentives on job satisfaction: An examination of food chain premises in Turkey. *International Business Research* 5 (10), 136-145.

Eriksson, T. and Villeval, M. C. (2012). Respect and relational contracts. *Journal of Economic Behavior and Organization* 81 (1), 286-298.

Erkens, D. H. and Van der Stede, W. (2015). Strategy and control: Findings from a set-theoretical analysis of high-performance manufacturing firms. *Working Paper No. ACC 03.13*, Marshall School of Business. Available at SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2296468.

European Commission. (2005). The new SME definition: User guide and model declaration. *Enterprise and Industry Publications*, 5-50.

Ferres, N., Connell, J. and Travaglione, A. (2004). Co-worker trust as a social catalyst for constructive employee attitudes. *Journal of Managerial Psychology* 19 (6), 608-622.

Fiss, P. C. (2011). Building better causal theories: A fuzzy set approach to typologies in organization research. *Academy of Management Journal* 54 (2), 393-420.

Frederickson, J. and Waller, W. (2005). Carrot or stick? Contract frame and use of decision-influencing information in a principal-agent setting. *Journal of Accounting Research* 43 (5), 709-733.

Frey, B. S. (1994). How intrinsic motivation is crowded out and in. *Rationality and Society* 6 (3), 334-352.

Frey, B. S. (2006). Giving and receiving awards. *Perspectives on Psychological Science* 1 (4), 377-388.

Frey, B. S. and Jegen, R. (2001). Motivation crowding out theory: A survey of empirical evidence. *Journal of Economic Surveys* 15 (5), 589-611.

Frey, B. S. and Oberholzer-Gee, F. (1997). The cost of price incentives: An empirical analysis of motivation crowding-out. *American Economic Review* 87 (4), 746-755.

Furnham, A. and Stringfield, P. (1994). Congruence of self and subordinate ratings of managerial practices as a correlate of supervisor evaluation. *Journal of Occupational and Organizational Psychology* 67 (1), 57-67.

Gagné, M. and Deci, E. L. (2005). Self-determination theory and work motivation. *Journal of Organizational Behavior* 26 (4), 331-362.

García-Castro, R., Aguilera, R. V. and Ariño, M. A. (2013). Bundles of firm corporate governance practices: A fuzzy set analysis. *Corporate Governance: An International Review* 21 (4), 390-407.

Gerbing, D. W. and Anderson, J. C. (1988). An updated paradigm for scale development incorporating unidimensionality and its assessment. *Journal of Marketing Research* 25 (2), 186-192.

Gibbons, R. and Murphy, K. J. (1992). Optimal incentive contracts in the presence of career concerns: Theory and evidence. *Journal of Political Economy* 100 (3), 468-505.

Gibbs, M. (1995). Incentive compensation in a corporate hierarchy. *Journal of Accounting and Economics* 19 (2-3), 247-277.

Gibbs, M., Merchant, K., Van Der Stede, W. and Vargus, M. (2004). Determinants and effects of subjectivity in incentives. *The Accounting Review* 79 (2), 409-436.

Gneezy, U., Meier, S. and Rey-Biel, P. (2011). When and why incentives (don't) work to modify behavior. *Journal of Economic Perspectives* 25 (4), 191-210.

Gneezy, U. and Rustichini, A. (2000). Pay enough or don't pay at all. *Quarterly Journal of Economics* 115 (3), 791-810.

Gong, M. Z. and Ferreira, A. (2014). Does consistency in management control systems design choices influence firm performance? An empirical analysis. *Accounting and Business Research* 44 (5), 497-522.

Grabner, I. and Moers, F. (2013). Management control as a system or a package? Conceptual and empirical issues. *Accounting, Organizations and Society* 38 (6), 407-419.

Grant, A. M. and Gino, F. (2010). A little thanks goes a long way: Explaining why gratitude expressions motivate prosocial behavior. *Journal of Personality and Social Psychology* 98 (6), 946-955.

Gray, C. and Mabey, C. (2005). Management development: Key differences between small and large businesses in Europe. *International Small Business Journal* 23 (5), 467-485.

Green, C. and Heywood, J. S. (2008). Does performance pay increase job satisfaction? *Economica* 75 (300), 710-728.

Grossman, S. J. and Hart, O. D. (1980). Takeover bids, the free-rider problem, and the theory of the corporation. *The Bell Journal of Economics* 11 (1), 42-64.

Gubler, T., Larkin, I. and Pierce, L. (2016). Motivational spillovers from awards: Crowding out in a multitasking environment. *Organization Science* 27 (2), 286-303.

Hageman, A. M. (2008). A review of the strengths and weaknesses of archival, behavioral, and qualitative research methods: Recognizing the potential benefits of triangulation. In: Arnold, V., Clinton, B. D., Lillis, A., Roberts, R., Wolfe, C. and Wright, S. (Eds). *Advances in Accounting Behavioral Research.* Volume 11. Bingley: JAI Press, 1-30.

Hair, J., Black, W., Babin, B. and Anderson, R. (2014). *Multivariate Data Analysis.* 7th ed. London, UK: Pearson Education Limited.

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.

Handgraaf, M. J., Van Lidth de Jeude, M. and Appelt, K. (2013). Public praise vs. private pay: Effects of rewards on energy conservation in the workplace. *Ecological Economics* 86, 86-92.

Hannan, L., Krishnan, R. and Newman, A. (2008). The effects of disseminating relative performance feedback in tournament and individual performance compensation plans. *The Accounting Review* 83 (4), 893-913.

Hannan, R. L., Hoffman, V. B. and Moser, D. V. (2005). Bonus versus penalty: Does the contract frame affect employee effort? In: Zwick, R. and Rapoport, A. (Eds). *Experimental Business Research.* Volume 2. Boston, MA: Kluwer, 151-169.

Hart, O. D. (2001). Financial contracting. *Journal of Economic Literature* 39 (4), 1079-1100.

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

Herzberg, F. (1966). *Work and the Nature of Man.* New York: Staples Press.

Heywood, J. S., Siebert, W. S. and Wei, X. (2002). Worker sorting and job satisfaction: The case of union and government jobs. *Industrial and Labor Relations Review* 55 (4), 595-609.

Heywood, J. S. and Wei, X. (2006). Performance pay and job satisfaction. *Journal of Industrial* Relations 48 (4), 523-540.

Hofmans, J., De Gieter, S. and Pepermans, R. (2013). Individual differences in the relationship between satisfaction with job rewards and job satisfaction. *Journal of Vocational Behavior* 82 (1), 1-9.

Hogarth, R. M., Gibbs, B. J., McKenzie, C. R. M. and Marquis, M. A. (1991). Learning from feedback: exactingness and incentives. *Journal of Experimental Psychology: Learning, Memory and Cognition* 17 (4), 734-752.

Holmstrom, B. and Milgrom, P. (1991). Multitask principal-agent analyses: Incentive contracts, asset ownership, and job design. *Journal of Law, Economics and Organization* 7 (special issue), 24-52.

Holmstrom, B. and Milgrom, P. (1994). The firm as an incentive system. *The American Economic Review* 84 (4), 972-991.

Hossain, T. and List, J. A. (2012). The behavioralist visits the factory: Increasing productivity using simple framing manipulations. *Management Science* 58 (12), 2151-2167.

Howard, J. L. (2006). Small business growth: Development of indicators. *Academy of Entrepreneurship Journal* 12 (1), 73-88.

Howard, J. L. (2008). The use of non-monetary motivators in small business. *The Entrepreneurial Executive* 13, 17-29.

Howell, J. P. and Costley, D. L. (2001). *Understanding behaviors for effective leadership.* Upper Saddle River, NJ: Prentice Hall.

Hu, L. and Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling* 6 (1), 1-55.

Hudson, M., Smart, P. A. and Bourne, M. (2001). Theory and practice in SME performance measurement systems. *International Journal of Operations and Production Management* 21 (8), 1096-1116.

Humphreys, S. E., Nahrgang, J. D. and Morgeson, F. P. (2007). Integrating motivational, social, and contextual work design features: A meta-analytic summary and theoretical extension of the work design literature. *Journal of Applied Psychology* 92 (5), 1332-1356.

Ito, T. A., Larsen, J. T., Smith, N. K. and Cacioppo, J. T. (1998). Negative information weighs more heavily on the brain: The negativity bias in evaluative categorizations. *Journal of Personality and Social Psychology* 75 (4), 887-900.

Jansen, E. P., Merchant, K. A. and Van der Stede, W. A. (2009). National differences in incentive compensation practices: The differing roles of financial performance measurement in the United States and the Netherlands. *Accounting, Organizations and Society* 34 (1), 58-84.

Jeffrey, S. A. (2009). Justifiability and the motivational power of tangible noncash incentives. *Human Performance* 22 (2), 143-155.

Jensen, M. C. (1986). Agency costs of free cash flow, corporate finance, and takeovers. *American Economic Review* 76 (2), 323-329.

Jensen, M. C. and Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics* 3 (4), 305-360.

Johnson, T. J. (1972). *Professions and Power.* London and Basingstoke: Macmillan.

Johnston, R. (1975). Pay and job satisfaction: A survey of some research findings. *International Labour Review* 111 (5), 441-449.

Judge, T. A., Piccolo, R. F., Podsakoff, N. P., Shaw, J. C. and Rich, B. L. (2010). The relationship between pay and job satisfaction: A meta-analysis of the literature. *Journal of Vocational Behavior* 77 (2), 157-167.

Kahneman, D. and Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica* 47 (2), 263-291.

Kalleberg, A. L. (1977). Work Values and Job Rewards: A Theory of Job Satisfaction. *American Sociological Review* 42 (1), 124-143.

Kalleberg, A. L. and Van Buren, M. E. (1996). Is bigger better? Explaining the relationship between organization size and job rewards. *American Sociological Review* 61 (1), 47-62.

Kelly, K., Presslee, A. and Webb, A. (2017). The effects of tangible rewards versus cash rewards in consecutive sales tournaments: A field experiment. *The Accounting Review* 92 (6), 165-185.

Kessler, L. and Ashton, R. H. (1981). Feedback and prediction achievement in financial analysis. *Journal of Accounting Research* 19 (1), 146-162.

Kline, R. B. (2016). *Principles and practice of structural equation modeling.* 4th ed. New York: Guilford Press.

Kluger, A. N. and DeNisi, A. (1996). The effects of feedback interventions on performance: A historical review, a meta-analysis, and a preliminary feedback intervention theory. *Psychological Bulletin* 119 (2), 254-284.

Knox, K. J., Blankmeyer, E. C. and Stutzman, J. R. (2004). Administrative compensation and organizational performance in texas nursing facilities. *Small Business Economics* 22 (1), 33-49.

Komaki, J., Heinzmann, A. T. and Lawson, L. (1980). Effect of training and feedback: Component analysis of a behavioral safety program. *Journal of Applied Psychology* 65 (3), 261-270.

Kosfeld, M. and Neckermann, S. (2011). Getting more work for nothing? Symbolic awards and worker performance. *American Economic Journal: Microeconomics* 3 (3), 86-99.

Kosfeld, M., Neckermann, S. and Yang, X. (2017). The effects of financial and recognition incentives across work contexts: The role of meaning. *Economic Inquiry* 55 (1), 237-247.

Kube, S., Maréchal, M. and Puppe, C. (2012). The currency of reciprocity - Gift-exchange in the workplace. *The American Economic Review* 102 (4), 1644-1662.

Kunz, J. and Linder, S. (2012). Organizational control and work effort - Another look at the interplay of rewards and motivation. *European Accounting Review* 21 (3), 591-621.

Kvaløy, O., Nieken, P. and Schöttner, A. (2015). Hidden benefits of reward: A field experiment on motivation and monetary incentives. *European Economic Review* 76 (C), 188-199.

Kvaløy, O. and Schöttner, A. (2015). Incentives to motivate. *Journal of Economic Behavior and Organization* 116 (C), 26-42.

Lacetera, N. and Macis, M. (2010). Do all material incentives for pro-social activities backfire? The response to cash and non-cash incentives for blood donations. *Journal of Economic Psychology* 31 (4), 738-748.

Lam, S. K., Chen, X. and Schaubroeck, J. (2002). Participative decision making and employee performance in different cultures: The moderating effects of allocentrism/idiocentrism and efficacy. *Academy of Management Journal* 45 (5), 905-914.

Lambert, S. J. (2000). Added benefits: The link between work-life benefits and organizational citizenship behavior. *Academy of Management Journal* 43 (3), 801-815.

Larkin, I., Pierce, L. and Gino, F. (2012). The psychological costs of pay-for-performance: Implications for the strategic compensation of employees. *Strategic Management Journal* 33 (10), 1194-1214.

Lawrence, R. J., Mulaik, S. A. and Brett, J. M. (1982). *Causal analysis: Assumptions, models, and data.* Beverly Hills, CA: Sage.

Lazear, E. (2000). Performance Pay and Productivity. *The American Economic Review* 90 (5), 1346-1361.

Lazear, E. and Rosen, S. (1981). Rank-order tournaments as optimum labor contracts. *Journal of Political Economy* 89 (5), 841-864.

Leavitt, W. M. (1996). High Pay and Low Morale — Can high pay, excellent benefits, job security, and low job satisfaction coexist in a public agency? *Public Personnel Management* 25 (3), 333-341.

Leischnig, A., Henneberg, S. C. and Thornton, S. (2016). Net versus combinatory effects of firm and industry antecedents of sales growth. *Journal of Business Research* 69 (9), 3576-3583.

Libby, R. and Lipe, M. G. (1992). Incentives, effort, and the cognitive processes involved in accounting-related judgments. *Journal of Accounting Research* 30 (2), 249-273.

Locke, E. A. and Bryan, J. F. (1966). Cognitive aspects of psychomotor performance: The effects of performance goals on level of performance. *Journal of Applied Psychology* 50 (4), 286-291.

Locke, E. A. and Latham, G. P. (1990). *A theory of goal setting and task performance*. Englewood Cliffs, NJ: Prentice-Hall.

Locke, E. A. and Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. *American Psychologist* 57 (9), 705-717.

Long, R. J. and Shields, J. L. (2010). From pay to praise? Non-cash employee recognition in Canadian and Australian firms. *International Journal of Human Resource Management* 21 (8), 1145-1172.

Longest, K. and Vaisey, S. (2008). Fuzzy: A program to performing qualitative comparative analysis (QCA) in Stata. *The Stata Journal* 8 (1), 79-104.

Lourenço, S. M. (2016). Monetary incentives, feedback, and recognition - complements or substitutes? Evidence from a field experiment in a retail services company. *The Accounting Review* 91 (1), 279-297.

Luchak, A. A. and Gellatly, I. R. (2002). How Pension Accrual Affects Job satisfaction. *Journal of Labor Research* 23 (1), 145-162.

Luthans, F. and Kreitner, R. (1985). *Organizational behavior modification and beyond.* Glenview, IL: Scott, Foresman.

MacDermid, S., Hertzog, J., Kensinger, K. and Zipp, J. (2001). The role of organizational size and industry in job quality and work-family relationships. *Journal of Family and Economic Issues* 22 (2), 191-216.

MacLeod, W. B. and Malcomson, J. M. (1988). Reputation and hierarchy in dynamic models of employment. *Journal of Political Economy* 96 (4), 832-854.

Maggetti, M. and Levi-Faur, D. (2013). Dealing with errors in QCA. *Political Research Quarterly* 66 (1), 198-204.

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

Malcomson, J. M. (1984). Work incentives, hierarchy, and internal labor markets. *Journal of Political Economy* 92 (3), 486-507.

Malik, M. A. R., Butt, A. N. and Choi, J. N. (2015). Rewards and employee creative performance: Moderating effects of creative self-efficacy, reward importance, and locus of control. *Journal of Organizational Behavior* 36 (1), 59-74.

Malik, M. E., Danish, R. Q. and Munir, Y. (2012). The impact of pay and promotion on job satisfaction: Evidence from higher education institutes of Pakistan. *American Journal of Economics* (Special Issue), 6-9.

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

Marginson, D. and Ogden, S. (2005). Coping with ambiguity through the budget: The positive effects of budgetary targets on managers' budgeting behaviours. *Accounting, Organizations and Society* 30 (5), 435-456.

Marino, A. M. and Zábojník, J. (2008). Work-related perks, agency problems, and optimal incentive contracts. *The RAND Journal of Economics* 39 (2), 565-585.

Markham, S. E., Scott, K. D. and McKee, G. H. (2002). Recognizing good attendance: A longitudinal, quasi-experimental field study. *Personnel Psychology* 55 (3), 639-660.

Maslow, A. H. (1943). A theory of human motivation. *Psychological Review* 50 (4), 370-396.

Mazur, M. and Wu, B. H. T. (2016). Founding family firms, CEO incentive pay, and dual agency problems. *Journal of Small Business Management* 54 (4), 1099-1125.

McCaffrey, R. (1990). Organizational performance and the strategic allocation of indirect compensation. *Human Resource Planning* 12 (3), 229-238.

McCausland, W., Pouliakas, K. and Theodossiou, I. (2005). Some are punished and some are rewarded: A study of the impact of performance pay on job satisfaction. *International Journal of Manpower* 7 (26), 636-659.

Merchant, K. A. and Van der Stede, W. A. (2012). *Management control systems: Performance measurement, evaluation and incentives.* 3rd ed. Upper Saddle-River, NJ: Prentice Hall.

Merchant, K. A., Van der Stede, W. A. and Zheng, L. (2003). Disciplinary constraints on the advancement of knowledge: The case of organizational incentive systems. *Accounting, Organizations and Society* 28 (2-3), 251-286.

Milgrom, P. and Roberts, J. (1990). The economics of modern manufacturing technology, strategy and organization. *The American Economic Review* 80 (3), 311-328.

Milgrom, P. and Roberts, J. (1995). Complementarities and fit strategy, structure, and organizational change in manufacturing. *Journal of Accounting and Economics* 19 (2- 3), 179-208.

Milkovich, G. T., Newman, J. M. and Milkovich, C. (2005). *Compensation*. 8th ed. New York: McGraw-Hill/Irwin.

Mobley, W. H. (1982). *Employee Turnover: Causes, Consequences and Control.* Addison-Wesley: Reading, MA.

Moldovanu, B., Sela, A. and Shi, X. (2007). Contests for status. *Journal of Political Economy* 115 (2), 338-363.

Mossholder, N., Bennett, E., Kemery, R. and Wesolowski, M. A. (1998). Relationships between bases of power and work reactions: The mediational role of procedural justice. *Journal of Management* 24 (4), 533-552.

Muse, L. A., Harris, S., Giles, W. F. and Feild, H. S. (2008). Work-life benefits and positive organizational behavior: is there a connection? *Journal of Organizational Behavior* 29 (2), 171-192.

Muse, L. A. and Wadsworth, L. L. (2012). An examination of traditional versus non-traditional benefits. *Journal of Managerial Psychology* 27 (2), 112-131.

Neckermann, S., Cueni, R. and Frey, B. (2014). Awards at Work. *Labour Economics* 31 (C), 205-217.

Nelson, M. W. (1993). The effects of error frequency and accounting knowledge on error diagnosis in analytical review. *The Accounting Review* 68 (4), 804-824.

Neuman, W. L. (2014). *Social Research Methods: Qualitative and quantitative approaches.* 7th ed. Edinburgh: Pearson Education Limited.

Nielsen, I. and Smyth, R. (2008). Job satisfaction and response to incentives among China's urban workforce. *The Journal of Socio-Economics* 37 (5), 1921-1936.

Otley, D. and Pollanen, R. M. (2000). Budgetary criteria in performance evaluation: A critical appraisal using new evidence. *Accounting, Organizations and Society* 25 (4-5), 483-496.

Parker, R. J. and Kyj, L. (2006). Vertical information sharing in the budgeting process. *Accounting, Organizations and Society* 31 (1), 27-45.

Pelham, A. (1999). Influence of environment, strategy and market orientation on performance in small manufacturing firms. *Journal of Business Research* 45 (1), 33-46.

Perren, L. (1998). Owner-manager relationships preceding and during start-up: Issues of help, harm, trust and morality. *Journal of Small Business and Enterprise Development* 5 (2), 130-140.

Phillips, J. S. and Lord, R. G. (1980). Determinants of intrinsic motivation: locus of control and competence information as components of Deci's cognitive evaluation theory. *Journal of Applied Psychology* 65 (2), 211-218.

Podsakoff, P. M. and Organ, D. W. (1986). Self-reports in organizational research: Problems and prospects. *Journal of Management* 12 (4), 531-544.

Pokorny, K. (2008). Pay - but do not pay too much: an experimental study on the impact of incentives. *Journal of Economic Behavior & Organization* 66 (2), 251-264.

Prendergast, C. (1999). The provision of incentives in firms. *Journal of Economic Literature* 37 (1), 7-63.

Presslee, A., Vance, T. W. and Webb, R. A. (2013). The effects of reward type on employee goal setting, goal commitment, and performance. *The Accounting Review* 88 (5), 1805-1831.

Ragin, C. C. (2000). *Fuzzy-set social science*. Chicago: University of Chicago Press.

Ragin, C. C. (2006). Set relations in social research: Evaluating their consistency and coverage. *Political Analysis* 14 (3), 291-310.

Ragin, C. C. (2008). *Redesigning social inquiry: Fuzzy sets and beyond.* Chicago: University of Chicago Press.

Ragin, C. C. and Fiss, P. C. (2008). Net effects analysis versus configurational analysis: an empirical demonstration. In: Ragin, C. C. (Eds). *Redesigning social inquiry: Fuzzy sets and beyond.* Chicago: University of Chicago Press, 190-212.

Rajan, R. G. and Wulf, J. (2006). Are perks purely managerial excess? *Journal of Financial Economics* 79 (1), 1-33.

Román, F. J. (2009). An analysis of changes to a team-based incentive plan and its effects on productivity, product quality, and absenteeism. *Accounting, Organizations and Society* 34 (5), 589-618.

Rosen, S. (2004). Start the conversation. *Communication World* 21 (4), 14-21.

Saltzstein, A. L., Ting, Y. and Saltzstein, G. H. (2001). Work-Family Balance and Job Satisfaction: The Impact of Family-Friendly Policies on Attitudes of Federal Government Employees. *Public Administration Review* 61 (4), 452-467.

Santos, J. N. and Baptista, C. S. (2016). Information exchange within horizontal relationships: A fuzzy-set approach to companies' characteristics role. *Journal of Business Research* 69 (11), 5255-5260.

Scarpello, V. and Campbell, J. P. (1983). Job satisfaction: Are all the parts there? *Personnel Psychology* 36 (3), 577-600.

Schnake, M. E. (1986). Vicarious punishment in a work setting. *Journal of Applied Psychology* 71 (2), 343-345.

Schneider, M. R., Schulze-Bentrop, C. and Paunescu, M. (2010). Mapping the institutional capital of high-tech firms: A fuzzy-set analysis of capitalist variety and export performance. *Journal of International Business Studies* 41 (2), 246-266.

Schneider, C. and Wagemann, C. (2013). *Set-theoretic methods for the social sciences: A guide to qualitative comparative analysis.* Cambridge: Cambridge University Press.

Sedikides, C. and Hepper, E. G. (2009). Self-improvement. *Social and Personality Psychology Compass* 3 (6), 899-917.

Sharif, K. J., Kalafatis, S. P. and Samouel, P. (2005). Cognitive and behavioural determinants of trust in small and medium-sized enterprises. *Journal of Small Business and Enterprise Development* 12 (3), 409-421.

Shearer, B. (2004). Piece rates, fixed wages and incentives: Evidence from a field experiment. *The Review of Economic Studies* 71 (2), 513-534.

Sims, H. P. and Szilagyi, A. D. (1975). Leader reward behavior and subordinate satisfaction and periormance. *Organizational Behavior & Human Performance* 14 (3), 426-438.

Skarmeas, D., Leonidou, C. N. and Saridakis, C. (2014). Examining the role of CSR skepticism using fuzzy-set qualitative comparative analysis. *Journal of Business Research* 67 (9), 1796-1805.

Skinner, B. F. (1938). *The behavior of organisms.* New York: Appleton-Century.

Skinner, B. F. (1971). *Beyond freedom and dignity.* New York: Knopf.

Smith, M. H. and Smith, D. (2007). Implementing strategically aligned performance measurement in small firms. *International Journal of Production Economics* 106 (2), 393-408.

Sprinkle, G. B. (2000). The effect of incentive contracts on learning and performance. *The Accounting Review* 75 (3), 299-326.

Sprinkle, G. B. (2003). Perspectives on experimental research in managerial accounting. *Accounting, Organizations and Society* 28 (2), 287-318.

Stajkovic, A. D. and Luthans, F. (1997). A meta-analysis of the effects of organizational behavior modification on task performance, 1975-1995. *Academy of Management Journal* 40 (5), 1122-1149.

Stajkovic, A. D. and Luthans, F. (2001). Differential effects of incentive motivators on work performance. *The Academy of Management Journal* 44 (3), 580-590.

Stajkovic, A. D. and Luthans, F. (2003). Behavioral management and task performance in organizations: Conceptual background, meta-analysis, and test of alternative models. *Personnel Psychology* 56 (1), 155-194.

Tafkov, I. D. (2013). Private and public relative performance information under different compensation contracts. *The Accounting Review* 88 (1), 327-350.

