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Johanna Sax

STRATEGIC RISK MANAGEMENT

**- ANALYZING ANTECEDENTS AND CONTINGENCIES
FOR VALUE CREATION**

The PhD School of Economics and Management

PhD Series 35.2015

CBS  **COPENHAGEN BUSINESS SCHOOL**
HANDELSHØJSKOLEN

**Strategic Risk Management –
Analyzing Antecedents and Contingencies
for Value Creation**

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The PhD School in Economics and Management

CBS / Copenhagen Business School

August, 2015

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– *Analyzing Antecedents and Contingencies for Value Creation*

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PREFACE

This dissertation consists of six chapters that investigate how firms successfully manage strategic risks by studying the practices, processes and systems that underpin their effective risk management outcomes. The first chapter provides an introduction to the thesis and presents the overall research question of the thesis. The consecutive four chapters are a collection of research papers that addresses different aspects of the research question. Chapter 2 explores how firms manage downside risk from a strategic management perspective. In chapter 3 the strategic management and management accounting literature is synthesized to investigate how interactive control systems, strategic planning and decentralized decision-making interplay and affect the upside potential of performance. Chapter 4 investigates how a contemporary risk management approach (enterprise risk management) in combination with strategic planning enhances a firm's performance while lowering the probability of financial distress. The 5th chapter also explores how risk management influence risk performance outcomes, but it also investigates how cultural factors in terms of leadership style and the employees' psychological safety for raising voice affect this relationship. The final chapter of the thesis concludes and summarizes the findings of the papers in light of the overall research question. The research papers that are included in this dissertation are listed below:

- Linder, S. and Sax, J. (2015) 'Keeping up with aspirations: Middle manager participation in market-related decisions, emphasis on strategic planning, and firms' downside risk.'
- Andersen, T. J. and Sax, J. (2015) 'Seeking upside potential through integrative strategy-making and interactive controls.'
- Sax, J. (2015) 'Making risk management strategic: Integrating enterprise risk management with strategic planning.'
- Sax, J. and Torp, S. (2015) 'Speak up! Enhancing risk performance with enterprise risk management, leadership style and employee voice', *Management Decision*, 53(7).

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¹ This PhD thesis has been part of a collaborative innovation consortium “Risk Management in Extended Enterprises” supported by the Danish Ministry of Science, Technology and Innovation. The partners of the consortium included the Danish Technological Institute, Copenhagen Business School, University of Southern Denmark, LEGO, Nordea, GoApplicate, Elos Medtech, Alfa Laval Copenhagen and Raaco.

Johanna Sax, Copenhagen, August 2015.

ABSTRACT

The aim of this thesis is to contribute to the literature with an investigation into strategic risk management practices from a strategic management and management accounting perspective. Previous research in strategic risk management has not provided sufficient evidence on the mechanisms behind firm practices, processes and tools for managing strategic risks, and their contingencies for value creation. In particular, the purpose of the thesis has been to fill the gaps in the literature by asking the question of: *How does strategic risk management influence firms' ability to deal with risks that may affect long-term competitive advantage and corporate longevity?*

To answer this question, the literature in strategic management and management accounting has been synthesized in order to identify management practices, processes and systems that take an active stance in making better decisions about risk-taking by preparing for the inherent uncertainty of strategic decisions. The thesis comprises four chapters that individually address the blind spots in the literature and in combination answer the overall research question. It suggests that proactive management practices such as strategic planning, interactive control systems and enterprise risk management processes, can be effective means in dealing with strategic risk. It further emphasizes the role of participative decision-making, a participative leadership style and the employees' psychological safety for raising voice as important factors in order to benefit from these management practices most advantageously. Besides from enhancing our theoretical understanding of these mechanisms the thesis further provides empirical evidence on the interplay between the identified managerial practices and contextual factors as well as their ability on managing risks and create value for the firm.