Taylor, F. W. (1911). *The Principles of Scientific Management.* New York: Harper and Brothers.

Trevino, L. K. (1992). The social effects of punishment in organizations: A justice perspective. *Academy of Management Review* 17 (4), 647-676.

Trevino, L. K. and Weaver, G. R. (1998). Punishment in organizations; descriptive and normative perspectives. In: Schminke, M. (Eds). *Managerial ethics: Moral management of people and processes.* Mahwah, NJ: Lawrence Erlbaum, 99-114.

Trevor, C. O. (2001). Interactions among actual ease-of-movement determinants and job satisfaction in the prediction of voluntary turnover. *Academy of Management Journal* 44 (4), 621-638.

Tsai, K. H. and Wang, J. C. (2005). Benefits Offer No Advantage on Firm Productivity? An Empirical Examination. *Personnel Review* 34 (4), 393-405.

Tzafrir, S. S. and Dolan, S. L. (2004). Trust me: A scale for measuring manager-employee trust. *Management Research* 2 (2), 115-132.

Van Herpen, M., Cools, K. and Van Praag, M. (2006). Wage structure and the incentive effects of promotions. *Kyklos* 59 (3), 441-459.

Vroom, V. H. (1964). *Work and motivation.* Hoboken: Wiley.

Wallsten, K. (1998). Targeted rewards have greater value and bigger impact. *Workforce* 77 (11), 66-71.

Wanous, J. P., Reichers, A. E. and Hudy, M. J. (1997). Overall job satisfaction: how good are single-item measures? *Journal of Applied Psychology* 82 (2), 247-252.

Weiner, M. J. and Mander, A. M. (1978). The effects of reward and perception of competency upon intrinsic motivation. *Motivation and Emotion* 2 (1), 67-73.

Werner, S. and Ward, S. G. (2004). Recent compensation research: An eclectic review. *Human Resource Management Review* 14 (2), 201-227.

Wheaton, B., Muthen, B., Alwin, D. F. and Summers, G. F. (1977). Assessing reliability and stability in panel models. In: Heise, D. R. (Eds). *Sociology methodology*. San Francisco, CA: Jossey-Bass, 84-136.

Wheeler, H. N. (1976). Punishment theory and industrial discipline. *Industrial Relations: A Journal of Economy and Society* 15 (2), 235-243.

Widener, S. K. (2007). An empirical analysis of the levers of control framework. *Accounting, Organizations and Society* 32 (7-8), 757-788.

Williamson, M. G. (2008). The effects of expanding employee decision making on contributions to firm value in an informal reward environment. *Contemporary Accounting Research* 25 (4), 1184-1209.

Wong-on-Wing, B., Guo, L. and Lui, G. (2010). Intrinsic and extrinsic motivation and participation in budgeting: Antecedents and consequences. *Behavioral Research in Accounting* 22 (2), 133-153.

Wood, J. V. (1989). Theory and research concerning social comparisons of personal attributes. *Psychological Bulletin* 106 (2), 231-271.

Woodside, A. G. (2013). Moving beyond multiple regression analysis to algorithms: Calling for adoption of a paradigm shift from symmetric to asymmetric thinking in data analysis and crafting theory. J*ournal of Business Research* 66 (4), 463-472.

Yermack, D. (2006). Flights of fancy: Corporate jets, CEO perquisites and inferior shareholder returns. *Journal of Financial Economics* 80 (1), 211-242.

Appendix B. Survey items

Monetary incentives *(from 0 to 100%)*
If you had fulfilled all the defined goals / targets, what would be the percentage of your variable compensation, i.e., indexed to your performance, in your total annual compensation?

Non-monetary incentives
Please indicate which of the following items are attached to your performance but have no expression on your annual compensation and are offered by your company?
(1 = If respondent indicates that the non-monetary incentive is available at the company; 0 = otherwise)

Item
Public recognition
Private recognition
Recognition of my supervisor
Recognition of coworkers
Recognition of the organization
Feedback
Participation in the decision-making process
Training
Career progression
Assignment of additional responsibilities
Allocation of increased autonomy
Geographic mobility
Participation in seminars, conferences, other events
Others. Which one?

Benefits
Please indicate which of the following benefits/fringe benefits provided by your company are not dependent on your performance?
(1 = If respondent indicates that the benefit is available at the company; 0 = otherwise)

Item
Health/life insurance
Pension Supplement
Paid Time Off (PTO) or Long-Term Disability (LTD) benefit pay
Discounts at company products
Subsidized meals / Eating facilities for employees
Educational assistance
Housing Benefit
Vehicle
Mobile phone
Free parking
Parties / gifts for employees' children
Sports facilities
Workplace flexibility
Travel, tours and excursions
Participation in seminars, conferences, other events

Moving expenses reimbursement
Financial support for geographic mobility
Possibility of geographic mobility
Others. Which one?

Punishment *(1 = Not at all, 5 = Very high)*
Please indicate the extent to which failure in achieving the goal negatively affects the following aspects of your work:

Item	Label
Operating autonomy	PUNISH1
Pay raise	PUNISH2
Prospects for promotion	PUNISH3
Continued employment	PUNISH4

Managerial performance *(1 = Well below average, 7 = Well above average)*
Indicate to what extent your performance, compared with other managers in your company in similar positions, was below or above the average in the following dimensions:

Item	Label
Planning: determining goals, policies, and courses of action such as work scheduling, budgeting, and programming.	PERF1
Investigating: collecting and preparing of information usually in the form of records, reports, and accounts (measuring output, record keeping, and job analysis).	PERF2
Coordinating: exchanging information with people in the organization other than my subordinates in order to relate and adjust procedures, policies and programs.	PERF3
Evaluating: assessment and appraisal of proposals or of reported/ observed performance (e.g., employee appraisals, judging financial performance and product inspection).	PERF4
Supervising: directing, leading, and developing your subordinates	PERF5
Staffing: maintaining the work force of your responsibility area (e.g., selecting and promoting your subordinates).	PERF6
Overall, how do you rate your performance?	PERF7

Job satisfaction *(1 = Very dissatisfied, 5 = Very satisfied)*
Please indicate the degree of satisfaction with the following item: Overall, how satisfied are you with your job?

Family ownership *(from 0 to 100%)*
Indicate the percentage of the company's equity held by family members.

Respondent's ownership *(1 = Yes, 0 = No)*
In addition to the management position you hold, do you participate in the company's equity?

Percentage of the respondent's ownership *(from 0 to 100%)*
Indicate the percentage that you hold in the company's equity.

4. A CONTINGENCY FRAMEWORK FOR THE USE OF NON-FINANCIAL PERFORMANCE MEASURES IN MANAGERIAL INCENTIVES: EVIDENCE FROM SMES

Abstract

This essay explores the relationship between contextual variables (strategy, external environment, organizational culture, decentralization and technology) and the use of non-financial performance measures (NFPM) for managerial compensation in SMEs. Using data collected from a questionnaire answered by 1 088 SMEs' managers, I find that external environment and decentralization are associated with the adoption and use of NFPM for managerial compensations in SMEs. Specifically, I find that the lower the dynamism element of perceived environmental uncertainty (PEU), and the greater the PEU hostility and decentralization, the higher the adoption and use of NFPM. Finally, my study highlights important differences in the adoption and use of NFPM between small and medium firms, and between CEOs and non-CEOs.

Keywords: SME, non-financial performance measures, strategy, perceived environmental uncertainty, organizational culture.

4.1 Introduction

In the last decades, a great number of studies ascertain an increase in the use of non-financial indicators for both performance evaluation and managers' compensation (Govindarajan and Gupta, 1985; Ittner and Larcker, 1998b; Ittner, Larcker and Rajan, 1997; Kaplan and Norton, 1992, 1996; Merchant et al., 2011; Said, HassabElnaby and Wier, 2003; Simons, 1987; Sliwka, 2002).[51] Chenhall (2003) beholds that the use of NFPM is one of the main aspects of management control systems (MCSs) that is important to examine in a contingency approach. Consistent with this idea, Euske, Lebas and McNair (1993) state that performance measures seem to be defined by the context and that the use of one measure may affect in diverse ways different organizations. Additionally, Burney, Henle and Widener (2009) suggest that the appropriate choice of performance measures represents a critical factor to effectively accomplish organizational strategic objectives.

Initial research using a contingency approach mainly examines the connection among contextual variables, management accounting systems and organizational performance (Fisher, 1998). However, more recently several researchers claim for a deeper exploration of the impact of contingent variables on the design and use of performance measures (Franco-Santos, Lucianetti and Bourne, 2012; Ittner and Larcker, 2001; Maltz, Shenhar and Reilly, 2003; Speckbacher, Bischof and Pfeiffer, 2003). In fact, despite the growing importance of performance measurement system (PMS), relatively little empirical evidence exists on the determinants that affect the choice of performance measures in compensation contracts (Atkinson et al., 1997; Franco-Santos, Lucianetti and Bourne,

[51] In the scope of the present study, non-financial indicators are measures used to access the performance and the variable pay of managers.

2012; Ittner and Larcker, 2001, 2002; Ittner, Larcker and Rajan, 1997). And even less evidence is known for SMEs (Ahmad and Zabri, 2015; Bititci et al., 2012; Garengo, Biazzo and Bititci, 2005; Garengo and Bititci, 2007). In fact, most studies on PMSs use samples of large organizations (e.g., Chenhall and Langfield-Smith, 1998; Ittner, Larcker and Randall, 2003; Kaplan and Norton, 1992), while management accounting research, and particularly, PMSs research in SMEs remains sparse (Ates et al., 2013; Brem, Kreusel and Neusser, 2008; Hudson, Smart and Bourne, 2001; Mitchell and Reid, 2000; Taylor and Taylor, 2014).

This lack of evidence is even odder when the significance of SMEs to local economies is undeniable and there are significant differences between large and small companies (e.g., Garengo, Biazzo and Bititci, 2005; Hudson, Smart and Bourne, 2001; Rompho, 2011; Smith and Smith, 2007). SMEs are crucial agents for the economy in every country (Wolff and Pett, 2006). There are more than a million and a half SMEs (not including micro-enterprises) in Europe, which employ approximately 37 percent of all European jobs and delivered 36 percent of the gross value added.[52] Therefore, in this study, I focus my attention on SMEs due to both the lack of research of PMSs in this type of companies and to the importance of SMEs in the world economy.

Using questionnaire data from 1 088 SMEs' managers, the present study investigates whether contextual factors such as strategy, PEU, organizational culture, decentralization and technology are associated with the use of NFPM. I find that external environment and decentralization are associated with the adoption and use of NFPM in managerial compensations in SMEs. Specifically, I find that the lower the dynamism element of perceived environmental uncertainty (PEU), and the greater the PEU hostility and

[52] Data taken from "Annual Report on European SMEs 2015/2016", available from https://ec.europa.eu/growth/smes/business-friendly-environment/performance-review-2016_en.

decentralization, the higher the adoption and use of NFPM. Finally, my study highlights important differences in the adoption and use of NFPM between small and medium firms, and between CEOs and non-CEOs.

The present research contributes to the management accounting and contingency literature in several ways. First, I extend the PMSs research (e.g., Bouwens and van Lent, 2006; Franco-Santos, Lucianetti and Bourne, 2012; Gibbs et al., 2009; Ittner, Larcker and Rajan, 1997; MacBryde and Franco-Santos, 2016) by exploring the use of NFPM in compensation, measured as the percentage of variable pay coming from NFPM in total compensation. Second, my study distinguishes from most of the management accounting literature by focusing on SMEs which are "life blood of modern economies" (Ghobadian and Gallear, 1996, p. 83) and for which PMS adoption is different from that of large companies (Garengo, Biazzo and Bititci, 2005). Extant research focuses predominantly in large firms and does not address the specificities of SMEs (López and Hiebl, 2015). Third, this study examines the use of NFPM considering simultaneously multiple contingency variables (strategy, external environment, decentralization, culture and technology). This approach allows for a clearer view of the factors associated with the use of performance measures than studies that only analyze one or two factors (e.g., Gordon and Narayanan, 1984; Simons, 1987). Moreover, the results of this study can be compared to those obtained in studies using samples of large companies (e.g., Chenhall, 2003; Langfield-Smith, 1997).

4.2 Literature review

4.2.1 PMS in SMEs

One of the major challenges for organizations in nowadays is gaining competitive advantage among a great number of competitors (Bressler, 2012). As a response, organizations adopt new methods and processes in relevant areas of their activities (Ates et al., 2013). Particularly, with regard to PMSs, firms employ NFPM along with traditional financial measures (Said, HassabElnaby and Wier, 2003). NFPM provide more strategic information (e.g., Ittner and Larcker, 1998a), greater incentives for managers to act in behalf of the owner (e.g., Datar, Kulp and Lambert, 2001) and a more long-term focus (e.g., Sedatole, 2003) than financial measures. Moreover, Medori and Steeple (2000) argue that, comparatively to financial measures, NFPM are more measurable and precise, are better aligned with organizational goals, and have greater capacity to adapt to market changes.

Although the use of PMSs in SMEs is still limited, its adoption “is particularly important for supporting the managerial development required in these companies to manage increasing complexity” (Garengo, Biazzo and Bititci, 2005, p. 26). Given that most of PMSs are developed for large organizations (Garengo, Biazzo and Bititci, 2005; Hudson, Smart and Bourne, 2001), its application in SMEs, which have special characteristics, can affect the success or failure of this framework (Bititci et al., 2012; Taylor and Taylor, 2014; Wiesner, McDonald and Banham, 2007). On one hand, critical factors of SMEs’ success, such as flexibility, high ability to react to environmental changes, informal organizational processes, and high concentration of decision-making processes in the owner (Jennings and Beaver, 1997; Martins and Salerno, 1999), can underlie the development, implementation and use of PMSs in small firms (Brem, Kreusel and

Neusser, 2008). Moreover, some researchers state that three key elements that distinguish SMEs from large firms - uncertainty, innovation and evolution – are the principal factors that differentiate PMSs of SMEs from those of large companies (Garengo, Biazzo and Bititci, 2005; Rompho, 2011). Thus, PMSs "should support SMEs to manage uncertainty, to innovate their products and services, and to sustain evolution and change processes" (Garengo, Biazzo and Bititci, 2005, p. 26).

On the other hand, other particular characteristics of small firms can lead to a weak adoption of PMSs by this type of firms. For instance, Brush and Vanderwerf (1992) and Wang and Ang (2004) propose that SMEs have difficulty in gathering and checking the accuracy of performance information. Welsh and White (1981) suggest that SMEs do not have appropriate policy-making procedures and resource exploitation. Sapienza and Grimm (1997) also advocate that SMEs have a small starting base and uneven record-keeping which precludes them to develop PMS. Furthermore, Hudson, Smart and Bourne (2001) argue that performance measures of SMEs are significantly different from those required by theory and adopted by large companies. These authors suggest that SMEs use performance measures that are not strategic, are historically focused, are often unclear (meaning complex or obsolete), and have non-specific informal feedback.

In line with these conclusions, some studies analyzing the adoption of the Balanced Scorecard (BSC) in SMEs suggest a limited use of this framework compared to large companies.[53] This limited use of the BSC is due to its long-term focus (Hvolby and Thorstenson, 2001), which is at odds with the short-term planning and informal and flexible strategies of small firms (Garengo, Biazzo and Bititci, 2005). Moreover, SMEs

[53] The Balanced Scorecard is one of the most known and cited by management accounting researchers frameworks that encompasses financial and non-financial performance measures (Ittner and Larcker, 1998b) and that is linked to the organizational strategy (Chenhal, 2005).

have scarce financial and human resources (Hvolby and Thorstenson, 2001) and a wrong perception of the benefits of PMSs implementation (Garengo, Biazzo and Bititci, 2005), which can explain the weak adoption of PMSs in these companies.

Highlighting the distinctive characteristics of SMEs, Garengo, Biazzo and Bititci (2005) argue that, similarly to large companies, a qualitative improvement in SMEs can be achieved by emphasizing non-financial aspects. In line with this consideration, O'Neill and Duker (1986) argue that although accountancy information as a whole influences SMEs' success, the use of financial information alone does not provide an exact picture of the competitive environment in which SMEs operate. Moreover, Abernethy and Lillis (1995) state that when there is low process standardization and a need to encourage cooperation and innovation, SMEs are forced to shift their focus from financial to non-financial measures. Hence, the innovative nature of SMEs (Ghobadian and Gallear, 1997; Jennings and Beaver, 1997), its flexibility, the informal organizational processes used (Jennings and Beaver, 1997; Martins and Salerno, 1999), and the lack of standardization (Antony, Kumar and Madu, 2005), suggest a widespread use of NFPM by SMEs. This argument is consistent with Perera and Baker (2007), which find that SMEs use predominantly NFPM to measure employee performance.

4.2.2 **Contingency approach**

Contingency researchers argue that there is no MCS that can be used universally for all organizations with the same efficacy (Chenhall, 2003; Ferreira and Otley, 2009; Otley, 1980). Contextual and environmental factors, as well as strategic plans vary across organizations (Said, HassabElnaby and Wier, 2003). Particularly, factors such as external environment, strategy, culture, organizational structure, size, technology, and ownership structure, affect the design and use of MCSs (Chenhal, 2003, 2005, 2007; Ferreira and Otley, 2009). This contingency approach is consistent with empirical findings from the performance management literature obtained in samples of large companies. Specifically, prior research shows that organizational factors, such as strategic orientation, structure, information systems, culture and management style, and external factors, such as the degree of environmental uncertainty in which the organization operates affect the use and effectiveness of PMSs (Franco-Santos, Lucianetti and Bourne, 2012; Ittner and Larcker, 2001). Moreover, the choice of NFPM in compensation contracts may also depend on business strategy, as well as on product development, industry regulation, and level of financial distress (e.g., Said, HassabElnaby and Wier, 2003).

Other stream of research suggests that contextual variables affect the relationship between the use of MCSs and firm performance. These studies examine factors such as business strategy (e.g., Govindarajan and Gupta, 1985; Simons, 1987), environmental uncertainty (Gordon and Narayanan, 1984; Govindarajan, 1984) and technology (Chenhall and Morris, 1986). Likewise, performance management literature provides evidence regarding the relationship between organizational performance and firm's operational and competitive characteristics (Hoque and James, 2000; Said, HassabElnaby and Wier, 2003).

Literature reviews of contingency-based research identify six main contextual variables that affect MCS: external environment, technology, organizational structure (e.g., decentralization), size, strategy and national culture (Chenhal, 2003, 2007; Otley, 2016). However, only a few studies use SME samples. Their results confirm that the development and use of management accounting practices depend on those contingencies surrounding SMEs (e.g., Amat, Carmona and Roberts, 1994; Garengo and Bititci, 2007; King, Clarkson and Wallace, 2010; Lofsten and Lindelof, 2005).

I extend this research by analyzing the use of NFPM in SMEs according to contingency variables identified by Chenhal (2003, 2007) and Otley (2016). However, I extend the aforementioned list of contingency variables to organizational culture (instead of national culture), which is argued to be associated with the use of PMSs (e.g., Henri, 2006).[54] Additionally, I do not consider the variable size in my theoretical model, as my sample is restricted to SMEs, but I include it as a control variable. Thus, I analyze the association between the use of NFPM and strategy, external environment, technology, decentralization and organizational culture.

4.3 Hypotheses development

4.3.1 **Strategy and NFPM in SME**

Early scholars define strategy "as the determination of the basic long-term goals and objectives of an enterprise, and the adoption of a course of action and the allocation of resources necessary for carrying out these goals" (e.g., Chandler, 1962, p. 13). For Mintzberg (1978) a strategy comprises both a statement and realization of pre-defined actions, as well as a-posteriori evolved consistencies in actions. Porter (1980) describes strategy as a means by which a firm achieves and sustains a competitive advantage among its competitors. Although the literature presents a variety of taxonomies for strategy (Langfield-Smith, 1997) - differentiation and cost-leadership strategies (Porter, 1980), prospector and defender strategies (Miles and Snow, 1978), build and harvest strategies

[54] My sample comes only from one country, so I cannot explore national differences.

(Govindarajan and Gupta, 1985) – this study follows the typology developed by Porter (1980).[55] When organizations follow a differentiation strategy they attempt to compete on the market with new products/services that are perceived by customers as unique in terms of product quality and flexibility and with a wide availability of product offerings, technology and customer service. When organizations follow a cost-leader strategy they try to compete through low cost/price products, which requires an aggressive construction of efficient scale facilities, tight costs and overhead control, and cost minimization in areas such as R&D (Auzair and Langfield-Smith, 2005).

Fleming, Chow and Chen (2009) argue that organizational success depends upon an effective strategy implementation. PMS can be a useful feature to support this implementation "by helping to translate organizational strategy into desired behaviors and results, communicate expectations, monitor progress, provide feedback and motivate employees through performance-based rewards" (Fleming, Chow and Chen, 2009, p. 261). Consistent with this idea, management accounting studies find that strategy is closely related to performance measures used in managerial rewards, which incentivize managers to act in accordance with organizational goals (Govindarajan and Gupta, 1985; Ittner, Larcker and Rajan, 1997; Simons, 1987). More recently, Choi, Hecht and Tayler (2012) resume that linking strategy to performance measures i) facilitates the evaluation of an existing strategy, ii) assists the communication of actual strategy across the organization and iii) promotes the development of new strategies.

[55] For instance, when using a prospector strategy organizations are innovative and flexible, taking advantage of market opportunities. In contrast, when pursuing a defender strategy organizations are stable, efficient and directed to a market segment (Miles and Snow, 1978). On the other hand, build type strategies have as priority to gain market share through competitive advantage, while the harvest type is intended to make the most of the existing activities for short-term profits (Govindarajan and Gupta, 1985).

Management accounting literature recognizes strategy as one of the most important contingency variable (Bedford, Malmi and Sandelin, 2016; Chenhall, 2003; Langfield-Smith, 2008). Research provides evidence that the choice of performance measures depends upon organizational strategy (Abernethy and Lillis, 1995; Chenhall, 2003; Fleming, Chow and Chen, 2009; Hoque, 2004; Ittner and Larcker, 1998b; Van der Stede, Chow and Lin, 2006). Particularly, management accounting studies suggest that the use of NFPM is related to differentiation (Porter, 1980), prospector (Miles and Snow, 1978) and build (Govindarajan and Gupta, 1985) strategies, while "opposite" (i.e., cost-leadership, defender and harvest) types of strategies are associated with financial performance measures (FPM) (e.g., Chenhall and Morris, 1986; Chong and Chong, 1997; Langfield-Smith, 1997). For example, Ittner, Larcker and Rajan (1997), Said, HassabElnaby and Wier (2003) and HassabElnaby, Said and Wier (2005) find that an innovation-oriented (prospector) strategy adopted by firms is associated with the use and retention of non-financial measures for annual bonus and compensation purposes. Anderson and Lanen (1999) find that prospector organizations are more focused on customer satisfaction, market share and competitor's performance than defenders, while Perera, Harrison and Poole (1997) find evidence that there is an association between customer-focus strategy (comprising three dimensions of cost, quality and supply's dependability) and the use of non-financial operations-based performance measures. Additionally, a number of studies focusing on MCSs suggest a positive relation between the adoption of a cost-leadership strategy and financial information and, a positive association between a differentiation strategy and non-financial information (Chenhall and Morris, 1995; Simons, 1987; Van der Stede, 2000). Furthermore, Sohn et al. (2003) analyze the four perspectives of the BSC under the prism of contingency theory. They conclude that comparatively to prospectors, defenders place a higher weight on measures from internal business processes and financial perspectives, while prospectors place a higher weight on measures from customer and learning and growth perspectives. Consistent with these findings, Balsam, Fernando and Tripathy (2011) find that sales, as a performance measure of executive compensation, receive a greater weight in organizations which follow a cost-leadership strategy than in organizations with differentiation strategies.

Despite this consensus, the majority of this evidence comes from samples of large companies. The literature provides limited evidence regarding performance management practices and strategy implementation in the context of SMEs. For instance, one stream of SME research reveals poor strategic planning processes in small firms (Garengo, Biazzo and Bititci, 2005; Hvolby and Thorstenson, 2001; McAdam, 2000) due to financial and human resource constraints (Smith and Smith, 2007). Others emphasize a poor adoption of the performance measurement practices by SMEs due to a mismatch between the existent performance measurement frameworks developed mostly for large companies and the specific characteristics of SMEs (e.g., Garengo, Biazzo and Bititci, 2005; Garengo and Bititci, 2007; Smith and Smith, 2007). Yet, a few studies attempt to examine the relationship between management accounting systems and strategy in SMEs. For instance, a cross-sectional study by King, Clarkson and Wallace (2010) provides evidence that small firms implement operating budgets to a greater extent when they employ cost-leadership strategy.

Therefore, and even though the previous arguments and evidence come mainly from large companies, I hypothesize that they should also generalize to SMEs because each type of strategy should be linked to a certain type of performance measures. For instance, Porter's

(1980) differentiation strategy presupposes that firms provide products with unique features and characteristics, satisfying customers' specific needs or preferences. While a cost-leadership strategy allows gaining competitive advantages through offering lowest prices. Moreover, a cost-leadership strategy beholds objectives that are more related to short-term performance measures (Simons, 1987), while firms following a differentiation strategy need long-term measures which demand a long-time window before managerial actions translate into financial results (Ittner, Larcker and Rajan, 1997). Firms following a differentiation strategy also need to collect information on competitors for planning purposes (Simons, 1987). Thus, considering that NFPM encourage innovation and creativity (Bisbe and Otley, 2004) and are more long-term focused (e.g., Sedatole, 2003), it is likely to conclude that firms which follow a differentiation strategy use NFPM in a greater extent than firms which follow cost-leadership strategy.

Hence, considering the abovementioned, my hypotheses are as follows:

H1a: The use of NFPM in SMEs is positively associated with a differentiation strategy.

H1b: The use of NFPM in SMEs is negatively associated with a cost-leadership strategy.

4.3.2 **Perceived environmental uncertainty and NFPM in SME**

Environmental uncertainty refers to "the difficulty in assigning probabilities with any degree of certainty as to how environmental factors are going to affect the success or failure of a decision" (Ittner and Larcker, 2001, p. 363). Duncan (1972) defines environmental uncertainty throughout two dimensions: i) complexity (simple-complex) that reflects the degree of heterogeneity of the external factors, and ii) dynamism (static-dynamic) that reveals the instability of the external factor over time. Khandwalla (1977) develops a more complex PEU notion which includes attributes such as turbulence (dynamism and unpredictability), hostility (intensity of competition), diversity, complexity (rapidly developing technologies) and restrictiveness (legal, political, social and economic constraints). Moreover, other scholars argue that the external environment is characterized not only by the dynamism of different factors (Duncan, 1972), but also by the uncertainty derived from the unpredictability of results (Milliken, 1987) and the competitive intensity (Chen et al., 2015; Hoque, Mia and Alam, 2001). Additionally, the literature suggests that more important than the actual environment is the managers' perception of that environment (Duncan, 1972; Hambrick and Snow, 1977; Miller, 1988), the perceived environmental uncertainty (PEU). Therefore, the present study investigates the environmental uncertainty perceived by managers considering the three most commonly researched elements of PEU (King, Clarkson and Wallace, 2010): the dynamic nature of the environment (dynamism), the level of competition (hostility) and the degree of unpredictability (unpredictability).

Contingency-based literature recognizes PEU as a powerful contextual variable affecting the design and use of MCSs over time (Chapman, 1997; Chenhall, 2003). Gordon and Miller (1976) argue that high environmental uncertainty expressed through dynamism and hostility causes a higher use of diverse information (i.e., financial and non-financial), while the study of Sohn et al. (2003) provides evidence that dynamic and heterogeneous dimensions of the environment affect significantly the weighting of the performance measures. Specifically, Hoque, Mia and Alam (2001) stress that market competition is the latent determinant for using performance measures either financial or non-financial. The results of their study reveal that, in highly competitive environments, organizations tend to use more and more diverse performance measures rather than relying only on financial measures. Additionally, a case study conducted in a Spanish SME by Amat, Carmona and Roberts (1994) also shows that competitive intensity increases the usage of management accounting systems.

Prior research widely acknowledges that organizations tend to use more externally focused, non-financial and future-oriented management accounting information when environmental uncertainty is high (Chenhall and Morris, 1986; Chong and Chong, 1997; Gordon and Naryanan, 1984; Govindarajan, 1984; Gul and Chia, 1994; Mia, 1993). For instance, Chenhall and Morris (1986) and Gul and Chia (1994) report that in situations of high PEU, organizations require specific management accounting information that is future-oriented and, hence, non-financial measures are more likely to be used. Similarly, Gordon and Naranyan (1984), Govindarajan (1984), and Govindarajan and Gupta (1985) find evidence that FPM receive greater emphasis, when organization operate in relative certain and with low complexity environments. Likewise, Hoque (2005) finds that the use of non-financial measures is related to better firm performance only when environmental uncertainty is high. Additionally, a recent study by Chen et al. (2015) provides evidence that when competitive intensity refers to quality and distribution systems, rather than price, the weight given to measures of customer satisfaction in the executives' annual bonuses is higher.

SME literature suggests that environmental uncertainty is greater for SMEs than for large companies (Oakes and Lee, 1999). These authors argue that small firms are more vulnerable to high dependencies from larger counterparts (e.g., customers), which weaken their market position. Thus, firms facing greater environmental uncertainty should support higher creativity and innovativeness, and have capacity to adapt to environmental changes (Jiménez-Jiménez and Sanz-Valle, 2011).[56] On one hand, NFPM can address this

[56] Turbulent and hostile environments put pressure on firms and make them bring new products to the market faster (Calantone, Garcia and Dröge, 2003; Olavarrieta and Friedmann, 2008).

call by encouraging innovation and creativity (Bisbe and Otley, 2004). Moreover, NFPM may provide managers with strategic information about customers, internal processes, competitors and human capital which is difficult to capture with the sole use of financial measures (e.g., Amir and Lev, 1996; Feltham and Xie, 1994). Furthermore, in a context of high PEU, firms can use NFPM to provide better evaluation of managerial performance since this type of measures is less likely to be affected by external factors and more likely to be influenced by agents' decisions (Hoque, 2005). Thus, organizations tend to use more NFPM and to give a broader scope to management accounting systems (MAS) in order to effectively cope with external environmental uncertainty (Chenhall and Morris, 1986; Chong and Chong, 1997; Gul and Chia, 1994). On the other hand, the management model of SMEs is characterized by high flexibility and capacity to rapidly adapt to environmental changes (Fiegenbaum and Karnani, 1991; Garengo, Biazzo and Bititci, 2005; Macmillan, McCaffery and VanWijk, 1982; Pelham, 1999). In line with this idea, Neely (1999) argues that in the context of global competition, organizations are forced to modify their performance measures as they adopt strategies to adapt to continuous change. This thought is consistent with Bititci et al. (2002), which state that because SMEs work in highly competitive environments and face challenges, one of their responses is to modify their PMSs and focus, primarily, on non-financial factors (Eccles, 1991; Hudson et al., 1999). Empirical studies focusing on the use of MAS using SMEs samples, confirm this idea. For instance, examining small high-tech Swedish firms, Lofsten and Lindelof (2005) find that the need for MAS increases when the environment changes. Other researchers also provide evidence that the use of MAS in SMEs intensifies with increases in business competition (Amat, Carmona and Roberts, 1994) and in perceived environmental uncertainty (Gul, 1991; King, Clarkson and Wallace, 2010).

Therefore, and according to the previous arguments presented and the specific characteristics of SMEs, I hypothesize that SMEs make greater use of NFPM when they operate in environments that are perceived as more dynamic, hostile and uncertain. Hence, my hypotheses are the following:

H2a: The use of NFPM in SMEs is positively associated with PEU dynamism.

H2b: The use of NFPM in SMEs is positively associated with PEU unpredictability.

H2c: The use of NFPM in SMEs is positively associated with PEU hostility.

4.3.3 **Organizational Culture and NFPM in SME**

SME literature considers organizational culture as the key variable distinguishing SMEs from large companies (Smith and Smith, 2007). According to Hall (1993), organizational culture embodies beliefs, assumptions, values, attitudes and behaviors, representing a valuable source of competitive advantage. A vast number of studies refer to culture within organizations. Some of these studies analyze the relationship between culture and management information systems, as a component of PMSs (e.g., Boland, Tenkasi and Te'eni, 1994; Brown and Starkey, 1994). Others focus on the relationship between organizational culture and specific MCS, such as budgeting (e.g., O'Connor, 1995), or culture and reporting regulation (e.g., Chow et al., 2002; Harrison and MacKinnon, 1986). Contingency-based research also devotes considerable effort to examine the impact of organizational culture on the use of MCSs. For instance, Bhimani's (2003) and Gittell's (2000) works provide evidence that organizational culture influences the design and perceived effectiveness of MCSs. Moreover, performance measurement research using samples of large companies as well as SMEs suggests that organizational culture has an important effect on PMS (e.g., Bititci et al., 2004, 2012; Bourne et al., 2002; Henri, 2006;

Ukko, Tenhunen and Rantanen, 2007). For instance, Henri (2006) shows that organizational culture (measured as a dominant type of culture, either with flexibility or control values) affects the degree of measurement diversity defined by top managers. Bourne et al. (2002) find evidence that a paternalistic culture where the supervisor helps his/her subordinates influences positively the implementation of PMSs. A recent literature review by Franco-Santos, Lucianetti and Bourne (2012) also provides evidence that organizational culture influences the effectiveness of contemporary PMSs. Additionally, a case-study using SMEs corroborates this conclusion - organizational culture affects the success or failure of the PMSs implementation (Bititci et al., 2006).

The Competing Values Framework of organizational culture (e.g., Quinn and Rohrbaugh, 1983) provides an important method for analyzing culture as it "differentiates between underlying values which create meaning in organizational settings and the cultural artefacts that reflect them" (Bhimani, 2003, p. 527). This framework results in two cultural types: flexible and control. A flexible culture refers to spontaneity, change, openness, adaptability and responsiveness, while a control culture encompasses predictability, stability, formality, rigidity and conformity. A flexible culture is suggested to be closely aligned with SMEs' characteristics (e.g., Ghobadian and Gallear, 1997; Pelham, 1999). These scholars explain this preference for flexibility with SMEs' shortage of human resources and limited financial stability and security (Pelham, 1999). Additionally, a flexible culture is more aligned with SMEs' need to easily adapt to market changes and potential for innovation (Ghobadian and Gallear, 1997; Gunesekaran, Forker and Kobu, 2000; Jennings and Beaver, 1997).

Furthermore, SMEs which adopt a flexible culture are more likely to use NFPM due to the following reasons. According to the definition, a flexible culture encompasses two sub-types: (i) developmental culture, which bases on adaptability and readiness to attain growth, innovation and creativity, and (ii) group culture, which considers cohesion, team-work and morale as means to foster development, empowerment and commitment of employees (Henri, 2006). On one hand, NFPM are more suited to assess innovation and creativity (Bisbe and Otley, 2004), and therefore, their use is more appropriate when firms adopt a developmental sub-type of flexible culture. On the other hand, including NFPM in compensation contracts allows a better alignment of managerial efforts with the goals and objectives of the organization (Banker, Potter and Srinivisan, 2000), creating an atmosphere of cohesion between employees. This relationship suggests that the use of NFPM is more appropriate for firms which adopt a group sub-type of flexible culture.

Hence, considering the above discussion and SMEs' characteristics, I predict that SMEs which follow a flexible culture use more NFPM. Therefore, my hypothesis is as follows:

H3: The use of NFPM in SMEs is positively associated with a flexible culture.

4.3.4 **Decentralization and NFPM in SME**

Decentralization is the amount of decision-making authority that is delegated to lower level managers by their supervisors (Ford and Slocum, 1977; Govindarajan, 1988). Otley (1980) states that decentralization corresponds to the level of autonomy delegated to managers and represents one of the most important aspects of organizational structure. For example, Bruns and Waterhouse (1975) and Merchant (1981) find that decentralization in organizations is positively related to the adoption of sophisticated budgeting and PMS. Chia (1995) shows that decentralization increases the effect of the MAS informational characteristics - scope, timeliness, integration and aggregation - on managerial performance.

Research regarding the relationship between decentralization and the use of non-financial information provides mixed evidence. On one hand, decentralization, which is viewed as an adequate solution for dynamic environments, requires broad scope and non-financial information (e.g., Gordon and Miller, 1976; Waterhouse and Tiessen, 1978). A recent empirical study by Gong and Ferreira (2014) corroborates this argument by showing that decentralization is positively related to the use of NFPM, but only for low performing firms. On the other hand, many empirical studies report opposite results. Thus, Chenhall and Morris (1986) show that decentralization is related to aggregated and integrated information, but is not significantly associated with externally focused, non-financial, future-oriented and timely information. Further investigation on this topic also suggests that when delegation increases, firms prefer to use aggregate financial measures rather than NFPM for compensation purposes (Abernethy, Bouwens and van Lent, 2004; Bouwens and van Lent, 2007; Moers, 2006). Researchers attribute this result to the specific property of FPM as they "represent the most aggregate performance measures because the full consequences of every action the agent takes ultimately flow through the financial statements" (Moers, 2006, p. 901). In contrast, NFPM are not able to express the full consequences of different decisions, but instead can provide information about a particular activity (Abernethy, Bouwens and van Lent, 2004; Moers, 2006). Additionally, Gong and Ferreira (2014) argue that the negative relationship between the use of NFPM and decentralization can be explained by the noisy nature of this type of performance measures. Particularly, these authors behold that NFPM are noisier than FPM because they have relatively more subjectivity and less verifiability, and may be related to events that cannot be observed directly or that are not susceptible to be contracted (Banker, Potter and Srinivisan, 2000; Ittner, Larcker and Randall, 2003; Murphy, 1999).

Contingency-based studies regarding the use of MAS in SMEs provide evidence that a higher centralization is associated with a higher use of management accounting systems (Amat, Carmona and Roberts, 1994) and with the adoption of more sophisticated PMS (Garengo and Bititci, 2007). Moreover, SMEs' characteristics support the arguments provided by large firm's research regarding the link between performance measures and decentralization (e.g., Abernethy, Bouwens and van Lent, 2004; Bouwens and van Lent, 2007; Gong and Ferreira, 2014; Moers, 2006). Particularly, SMEs' managers - which sometimes lack management expertise (Gray and Mabey, 2005; Huang and Brown, 1999) - may consider FPM as less noisy than NFPM to measure agents' actions because the information from SMEs' financial accounting system is readily available (Hvolby and Thorstenson, 2001). In contrast, similarly to large organizations, managers in SMEs may perceive NFPM as noisier, and therefore, use them less than FPM in the conditions of high decentralization.

Therefore, relying on the aforementioned discussion, my hypothesis is the following:

H4: The use of NFPM in SMEs is negatively associated with the decentralization.

4.3.5 **Technology and NFPM in SME**

Technology usually refers to how organizational work processes operate and includes elements such as hardware, materials, people, software and knowledge (Chenhall, 2007; Roberts and Grabowski, 1996). Chenhall (2007) identifies three generic types of technology: complexity, task uncertainty and interdependence. Complexity encompasses the standardization of work with (non)standardized, (non)automated and (non)routine processes classified as (high)low on complexity (Chenhall, 2007; Khandwalla, 1977). Task uncertainty refers to variability in tasks and also to the difficulty in predicting outcomes. Interdependence refers to the level of integration of different tasks and is related to the required level of coordination (Chenhal, 2007).

Although early organizational research recognizes the important role of technology (e.g., Aldrich, 1972; Blau et al., 1976; Thompson and Bates, 1957), most studies published in leading management journals over the past decade do not consider this variable (Orlikowski and Scott, 2008). Orlikowski and Scott (2008, p. 436) suggest various possible explanations for this: (1) the complexity of an organizational framework that encompasses many other variables (economic, political, strategic, psychological and sociological) beyond technological ones; (2) the "apparent lack of interest in technological topics on the part of many organizational scholars, schooled as most are to attend to human, cultural, and economic elements of institutions, not material ones"; and (3) the perception of technology as a simple part of the institutional infrastructure (electricity, telephone). Furthermore, Zammuto et al. (2007) argue that rapid changes and specificities of technological systems, especially since the 1990s, could also be the cause for this paradox.

Contingency researchers advocate that different production systems, which encompass machines, processes and people, lead to different organizational systems (e.g., Aldrich, 1972; Blau et al., 1976). Furthermore, management accounting literature suggests that production technology influences the adoption of budgetary control systems. For instance, Merchant (1984) beholds that the degree of process automation is associated with budgetary systems, and in particular, with an increase in requirements for managers explain budget overruns. Additionally, in manufacturing (Hayes, Wheelwright and Clark, 1988; Skinner, 1975) and economics (e.g., Milgrom and Roberts, 1990) literatures, technology is presented as a key factor for MCS design. For instance, Chenhall (2003) suggests that more standardized and automated processes are associated with more traditional formal MCSs, high budget use and high budgetary controls. Technology is also important for the adoption and use of performance management systems (Chenhall, 2007; Hage and Aiken, 1969; Thomson, 2010). For instance, Abernethy and Brownell (1999) find that technologies with few exceptions that are high in analyzability are associated with accounting controls. Hirst (1983) reaches similar conclusions. He finds that variable and difficult tasks are related to a low reliance on accounting performance measures. Mia and Chenhall (1994) provide evidence that marketing departments faced with more task uncertainty, comparatively to production departments, use more externally focused, non-financial and future-oriented management accounting information.

There are also studies relating interdependence and MCS. For example, Macintosh and Daft (1987) show that low levels of interdependence are related to budgets, operating procedures and statistical reports. Yet, Chenhall and Morris (1986) show that high interdependence is linked to broad scope MCSs that focus on appropriate aggregation and integration of information.

SME research regarding technology and MCS is scant. A few researchers provide evidence that greater interdependence is positively related to management accounting systems complexity in SMEs (Becker, Ulrich and Staffel, 2011; Cassia, Paleari and Redondi, 2005; Reid and Smith, 2000). Distinctive characteristics of SMEs may help to explain these findings and provide further explanation for the relationship between NFPM and technology. First, SMEs' characteristics such as (i) organizational processes which are not very structured, (ii) decision processes that are concentrated in the entrepreneur-owner (Ates and Bititci, 2011; Garengo, Biazzo and Bititci, 2005) and (iii) high level of informality in organizational processes (Taylor and Taylor, 2014) may lead to a high level of interdependency within SMEs. A higher level of interdependence causes greater need for informal controls and greater usefulness of aggregated and integrated MCS (Chenhal, 2003). Therefore, I expect a greater use of NFPM in SMEs when interdependence is high. Second, the lack of financial resources in SMEs (Pelham, 1999) may cause shortage of resources in machines, tools, materials, people, software and knowledge, which are needed to accomplish operational activity. This scarcity of resources may lead to a reduction in technology complexity and in process automation in SMEs. Moreover, according to Antony, Kumar and Madu (2005), processes in SMEs are often absent of standardization. Therefore, as less standardized and automated processes require less traditional formal MCS and less developed process controls (Khandwalla, 1977), I expect a greater use of NFPM in SMEs when standardization and automatization in processes is low.

Third, the multiplicity of roles performed by SME owner-managers (Laforet, 2016) and the lack of management expertise (Gray and Mabey, 2005; Huang and Brown, 1999) may increase the difficulty and variability of the task and, thus, lead to a higher task uncertainty in these firms. As higher level of task uncertainty requires more informal controls and less reliance on accounting performance measures (Chenhal, 2003; Hirst, 1983), I expect a greater use of NFPM in SMEs when task uncertainty is high.

Thus, considering the abovementioned discussion, my hypotheses are the following:

H5a: The use of NFPM in SMEs is negatively associated with technologies characterized by standardized and automated processes.

H5b: The use of NFPM in SMEs is positively associated with technologies characterized by high levels of task uncertainty.

H5c: The use of NFPM in SMEs is positively associated with technologies characterized by high levels of interdependence.

4.4 Method

4.4.1 Sample selection

In the scope of this study, I collect data from two questionnaires targeted to SME managers.[57] The first questionnaire collects data regarding organizational characteristics while the second regarding the manager.

The first questionnaire was successfully sent to 22 997 SMEs and 4 192 useable responses were received. This corresponds to an overall response rate of 18.23 percent. Using this data base, a team of research assistants contacted via telephone each of these firms to collect information about the name and e-mail addresses of the directors/managers. This information serves to create a second data base to send a new questionnaire. Thus, from the initial sample of 4 192 SMEs I obtain 11 748 names with job roles and e-mail addresses (personal or organizational). However, due to the refusal of participation, impossibility to contact the firms, or errors in the sending process, the number of questionnaires sent was 8 180.[58] I receive 1 474 responses, but after eliminating incorrect or incomplete responses, my final sample is 1 088 usable responses from 817 companies.[59] This corresponds to a response rate of 13.30 percent. This response rate does

[57] My study relies on the number of employees to define SMEs, excluding micro-enterprises. Specifically, SMEs are those with 10-249 employees. This criterion is consistent with the European Commission definition (European Commission, 2005). I obtain a list of Portuguese SMEs from Informa DB, a firm specialized in corporate information.

[58] The reasons for the impossibility to contact the firm include: extinct organization, missing or invalid telephone contact, and no data available on the internet. Errors in the sending process include: incorrect e-mail address, full mailbox, insufficient capacity of the mailbox, and message considered as spam.

[59] I consider response as incorrect when it was inconsistent or inappropriate to the question. Incomplete response is that when the respondent fails to complete the section regarding to NFPM.

not differ significantly from previous studies (e.g., 16.9 percent for Gong and Ferreira, 2014; 14.6 percent for King, Clarkson and Wallace, 2010; 12.5 percent for Widener, 2007).

To test for potential non-response bias I apply two procedures (Armstrong and Overton, 1977).[60] First, I compare the size, region and industry representation of the 817 companies of the 1 088 respondents with the 2154 companies of the 7 363 non-respondents from the list of 8 180 e-mails sent successfully.[61] A chi-square test shows that the proportion of respondents in each region category is not significantly different between the respondents' sample and the non-respondents' sample (chi-square = 4.27; $p = 0.371$). Nevertheless, a chi-square test regarding industry shows significant differences between the two groups (chi-square = 47.06; $p < 0.01$). An independent sample t-test regarding the firm size (measured as the number of employees) shows a difference between respondents ($\overline{X}$ = 56.72) and non-respondents ($\overline{X}$ = 33.17) and this difference is statistically significant ($p < 0.01$ for a two-tailed t-test). These differences in samples by size and industry are limitations of this study.

Second, based on the response return date, I compare early respondents (first 15 percent) to late respondents (last 15 percent), for the main variables. Overall, the results indicate that there are no statistically significant differences between groups for the variables examined in my model, except for the variables PEU dynamism (measured in a 7 point Likert scale). Early respondents have a mean of 4.34 while late respondents a mean of 4.76 and the difference is statistically significant at 0.05 level. This implies that non-

[60] I perform all analyses of present study using STATA 14.1.

[61] Because the total sample of 1 088 responses may include more than one observation from the same firm, I generate the mean of those observation for each variable of interest and eliminate the duplicated rows. The sample of 817 observations that includes a unique observation for each firm is used for further analyses, inclusively, to test for non-response bias and common method bias.

respondents' firms might face different levels of PEU dynamism comparatively to the firms of the respondents from actual sample. This is also a limitation of this study.

To assess the extent of common method bias in measures (Mossholder et al., 1998; Podsakoff and Organ, 1986), I apply Harman's one-factor test on the 56 questions used to form the main constructs. The factor solution yields 19 factors with eigenvalues greater than one. Together they account for 66.39 percent of the total variance. The first factor explains 8.89 percent of the total variance, which means that it does not account for a majority of the variance. Overall, the results support the absence of significant common method bias.

Panel A of Table 4.1 presents descriptive statistics for the respondents and firms. The respondents are on average 45.90 years-old, have 23.52 years of professional experience and 16.08 years of tenure in the company. Sample firms have an average of 57 employees and 60 percent of family ownership. Panel B shows the pattern of SIC classifications for respondents that mirrors the sample frame. Respondents come mainly from the manufacturing (34.27 percent) and wholesale and retailing industries (31.33 percent). Additionally, Panel C presents descriptive evidence for participant position. Most of respondents occupy the position of chief executive officer (CEO) (38.92 percent) and chief financial officer (CFO) (23.01 percent).

Table 4.1. Descriptive statistics of the sample (N = 817).

Panel A: Demographic information for respondents and firms

Variable	N	Min	Mean	Median	Max	Std. dev.
Age (years)	817	21	45.90	45.00	74	9.11
Professional experience (years)	817	2	23.20	22.33	58	9.42
Company tenure (years)	817	0.50	16.08	15.00	46	8.70
Firm size (no. of employees)	817	10	56.72	34.00	249	56.29
Family Ownership (%)	670	0	59.54	99.50	100	47.13

Panel B: SIC classification of economic activities

	Number	Percentage
Accommodation and food service activities	38	4.65
Administrative and support service activities	28	3.43
Agriculture, forestry and fishing	11	1.35
Construction	44	5.39
Human health and social work activities	1	0.12
Information and communication	40	4.90
Manufacturing	280	34.27
Professional, scientific and technical activities	71	8.69
Real estate activities	10	1.22
Transport and storage	25	3.06
Water supply; sewerage, waste management and remediation activities	13	1.59
Wholesale and retail trade; repair of motor vehicles and motorcycles	256	31.33

Panel C: Participant position

	Number	Percentage
CEO	318	38.92
CFO	188	23.01
Comercial/Sales/Billing manager	61	7.47
Human Resources manager	22	2.69
Logistic/Marketing manager	23	2.82
Production/Quality manager	57	6.98
Other managers	83	10.16
Executive member of the Board of Directors	65	7.96

Note: The number of observations for the variable Family Ownership (%) is less than the total number of observations (N = 817) due to missing values in this variable.

4.4.2 **Variable measurement**

To establish the validity of the survey variables, I take several steps. First, when applicable, I use previously validated measures.[62] Second, I pre-test the questionnaire with practitioners (SME managers not in the sample) and academics (management accounting researchers). Third, I apply the process of back-translation of the

[62] In some cases, I make slight modifications with the aim to fit the items to my research context.

questionnaire. Particularly, I draft the full version of questionnaire in English and then translate it into the local language of the managers. Next, other researcher performs a retranslation and then another researcher compares the retranslation wording with the original wording and resolve differences between the two (Ady, 1994). Fourth, to assess both content and construct validity, I perform several empirical tests. For instance, I use exploratory factor analysis to examine the unidirectionality of the constructs and Cronbach's alpha to examine their internal consistency (Nunnally, 1978). Moreover, I verify if each item shows a factor loading greater than 0.50 to support convergent validity and if discriminant validity is assured by the lack of significant cross-loadings between the items (Hair et al., 2014). In addition, I assess the discriminant validity of the constructs by exploring multi-trait matrix.

Below, I present more details on the measurement of the variables. Appendix 1 presents the instruments used to measure the main constructs, while Table 4.3 reports the factor analyses used to construct the variables.

Non-financial performance measures

The dependent variable of this study is the relative weight placed on non-financial performance measures in the manager's annual compensation (NFPM). This is a self-reported measure in the questionnaire and the response is comprised between 0 and 100%. I calculate scores for this variable by adding the weights of all NFPM. Based on this information, I build a dummy variable for the use of NFPM (NFPM_D), where NFPM_D is equal to one if the annual variable pay is based in at least one NFPM, and zero otherwise.

Strategy

I measure strategy (STRAT) through eleven items identified by Miller, DeMeyer and Nakane (1992) and applied by Chenhall and Langfield-Smith (1998) and Chenhall (2005). This construct encompasses three strategic outcomes: flexibility, delivery/service and low cost-price, where the first two outcomes are derived from a product differentiation strategy. The instrument encompasses four questions for the flexibility outcome that capture flexibility and customization factors, five questions for the delivery/service outcome that involve delivery, service and quality outcomes, and two questions for the low cost and low production price. On a 7-point Likert scale ranging from 1 (low influence) to 7 (high influence), I ask respondents to indicate the extent to which each item influenced the management of the firm in the last three years.

The exploratory factor analysis, with oblique rotation reveals three interpretable factors that, however, deviate somewhat from Chenhall's (2005) solution. The four items chosen *ex ante* to measure the flexibility outcome and one item chosen *ex ante* to measure the delivery/service outcome (STGserv5) load on the first factor, which I label STGflex. Four of the five questions chosen *ex ante* to measure the delivery/service outcome load on the second factor that I label STGserv. According to Hair et al. (2014), I exclude two items (STGserv2 and STGserv5) from further analyses due to low loadings (< 0.50). Two of the remaining items load on a third factor (STGcost), which has an internal consistency of 0.49. Although a low Cronbach's alpha for the STGcost may indicate a possible measurement error, it may also be caused by the fact that the scale includes only two items. Assessing the Pearson correlation between the two questions may help to mitigate this issue (Kruis, Speklé and Widener, 2016). The correlation suggests adequate measurement for being reasonably strong (0.327; $p < 0.01$). Thus, although the

Cronbach's alpha is below the recommended limit of 0.6 (Hair et al., 2014), I retain this factor keeping the Cronbach's alpha in mind (King and Clarkson, 2015). Overall, the three factors together explain 72 percent of the total variance. The Cronbach's alpha for flexibility outcome and delivery/service outcome is 0.74 and 0.79, respectively. To form the variables STGflex, STGserv and STGcost, I average the items with factor loadings greater than 0.50 for each scale.

Perceived environmental uncertainty

To measure perceived environmental uncertainty (PEU) I use the questions from Gordon and Narayanan (1984) and King, Clarkson and Wallace (2010). Ten questions linked to a 7-point Likert scale ranging from 1 (low PEU) to 7 (high PEU) aim to capture the dynamic and unpredictable nature of the external environmental, as well as the intensity of competition. Exploratory factor analysis, with oblique rotation, reveals four factors with eigenvalues greater than 1, wherein PEUhos1 loads alone on one factor. However, in order to follow prior studies (Gordon and Narayanan, 1984; King, Clarkson and Wallace, 2010), I force factor analysis to produce only three factors. Following the literature, I label these factors as "PEU dynamism" (PEUdyn), "PEU unpredictability" (PEUunp) and "PEU hostility" (PEUhost). Four questions relating to the stability of the external environment load on PEUdyn, whereas two questions relating to the predictability of the external environment load on PEUunp and four questions relating to the competitiveness of the business environment on PEUhost. Due to low loading (< 0.50), I exclude the item PEUhos1 from further analyses (Hair et al., 2014). Overall, the construct captures 59 percent of the explained variance. The Cronbach's alphas for the three factors are 0.73, 0.56 and 0.66, respectively. A low Cronbach's alpha for the

PEUunp may indicate either a possible measurement error or it may be due to the fact that the scale includes only two items. Following Kruis, Speklé and Widener (2016), I examine the Pearson correlation between the two questions. Since the correlation suggests adequate measurement for being reasonably strong (0.392; $p < 0.01$), I retain this factor. Accordingly, I average the items with factor loadings greater than 0.50 for each scale to form the variables PEU dynamism, PEU unpredictability and PEU hostility.

Flexible culture

I operationalize the extent of a flexible culture (CULTflex) by using sixteen questions developed by Krakower and Niwa (1985) and subsequently used in accounting settings (e.g., Bhimani, 2003; Heinicke, Guenther and Widener, 2016; Henri, 2006). This instrument allows capturing the unique position of the organization in the control-flexibility continuum. I ask respondents to distribute 100 points among the four cultural types along each of the following four dimensions: institutional character, institutional leader, institutional cohesion and institutional emphases. The first question of each dimension refers to group culture, the second question refers to developmental culture, the third question refers to hierarchical culture and the fourth question refers to rational culture. Group and developmental culture represent the flexibility type, while hierarchical and rational culture represent the control type of organizational culture.

To construct my measure (CULTflex), I follow the procedure used in Heinicke, Guenther and Widener (2016) and Henri (2006). That is, first I average the ratings obtained on the four dimensions to calculate a score for the four cultural types (group, developmental, hierarchical and rational). Then, I sum the average scores of the group and developmental culture to derive the score on the flexibility value, and sum the average scores of the hierarchical and rational types to derive the score on the control value. Next, I subtract the control score from the flexibility score to derive the positioning of the firm along the stability-flexibility continuum. The resulting score can range from −100 to +100, where a positive score indicates emphasis on flexible values, while a negative score indicates emphasis on control values. Since the mean score for firms in my sample is 7.29, this indicates that firms in my sample, on average, emphasize flexibility values. Table 4.2 presents descriptive statistics to cultural types.

Table 4.2. Descriptive statistics regarding cultural types.

Variable	N	Theoretical range	Min	Mean	Median	Max	Std. dev.
Group culture	684	0-100	0	31.15	30.00	85.00	16.81
Developmental culture	684	0-100	0	22.50	22.50	97.50	13.98
Hierarchical culture	684	0-100	0	26.33	25.00	100.00	14.82
Rational culture	684	0-100	0	20.02	20.00	72.50	11.49
Flexible culture	684	0-100	0	53.65	55.00	100.00	19.52
Control culture	684	0-100	0	46.35	45.00	100.00	19.52
Extent of a flexible culture	684	-100-100	-100	7.29	10.00	100.00	39.04

Note: The number of observations for each variable of culture is less than in the total sample (N = 817) due to missing values.

Decentralization

To measure decentralization (DECENT), I adapt six survey questions from Gordon and Narayanan (1984) and King, Clarkson and Wallace (2010). On a 7-point Likert scale ranging from 1 (no delegation) to 7 (total delegation), I ask respondents to indicate the extent to which decision-making authority is delegated for each of the six items. Factor analysis reveals only one factor with eigenvalue greater than 1, which explains 57 percent of the total variance. The factor loadings of the six items range from 0.62 to 0.82 and Cronbach's alpha is 0.84. Based on these results, I average the six items to form the DECENT variable.

Technology

I measure technology (TECH) using three questions based on Chenhall (2007). On a 7-point Likert-scale ranging from 1 (very low) to 7 (very high), I ask respondents about the extent to which technologies are characterized by standardized and automated processes (TECstd), high levels of task uncertainty (TECunc) and high levels of interdependence (TECdep). Factor analysis reveals two factors, the two items that load on factor 1 (TECstd and TECdep) have unreliable internal consistency of 0.44. Following Kruis, Speklé and Widener (2016), the examination of the Pearson correlation between the two items (TECstd and TECdep) also shows inadequate measurement (0.285; $p < 0.01$). When I restrict the extraction to only one factor, the Cronbach's alpha remains unreliable (0.29). Thus, I use three variables for technology – TECstd, TECunc and TECdep.

Table 4.3. Construct validity (N = 817).

	Factor (71%)		
	STGflex	STGserv	STGcost
Strategy			
Product/service availability	0.3093	**0.5520**	-0.0748
Provide effective after-sales service and support	0.3468	0.4727	-0.1061
Make dependable delivery promises	-0.0457	**0.9164**	0.0221
Provide fast deliveries	-0.0648	**0.8945**	0.0753
Provide high quality products/services	0.4078	0.3440	-0.1609
Customise products and services to customer needs	**0.6068**	0.2135	-0.0306
Make rapid volume and/or product/service mix changes	**0.5009**	0.2852	0.0882
Make changes in design and introduce new products/services quickly	**0.7743**	-0.0697	0.1513
Provide unique product/service features	**0.8453**	-0.1005	-0.0197
Low price	-0.0269	0.0169	**0.8954**
Low production costs	0.2377	0.0790	**0.6041**
Cronbach's Alpha	0.74	0.79	0.49
Eigenvalues	3.170	3.200	1.468
% of variance	28.82	29.09	13.35

	Factor (59%)		
	PEUdyn	PEUunp	PEUhost
Perceived environmental uncertainty			
Economic environment	**0.7364**	0.0175	-0.0334
Technological environment	**0.5842**	-0.0956	0.2048
Legal environment	**0.8134**	0.0211	0.0016
Political environment	**0.8046**	0.0104	-0.0547
Market activities of firm competitors	0.0102	**0.8068**	0.0434
Tastes and preferences of customers	-0.0005	**0.8158**	-0.0292
Price competition	0.0695	0.2240	0.3505
Competition for the diversity of services/ products	-0.0195	0.1430	**0.7005**
Competition for manpower	0.0226	-0.0254	**0.7699**
Competition for access to suppliers	-0.0197	-0.0623	**0.7904**
Cronbach's Alpha	0.73	0.56	0.66
Eigenvalues	2.272	1.599	2.029
% of variance	22.72	15.99	20.29

	Factor (57%)
Decentralization	
Initiate ideas for new services	**0.6183**
Hiring and firing of personnel	**0.7654**
Selection of large investments	**0.8082**
Budget allocations	**0.8161**
Pricing decisions	**0.7349**
Operation decisions	**0.7532**
Cronbach's Alpha	0.84
Eigenvalues	3.395
% of variance	56.58

Note: The percentage in parentheses in the top line of each table indicates variance extracted for each factor analysis. Items deemed to load on the identified factor appear in bold.

Control variables

Following prior literature, I identify control variables that may be related to the use of NFPM. Specifically, I use firm size, family ownership, and region and industry affiliation, as control variables.

Although my study investigates SMEs, the variation of number of employees within them is very large (SMEs in my sample can have as few as 10 employees or as many as 249). Prior research suggests that the choice of performance measures depends on firm size (Maltz, Shenhar and Reilly, 2003). Moreover, larger firms use more complex PMSs, such as the BSC (Hoque and James, 2000), and adopt more sophisticated MCS (Khandwalla, 1972). Therefore, they are more likely to use more and more diverse performance measures, namely NFPM. Accordingly, Ahmad and Zabri (2016) find that firm size appears to be one of most significant factors associated with the use of NFPM. Therefore, I expect that firm size (SIZE) is positively related to the use of NFPM. I use the number of employees to measure SIZE. Similar to other researchers, I adopt the natural logarithm of number of employees due to high skewness and kurtosis of the original data (e.g., Davila and Foster, 2007).

I also control for family ownership (FAMOWN). Extant literature suggests that family firms are less likely to use formal accounting and planning practices (Jorissen et al., 2005) and make variable pay a smaller component of the compensation (Gomez-Mejia, Larraza-Kintana and Makri, 2003). Therefore, it is reasonable to assume that, with the increase of family ownership firms use fewer performance measures, and particularly, fewer NFPM in manager’s compensation. Thus, I expect that the use of NFPM is negatively associated with family ownership. To measure this variable, I ask respondents to indicate the percentage of family ownership (FAMOWN).

Given that some regions are more dynamic in terms of company creation and labor market (Martin, 1997), I control for region by using four dummy variables: REGION1 to REGION4 using REGION5 as default. This classification is based on regional classification within the country.

Furthermore, the literature suggests that the choice of performance measures varies by industry (e.g., Ely, 1991; Maltz, Shenhar and Reilly, 2003). “Specific industries may require specific metrics tailored to specific businesses” (Maltz, Shenhar and Reilly, 2003, p. 197). Thus, I control for industry effects by including dummy variables according to the Statistical Classification of Economic Activities in the European Community (NACE). Considering manufacturing as baseline, my dummy variables are as follows: agricultural, fishing and mining (AGRIC), water supply, sewerage, waste management and remediation activities (WATER), construction (CONST), wholesale and retail trade, repair of motor vehicles and motorcycles (TRADE), transportation and storage (TRANSP), accommodation and food service activities (ACCOM_FOOD), information and communication (INFOR_COMMUN), real estate activities (REAL_ESTATE), professional, scientific technical activities (SCIENT), administrative and support service activities, and human health and social work activities (SUPPORT).

I also control for managerial position, age and tenure. Since the use of NFPM may vary with respondent’s position and because my sample has some heterogeneity related to the participants’ role in the company, I include dummy variables for CEO (CEO), commercial/sales/billing manager (MNGCSB), human resources manager (MNGRH), logistics/ marketing manager (MNGLGT&MKT), production/ quality manager (MNGPROD&QLT), executive member of the board of directors (EXECUTE) and other managers (OTHER_MNG), remaining CFO as default. Considering that CEO and other members of the board of directors in SMEs are often the major or sole shareholders of the firm (Watson et al., 1994), their interests are better aligned with organizational goals (Banker and Datar, 1989; Feltham and Xie, 1994; Hemmer, 1996; Ittner, Larcker and Rajan, 1997). As firms use NFPM in addition to FPM to better motivate agents to act in the interest of the organization (e.g., Ittner, Larcker and Rajan, 1997), firms do not need to use (more) NFPM in CEO and other members of the board of director's compensation because they are already motivated to this. However, considering that other managers (e.g., CFO, logistic, marketing, production manager) have more specific functions, firms need to use NFPM which allow capturing incremental information about different dimensions of managerial actions (e.g., Hemmer, 1996; Ittner, Larcker and Rajan, 1997). Hence, I expect that the use of NFPM is negatively related to the positions of CEO and other members of the board of directors and positively relater to other managers.

The demographic variables such as age and tenure are self-reported measures in the questionnaire (e.g., Hall, 2011). To control for respondents' age (AGE) and tenure (TENURE) I use the natural logarithm of each of these variables due to high skewness and kurtosis of original data. I expect that age is positively associated with the use of NFPM in compensation. Prior literature suggests that older managers seem to be increasingly risk-averse (Harvey and Shrieves, 2001; Mehran, 1995). Thus, due to the ability of NFPM to reduce uncertainty and risk in financial measures and to protect managers against factors beyond their control (Bruns and McKinnon, 1993; Bushman, Indjejikian and Smith, 1996; Feltham and Xie, 1994; Hemmer, 1996), I expect that the use of NFPM is positively associated with AGE.

Regarding tenure, I also predict that managerial tenure will be positively associated with the use of NFPM because, on one hand, tenure leads to a higher risk aversion (Beatty and

Zajac, 1994; Lambert, Larcker and Verrecchia, 1991). On the other hand, NFPM have an ability to reduce risk provided by the sole use of the FPM (e.g., Feltham and Xie, 1994; Hemmer, 1996). Moreover, tenure leads to less reliance on FPM (Bushman, Indjejikian and Smith, 1996).

Additionally, I control for firm performance and individual performance because my measure of NFPM is *ex post* (that is, respondents state the percentage of NFPM attached to the annual compensation they have received) and, hence, the level of performance may influence their answers. Firm performance (FIRM_PERF) is a self-reported measure based on a previously validated scale (Roth and Jackson, 1995) and used in the accounting studies (Widener, 2007). On a 7-point Likert-scale ranging from 1 (very poor performance) to 7 (very good performance), I ask respondents to assess their organizational performance, taking into account their goals on four dimensions. Factor analysis reveals one factor explaining 74% of the variance, with item loadings above 0.84 and a Cronbach's Alpha of 0.87. Based on these results, I average the four items to form the FIRM_PERF variable.

To measure individual performance (IND_PERF) I use self-reported measure developed by Mahoney, Jerdee and Carroll (1965) and recurrently used in accounting studies (e.g., Chong and Chong, 2002; Hall, 2008; Parker and Kyj, 2006). The original scale assesses individual performance along eight dimensions related to planning, investigating, coordinating, evaluating, supervising, staffing, negotiating and representing, and also includes an overall assessment of performance. Hall (2008) reduces the scale to 7 items by excluding 2 items (negotiating and representing) because of low factor loadings and not belonging to a unidimensional managerial performance scale. I follow his procedure and ask respondents to indicate on a 7-point Likert scale (1 = well below average to 7 =

well above average) the extent to which their performance was below average or above average on each of the 7 remaining items. Factor analysis reveals one factor explaining 66% of the variance, with item loadings above 0.73 and a Cronbach's Alpha of 0.91. Based on these results, I average the seven items to form the IND_PERF variable.

4.5 Empirical results

4.5.1 Descriptive statistics

Table 4.4 presents descriptive evidence for my sample. I use 817 firm observations (I average the multiple responses per-firm) since these are observations that are independent and, hence, I can run statistical tests that assume independence of observations.[63] This would not be the case if I used the 1 088 participant observations.[64] Panel A present the descriptive statistics for the main variables investigated in this study (except for the culture variables, whose descriptive statistics are reported in Table 4.2). Additionally, Panel B provides information on the use of NFPM in my sample. Productivity and customer satisfaction are the most commonly used NFPM in managerial incentives in SMEs (means are 2.28 and 1.27, respectively).

[63] Since it is not possible to average manager's position, I eliminate duplicate rows by keeping only the first received response per firm.
[64] I will use the 1 088 observations in my regression analyses where I can account for the non-independence of observations by clustering the standard errors at the firm level.

Table 4.4. Descriptive statistics of variables (N = 817).

Panel A: main variables

Variable	N	Min	Mean	Median	Max	Std. dev.
Non-financial performance measures	817	0	7.77	0.00	100	17.87
PEU: dynamism	685	1	4.53	4.67	7	1.30
PEU: unpredictability	668	1	3.83	4.00	7	1.29
PEU: hostility	687	1	3.81	3.67	7	1.32
Strategy: flexibility	693	1	4.85	5.00	7	1.38
Strategy: delivery/service	691	1	5.58	6.00	7	1.30
Strategy: low cost/low price	694	1	4.91	5.00	7	1.41
Decentralization	676	1	2.93	2.83	7	1.30
Technology: standardized processes	681	1	4.70	5.00	7	1.72
Technology: task uncertainty	652	1	2.67	2.00	7	1.61
Technology: interdependence	665	1	4.45	5.00	7	1.58

Panel B: Non-financial performance measures

Variable	N	Min	Mean	Median	Max	Std. dev.
Market share	817	0	0.43	0	50	2.83
Customer satisfaction	817	0	1.27	0	50	4.54
Number of customer complains	817	0	0.44	0	20	1.96
Quality of the product / service	817	0	0.84	0	50	3.38
Employee satisfaction	817	0	0.66	0	30	2.63
Rotation of personnel	817	0	0.19	0	11	1.09
Production volume	817	0	0.69	0	100	4.84
Productivity	817	0	2.28	0	100	9.78
Compliance with the processes	817	0	0.42	0	40	2.30
Innovation	817	0	0.56	0	25	2.29

Note: The number of observations for some variables is less than in the total sample (N = 817) due to missing values.

The correlations among the continuous variables presented in Table 4.5 provide first evidence on the relationship between NFPM and other variables of interest. The table shows a positive and statistically significant correlation between the use of NFPM and a delivery/service strategy ($r = 0.09$; $p < 0.5$), and the use of NFPM and PEU hostility ($r = 0.13$; $p < 0.01$), as predicted. However, contrary to my predictions, the use of NFPM is positively and significantly correlated to decentralization ($r = 0.11$; $p < 0.01$) and standardized and automated processes ($r = 0.08$; $p < 0.5$). Moreover, contrary to my expectations, age is negatively and significantly correlated with the use of NFPM ($r = -0.07$; $p < 0.5$).

Table 4.5. Correlation coefficients between the continuous variables (N = 817).

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. NFPM	1.00																
2. STGflex	0.06	1.00															
3. STGserv	0.09**	0.52***	1.00														
4. STGcost	0.05	0.32***	0.26***	1.00													
5. PEUdyn	0.02	0.14***	0.16***	0.13***	1.00												
6. PEUunp	0.06	0.10***	0.07*	0.06	0.16***	1.00											
7. PEUhost	0.13***	0.25***	0.14***	0.19***	0.16***	0.26***	1.00										
8. CULTflex	-0.00	0.14***	0.08**	-0.01	0.02	0.05	0.14***	1.00									
9. DECENT	0.11***	0.16***	0.08**	0.09**	0.12***	0.09**	0.19***	0.06	1.00								
10. TECstd	0.08**	0.14***	0.16***	0.15***	0.12***	-0.03	0.06	-0.08**	0.00	1.00							
11. TECunc	-0.02	0.06	-0.00	0.02	0.11***	0.11***	0.18***	0.02	0.05	-0.17***	1.00						
12. TECdep	-0.02	0.09**	0.12***	0.10***	0.14***	0.01	0.04	-0.06	0.00	0.29***	0.24***	1.00					
13. SIZE	-0.01	-0.06	-0.06*	-0.04	0.05	-0.05	-0.06	-0.08**	0.12***	0.07*	-0.06	0.04	1.00				
14. FAMOWN	0.01	0.03	0.02	0.05	-0.08**	0.04	0.03	0.22***	-0.08*	-0.12***	0.03	-0.07*	-0.12***	1.00			
15. AGE	-0.07**	-0.02	0.01	-0.03	0.08**	0.08**	-0.01	-0.06	-0.07*	0.05	0.07*	0.09**	-0.04	-0.01	1.00		
16. TENURE	0.04	0.01	0.07*	0.04	0.05	0.09**	0.05	-0.03	-0.03	0.05	0.09**	0.10***	-0.09**	0.03	0.59***	1.00	
17. FIRM_PERF	-0.00	0.16***	0.20***	-0.01	0.04	-0.06	-0.05	0.11***	0.09**	0.16***	-0.13***	0.04	0.11***	-0.11***	-0.02	-0.10***	1.00
18. IND_PERF	0.03	0.02	0.02	-0.04	0.10**	-0.03	-0.05	0.01	-0.05	0.08*	-0.09**	-0.02	0.00	-0.08**	0.05	-0.06	0.07*

Note: *, ** and *** indicate significance of p-values at 10%, 5% and 1%, respectively, all p-values are two-tailed.

Generally, the results of correlation analyses suggest that multicollinearity is not a concern in this sample since none of the pairwise correlations among the independent variables is higher than 0.9 (Hair et al., 2014).

Table 4.6 provides a comparison between NFPM users and non-users. Panels A and B present the statistics for the sample size of 817, where all observations are independent. Since it is not possible to average respondent's position, Panel C shows statistics for the sample size of 1 088, where the observations are not fully independent. Panel A shows that firms that use NFPM are more likely to face PEU hostility in their environment ($t = -2.16$; $p < 0.05$) comparatively to NFPM non-users. This result is consistent with my prediction and with correlation analysis. Nevertheless, contrary to my predictions (but confirming correlation analyses), firms that use NFPM exhibit a higher level of decentralization ($t = -2.50$; $p < 0.05$) and use more standardized and automated processes ($t = -1.94$; $p < 0.1$) than NFPM non-users. Moreover, the results suggest that firms that use NFPM have managers with higher tenure ($t = -1.82$; $p < 0.1$) than NFPM non-users. This result confirms my expectations (although not hypothesized) regarding the relationship between these two variables. Additionally, the results of Panels B and C show significant differences between NFPM users and non-users for industry (chi-square = 18.24; $p < 0.1$). This result is also in line with my expectations that the use of NFPM varies by industry.

Table 4.6. Difference in means and proportions between NFPM users and non-users (N = 817).

Panel A: Means (N=817)			
Variables	NFPM non-users (612 observations)	NFPM users (205 observations)	T-test
Strategy: flexibility	4.80	4.98	-1.55
Strategy: delivery/service	5.55	5.68	-1.09
Strategy: low cost/low price	4.91	4.92	-0.06
PEU: dinamism	4.51	4.56	-0.39
PEU: unpredictability	3.82	3.85	-0.27
PEU: hostility	3.75	4.00	-2.16**
Extent of a flexible culture	6.39	9.96	-1.04
Decentralization	2.85	3.14	-2.50**
Technology: standardized processes	4.62	4.91	-1.94*
Technology: task uncertainty	2.67	2.66	0.08
Technology: interdependence	4.49	4.36	0.90
Age	46.15	45.16	1.35
Tenure	15.76	17.03	-1.82*
Firm size	56.08	58.62	-0.56
Family ownership	59.57	59.47	0.02
Firm performance	4.37	4.42	-0.49
Individual performance	4.89	4.97	-1.18

Panel B: Proportions (N = 817)			
Variables	NFPM non-users (612 observations)	NFPM users (205 observations)	Chi2-test
Region			
REGION1	23.04	24.88	
REGION2	30.07	24.88	2.22
REGION3	15.20	15.61	
REGION4	16.18	18.54	
REGION5	15.52	16.10	
Industry			
ACCOM_FOOD	3.76	7.32	
AGRIC	1.80	0.00	
CONST	6.21	2.93	
INFOR_COMMUN	4.74	5.37	
MANUF	33.17	37.56	
REAL_ESTATE	1.14	1.46	18.24*
SCIENT	8.99	7.80	
SUPPORT	4.41	32.20	
TRADE	31.05	32.20	
TRANSP	2.94	3.41	
WATER	1.80	0.98	

Table 4.6 continued. Difference in means and proportions between NFPM users and non-users (N = 817).

Panel C: Proportions (N = 1 088)			
Variables	NFPM non-users (864 observations)	NFPM users (224 observations)	Chi2-test
Participant's Position			
CEO	35.19	36.61	
CFO	21.18	21.88	
Comercial/Sales/Billing Director	7.64	9.38	
Human Resources Director	3.70	4.02	9.90
Logistic/Marketing Director	3.36	6.25	
Production/Quality Director	7.52	8.04	
Other Directors	13.19	8.93	
Executive member of the Board of Directors	8.22	4.91	

Note: Unequal variances are considered in the T-test for all the cases where the test of equal variances rejects the null hypothesis. Some differences are computed with fewer observations than the grand total reported due to missing values.
*, ** and *** indicate the significance of the p-value at < 0.1, < 0.05 and < 0.01, respectively, all p-values are two-tailed.

4.5.2 **Empirical specification**

After these bivariate evidences that do not control for the joint effects of multiple independent variables, I test my hypotheses using multivariate methods. Specifically, I estimate the following model:

$$NFPM_i = \alpha_0 + \beta_{1a}\, STGflex_i + \beta_{1b}\, STGserv_i + \beta_{1c}\, STGcost_i + \beta_{2a}\, PEUdyn_i + \beta_{2b}\, PEUunp_i + \beta_{2c}\, PEUhost_i + \beta_3\, \mathrm{CULTflex}_i + \beta_4\, DECENT_i + \beta_{5a} TECstd_i + \beta_{5b} TECunc_i + \beta_{5c} TECdep_i + \varepsilon_i$$

(Equation 1)

where *i* represents the participant (*i* = 1, …, 1 088) and the variables are as defined in the previous section.

My second specification is similar to the first with the addition of my control variables related to the participant - position, age, tenure and individual performance - and to the firm - firm size, family ownership, firm performance, industry and region.

$$NFPM_i = \alpha_0 + \beta_{1a}\, STGflex_i + \beta_{1b}\, STGserv_i + \beta_{1c}\, STGcost_i + \beta_{2a}\, PEUdyn_i + \beta_{2b}\, PEUunp_i + \beta_{2c}\, PEUhost_i + \beta_3\, \mathrm{CULTflex}_i + \beta_4\, DECENT_i + \beta_{5a} TECstd_i + \beta_{5b} TECunc_i + \beta_{5c} TECdep_i + \sum \mu\, Controls_i + \varepsilon_i$$

(Equation 2)

where *i* represents the participant (*i* = 1, …, 1 088) and the variables are as defined in the previous section.

Both Equations (1) and (2) are initially estimated using a tobit regression with a lower bound (0) and an upper bound (100) for the dependent variable NFPM.[65] This method allows a full use of the data available as both the users and non-users of NFPM are considered. However, and to address the concern that contextual factors may be related to the adoption but not with the intensity of use of NFPM (and vice-versa), I estimate both equations using a logit regression with dependent variable NFPM_D (using a tobit regression for NFPM > 0). Finally, and to address the concern that the use of NFPM is dependent on the use of incentives, I also estimate the equations in subsamples of observations that receive incentives (INC > 0).

4.5.3 **Test and discussion of hypotheses**

Table 4.7 presents a summary of the results for the regression specifications.[66] Specifications 1, 2 and 3 show the tobit estimation results when dependent variable is the intensity of use of NFPM (NFPM). Specifications 4 and 5 present logistic estimation results, where the dependent variable is the adoption of NFPM (NFPM_D). Moreover,

[65] To perform all regression analyses, I use the total sample of 1 088 responses, which includes more than one observation for one firm. However, to control for the non-independence of observations (respondents can be managers of the same company), I use clustered the standard errors by firm in all specifications. Additionally, Variance Inflation Factors (VIF) indicate the lack of multicollinearity problems since the highest VIF value is 6.06, which is well below the suggested threshold of 10 (Hair et al., 2014).

[66] The majority of the results showed in Table 4.7, Table 4.8 and Table 4.9 are not significant, therefore, I discuss only those that are significant.

Specifications 1 and 4 present results for the total sample of 1 088 managers, while Specifications 2 and 5 show results for a subsample restricted to managers who receive monetary incentives (Inc_D > 0).[67] Finally, Specification 3 presents regression results for a subsample restricted to managers whose compensation includes NFPM (NFPM_D > 0). Panel A in this table presents the results of Equation (1), while Panel B presents the results of Equation (2). The specifications in Panel B, which include control variables, have a higher explanatory power regarding the adoption and use of NFM as the pseudo R2 are larger than those in Panel A.[68] Therefore, I refrain from discussing the results from Panel A (without control variables) and focus on those of Panel B (with controls).[69]

[67] I measure monetary incentives by asking respondents to indicate the percentage of variable compensation - incentives (Inc) - in their annual compensation. Based on this information, I build a dummy variable for the use of incentives (Inc_D).
[68] Pseudo R2 used in this study is a McFadden's R2, based on the log-likelihood kernels for the intercept-only model and the full estimated model. McFadden's R2 may vary between 0 and 1.
[69] Some significant relationships showed in Panel A disappear when control variables are added in Panel B (for example, positive and significant relationship between the intensity of use of NFPM and delivery/service strategy (Specification 3) and between the adoption of NFPM and flexible culture (Specification 5), and negative and significant relationship between the use (both intensity of use and the adoption) of NFPM and interdependence in processes (Specifications 1 and 4)).

Table 4.7. Regression specifications examining the relationship between the use of NFPM and contextual variables.

		Panel A					*Panel B*				
		1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**
Dependent Variable		*NFPM*	*NFPM*	*NFPM*	*NFPM_D*	*NFPM_D*	*NFPM*	*NFPM*	*NFPM*	*NFPM_D*	*NFPM_D*
Sample		*All*	*Inc>0*	*NFPM>0*	*All*	*Inc>0*	*All*	*Inc>0*	*NFPM>0*	*All*	*Inc>0*
Estimation Method	*Predicted sign*	*Tobit*	*Tobit*	*Tobit*	*Logit*	*Logit*	*Tobit*	*Tobit*	*Tobit*	*Logit*	*Logit*
STGflex	+	0.70	-1.62	-2.79	0.05	-0.01	-0.03	-0.93	0.11	-0.00	-0.05
		(2.38)	(2.51)	(1.76)	(0.07)	(0.10)	(2.30)	(2.36)	(1.52)	(0.09)	(0.13)
STGserv	+	2.30	3.47	3.57**	0.03	0.06	0.84	1.95	1.30	-0.00	0.05
		(2.56)	(2.63)	(1.62)	(0.08)	(0.11)	(2.56)	(2.53)	(1.49)	(0.10)	(0.14)
STGcost	-	-2.44	2.06	-0.85	-0.08	0.11	-2.71	0.02	-2.11	-0.08	0.05
		(1.94)	(1.90)	(1.40)	(0.06)	(0.08)	(1.90)	(1.83)	(1.30)	(0.08)	(0.10)
PEUdyn	+	-3.92*	-6.08***	-1.43	-0.10	-0.23**	-3.64*	-4.60**	-0.59	-0.11	-0.22*
		(2.29)	(2.19)	(1.41)	(0.07)	(0.09)	(2.10)	(1.93)	(1.26)	(0.09)	(0.12)
PEUunp	+	0.43	0.88	1.13	-0.00	0.02	-0.29	-0.24	-0.84	-0.01	0.00
		(2.35)	(2.35)	(1.73)	(0.07)	(0.10)	(2.25)	(2.41)	(1.81)	(0.09)	(0.12)
PEUhost	+	6.99***	4.99**	3.71**	0.19**	0.13	5.20**	3.21*	1.53	0.19**	0.16
		(2.39)	(2.17)	(1.50)	(0.08)	(0.09)	(2.11)	(1.92)	(1.32)	(0.09)	(0.11)
CULTflex	+	-0.04	0.07	-0.06	-0.00	0.00*	-0.07	0.04	-0.04	-0.00	0.00
		(0.07)	(0.07)	(0.05)	(0.00)	(0.00)	(0.07)	(0.06)	(0.05)	(0.00)	(0.00)
DECENT	-	3.75*	1.06	0.83	0.11	0.02	3.95*	3.04*	1.24	0.14*	0.11
		(2.09)	(1.88)	(1.36)	(0.07)	(0.08)	(2.05)	(1.78)	(1.37)	(0.08)	(0.10)
TECstd	-	2.16	1.38	0.77	0.06	0.05	2.21	1.42	0.70	0.09	0.06
		(1.76)	(1.70)	(1.00)	(0.06)	(0.07)	(1.82)	(1.64)	(1.08)	(0.07)	(0.09)
TECunc	+	0.49	1.17	0.59	0.01	0.04	-0.28	0.10	-0.12	-0.00	0.01
		(1.82)	(1.91)	(1.49)	(0.06)	(0.07)	(1.72)	(1.74)	(1.44)	(0.07)	(0.09)
TECdep	+	-3.30*	-2.16	0.24	-0.11*	-0.11	-2.44	-1.29	0.56	-0.11	-0.08
		(1.92)	(1.84)	(1.17)	(0.06)	(0.08)	(1.89)	(1.76)	(1.17)	(0.07)	(0.10)

Table 4.7 continued. Regression specifications examining the relationship between the use of NFPM and contextual variables.

Controls		**No**	**No**	**No**	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
AGE		n.a.	n.a.	n.a.	n.a.	n.a.	-47.37***	-32.48**	-2.54	-1.79***	-1.65**
							(15.79)	(14.56)	(9.27)	(0.66)	(0.83)
TENURE		n.a.	n.a.	n.a.	n.a.	n.a.	16.60***	12.41***	4.29	0.60***	0.62***
							(4.59)	(4.24)	(2.72)	(0.19)	(0.24)
IND_PERF		n.a.	n.a.	n.a.	n.a.	n.a.	5.90*	1.66	2.51	0.21*	0.05
							(3.13)	(2.76)	(1.81)	(0.12)	(0.15)
SIZE		n.a.	n.a.	n.a.	n.a.	n.a.	-1.92	-3.29	-6.26***	0.01	-0.02
							(3.14)	(3.04)	(2.24)	(0.12)	(0.16)
FAMOWN		n.a.	n.a.	n.a.	n.a.	n.a.	0.03	0.05	-0.06*	0.00	0.00
							(0.06)	(0.05)	(0.03)	(0.00)	(0.00)
FIRM_PERF		n.a.	n.a.	n.a.	n.a.	n.a.	0.03	-1.96	0.58	-0.01	-0.14
							(2.42)	(2.05)	(1.43)	(0.10)	(0.13)
F stats for participant's position		n.a.	n.a.	n.a.	n.a.	n.a.	1.39	3.76***	3.10***	6.67	17.38**
F stats for industry		n.a.	n.a.	n.a.	n.a.	n.a.	1.32	1.29	6.34***	11.81	9.78
F stats for region		n.a.	n.a.	n.a.	n.a.	n.a.	1.46	1.30	0.63	5.19	5.57
N		**809**	**403**	**174**	**809**	**403**	**660**	**340**	**150**	**652**	**338**
Pseudo R2		**0.009**	**0.009**	**0.010**	**0.021**	**0.027**	**0.032**	**0.043**	**0.040**	**0.081**	**0.140**
F-test		**1.93****	**1.84****	**1.25**			**2.09*****	**2.44*****	**94.94*****		
Wald Chi2					**18.44***	**17.31***				**63.14*****	**61.00*****

Note: Variables are described in previous sections. Standard errors are in parentheses. Constant included but not reported. Some differences are computed with fewer observations than the grand total reported due to missing values in the variables. *, ** and *** indicate the significance of the p-value at < 0.1, < 0.05 and < 0.01, respectively, all p-values are two-tailed.

Overall, the results show that some of the contextual variables that were individually insignificant in Table 4.5 (correlation analyses) become significant in Table 4.7 when multiple contextual variables are analyzed simultaneously (for example, PEU dynamism for Specifications 1, 2 and 5 from Panel B). This evidence suggests that individual analyses of contextual factors may ignore multiple interdependencies related to the use of NFPM and, therefore, no inferences about each variable in isolation should be done.

I start by discussing the empirical results related to H1a, which states that the use of NFPM in SMEs is positively associated with a differentiation strategy. Contrary to my expectation, I do not find empirical support for this hypothesis since the relationship between the use of NFPM and a flexibility strategy, and between the use of NFPM and a delivery/service strategy are insignificant, in all specifications. Although individual analyses in Table 4.5 suggest a positive and significant correlation between the use of NFPM and delivery/service strategy, regression analysis does not support this evidence.

In my second hypothesis regarding strategy (H1b), I argue that the use of NFPM in SMEs is negatively associated with a cost-leadership strategy. However, none of 5 specifications shows a significant relationship between these two variables, which indicates that H1b is also not supported.

Further examination of Panel B shows that the use of NFPM is negatively related to PEU dynamism. This result does not support H2a since I predict a positive relationship between these two variables. Particularly, I find that the intensity of use of NFPM is negatively and significantly associated with the dynamism element of PEU in Specifications 1 and 2. Moreover, the adoption of NFPM is also negatively and significantly associated with dynamism in Specification 5. A possible explanation for this result is that firms' survival in uncertain environments depends not only on the external environment but also on internal capabilities (Greenwood and Tsang, 1997). Thus, albeit

SMEs operate with higher environmental uncertainty than large companies (Oakes and Lee, 1999), they also have limited financial resources (Hvolby and Thorstenson, 2001), which may restrict the adoption of incentives, and therefore, of NFPM. Moreover, the high capacity of SMEs to adapt to environmental changes (Jiménez-Jiménez and Sanz-Valle, 2011) may also reduce the need for the use of NFPM in conditions of high PEU.

In relation to the unpredictability element of PEU, my data does not support H2b since there is no significant relationship between the use of NFPM and unpredictability, in all specifications. In contrast, I find a positive and significant association between the use of NFPM and hostility faced by firms, as hypothesized in H2c. Particularly, the results indicate that the intensity of use of NFPM (Specifications 1 and 2) and the adoption of NFPM (Specification 4) are positively and significantly associated with hostility, which also is consistent with the results from correlations and comparison of means. These findings for SMEs extend the prior evidence from large companies showing that firms facing greater competition intensity make more use of NFPM, and particularly, customer satisfaction (Chen et al., 2015). In fact, as NFPM may provide managers with more strategic information about customers, internal processes and competitors (e.g., Amir and Lev, 1996; Feltham and Xie, 1994), they are valuable features that firms may use in contexts of high competition. Furthermore, my data does not provide empirical support for H3 as I do not find a significant relationship between the use of NFPM and flexible culture, in all specifications.

With regard to decentralization, I predict that more decentralized SMEs use less NFPM. However, H4 is not supported since the use of NFPM is positively associated with decentralization, which corroborates the results of the correlation analysis and comparison of means. Particularly, the positive relationship is significant in Specifications 1, 2 and 4, indicating that SMEs with more decentralized decision processes adopt more NFPM and use them with greater intensity. This finding in the scope of SMEs contradicts evidence from large firms that shows a negative relationship between the use of NFPM and decentralization (e.g., Abernethy, Bouwens and van Lent, 2004; Bouwens and van Lent, 2007; Gong and Ferreira, 2014; Moers, 2006). Instead, my result is consistent with an older argument suggesting that decentralization - for being an appropriate response to dynamic environments - requires broad scope and non-financial information (e.g., Gordon and Miller, 1976; Waterhouse and Tiessen, 1978).

Regarding the relation between NFPM and technology, I do not find support. Contrary to my prediction and despite the positive and significant results provided by correlation and mean comparison analyses, I find no significant relationship between the use of NFPM and technologies characterized by standardized and automated processes (relationship predicted in H5a). I also do neither find a significant association between the use of NFPM and task uncertainty (relationship predicted in H5b), nor between the use of NFPM and interdependence in processes (relationship predicted in H5c).

Concerning the control variables, my findings confirm correlation analysis indicating that age is negatively and significantly associated with the use of NFPM in all specifications, except in Specification 3. These findings contradict my expectation as well as previous literature which suggest a greater use of NFPM for increasingly risk-averse older managers (Harvey and Shrieves, 2001; Mehran, 1995) to reduce uncertainty and risk in financial measures and to protect managers against factors beyond their control (Bruns and McKinnon, 1993; Bushman, Indjejikian and Smith, 1996; Feltham and Xie, 1994; Hemmer, 1996). Furthermore, as expected (and confirming the comparison of means), I find that tenure is positively and significantly related to the use of NFPM, in all specifications, except in Specification 3. The findings regarding managerial tenure are aligned with prior evidence from large firms indicating a greater use of NFPM in compensation of more tenured managers due to (i) their desire to reduce risk in incentives (Beatty and Zajac, 1994; Lambert, Larcker and Verrecchia, 1991), on one hand, and (ii) the ability of NFPM to reduce uncertainty and risk provided by FPM (Bruns and McKinnon, 1993; Bushman, Indjejikian and Smith, 1996; Feltham and Xie, 1994; Hemmer, 1996), on the other hand. Furthermore, the results indicate that firm size is negatively and significantly related to the intensity of use (but not to the adoption) of NFPM for those managers whose compensation includes NFPM (Specification 3). These findings are somewhat surprising since prior literature suggests that the use of NFPM increases with the firm size (e.g., Ahmad and Zabri, 2016).

Regarding the performance variables, the results indicate that individual performance is positively and significantly related to the intensity of use and the adoption of NFPM (Specifications 1 and 4, respectively). Interestingly, I do not find empirical support for the relationship between the use of NFPM and firm performance. Furthermore, my data provides empirical support for my expectation regarding the association between the use of NFPM and family ownership. Particularly, I find that a higher family ownership is associated with a lower the intensity of use of NFPM (Specification 3).

Concerning the managerial positions, I do not find evidence that CEOs in SMEs have larger NFPM compared to the baseline (CFO), as predicted. However, as expected, logistic/marketing managers (Specifications 2 and 5), production/quality managers (Specifications 2 and 3) and other managers (Specification 3) have more NFPM, while executive member of the board of directors (Specifications 2 and 5) have less NFPM in their compensations.

Moreover, results show that the intensity of use (but not the adoption) of NFPM is positively and significantly associated with water supply and related activities (WATER), construction (CONST) and administrative and support service activities, and human health and social work activities (SUPPORT), and negatively and significantly associated with information and communication (INFOR_COMMUN), in Specification 3. These results corroborate my predictions that the use of NFPM varies by industry. Finally, the results of all specifications in Panel B show no significant relationship between the use of NFPM and regions.

Given the heterogeneity of my sample, I will now further examine my data using different subsamples and running some robustness tests.

4.5.4 **Additional evidence**

Small versus medium firms

Given the heterogeneity of my sample in terms of size, I replicate my analysis partitioning my sample in two groups of firms. Panel A from Table 4.8 presents the results for small enterprises (10 to 49 employees), while Panel B presents the results for medium enterprises (50 to 249 employees). As Wald Chi2 test is insignificant for Specification 5 in Panel A and for Specification 4 in Panel B, I do not discuss the results for these specifications.[70]

[70] The Wald Chi2 statistic is used to test the null hypothesis that at least one of the predictors' regression coefficient is not equal to zero. Thus, insignificant Wald Chi2 means that I cannot reject the null hypothesis and there is no any predictor in the regression with the coefficient different from zero.

Table 4.8. Regression results of the use of NFPM with restricted firm size samples.

		Panel A – Small Firms (N = 584)					Panel B – Medium Firms (N = 504)				
		1	***2***	***3***	***4***	***5***	***1***	***2***	***3***	***4***	***5***
Dependent Variable		*NFPM*	*NFPM*	*NFPM*	*NFPM_D*	*NFPM_D*	*NFPM*	*NFPM*	*NFPM*	*NFPM_D*	*NFPM_D*
Sample		*All*	*Inc>0*	*NFPM>0*	*All*	*Inc>0*	*All*	*Inc>0*	*NFPM>0*	*All*	*Inc>0*
Estimation Method	*Predicted sign*	*Tobit*	*Tobit*	*Tobit*	*Logit*	*Logit*	*Tobit*	*Tobit*	*Tobit*	*Logit*	*Logit*
STGflex	+	2.60	0.14	1.37	0.08	-0.06	-1.69	-0.14	0.51	-0.05	0.04
		(3.40)	(3.59)	(2.63)	(0.13)	(0.19)	(3.11)	(2.93)	(1.98)	(0.14)	(0.23)
STGserv	+	2.32	3.48	0.56	0.03	0.17	-0.79	0.04	2.32	-0.06	-0.13
		(4.25)	(3.91)	(2.25)	(0.18)	(0.21)	(2.91)	(3.02)	(1.80)	(0.15)	(0.27)
STGcost	-	-6.98**	-2.79	-0.84	-0.29**	-0.14	-2.36	-0.05	-3.06**	-0.04	0.12
		(3.04)	(2.94)	(2.31)	(0.13)	(0.15)	(2.28)	(1.97)	(1.24)	(0.10)	(0.16)
PEUdyn	+	-4.34	-5.48*	-0.94	-0.16	-0.28*	-3.20	-5.04*	-0.75	-0.08	-0.37
		(3.14)	(2.94)	(2.00)	(0.13)	(0.17)	(2.85)	(2.62)	(1.34)	(0.14)	(0.24)
PEUunp	+	0.77	2.78	2.17	0.06	0.24	-4.89	-2.77	-0.16	-0.23	-0.21
		(3.33)	(3.47)	(2.96)	(0.12)	(0.17)	(2.98)	(2.98)	(2.09)	(0.15)	(0.23)
PEUhost	+	9.31***	4.48	0.74	0.37***	0.20	2.42	1.77	2.06	0.04	0.06
		(3.04)	(3.31)	(2.17)	(0.12)	(0.18)	(2.82)	(2.14)	(1.59)	(0.14)	(0.19)
CULTflex	+	-0.12	0.02	0.13	-0.00	-0.00	-0.09	-0.02	-0.09**	-0.00	0.00
		(0.13)	(0.12)	(0.11)	(0.01)	(0.01)	(0.08)	(0.07)	(0.04)	(0.00)	(0.01)
DECENT	-	5.21*	3.05	2.85	0.16	0.06	1.32	0.66	-1.29	0.12	0.09
		(3.02)	(2.61)	(1.96)	(0.13)	(0.14)	(2.92)	(2.85)	(1.70)	(0.15)	(0.26)
TECstd	-	2.75	2.80	-0.58	0.12	0.05	3.32	1.07	0.17	0.11	-0.00
		(2.62)	(2.77)	(1.92)	(0.11)	(0.17)	(2.56)	(2.05)	(1.13)	(0.12)	(0.16)
TECunc	+	-3.21	-2.95	-2.30	-0.10	-0.12	1.11	2.07	1.34	0.03	0.07
		(2.51)	(2.69)	(2.26)	(0.11)	(0.15)	(2.38)	(2.01)	(1.09)	(0.11)	(0.15)
TECdep	+	1.17	-0.55	-1.15	0.05	-0.00	-4.12*	-2.60	0.64	-0.19*	-0.14
		(3.08)	(3.07)	(1.82)	(0.12)	(0.15)	(2.28)	(1.89)	(1.53)	(0.10)	(0.14)

Table 4.8 continued. Regression results of the use of NFPM with restricted firm size samples.

Controls		**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
AGE		-66.26***	-73.15***	-29.36*	-2.49***	-3.22**	-14.26	3.19	-5.43	-0.99	-0.20
		(23.17)	(25.74)	(15.46)	(0.92)	(1.52)	(21.65)	(17.12)	(12.86)	(1.07)	(1.20)
TENURE		26.71***	28.03***	9.86	0.98***	1.35***	8.37	1.99	1.12	0.36	0.26
		(8.69)	(8.59)	(7.10)	(0.33)	(0.45)	(5.21)	(4.52)	(3.52)	(0.24)	(0.33)
IND_PERF		5.91	-0.95	-1.32	0.30*	0.06	6.35	4.43	3.79*	0.20	0.32
		(4.03)	(3.70)	(2.45)	(0.16)	(0.21)	(4.03)	(3.48)	(2.20)	(0.19)	(0.28)
SIZE		4.24	-2.15	-10.62*	0.37	0.43	-8.82	-8.89	1.31	-0.30	-0.75
		(8.31)	(7.98)	(5.94)	(0.35)	(0.46)	(8.19)	(6.44)	(3.14)	(0.41)	(0.50)
FAMOWN		0.17*	0.07	-0.22**	0.01**	0.01	-0.11	-0.07	-0.01	-0.00	-0.01
		(0.10)	(0.10)	(0.09)	(0.00)	(0.00)	(0.07)	(0.06)	(0.04)	(0.00)	(0.00)
FIRM_PERF		1.57	-2.71	-2.62	0.13	0.08	0.22	-1.34	1.66	-0.07	-0.36
		(3.68)	(3.15)	(2.60)	(0.16)	(0.22)	(3.18)	(2.54)	(1.42)	(0.16)	(0.23)
F stats for participant's position		0.83	0.92	1.13	4.94	3.85	1.67	6.13***	15.78***	7.20	22.07***
F stats for industry		1.81*	0.85	1.46	12.59	4.71	1.09	2.64**	2.88**	6.38	12.54*
F stats for region		0.86	0.61	1.25	1.91	0.98	2.98**	2.83**	1.68	8.06*	5.40
N		**332**	**169**	**77**	**319**	**155**	**328**	**171**	**73**	**314**	**166**
Pseudo R2		**0.060**	**0.057**	**0.040**	**0.169**	**0.177**	**0.043**	**0.075**	**0.109**	**0.105**	**0.238**
F-test		**1.97*** **	**3.42*** **	**2.93*** **			**1.75*** **	**3.45*** **	**54.04*** **		
Wald Chi2					**61.76*** **	**38.04**				**39.64**	**57.99*** **

Note: Variables are described in previous sections. Standard errors are in parentheses. Constant included but not reported. Some differences are computed with fewer observations than the grand total reported due to missing values in the variables. *, ** and *** indicate the significance of the p-value at < 0.1, < 0.05 and < 0.01, respectively, all p-values are two-tailed.

Overall, the results for the subsample of small firms are consistent with those of the entire sample - all results that were previously significant for the entire sample are still significant (albeit not for all specifications) and the signs remain in the same direction. Particularly, I find that the intensity of use (but not the adoption) of NFPM is negatively and significantly related to PEU dynamism (Specification 2; not supporting H2a) and positively and significantly related decentralization (Specification 1; not supporting H4). Moreover, both the intensity of use and the adoption of NFPM are positively and significantly related to PEU hostility (Specifications 1 and 4; supporting H2c).[71] However, the results for small firms reveal a relationship that was not significant for the entire sample. Specifically, I find a statistically significant negative relationship between the use (both intensity of use and the adoption) of NFPM and a cost-leadership strategy (Specifications 1 and 4). This evidence is consistent with H1b, which predicts that firms use less NFPM when they follow a cost-leadership strategy. Moreover, this finding for small firms is in accordance with evidence from large firms suggesting that firms adopting a cost-leadership strategy rely more on formal/financial information, while firms adopting a differentiation strategy rely more on informal/non-financial information (Chenhall and Morris, 1995; Simons, 1987; Van der Stede, 2000).

Regarding the control variables, the results for the sample of small firms are also similar to results for the entire sample. Specifically, I find that the use (both the intensity of use and the adoption) of NFPM is negatively and significantly associated with age (Specifications 1, 2, 3 and 4) and positively and significantly associated with tenure (Specifications 1, 2 and 4). Moreover, individual performance is positively associated with the adoption of NFPM (Specification 4), while firm size is negatively associated

[71] The lack of significance in some Specifications may occur due to the combined effects of a relatively small sample size with some likely variable measurement error, affecting negatively the statistical power of the analysis.

with the intensity of use of NFPM (Specification 3). However, my small sample data shows controversial results regarding family ownership. Specifically, when I restrict my sample of small firms to those managers whose compensation includes NFPM (Specification 3), I find that the intensity of use of NFPM is negatively and significantly related to family ownership (confirming the entire sample's results and my prediction). However, when I contemplate the total sample of 584 observations (Specifications 1 and 4), I find that the intensity of use and the adoption of NFPM is positively and significantly related to family ownership. This unexpected and interesting result may indicate that small firms decide to adopt (instead of not adopting) NFPM when they have high percentage of family ownership. However, when the adoption of NFPM is decided, small firms use NFPM with less intensity as the percentage of family ownership increases. This suggests a non-linear relationship between the use of NFPM and family ownership.

Furthermore, F statistics indicate a significant relationship between the intensity of use (but not the adoption) of NFPM and industry (Specification 1). Particularly, I find that the intensity of use of NFPM in small firms is positively and significantly related to water supply and related activities (WATER) and accommodation and food service activities (ACCOM_FOOD), and negatively and significantly related to information and communication (INFOR_COMMUN). Nevertheless, in the sample of small firms, participant's positions and regions are non-significant in all specifications.

For the sample of medium firms, some results are similar to those of small firms while others are quite distinct. On one hand, the intensity of use of NFPM is negatively and significantly related to cost-leadership strategy (Specification 3; supporting H1b), which is consistent with the results for the subsample of small firms (Specification 1). Moreover, PEU dynamism is significantly and negatively associated with the intensity of use of NFPM (Specification 2; not supporting H2a), confirming the findings for both the entire sample and the subsample of small firms (Specifications 1 and 2, and Specification 2, respectively). On the other hand, there are new results relative to the small firms' sample. Particularly, the intensity of use of NFPM is significantly and negatively related to flexible culture (Specification 3) and to interdependence in the processes (Specification 1). The result regarding flexible culture does not support my hypothesis H3 since I predict a positive relationship between this variable and the use of NFPM. This implies that medium-size firms which adopt a flexible culture use less NFPM. The finding regarding interdependence in processes also does not support hypothesis H5c as I predict a positive relationship between the use of NFPM and this variable. Moreover, this finding contradicts evidence from large companies' samples suggesting greater need for informal controls in firms with higher level of interdependence (Chenhal, 2003).

Regarding to the control variables, the results for the sample of medium firms are also different from those obtained for the sample of small firms. Thus, in opposition to the findings for small firms, there is no association between the use of NFPM and either age, tenure, firm size or family ownership in medium firms. Moreover, there is significant and positive association between the intensity of use of NFPM (instead of the adoption of NFPM as in small companies) with individual performance (Specification 3). Nevertheless, similarly to small firms, I find no association between the use of NFPM and firm performance.

Regarding to the participant's positions, the use NFPM in medium firms is negatively and significantly associated with executive member of the board of directors (Specifications 2, 3 and 5), and positively and significantly related to the position of logistic/marketing managers (Specifications 2 and 5) and production/quality managers (Specifications 2 and 3). Concerning industry, the use of NFPM is positively and significantly associated with construction (CONST) in Specification 3 and with transportation and storage (TRANSP) in Specifications 2 and 5, and negatively and significantly related to wholesale and retail trade, repair of motor vehicles and motorcycles (TRADE) in Specification 5 and information and communication (INFOR_COMMUN) in Specifications 3 and 5. Additionally, unlike results for the subsample of small firms, F statistics for regions is significant (Specifications 1 and 2).

CEOs versus non-CEOs

Given that dummy variables for participant position used as controls may have not fully taken care of the heterogeneity of the sample, I control for the potential systematic differences between CEOs and non-CEOs by partitioning my sample. Results for the subsample of CEOs in Panel A of Table 4.9 are consistent with those for the entire sample for the following relationship: i) the use (both the intensity of use and the adoption) of NFPM is negatively and significantly related to PEU dynamism (Specifications 1, 2 and 4; not supporting H2a), ii) the intensity of use of NFPM is positively and significantly related to PEU hostility (Specifications 1 and 3; supporting H2c) and to decentralization (Specification 1, 2 and 3; not supporting H4).

Table 4.9. Regression results of the use of NFPM with restricted samples in term of participant position.

		Panel A – CEO (N = 386)					Panel B – Non-CEO (N = 702)				
		1	*2*	*3*	*4*	*5*	*1*	*2*	*3*	*4*	*5*
Dependent Variable		*NFPM*	*NFPM*	*NFPM*	*NFPM_D*	*NFPM_D*	*NFPM*	*NFPM*	*NFPM*	*NFPM_D*	*NFPM_D*
Sample		*All*	*Inc>0*	*NFPM>0*	*All*	*Inc>0*	*All*	*Inc>0*	*NFPM>0*	*All*	*Inc>0*
Estimation Method	*Predicted sign*	*Tobit*	*Tobit*	*Tobit*	*Logit*	*Logit*	*Tobit*	*Tobit*	*Tobit*	*Logit*	*Logit*
STGflex	+	-2.08	-4.50	-3.63	-0.09	-0.08	1.43	1.76	3.34	0.05	0.10
		(3.68)	(3.91)	(2.44)	(0.18)	(0.34)	(2.88)	(2.83)	(2.01)	(0.12)	(0.16)
STGserv	+	4.69	5.92*	6.25***	0.18	0.15	-0.27	0.80	1.00	-0.07	-0.06
		(3.54)	(3.37)	(1.78)	(0.18)	(0.29)	(2.87)	(2.90)	(1.94)	(0.12)	(0.16)
STGcost	-	-0.17	2.27	-0.40	-0.01	0.11	-4.98**	-3.00	-7.52***	-0.13	-0.04
		(2.99)	(2.48)	(2.73)	(0.17)	(0.21)	(2.36)	(2.44)	(2.12)	(0.09)	(0.13)
PEUdyn	+	-6.86**	-5.48**	-1.11	-0.33*	-0.34	-4.08	-6.17**	-4.23**	-0.10	-0.25
		(3.37)	(2.70)	(2.25)	(0.19)	(0.23)	(2.50)	(2.54)	(1.76)	(0.10)	(0.17)
PEUunp	+	-4.06	-2.08	-1.98	-0.23	-0.17	4.37	3.66	4.78	0.15	0.16
		(3.27)	(2.92)	(1.64)	(0.19)	(0.23)	(3.10)	(3.38)	(3.09)	(0.11)	(0.17)
PEUhost	+	6.36**	3.22	3.79**	0.27	0.25	3.18	1.61	-1.90	0.10	0.06
		(3.10)	(3.23)	(1.62)	(0.16)	(0.26)	(2.73)	(2.53)	(1.65)	(0.12)	(0.15)
CULTflex	+	-0.06	0.01	0.10	0.00	0.00	-0.15*	-0.07	-0.09	-0.00	-0.00
		(0.13)	(0.11)	(0.09)	(0.01)	(0.01)	(0.08)	(0.07)	(0.06)	(0.00)	(0.00)
DECENT	-	7.76**	7.28**	8.62***	0.27	0.20	3.38	2.52	-1.30	0.16	0.18
		(3.70)	(2.94)	(1.99)	(0.17)	(0.18)	(2.48)	(2.17)	(1.52)	(0.11)	(0.14)
TECstd	-	-1.96	-2.64	-3.58**	-0.04	-0.05	5.18**	4.13*	5.07**	0.18*	0.16
		(2.22)	(1.73)	(1.37)	(0.12)	(0.15)	(2.29)	(2.22)	(2.21)	(0.09)	(0.12)
TECunc	+	-8.87***	-8.32**	-6.85***	-0.37***	-0.51**	2.55	1.92	1.08	0.12	0.11
		(2.76)	(3.27)	(2.27)	(0.14)	(0.26)	(1.98)	(1.95)	(1.55)	(0.09)	(0.11)
TECdep	+	6.28**	4.70*	2.52*	0.29*	0.20	-6.17***	-4.19**	-1.63	-0.26***	-0.26**
		(3.00)	(2.50)	(1.44)	(0.16)	(0.20)	(2.28)	(2.09)	(1.65)	(0.09)	(0.12)

Table 4.9 continued. Regression results of the use of NFPM with restricted samples in term of participant position.

Controls		**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
AGE		-49.13*	-43.12*	-14.97	-2.59**	-1.56	-44.79**	-26.58	-3.61	-1.71**	-1.54
		(25.10)	(21.96)	(19.30)	(1.24)	(1.76)	(19.12)	(16.73)	(12.79)	(0.80)	(0.96)
TENURE		37.15***	32.73***	8.54	1.87***	2.32***	13.42**	7.08	5.36*	0.45*	0.32
		(10.21)	(7.44)	(6.30)	(0.57)	(0.61)	(5.44)	(4.77)	(3.03)	(0.23)	(0.29)
IND_PERF		-1.15	-4.07	-0.76	0.00	-0.12	6.44	1.25	2.30	0.21	-0.00
		(4.16)	(3.87)	(3.01)	(0.21)	(0.30)	(4.03)	(3.54)	(2.23)	(0.16)	(0.22)
SIZE		1.00	-1.80	-8.48***	0.29	0.11	-5.09	-7.18*	-11.56***	-0.12	-0.23
		(5.57)	(5.37)	(2.99)	(0.26)	(0.37)	(3.76)	(4.08)	(3.61)	(0.14)	(0.20)
FAMOWN		0.09	0.08	-0.14*	0.00	0.01	0.00	0.01	-0.06	0.00	0.00
		(0.09)	(0.09)	(0.07)	(0.00)	(0.01)	(0.07)	(0.06)	(0.04)	(0.00)	(0.00)
FIRM_PERF		0.08	-0.12	-0.47	0.00	0.06	1.45	-1.60	1.42	0.06	-0.14
		(3.55)	(2.83)	(2.65)	(0.19)	(0.24)	(3.02)	(2.52)	(1.47)	(0.13)	(0.18)
F stats for participant's position		n.a.	n.a.	n.a.	n.a.	n.a.	1.93*	4.82***	4.55***	8.15	21.72***
F stats for industry		2.74**	4.31***	5.70***	14.35**	9.35*	1.20	1.84*	2.72**	8.49	10.07
F stats for region		0.90	2.75**	0.52	4.14	9.58**	2.07*	2.53**	0.69	6.17	9.22*
N		**199**	**103**	**48**	**187**	**103**	**461**	**237**	**102**	**453**	**233**
Pseudo R2		**0.077**	**0.103**	**0.099**	**0.213**	**0.311**	**0.043**	**0.060**	**0.061**	**0.103**	**0.185**
F-test		**3.47*** **	**5.39*** **	**36.93*** **			**1.99*** **	**2.54*** **	**24.59*** **		
Wald Chi2					**44.86*** *	**39.27*** *				**63.72*** **	**61.29*** **

Note: Variables are described in previous sections. Standard errors are in parentheses. Constant included but not reported. Some differences are computed with fewer observations than the grand total reported due to missing values in the variables. *, ** and *** indicate the significance of the p-value at < 0.1, < 0.05 and < 0.01, respectively, all p-values are two-tailed.

Additionally, the results for the CEOs' sample provide some new empirical evidence. Thus, I find a positive and significant relationship between the intensity of use of NFPM and a delivery/service strategy (Specifications 2 and 3). These results are in accordance with evidence from large companies' samples suggesting that firms which follow a differentiation strategy are more focused on NFPM (e.g., Chenhall and Morris, 1986; Chong and Chong, 1997; Langfield-Smith, 1997) because this type of measures encourage innovation and creativity (Bisbe and Otley, 2004) and are more long-term focused (e.g., Sedatole, 2003). Results also suggests that the intensity of use of NFPM is significantly and negatively associated with standardized and automated processes (Specification 3), supporting H5a. This result adds to prior evidence from large companies' samples which suggests that less standardized and less automated processes require less traditional formal MCS and less developed process controls (Khandwalla, 1977). Moreover, I find that the use (both the intensity of use and the adoption) of NFPM is negatively and significantly related to task uncertainty (all specifications) and positively and significantly related to interdependence in processes (all specifications, except Specification 5). These findings do not support H5b, but support H5c, since I predict a positive relationship between the use of NFPM and both task uncertainty and interdependence in processes. Hence, the results regarding the interdependence in processes in SMEs extend prior large firms' research which suggests that higher levels of interdependence cause greater need for informal controls and greater usefulness of aggregated and integrated MCS (Chenhal, 2003). However, the results regarding task uncertainty contradict evidence from large firms' literature suggesting that higher levels of task uncertainty require more informal controls and less reliance on accounting performance measures (Chenhal, 2003; Hirst, 1983). In contrast, my findings indicate that a higher level of task uncertainty in SMEs is associated with a lower use of NFPM in CEOs' compensations. This latter result can be explained by the fact that the interests of CEOs are better aligned with organizational goals (Banker and Datar, 1989; Feltham and Xie, 1994; Hemmer, 1996; Ittner, Larcker and Rajan, 1997), as CEOs in SMEs are frequently the major or sole shareholders of the firm (Watson et al., 1994). As one of the objectives of NFPM use - in addition to FPM - is to better motivate agents to act in the interest of the organization (e.g., Ittner, Larcker and Rajan, 1997), firms do not need to use (more) NFPM in CEO's compensations because their interests are already aligned with those of the firm. Regarding the control variables, the results for the sample of CEOs are consistent with the previous ones. Specifically, I find that the use (both the intensity of use and the adoption) of NFPM is negatively and significantly associated with age (Specifications 1, 2, and 4) and positively and significantly associated with tenure (all specifications, except Specification 3). Moreover, firm size (Specification 3) and family ownership (Specification 3) are negatively and significantly related to the intensity of use of NFPM. Furthermore, F statistic indicates a significant relationship between the use of NFPM and industry (all specifications). Particularly, I find that the use (both the intensity of use and the adoption) of NFPM is positively and significantly related to construction (CONST) in Specification 3, accommodation and food service activities (ACCOM_FOOD) in Specifications 1 and 2, real estate activities (REAL_ESTATE) in Specifications 1 and 4, and negatively and significantly related to transportation and storage (TRANSP) in Specifications 1, 2, 3 and 5, and professional, scientific technical activities (SCIENT) in all specifications. Additionally, F statistic for region is significant in Specifications 2 and 5.

For the sample of non-CEOs in Panel B of Table 4.9, my results are quite distinct from the previous. The only relationship that remains similar to the entire sample and to the subsample of CEOs is a significant and negative relationship between the intensity of use of NFPM and PEU dynamism (Specifications 2 and 3). All remaining evidence suggests opposite insights to those from the subsample of CEOs. Thus, I find that the intensity of use of NFPM for non-CEOs is negatively and significantly related to a cost-leadership strategy (Specifications 1 and 3; supporting H1b). Although this finding is consistent with the evidence from small and medium firms (see Panels A and B in Table 4.8), this relationship is insignificant for the subsample of CEOs. Moreover, the results suggest a negative and significant association between the intensity of use of NFPM and a flexible culture (Specification 1; not supporting H3). Again, this result is similar to the medium firms' results, but I find no similar evidence for the subsample of CEOs (this relationship is insignificant in all specifications of the CEO sample).

Additionally, regarding technology variables, the results are the opposite for non-CEOs when compared to CEOs. Specifically, I find that the use (both the intensity of use and the adoption) of NFPM is positively and significantly related to standardized and automated processes (Specifications 1-4), not supporting H5a. Moreover, my findings show that the use (both the intensity of use and the adoption) of NFPM is negatively and significantly related to interdependence in processes (Specifications 1, 2, 4 and 5), not supporting H5c. These differences between CEOs and non-CEOs samples may arise because non-CEOs' include different types of managers (e.g., logistic managers, quality manager, billing manager) whose tasks are different from those of CEOs. Non-CEOs have more focused and limited in scope tasks, for which FPM may not be available, and therefore they may require more NFPM when they perform highly standardized and automated processes and processes with low levels of interdependence.

Regarding the control variables, the results for the sample of non-CEOs are consistent with the results for CEOs. Specifically, I find that the use (both the intensity of use and the adoption) of NFPM is negatively and significantly associated with age (Specifications 1 and 4) and positively and significantly associated with tenure (Specifications 1, 3 and 4). Moreover, firm size is negatively and significantly related to the intensity of use of NFPM in Specifications 2 and 3. Regarding the participants' positions, the use (both the intensity of use and the adoption) of NFPM is negatively and significantly associated with executive member of the board of directors (Specifications 2, 3 and 5), and positively and significantly related to logistic/marketing managers (Specifications 1, 2 and 5) and production/quality managers (Specifications 2 and 3). The results for non-CEOs also show that other managers have a positive and significant association with the intensity of use of NFPM (Specification 3), but a negative and significant association with the adoption of NFPM (Specification 5). The opposite results for other managers may arise due to its heterogeneous nature since the category of other managers includes a wide range of managers, such as budget manager, computer manager, design manager, project manager, etc.

Moreover, F statistic indicates a significant relationship between the intensity of use of NFPM and industry (Specifications 2 and 3). Particularly, I find that the intensity of use of NFPM is positively and significantly related to water supply and related activities (WATER) in Specifications 2 and 3, construction (CONST) in Specification 3 and transportation and storage (TRANSP) in Specification 2, and negatively and significantly related to (INFOR_COMMUN) in Specification 3. Finally, I find that the intensity of use of NFPM is significantly related to region (Specifications 1 and 5).

4.5.5 **Robustness checks**

In order to test the robustness of my results, I perform several validity tests. First, I replicate five specifications for Equation (2) including the strategy variables used by Chenhall (2005), instead of those revealed by my factor analysis. The (untabulated) results of these analyses remain similar to those of Panel B of Table 4.7 since the significance and the signs of all significant relations do not change. The exception is the relationship between the use of NFPM and PEU hostility that was significant ($p = 0.094$) becomes insignificant ($p = 0.117$) in Specification 2. Additionally, the relationship between the use of NFPM and tenure becomes significant ($p = 0.073$), while the association between the use of NFPM and family ownership becomes insignificant ($p = 0.105$) in Specification 3.

Second, I replicate my analyses for Equation (2) including the original set of items to measure PEU used by Gordon and Narayanan (1984) and King, Clarkson and Wallace (2010), instead of those revealed by my factor analysis. Similar to the previous test, the untabulated results show that the signs of all significant relations do not change and their significance is not affected. The exceptions are: i) the association between the use of NFPM and cost-leadership strategy becomes significant ($p = 0.069$) in Specification 3 and ii) the relationship between the use of NFPM and PEU hostility becomes insignificant ($p = 0.136$) in Specification 2. Moreover, the relationship between the use of NFPM and individual performance becomes insignificant ($p = 0.100$) in Specification 4.

Third, the correlation analyses in Table 4.5 reveal slightly high correlation between participant age and tenure (corr. = 0.59). Although, this value does not overcome the threshold of 0.90 suggested by Hair et al. (2014), this may indicate a potential problem of multicollinearity in my regressions and therefore I drop one of these variables. Because the dependent variable NFPM is insignificantly correlated with tenure, but significantly correlated with age (corr. = -0.07; $p < 0.05$), I analyze the robustness of my results by dropping tenure. The (untabulated) results after dropping tenure show similar findings for all five specifications: the signs on all significant relations remain unchanged and their significance is not affected. The only differences are: i) the relationship between the use of NFPM and decentralization becomes insignificant ($p = 0.118$) in Specification 4; ii) the relationship between the use of NFPM and age (that is significant in Specifications 1, 2, 4 and 5 in Panel B of Table 4.7) becomes non-significant; and iii) the relationship between the use of NFPM and individual performance (that is significant in Specifications 1 and 4 in Panel B of Table 4.7) becomes non-significant.

4.6 Conclusion

A considerable body of research has examined the use and adoption of PMSs using a contingency-based approach (e.g., Bititci et al., 2004, 2012; Ittner and Larcker, 2001; Said, HassabElnaby and Wier, 2003; Sohn et al., 2003). Nevertheless, only few studies investigate the relationship between the use of NFPM in managerial compensation and contingency factors (e.g., Franco-Santos, Lucianetti and Bourne, 2012; Ittner, Larcker and Rajan, 1997). Moreover, the use of NFPM in managerial compensation in SMEs has attracted only limited attention from researchers (Mitchell and Reid, 2000; Perera and Baker, 2007).

This study presents evidence linking five main contingency factors and the use of NFPM in managerial compensation in SMEs. Based on a sample of 1 088 responses, I find that external environment and decentralization are associated with the adoption and use of NFPM for managerial compensations in SMEs. Specifically, I find that the lower the dynamism element of perceived environmental uncertainty (PEU), and the greater the PEU hostility and decentralization, the higher the adoption and use of NFPM.

I also find that SMEs adopt and use more NFPM in compensation of younger but more tenured managers. As firm size and family ownership decrease, SMEs tend to use NFPM with greater intensity for managers whose compensations include NFPM. In addition, the use of NFPM varies according to the managers' position. Additional analyses suggest that the adoption and use of NFPM in small firms is quite different from that of medium organizations. Specifically, when small firms follow a cost-leadership strategy, they adopt less NFPM, which does not occur for medium firms. Small firms adopt more NFPM and use them in a greater extent when firms face higher PEU hostility, and use more NFPM, when they have greater decentralization, which does not occur for medium firms. In contrast, medium firms' adopters of NFPM use them to a less extend when they adopt a flexible culture and when they have high interdependence in processes. The only similarity found between small and medium firms is when they face PEU dynamism. In this case, firms use NFPM with greater intensity (for managers who receive monetary incentives).

I also find interesting and important differences between CEOs and non-CEOs. Specifically, I find that SMEs use more NFPM for CEOs (who receive monetary incentives and whose compensation includes NFPM) when they follow a delivery/service strategy, but use less NFPM for non-CEOs when they follow a cost-leadership strategy.

When PEU hostility is high, SMEs use NFPM with greater intensity for CEOs, but not for non-CEOs. In contrast, a flexible culture in the organization is associated with a lower use of NFPM for non-CEOs, but not for CEOs. Moreover, the higher the decentralization, the more likely SMEs use NFPM for CEOs, but not for non-CEOs. Furthermore, the results regarding technology provide interesting different insights for CEOs and non-CEOs. Thus, when SMEs have highly standardized and automated processes, they use less NFPM for CEOs whose compensation includes NFPM, but for non-CEOs SMEs adopt and use more NFPM. Moreover, when SMEs have high levels of task uncertainty they use and adopt less NFPM for CEOs, but not for non-CEOs. Yet, the higher the degree of interdependence in processes, the more likely SMEs adopt and use NFPM for CEOs, but the less likely for non-CEOs. Nevertheless, there is a similarity in results regarding PEU dynamism. Particularly, when SMEs face higher PEU dynamism, they use more NFPM in compensations of both CEOs and non-CEOs (for those receiving monetary incentives). Additionally, the higher the PEU dynamism faced by SMEs, the lower the adoption and use of NFPM in compensations of CEOs (all CEOs), and the lower the use of NFPM for non-CEOs (for those whose compensation includes NFPM).

The present study is one of the few investigating the adoption and use of NFPM in managerial compensation in SMEs. Prior research focuses predominantly in large organizations and does not address the specificities of SMEs (López and Hiebl, 2015). In fact, PMS' adoption in SMEs is argued to be different from that of large companies (Garengo, Biazzo and Bititci, 2005). My study, therefore, supports this argument by providing empirical evidence which is distinct from that of large organizations. Particularly, my findings show that the higher the decentralization and the lower the PEU dynamism, the more likely SMEs use NFPM. These results contradict large organization literature which suggests that firms prefer to use aggregate financial measures rather than NFPM for compensation purposes (Abernethy, Bouwens and van Lent, 2004; Bouwens and van Lent, 2007; Moers, 2006) and that in situations of high PEU, non-financial measures are more likely to be used (Chenhall and Morris, 1986; Gul and Chia, 1994).

By examining simultaneously multiple contingency variables (strategy, external environment, decentralization, culture and technology), my study also provides a clearer view of the most important factors influencing the use and adoption of NFPM in managerial compensation when compared to studies focusing only in one or two of variables. Additionally, my study shows some salient differences in the adoption and use of NFPM for CEOs and non-CEOs in SMEs.

Based on the evidence provided by this study, SMEs should be aware of their particular organizational characteristics and external contingencies before designing their managerial compensation contracts. In particular, SMEs should pay attention to the environmental uncertainty to which they are exposed and the level of decentralization practiced. Moreover, decision makers should consider specific differences between small and medium companies, as well as between CEOs and non-CEOs when designing compensation systems.

I acknowledge that while significant results are presented, my study has some limitations that warrant discussion. First, although I take several steps to ensure the reliability of the data (i.e., pre-test of instrument, incentives to participation, verifying of the construct and content validity of the instruments), my study shares common drawbacks of survey studies. Two of them are (non-)response bias in terms of firm size and industry. This limitation may be explained by the higher propensity of large organizations to participate in surveys, while small firms prefer to ignore them. The variable PEU dynamism also exhibits response bias suggesting that there may be a difference between non-respondents and respondents in this regard. Therefore, the results related to PEU dynamism should be generalized with caution. Second, this study does not consider how the use of NFPM in managerial compensation contracts and contingency factors evolve over time. Future research could address this limitation, by investigating how the use of NFPM varies over time and how this variation is related to contextual variables. Another limitation of my study is that I only examine five contextual variables which clearly do not explain all of the variance in the dependent variable, so more investigation is required to identify and test the effects of other contingency factors. Thus, future research can analyze such contextual variables as national culture (Chenhal, 2003) or firm's market position (Hoque and James, 2000).

References

Abernethy, M. A., Bouwens, J. and van Lent, L. (2004). Determinants of control system design in divisionalized firms. *The Accounting Review* 79 (3), 545-570.

Abernethy, M. A. and Brownell, P. (1999). The role of budgets in organizations facing strategic change: An exploratory study. *Accounting, Organizations and Society* 24 (3), 189-204.

Abernethy, M. A. and Lillis, A. (1995). The impact of manufacturing flexibility on management control system design. *Accounting, Organizations and Society* 20 (4), 241-258.

Ady, J. C. (1994). Minimizing threats to the validity of cross-cultural organization research. In: Wiseman, R. L. and Shuter, R. (Eds). *Communicating in multinational organizations.* Thousand Oaks, CA: Sage Publications, 30- 42.

Ahmad, K. and Zabri, S. M. (2015). Factors explaining the use of management accounting practices in Malaysian medium-sized firms. *Journal of Small Business and Enterprise Development* 22 (4), 762-781.

Ahmad, K. and Zabri, S. M. (2016). The Application of Non-Financial Performance Measurement in Malaysian Manufacturing Firms. 7th International Economics & Business Management Conference (IEBMC 2015). *Procedia Economics and Finance* 35, 476-484.

Aldrich, H. E. (1972). Technology and organizational structure: A reexamination of the findings of the Aston group. *Administrative Science Quarterly* 17 (1), 26-43.

Amat, J., Carmona, S. and Roberts, H. (1994). Context and change in management accounting systems: A Spanish case study. *Management Accounting Research* 5 (2), 107-122.

Amir, E. and Lev, B. (1996). Value-relevance of nonfinancial information: The wireless communications industry. *Journal of Accounting and Economics* 22 (1-3), 3-30.

Anderson, S. and Lanen, W. (1999). Economic transition, strategy and the evolution of management accounting practices: The case of India. *Accounting, Organizations and* Society 24 (5-6), 379-412.

Antony, J., Kumar, M. and Madu, C. N. (2005). Six sigma in small- and medium-sized UK manufacturing enterprises: Some empirical observations. *International Journal of Quality & Reliability Management* 22 (8), 860-874.

Armstrong, J. S. and Overton, T. S. (1977). Estimating nonresponse bias in mail surveys. *Journal of Marketing Research* 14, 396-402.

Ates, A. and Bititci, U. (2011). Change process: A key enabler for building resilient SMEs. *International Journal of Production Research* 49 (18), 5601-5618.

Ates, A., Garengo, P., Cocca, P. and Bititci, U. (2013). The development of SME managerial practice for effective performance management. *Journal of Small Business and Enterprise Development* 20 (1), 28-54.

Atkinson, A., Balakrisnan, R., Booth, P., Cote, J., Groot, T., Malmi, T., Roberts, H., Uliana, E. and Wu, A. (1997). New directions in management accounting research. *Journal of Management Accounting Research* 9 (2), 79-108.

Auzair, S. M. and 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.

Balsam, S., Fernando, G. D. and Tripathy, A. (2011). The impact of firm strategy on performance measures used in executive compensation. *Journal of Business Research* 64 (2), 187-193.

Banker, R. D. and Datar, S. M. (1989). Sensitivity, precision, and linear aggregation of signals for performance evaluation. *Journal of Accounting Research* 27 (1), 21-39.

Banker, R. D., Potter, G. and Srinivasan, D. (2000). An empirical investigation of an incentive plan that includes nonfinancial performance measures. *The Accounting Review* 75 (1), 65-92.

Beatty, R. P. and Zajac, E. J. (1994). Managerial incentives, monitoring, and risk bearing: A study of executive compensation, ownership, and board structure in initial public offerings. *Administrative Science Quarterly* 39 (2), 313-335.

Becker, W., Ulrich, P. and Staffel, M. (2011). Management accounting and controlling in German SMEs: Do company size and family influence matter? *International Journal of Entrepreneurial Venturing* 3 (3), 281-300.

Bedford, D. S., Malmi, T. and Sandelin, M. (2016). Management control effectiveness and strategy: An empirical analysis of packages and systems. *Accounting, Organizations and Society* (51), 12-28.

Bhimani, A. (2003). A study of the emergence of management accounting system ethos and its influence on perceived system success. *Accounting, Organizations and Society* 28 (6), 523-638.

Bisbe, J. and Otley, D. (2004). The effects of the interactive use of management control systems on product innovation. *Accounting, Organizations and Society* 29 (8), 709-737.

Bititci, U. S., Garengo, P., Dörfler, V. and Nudurupati, S. (2012). Performance measurement: Challenges for tomorrow. *International Journal of Management Reviews* 14 (3), 305-327.

Bititci, U. S., Mendibil, K., Nudurupati, S., Garengo, P. and Turner, T. (2006). Dynamics of performance measurement and organizational culture. *International Journal of Operations and Production Management* 26 (11-12), 1325-1350.

Bititci, U. S., Mendibil, K., Nudurupati, S., Turner, T. and Garengo, P. (2004). The interplay between performance measurement, organizational culture and management styles. *Measuring Business Excellence* 8 (3), 28-41.

Bititci, U. S., Nudurupati, S. S., Turner, T. J. and Creighton, S. (2002). Web enabled performance measurement system: Management implications. *International Journal of Operations and Production Management* 22 (11), 1273-1287.

Blau, P. M., Falbe, C. M., McKinley, W. and Tracy, P. K. (1976). Technology and organization in manufacturing. *Administrative Science Quarterly* 21 (1), 20-40.

Boland, R., Tenkasi, R. and Te'eni, D. (1994). Designing information technology to support distributed cognition. *Organization Science* 5 (3), 456-475.

Bourne, M., Neely, A., Platts, K. and Mills, J. (2002). The success and failure of performance measurement initiatives. *International Journal of Operations and Production Management* 22 (11), 1288-1310.

Bouwens, J. and van Lent, L. (2006). Performance measure properties and the effect of incentive contracts. *Journal of Management Accounting Research* 18 (1), 55-75.

Bouwens, J. and van Lent, L. (2007). Assessing the performance of business unit managers. *Journal of Accounting Research* 45 (4), 667-698.

Brem, A., Kreusel, N. and Neusser, C. (2008). Performance measurement in SME: Literature review and results from a German case study. *International Journal of Globalisation and Small Business* 2 (4), 411-427.

Bressler, M. S. (2012). How small businesses master the art of competition through superior competitive advantage. *Journal of Management and Marketing Research* 11 (1), 1-12.

Brown, A. D. and Starkey, K. (1994). The effect of organizational culture on communication and information. *Journal of Management Studies* 31 (6), 807-828.

Bruns, W. J. and McKinnon, S. M. (1993). Information and managers: A field study. *Journal of Management Accounting Research* 5 (1), 84-108.

Bruns, W. J. and Waterhouse, J. H. (1975). Budgetary control and organizational structure. *Journal of Accounting Research* 13 (2), 177-203.

Brush, C. G. and Vanderwerf, P. A. (1992). A comparison of methods and sources for obtaining estimates of new venture performance. *Journal of Business Venturing* 7 (2), 157-170.

Burney, L. L., Henle, C. A. and Widener, S. K. (2009). A path model examining the relations among strategic performance measurement system characteristics, organizational justice, and extra- and in-role performance. *Accounting, Organizations and Society* 34 (3-4), 305-321.

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

Calantone, R., Garcia, R. and Dröge, C. (2003). The effects of environmental turbulence on new product development strategy planning. *Journal of Product Innovation Management* 20 (2), 90-103.

Cassia, L., Paleari, S. and Redondi, R. (2005). Management accounting systems and organizational structure. *Small Business Economics* 25 (4), 373-391.

Chandler, A. D. Jr. (1962). *Strategy and structure: Chapters in the History of the American Industrial Enterprise.* Cambridge, MA: MIT Press.

Chapman, C. S. (1997). Reflections on a contingent view of accounting. *Accounting, Organizations and Society* 22 (2), 189-205.

Chen, C. X., Matsumura, E. M., Shin, J. Y. and Wu, S. Y. (2015). The effect of competition intensity and competition type on the use of customer satisfaction measures in executive annual bonus contracts. *The Accounting Review* 90 (1), 229-263.

Chenhall, R. (2003). Management control systems design within its organizational context: Findings from contingency-based research and directions for the future. *Accounting, Organizations and Society* 28 (2/3), 127-168.

Chenhall, R. (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. (2007). Theorizing contingencies in management control systems research. In: Chapman, C. S., Hopwood, A. G. and Shields, M. D. (Eds). *Handbook of Management Accounting Research*. Amsterdam: Elsevier, 163-205.

Chenhall, R. and Langfield-Smith, K. (1998). The relationship between strategic priorities, management techniques and management accounting: An empirical investigation using a systems approach. *Accounting, Organizations and Society* 23 (3), 243-264.

Chenhall, R. and Morris, D. (1986). The impact of structure, environment, and interdependence on the perceived usefulness of management accounting systems. *The Accounting Review* 61 (1), 16-35.

Chenhall, R. and Morris, D. (1995). Organic decision and communication processes and management accounting systems in entrepreneurial and conservative business organizations. *Omega International Journal of Management Science* 23 (5), 485-497.

Chia, Y. (1995). Decentralization, management accounting system (MAS) information characteristics and their interaction effects on managerial performance: A Singapore study. *Journal of Business Finance and Accounting* 22 (6), 811-830.

Choi, J., Hecht, G. and Tayler, W. B. (2012). Lost in translation: The effects of incentive compensation on strategy surrogation. *The Accounting Review* 87 (4), 1135-1164.

Chong, V. K. and Chong, K. M. (1997). Strategic choices, environmental uncertainty and SBU performance: A note on the intervening role of management accounting systems. *Accounting and Business Research* 27 (4), 268-276.

Chong, V. K. and Chong, K. M. (2002). Budget goal commitment and informational effects of budget participation on performance: A structural equation modeling approach. *Behavioral Research in Accounting* 14 (1), 65-86.

Chow, C. W., Harrison, G. L., MacKinnon, J. L. and Wu, A. (2002). The organizational culture of public accounting firms: Evidence from Taiwanese local and US affiliated firms. *Accounting, Organizations and Society* 27 (4-5), 347-360.

Datar, S., Kulp, S. C. and Lambert, R. A. (2001). Balancing performance measures. *Journal of Accounting Research* 39 (1), 75-92.

Davila, A. and Foster, G. (2007). Management control systems in early-stage startup companies. *The Accounting Review* 82 (4), 907-937.

Duncan, R. B. (1972). Characteristics of organizational environments and perceived environmental uncertainty. *Administrative Science Quarterly* 17 (3), 313-327.

Eccles, R. (1991). The performance measurement manifesto. *Harvard Business Review* 69 (1), 131-137.

Ely, K. (1991). Interindustry differences in the relation between compensation and firm performance. *Journal of Accounting Research* 29 (1), 37-58.

European Commission. (2005). The new SME definition: User guide and model declaration. *Enterprise and Industry Publications*, 5-50.

Euske, K., Lebas, M. and McNair, C. (1993). Performance management in an international setting. *Management Accounting Research* 4 (4), 275-299.

Feltham, G. A. and Xie, J. (1994). Performance-measure congruity and diversity in multitask principal-agent relations. *The Accounting Review* 69 (3), 429-453.

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

Fiegenbaum, A. and Karnani, A. (1991). Output flexibility - A comparative advantage for small firms. *Strategic Management Journal* 12 (2), 101-114.

Fisher, J. G. (1998). Contingency theory, management control systems and firm outcomes: Past results and future directions. *Behavioral Research in Accounting* 10 (Sup), 47-64.

Fleming, D. M., Chow, C. W. and Chen, G. (2009). Strategy, performance measurement systems and performance: A study of Chinese firms. *The International Journal of Accounting* 44 (3), 256-278.

Ford, J. D. and Slocum, J. W. Jr. (1977). Size, technology, environment, and the structure of organizations. *Academy of Management Review* 2 (4), 561-575.

Franco-Santos, M., Lucianetti, L. and Bourne, M. (2012). Contemporary performance measurement systems: A review of their consequences and a framework for research. *Management Accounting Research* 23 (2), 79-119.

Garengo, P., Biazzo, S. and Bititci, U. S. (2005). Performance measurement systems in SMEs: A review for a research agenda. *International Journal of Management Reviews* 7 (1), 25-47.

Garengo, P. and Bititci, U. (2007). Towards a contingency approach to performance measurement: An empirical study in Scottish SMEs. *International Journal of Operations and Production Management* 27 (8), 802-825.

Ghobadian, A. and Gallear, D. (1996). Total quality management in SMEs. *Omega - International Journal of Management Science* 24 (1), 83-106.

Ghobadian, A. and Gallear, D. (1997). TQM and organization size. *International Journal of Operations and Production Management* 17 (2), 121-163.

Gibbs, M., Merchant, K. A., Van der Stede, W. A. and Vargus, M. E. (2009). Performance measure properties and incentive system design. *Industrial Relations: A Journal of Economy and Society* 48 (2), 237-264.

Gittell, J. H. (2000). Paradox of coordination and control. *California Management Review* 42 (3), 101-117.

Gomez-Mejia, L. R., Larraza-Kintana, M. and Makri, M. (2003). The determinants of executive compensation in family-controlled public corporations. *Academy of Management Journal* 46 (2), 226-237.

Gong, M. Z. and Ferreira, A. (2014). Does consistency in management control systems design choices influence firm performance? An empirical analysis. *Accounting and Business Research* 44 (5), 497-522.

Gordon, L. and Miller, D. (1976). A contingency framework for the design of accounting information systems. A*ccounting, Organizations and Society* 1 (1), 59-69.

Gordon, L. and Narayanan, V. (1984). Management accounting systems, perceived environmental uncertainty and organization structure: An empirical investigation. *Accounting, Organizations and Society* 9 (1), 33-47.

Govindarajan, V. (1984). Appropriateness of accounting data in performance evaluation: An empirical examination of environmental uncertainty as an intervening variable. *Accounting, Organizations and Society* 9 (2), 125-135.

Govindarajan, V. (1988). A contingency approach to strategy implementation at the business-unit level: Integrating administrative mechanisms with strategy. *Academy of Management Journal* 31 (4), 828-853.

Govindarajan, V. and Gupta, A. K. (1985). Linking control-systems to business unit strategy - Impact on performance. *Accounting, Organizations and Society* 10 (1), 51-66.

Gray, C. and Mabey, C. (2005). Management development. *International Small Business Journal* 23 (5), 467-485.

Greenwood, R. and Tsang, F. (1997). Management perception of performance and the information needs of small businesses. *Journal of Enterprising Culture* 5 (2), 209-221.

Gul, F. (1991). The effects of management accounting systems and environmental uncertainty small business managements' performance. *Accounting and Business Research* 22 (85), 57-61.

Gul, F. and Chia, Y. (1994). The effects of management accounting systems, perceived environmental uncertainty and decentralization on managerial performance: A test of threeway interaction. *Accounting, Organizations and Society* 19 (4-5), 413-426.

Gunesekaran, A., Forker, L. and Kobu, B. (2000). Improving operations performance in a small company: A case study. *International Journal of Operations and Production Management* 20 (3), 316-336.

Hage, J. and Aiken, M. (1969). Routine technology, social structure, and organization goals. *Administrative Science Quarterly* 14 (3), 366-376.

Hair, J., Black, W., Babin, B. and Anderson, R. (2014). *Multivariate Data Analysis.* 7th ed. London, UK: Pearson Education Limited.

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. (2011). Do comprehensive performance measurement systems help or hinder managers' mental model development? *Management Accounting Research* 22 (2), 68-83.

Hall, R. (1993). A framework linking intangible resources and capabilities to sustainable competitive advantage. *Strategic Management Journal* 14 (8), 607-618.

Hambrick, D. C. and Snow, C. C. (1977). A contextual model of strategic decision making in organizations. *Academy of Management Proceedings*, 109-112.

Harrison, G. L. and McKinnon, J. L. (1986). Culture and accounting change: A new perspective on corporate reporting regulation and accounting policy formulation. *Accounting, Organizations and Society* 11 (3), 233-252.

Harvey, K. and Shrieves, R. (2001). Executive compensation structure and corporate governance choices. *Journal of Financial Research* 24 (4), 495-512.

HassabElnaby, H., Said, A. A. and Wier, B. (2005). The retention of nonfinancial performance measures in compensation contracts. *Journal of Management Accounting Research* 17 (1), 23-42.

Hayes, R., Wheelwright, S. C. and Clark, K. B. (1988). *Restoring our competitive edge: Competing through manufacturing.* New York: Free Press.

Heinicke, A., Guenther, T. W. and Widener, S. K. (2016). An examination of the relationship between the extent of a flexible culture and the levers of control system: The key role of beliefs control. *Management Accounting Research* 33, 25-41.

Hemmer, T. (1996). On the design and choice of modern management accounting measures. *Journal of Management Accounting Research* 8 (1), 87-116.

Henri, J. F. (2006). Organizational culture and performance measurement systems. *Accounting Organizations and Society* 31 (1), 77-103.

Hirst, M. K. (1983). Reliance on accounting performance measures, task uncertainty and dysfunctional behavior. *Journal of Accounting Research* 21 (2), 596-605.

Hoque, Z. (2004). A contingency model of the association between strategy, environmental uncertainty and performance measurement: Impact on organizational performance. *International Business Review* 13 (4), 485-502.

Hoque, Z. (2005). Linking environmental uncertainty to non-financial performance measures and performance: A research note. *British Accounting Review* 37 (4), 471-481.

Hoque, Z. and James, W. (2000). Linking balanced scorecard measures to size and market factors: Impact on organizational performance. *Journal of Management Accounting Research* 12 (1), 1-17.

Hoque, Z., Mia, L. and Alam, M. (2001). Market competition, computer-aided manufacturing and use of multiple performance measures: An empirical study. *British Accounting Review* 33 (1), 23-45.

Huang, X. and Brown, A. (1999). An analysis and classification of problems in small business. *International Small Business Journal* 18 (1), 73-85.

Hudson, M., Bennet, J. P., Smart, A. and Bourne, M. (1999). Performance measurement in planning and control in SME's. In: Mertins, K., Krause, O. and Schallock, B. (Eds). *Global production management.* Berlin: Kluwer Academic Publishers, 219-225.

Hudson, M., Smart, A. and Bourne, M. (2001). Theory and practice in SME performance measurement systems. *International Journal of Operations & Production Management* 21 (8), 1096-1115.

Hvolby, H-H. and Thorstenson, A. (2001). Performance measurement in small and medium sized enterprises. *Proceedings of the Institution of mechanical engineers. Part B: Journal of engineering manufacture* 215 (8), 1143-1146.

Ittner, C. D. and Larcker, D. F. (1998a). Are non-financial measures leading indicators of financial performance? An analysis of customer satisfaction. *Journal of Accounting Research* 36 (3), 1-35.

Ittner, C. D. and Larcker, D. F. (1998b). Innovations in performance measurement: Trends and research implications. *Journal of Management Accounting Research* 10, 205-238.

Ittner, C. D. and Larcker, D. F. (2001). Assessing empirical research in managerial accounting: A value-based management perspective. *Journal of Accounting and Economics* 32 (1-3), 349-410.

Ittner, C. D. and Larcker, D. F. (2002). Determinants of performance measure choices in worker incentive plans. *Journal of Labor Economics* 20 (2), 58-90.

Ittner, C. D., Larcker, D. F. and Rajan, M. V. (1997). The choice of performance measures in annual bonus contracts. *The Accounting Review* 72 (2), 231-255.

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

Jennings, P. and Beaver, G. (1997). The performance and competitive advantage of small firms: A management perspective. *International Small Business Journal* 15 (2), 63-75.

Jiménez-Jiménez, D. and Sanz-Valle, R. (2011). Innovation, organizational learning, and performance. *Journal of Business Research* 64 (4), 408-417.

Jorissen, A., Laveren, E., Martens, R. and Reheul, A. M. (2005). Real versus sample-based differences in comparative family business research. *Family Business Review* 18 (3), 229-246.

Kaplan, R. S. and Norton, D. P. (1992). The balanced scorecard - Measures that drive performance. *Harvard Business Review* 70 (1), 71-79.

Kaplan, R. S. and Norton, D. P. (1996). *The Balanced Scorecard: Translating strategy into action.* Boston, MA: Harvard Business School Press.

Khandwalla, P. N. (1972). The effect of different types of competition on the use of management controls. *Journal of Accounting Research* 10 (2), 275-285.

Khandwalla, P. N. (1977). *The Design of Organizations*. New York: Harcourt Brace Jovanovich.

King, R. and Clarkson, P. (2015). Management control system design, ownership, and performance in professional service organisations. *Accounting, Organizations and Society* 45 (C), 24-39.

King, R., Clarkson, P. M. and Wallace, S. (2010). Budgeting practices and performance in small healthcare businesses. *Management Accounting Research* 21 (1), 40-55.

Krakower, J. Y. and Niwa, S. L. (1985). *An assessment of the validity and reliability of the Institutional Performance Survey.* Boulder, CO: National Center for Higher Education Management Systems.

Kruis, A., Speklé, R. F. and Widener, S. K. (2016). The levers of control framework: An exploratory analysis of balance. *Management Accounting Research* 32 (1), 27-44.

Laforet, S. (2016). Effects of organisational culture on organisational innovation performance in family firms. *Journal of Small Business and Enterprise Development* 23 (2), 379-407.

Lambert, R. A., Larcker, D. F. and Verrecchia, R. E. (1991). Portfolio considerations in valuing executive compensation. *Journal of Accounting Research* 29 (1), 129-149.

Langfield-Smith, K. (1997). Management control systems and strategy: A critical review. *Accounting, Organizations and Society* 22 (2), 207-232.

Langfield-Smith, K. (2008). A review of quantitative research in management control systems and strategy. In: Chapman, C. S., Hopwood, A. G. and Shields, M. D. (Eds). *Handbook of management accounting research*. Volume 2. Oxford: Elsevier, 753-783.

Lofsten, H. and Lindelof, P. (2005). Environmental hostility, strategic orientation and theimportance of management accounting - An empirical analysis of new technology-based firms. *Technovation* 25 (7), 725-738.

López, O. L. and Hiebl, M. R. W. (2015). Management accounting in small and medium-sized enterprises: Current knowledge and avenues for further research. *Journal of Management Accounting Research* 27 (1), 81-119.

MacBryde, J. and Franco-Santos, M. (2016). *Designing better performance measurement systems in universities using the business model canvas.* In: 5th World Conference on Production and Operations Management (P&OM). Havana, 6 September, 1-10.

Macintosh, N. B. and Daft, R. L. (1987). Management control systems and departmental interdependencies: An empirical study. *Accounting, Organizations and* Society 12 (1), 49-61.

MacMillan, I. C., McCaffery, M. L. and VanWijk, G. (1982). Competitor's responses to easily imitated new products: Exploring commercial banking product introductions. *Strategic Management Journal* 6 (1), 75-86.

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

Maltz, A., Shenhar, A. and Reilly, R. (2003). Beyond the balanced scorecard: Refining the search for organizational success measures. *Long Range Planning* 36 (2), 187-204.

Martin, R. (1997). Regional unemployment disparities and their dynamics. *Regional Studies* 31 (3), 237-252.

Martins, R. A. and Salerno, M. S. (1999). *Use of new performance measurement system, some empirical findings.* In: Managing Operations Networks - VI International EurOMA Conference. Venice, Italy, 7-8 June.

McAdam, R. (2000). Quality models in a SME context. *International Journal of Quality and Reliability Management* 17 (3), 305-323.

Medori, D. and Steeple, D. (2000). A framework for auditing and enhancing performance measurement systems. *International Journal of Operations and Production Management* 20 (5), 520-533.

Mehran, H. (1995). Executive compensation structure, ownership, and firm performance. *Journal of Financial Economics* 38 (2), 163-184.

Merchant, K. (1981). The design of the corporate budgeting system: Influences on managerial behavior and performance. *The Accounting Review* 56 (4), 813-829.

Merchant, K. (1984). Influences on departmental budgeting: An empirical examination of a contingency model. *Accounting, Organizations and Society* 9 (3), 291-307.

Merchant, K., Van der Stede, W. A., Lin, T. W. and Yu, Z. (2011). Performance measurement and incentive compensation: An empirical analysis and comparison of Chinese and Western firms' practices. *European Accounting Review* 20 (4), 639-667.

Mia, L. (1993). The role of MAS information in organization: An empirical study. *British Accounting Review* 25 (3), 269-285.

Mia, L. and Chenhall, R. H. (1994). The usefulness of management accounting systems, functional differentiation and managerial effectiveness. *Accounting, Organizations and Society* 19 (1), 1-13.

Miles, R. and Snow, C. (1978). *Organizational strategy, structure, and process*. New York: McGraw-Hill.

Milgrom, P. and Roberts, J. (1990). The economics of modern manufacturing technology, strategy and organization. *The American Economic Review* 80 (3), 311-328.

Miller, D. (1988). Relating Porter's business strategies to environment and structure: Analysis and performance implication. *Academy of Management Journal* 31 (2), 280-308.

Miller, J. M., DeMeyer, A. and Nakane, J. (1992). *Benchmarking global competition-understanding international suppliers, customers and competitors.* Homewood, IL: Irwin.

Milliken, F. J. (1987). Three types of perceived uncertainty about the environment: State, effect, and response uncertainty. *Academy of Management Review* 12 (1), 133-143.

Mintzberg, H. (1978). Patterns in strategy formation. *Management Science* 24 (9), 934-948.

Mitchell, F. and Reid, G. C. (2000). Editorial. Problems, challenges and opportunities: The small business as a setting for management accounting research. *Management Accounting Research* 11 (4), 385-390.

Moers, F. (2006). Performance measure properties and delegation. *The Accounting Review* 81 (4), 897-924.

Mossholder, N., Bennett, E., Kemery, R. and Wesolowski, M. A. (1998). Relationships between bases of power and work reactions: The mediational role of procedural justice. *Journal of Management* 24 (4), 533-552.

Murphy, K. J. (1999). Executive compensation. In: Ashenfelter, O. and Card, D. (Eds). *Handbook of Labor Economics.* Amsterdam: North-Holland, 2485-2563.

Neely, A. (1999). The performance measurement revolution: Why now and what next. *International Journal of Operations and Production Management* 19 (2), 205-228.

Nunnally, J. C. (1978). *Psychometric Theory*. 2nd ed. New York: McGraw-Hill.

Oakes, I. and Lee, G. (1999). Between a rock and a hard place: Some dilemmas for smaller component suppliers. *International Journal of Quality and Reliability Management* 16 (3), 252-262.

O'Connor, N. G. (1995). The influence of organizational culture on the usefulness of budget participation by Singaporean-Chinese managers. *Accounting, Organizations and Society* 20 (5), 383-403.

Olavarrieta, S. and Friedmann, R. (2008). Market orientation, knowledge-related resources and firm performance. *Journal of Business Research* 61 (6), 623-630.

O'Neill, H. and Duker, J. (1986). Survival and failure in small business. *Journal of Small Business Management* 24 (1), 30-37.

Orlikowski, W. J. and Scott, S. V. (2008). Sociomateriality: Challenging the separation of technology, work and organization. *The Academy of Management Annals* 2 (1), 433-474.

Otley, D. T. (1980). The contingency theory of management accounting: Achievement and prognosis. *Accounting, Organizations and Society* 5 (4), 413-428.

Otley, D. T. (2016). The contingency theory of management accounting and control:1980-2014. *Management Accounting Research* 31, 45-62.

Parker, R. J. and Kyj, L. (2006). Vertical information sharing in the budgeting process. *Accounting, Organizations and Society* 31 (1), 27-45.

Pelham, A. (1999). Influence of environment, strategy and market orientation on performance in small manufacturing firms. *Journal of Business Research* 45 (1), 33-46.

Perera, S. and Baker, P. (2007). Performance measurement practices in small and medium size manufacturing enterprises in Australia. *Small Enterprise Research* 15 (2), 10-30.

Perera, S., Harrison, G. and Poole, M. (1997). Customer-focused manufacturing strategy and the use of operations-based non-financial performance measures: A research note. *Accounting, Organizations and Society* 22 (6), 557-572.

Podsakoff, P. M. and Organ, D. W. (1986). Self-reports in organizational research: Problems and prospects. *Journal of Management* 12 (4), 531-544.

Porter, M. E. (1980). *Competitive strategy*. New York: Free Press.

Quinn, R. E. and Rohrbaugh, J. (1983). A spatial model of effectiveness criteria: Towards a competing values approach to organizational analysis. *Management Science* 29 (3), 363-377.

Reid, G. C. and Smith, J. A. (2000). The impact of contingencies on management accounting system development. *Management Accounting Research* 11 (4), 427-450.

Roberts, K. and Grabowski, M. (1996). Organizations, technology and structuring. In: Clegg, S., Hardy, C. and Nord, W. (Eds). *Handbook of organization studies.* London: Sage Publications, 409-423.

Rompho, N. (2011). Why the Balanced Scorecard fails in SMEs: A case study. *International Journal of Business and Management* 6 (11), 39-46.

Roth, A. V. and Jackson, W. E. (1995). Strategic determinants of service quality and Performance: Evidence from the banking industry. *Management Science* 41 (11), 1720-1733.

Said, A. A., HassabElnaby, H. R. and Wier, B. (2003). An empirical investigation of the performance consequences of non-financial measures. *Journal of Management Accounting Research* 15 (1), 193-223.

Sapienza, H. J. and Grimm, C. M. (1997). Founder characteristics, start-up process, and strategy/structure variables as predictors of shortline railroad performance. *Entrepreneurship Theory and Practice* 22 (1), 5-24.

Sedatole, K. L. (2003). The effect of measurement alternatives on a non-financial quality measure's forward-looking properties. *The Accounting Review* 78 (2), 555-580.

Simons, R. (1987). Accounting control-systems and business strategy - An empirical-analysis. *Accounting, Organizations and Society* 12 (4), 357-374.

Skinner, W. (1975). *Manufacturing: The formidable weapon.* New York: John Wiley.

Sliwka, D. (2002). On the use of nonfinancial performance measures in management compensation. *Journal of Economics and Management Strategy* 11(3), 487-511.

Smith, M. H. and Smith, D. (2007). Implementing strategically aligned performance measurement in small firms. *International Journal of Production Economics* 106 (2), 393-408.

Sohn, M., You, T., Lee, S. and Lee, H. (2003). Corporate strategies, environmental forces, and performance measures: A weighting decision support system using the k-nearest neighbour technique. *Expert Systems with Applications* 25 (3), 279-292.

Speckbacher, G., Bischof, J. and Pfeiffer, T. (2003). A descriptive analysis on the implementation of balanced scorecards in German-speaking countries. *Management Accounting Research* 14 (4), 361-387.

Taylor, A. and Taylor, M. (2014). Factors influencing effective implementation of performance measurement systems in small and medium-sized enterprises and large firms: A perspective from Contingency Theory. *International Journal of Production Research 52* (3), 847-866.

Thompson, J. D. and Bates, F. L. (1957). Technology, organization, and administration. *Administrative Science Quarterly* 2, 325-343.

Thomson, D. (2010). Exploring the role of funders performance reporting mandates in nonprofit performance measurement. *Nonprofit and Voluntary Sector Quarterly* 39 (4), 611-629.

Ukko, J., Tenhunen, J. and Rantanen, H. (2007). Performance measurement impacts on management and leadership: perspectives of management and employees. *International Journal of Production* Economics 110 (1), 39-51.

Van der Stede, W. A. (2000). The relationship between two consequences of budgetary controls: Budgetary slack creation and managerial short-term orientation. *Accounting, Organizations and Society* 2 (6), 609-622.

Van der Stede, W. A., Chow, C. W. and Lin, T. W. (2006). Strategy, choice of performance measures, and performance. *Behavioral Research in Accounting* 18 (1), 185-205.

Wang, C. K. and Ang, B. L. (2004). Determinants of venture performance in Singapore. *Journal of Small Business Management* 42 (4), 347-363.

Waterhouse, J. and Tiessen, P. (1978). A contingency framework for management accounting systems research. *Accounting, Organizations and Society* 3 (1), 65-76.

Watson, R., Storey, D. J., Wynarczyk, P., Keasey, K. and Short, H. (1994). The remuneration of non-owner managers in small and medium-sized UK enterprises. *Journal of Management Studies* 31 (4), 553-568.

Welsh, J. and White, J. (1981). A small business is not a little big business. *Harvard Business Review* 59 (4), 18-32.

Widener, S. (2007). An empirical analysis of the levers of control framework. *Accounting, Organizations and Society* 32 (7-8), 757-788.

Wiesner, R., McDonald, J. and Banham, H. C. (2007). Australian small and medium sized enterprises (SMEs): A study of high performance management practices. *Journal of Management and Organization* 13 (3), 227-248.

Wolff, J. A. and Pett, T. L. (2006). Small-firm performance: Modeling the role of the product and process improvements. *Journal of Small Business Management* 44 (2), 268-284.

Zammuto, R. F., Griffith, T. L., Majchrzak, A., Dougherty, D. J. and Faraj, S. (2007). Information technology and the changing fabric of organization. *Organization Science* 18 (5), 749-762.

Appendix C. Survey items

Non-financial performance measures *(from 0 to 100%)*
Indicate for each of the performance measures below the percentage attached to your variable compensation, indexed to performance. Your answer should total 100%.

Market share	%
Customer satisfaction	%
Number of customer complains	%
Quality of the product / service	%
Employee satisfaction	%
Staff turnover	%
Production volume	%
Productivity	%
Compliance with the processes	%
Innovation	%
Other metrics (please specify)	%

Family ownership *(from 0 to 100%)*
Indicate the percentage of the company's equity held by family members.

Strategy *(1 = Low influence, 7 = High influence)*
To what extent the following factors influence the management of the firm in the last three years?

Item	Label
I.Flexibility	
Customize products and services to customer needs	STGflex1
Make rapid volume and/or product/service mix changes	STGflex2
Make changes in design and introduce new products/services quickly	STGflex3
Provide unique product/service features	STGflex4
II.Delivery/service	
Product/service availability	STGserv1
Provide effective after-sales service and support	STGserv2
Make dependable delivery promises	STGserv3
Provide fast deliveries	STGserv4
Provide high quality products/services	STGserv5
III. Low cost/price	
Low price	STGcost1
Low production costs	STGcost2

Perceived environmental uncertainty
Dynamism *(1 = Very stable/changing slowly, 7 = Very dynamic/changing rapidly)*
How do you evaluate the firm's external environment considering the following dimensions?

Item	Label
Economic environment	PEUdyn1
Technological environment	PEUdyn2
Legal environment	PEUdyn3
Political environment	PEUdyn4

Unpredictability *(1 = Very predictable, 7 = Very unpredictable)*
Considering the last five years, how do you assess the level of the predictability of the following factors?

Item	Label
The market activities of firm competitors	PEUunp1
The tastes and preferences of customers	PEUunp2

Hostility *(1 = Insignificant, 7 = Extremely significant)*
How intense is each of the following factors in the sector where the firm operates?

Item	Label
Price competition	PEUhos1
Competition for the diversity of services and products marketed	PEUhos2
Competition for manpower	PEUhos3
Competition for access to suppliers	PEUhos4

Culture
Four questions below represent descriptions of firms. Please distribute 100 points among the four descriptions depending on how similar the description is to your business. None of the descriptions is any better than the others; they are just different. You may divide the points in any way you wish. Most businesses will be some mixture of those described. For example: if the first description of the organization seems very similar to yours, the second seems somewhat similar and others do not seem similar at all, you might give 70 points to the first description and the remaining 30 points to the second description.
Institutional characteristics *(please distribute 100 points)*

Item	Label
Your organization is a very personal place. It is like an extended family. People see to share a lot of themselves.	CULT1
Your organization is very dynamic and entrepreneurial place. People are willing to stick their necks out and take risks.	CULT2
Your organization is very formalized and structured place. Bureaucratic procedures generally govern what people do.	CULT3
Your organization is a very production oriented. A major concern is with getting the job done. People are not very personally involved.	CULT4

Institutional leader *(please distribute 100 points)*

Item	Label
The head of your organization is generally considered to be a mentor, a sage, or a father or mother figure.	CULT5
The head of your organization is generally considered to be an entrepreneur, an innovator, or a risk taker.	CULT6
The head of your organization is generally considered to be a coordinator, an organizer, or an administrator.	CULT7
The head of your organization is generally considered to be a producer, a technician, or a hard-driver.	CULT8

Institutional cohesion *(please distribute 100 points)*

Item	Label
The glue that holds the organization together is loyalty and tradition. Commitment to this organization runs high.	CULT9
The glue that holds the organization together is commitment to innovation and development. There is an emphasis on being first.	CULT10
The glue that holds the organization together is formal rules and policies. Maintaining a smooth-running organization is important here.	CULT11
The glue that holds the organization together is the emphasis on tasks and goal accomplishment. A production orientation is commonly shared.	CULT12

Institutional emphases *(please distribute 100 points)*

Item	Label
Your organization emphasizes human resources. High cohesion and morale in the organization are important.	CULT13
Your organization emphasizes growth and acquiring new resources. Readiness to meet new challenges is important.	CULT14
Your organization emphasizes permanence and stability. Efficient, smooth operations are important.	CULT15
Your organization emphasizes competitive actions and achievement. Measurable goals are important.	CULT16

Decentralization *(1 = No delegation, 7 = Total delegation)*

To what extent authority is delegated to the manager or employee for each of the following decisions?

Item	Label
Initiate ideas for new services	DECENT1
Hiring and firing of personnel	DECENT2
Selection of large investments	DECENT3
Budget allocations	DECENT4
Pricing decisions	DECENT5
Operation decisions	DECENT6

Technology *(1 = Very low, 7 = Very high)*
Indicate to what extent the firm's technologies are characterized by:

Item	Label
Automated and standardized processes	TECH1
High levels of task uncertainty	TECH2
High levels of interdependence in the processes	TECH3

Individual performance *(1 = Well below average, 7 = Well above average)*
Indicate to what extent your performance, compared with other managers in your company in similar positions, was below or above the average in the following dimensions:

Item	Label
Planning: determining goals, policies, and courses of action such as work scheduling, budgeting, and programming.	IND_PERF1
Investigating: collecting and preparing of information usually in the form of records, reports, and accounts (measuring output, record keeping, and job analysis).	IND_PERF2
Coordinating: exchanging information with people in the organization other than my subordinates in order to relate and adjust procedures, policies and programs.	IND_PERF3
Evaluating: assessment and appraisal of proposals or of reported/ observed performance (e.g., employee appraisals, judging financial performance and product inspection).	IND_PERF4
Supervising: directing, leading, and developing your subordinates	IND_PERF5
Staffing: maintaining the work force of your responsibility area (e.g., selecting and promoting your subordinates).	IND_PERF6
Overall, how do you rate your performance?	IND_PERF7

Firm performance *(1 = very poor performance, 4 = met goals, 7 = very good performance)*
For each performance indicator, circle the number that best indicates the degree of conformance to your organization's goals over the past year on:

Item	Label
Overall organizational performance.	FIRM_PERF1
Overall organizational profitability.	FIRM_PERF2
Relative market share for primary products.	FIRM_PERF3
Overall productivity of the delivery system.	FIRM_PERF4

5. CONCLUSIONS

This thesis offers three empirical studies regarding the use of incentives in managerial compensation in SMEs. The first chapter presents a brief overview of prior studies in this field which show the importance of i) relative performance evaluation, ii) different managerial incentives, such as monetary, non-monetary, benefits, and punishment, and iii) non-financial performance measures. This previous research grounds the theoretical motivations for my empirical studies in SMEs, which have distinct characteristics from those of large companies (Hudson, Smart and Bourne, 2001; Smith and Smith, 2007), in which most of prior studies have focused (e.g., Gong and Ferreira, 2014; Höppe and Moers, 2011; Ittner, Larcker and Randall, 2003; Knox, Blankmeyer and Stutzman, 2004). In Chapter 2, I investigate the relationship between subjective performance evaluation (SPE) and managerial intention to turnover, organizational identification, and performance. I hypothesize and find that this relationship is mediated by managerial perception of feedback quality and trust in the supervisor. Specifically, my findings suggest that the use of SPE is associated with reduced perceived feedback quality, while perceived feedback quality is associated with increased trust in the supervisor. The results also show that greater trust in the supervisor is related to enhanced managerial performance by increasing identification and reducing intention to turnover. Using data from a questionnaire, this essay provides one of the first analyses investigating how the use of specific performance evaluation practices - such as SPE - affects managerial intention to turnover, identification and performance. Moreover, I show that the link between SPE and managerial outcomes is more complex than is currently recognized in the literature (e.g., Baker, Gibbons and Murphy, 1994; Hopwood, 1972; Van Rinsum and Verbeeten, 2012). Additionally, my study adds to prior works which examine the relationship between feedback quality and trust in performance evaluation practices (e.g., Hartmann and Slapnicar, 2009) by identifying the behavioral consequences of this relationship.

Chapter 3 explores the interplay among different types of incentives (monetary incentives, non-monetary incentives, benefits and punishment) and managerial performance and job satisfaction in SMEs. I identify multiple combinations of incentives (i.e., incentive packages) that consistently are associated with either high individual performance or high job satisfaction. Specifically, my analyses reveal that no single incentive in isolation, in comparison to a combination of incentives, is associated with high managerial performance. In contrast, the sole use of benefits or monetary incentives is associated with high managerial job satisfaction. Moreover, my findings suggest that incentive packages associated with either high individual performance or high job satisfaction of owner managers/managers in small firms/managers in family firms are distinct from those of non-owner managers/managers in medium firms/managers in non-family firms, respectively. In this essay, I employ a novel method in management accounting research - fsQCA - that allows the identification of different incentive packages related to desired managerial behaviors. Furthermore, to the best of my knowledge, I am the first to explore managerial incentive packages and their relationship with individual performance and satisfaction in SMEs. In addition, this essay adds to the ongoing debate in accounting, economics and management literatures regarding the design of compensation systems (e.g., Atkinson et al., 2012; Bonner and Sprinkle, 2002; Christ, Sedatole and Towry, 2012; Long and Shields, 2010; Werner and Ward, 2004) and its effect on individual behaviors (Bonner et al., 2000; Kunz and Linder, 2012).

Chapter 4 explores the relationship between contextual variables (strategy, PEU, organizational culture, decentralization and technology) and the use of NFPM in managerial compensation. My results suggest that external environment and decentralization are associated with the adoption and use of NFPM for managerial compensations in SMEs. Specifically, I find that the lower the dynamism element of perceived environmental uncertainty (PEU), and the greater the PEU hostility and decentralization, the higher the adoption and use of NFPM. Finally, my study highlights important differences in the adoption and use of NFPM between small and medium firms, and between CEOs and non-CEOs. This essay is one of the few studies that investigates the adoption and use of NFPM in managerial compensation in SMEs. Moreover, the simultaneous examination of multiple contingency variables provides a clearer view of the most important factors influencing the use and adoption of NFPM in managerial compensation relative to prior studies examining only one or two of these variables. My study also allows the contrast of factors related to the use of NFPM in SMEs with those of large companies (e.g., Chenhall, 2003; Langfield-Smith, 1997).

Overall, this thesis provides a multifaceted picture of managerial compensation design in SMEs. Specifically, I show i) the effects of SPE on intention to turnover, organizational identification, and performance, ii) the composition of effective incentive packages related to high performance or high satisfaction, and iii) the contingency factors related to the use of NFPM. Moreover, this study uses different methods - structural equation modeling (SEM), fuzzy-set Qualitative Comparative Analysis (fsQCA) and regression analyses - chosen in accordance to the different research questions of each essay.

Finally, each essay provides relevant practical implications, as well as important contributions to the extant literature, raising new questions for future research.

References

Atkinson, A. A., Kaplan, R. S., Matsumura, E. M. and Young, S. M. (2012). *Management Accounting: Information for decision-making and strategy execution*. 6th ed. Upper Saddle River, NJ: Pearson Education Inc.

Baker, G., Gibbons, R. and Murphy, K. (1994). Subjective performance measures in optimal incentive contracts. *Quarterly Journal of Economics* 109 (4), 1125-1156.

Bonner, S. E., Hastie, R., Sprinkle, G. B. and Young, S. M. (2000). A review of the effects of financial incentives on performance in laboratory tasks: Implications for management accounting. *Journal of Management Accounting Research* 12, 19-64.

Bonner, S. E. and 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.

Chenhall, R. H. (2003). Management control systems design within its organizational context: Findings from contingency-based research and directions for the future. *Accounting, Organizations and Society* 28 (2/3), 127-168.

Christ, M. H., Sedatole, K. L. and Towry, K. L. (2012). Sticks and Carrots: The Effect of Contract Frame on Effort in Incomplete Contracts. *The Accounting Review* 87 (6), 1913-1938.

Gong, M. Z. and Ferreira, A. (2014). Does consistency in management control systems design choices influence firm performance? An empirical analysis. *Accounting and Business Research* 44 (5), 497-522.

Hartmann, F. and Slapnicar, S. (2009). How formal performance evaluation affects trust between supervisor and subordinate managers. *Accounting, Organizations and Society* 34 (6-7), 722-737.

Höppe, F. and Moers, F. (2011). The choice of different types of subjectivity in CEO annual bonus contracts. *The Accounting Review* 86 (6), 223-246.

Hopwood, A. G. (1972). An empirical study of the role of accounting data in performance evaluation. Empirical research in accounting: selected studies. *Journal of Accounting Research* 10 (Sup), 156-182.

Hudson, M., Smart, P. A. and Bourne, M. (2001). Theory and practice in SME performance measurement systems. *International Journal of Operations and Production Management* 21 (8), 1096-1116.

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

Knox, K. J., Blankmeyer, E. C. and Stutzman, J. R. (2004). Administrative compensation and organizational performance in texas nursing facilities. *Small Business Economics* 22 (1), 33-49.

Kunz, J. and Linder, S. (2012). Organizational control and work effort - Another look at the interplay of rewards and motivation. *European Accounting Review* 21 (3), 591-621.

Langfield-Smith, K. (1997). Management control systems and strategy: A critical review. *Accounting, Organizations and Society* 22 (2), 207-232.

Long, R. J. and Shields, J. L. (2010). From pay to praise? Non-cash employee recognition in Canadian and Australian firms. *International Journal of Human Resource Management* 21 (8), 1145-1172.

Smith, M. H. and Smith, D. (2007). Implementing strategically aligned performance measurement in small firms. *International Journal of Production Economics* 106 (2), 393-408.

Van Rinsum, M. and 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.

Werner, S. and Ward, S. G. (2004). Recent compensation research: An eclectic review. *Human Resource Management Review* 14 (2), 201-227.