SAMMENFATTNING

Formålet med denne afhandling er at bidrage til litteraturen om strategisk risikostyring med udgangspunkt i ”strategic management” og ”management accounting” perspektiver. Eksisterende forskning i strategisk risikostyring har ikke i tilstrækkelig grad fremlagt empirisk belæg for koblingen mellem virksomheders praksis, processer og værktøjer til at håndterer strategiske risici, samt de underliggende faktorer, der er afgørende for virksomhedens evne til at skabe værdi. Denne afhandling undersøger disse huller i forskningslitteraturen med udgangspunkt i følgende overordnede forskningsspørgsmål: *Hvordan påvirker strategisk risikostyring virksomheders evner til at håndtere risici med potentiel indvirkning på deres langsigtede konkurrencefordele og overlevelse?*

For at besvare dette spørgsmål, har afhandling integreret litteratur fra de to felter, ”strategic management” og ”management accounting”, til at identificere processer og systemer, der underbygger en proaktiv tilgang til risikofyldte beslutninger ved at forberede virksomheden på den usikkerhed der ligger i strategiske beslutninger. Afhandlingen er bygget op af fire kapitler, der individuelt behandler mangler i litteraturen og som samlet svarer på det overordnede forskningsspørgsmål. De fremlagte forskningsresultater peger på at proaktive ledelsespraksisser, såsom strategisk planlægning, interaktive kontrolsystemer, og ”enterprise risk management” processer, spiller en afgørende rolle i virksomheders måde at håndtere strategiske risici på. Afhandlingen understreger ligeledes betydningen af underliggende faktorer, der støtter op om disse praksisser, såsom inddragende beslutningsprocesser, en inkluderende ledelsesstil, samt et organisatorisk klima hvor medarbejdere føler sig trygge ved at give deres ærlige mening vedrørende risici. Udover en styrket teoretisk forståelse for disse mekanismer, bidrager afhandlingen med at fremlægge empirisk belæg for interaktionerne mellem disse

praksisser og de kontekstuelle faktorer samt effekten af disse for virksomhedens evne til at skabe værdi.

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CHAPTER 1: INTRODUCTION

“Risk – let’s get this straight up front – is good. The point of risk management isn’t to eliminate it; that would eliminate reward. The point is to manage it – that is, to choose where to place bets, and where to avoid betting altogether.”
(Stewart, 2000)

1.1. A strategic perspective on risk management

Top managers in today’s firms face the daunting task of navigating their organizations safely through increasingly turbulent and changing business conditions (Slywotzky and Drzik, 2005). Due to these dynamics the risks that firms face have changed in nature; they have become more problematic, not easily identifiable, less easily managed and more anxiety-provoking (Beck, 1992; Gephart, Van Maanen, and Oberlechner, 2009). History reports several incidents of dysfunctional behavior when failing to respond to risk exposure by for example weathering the storm and maintaining the status quo (Samuelson and Zeckhauser, 1988) and by avoiding the often uncomfortable feelings around risks by burying the head in the sand (Shimizu and Hitt, 2004). Notwithstanding, the most successful companies seem to share a common characteristic of not avoiding risk, but actually seeking risk by actively handling the surrounding risk exposers in the achievement of success.

The literature in strategic management and management accounting has suggested that firms should create proactive management practices that improve strategic risk-taking by preparing for the inherent uncertainty of strategic decisions (Priem, Rasheed, & Kotulic, 1995; Simons, 1995a, 1995b). Not least, since strategic risk-taking has become of vital concern for conducting business and an essential source of competitive advantage (Chatterjee, Wiseman, Fiegenbaum, and Devers, 2003). Nevertheless, capitalizing on strategic risk-taking requires high levels of strategic response capabilities (Bettis and Hitt, 1995), adaptive capabilities (Volberda, 1996), and dynamic capabilities (Teece, Pisano, and Shuen, 1997) – challenges that are typically

studied within the strategic management literature. Therefore, it is not surprising that several scholars and practitioners have called for the integration of insights from risk management and strategic management (Bromiley, McShane, Nair, and Rustambekov, 2014; Chatterjee et al., 2003).

Risk management processes such as enterprise risk management (ERM), that originates from the field of management accounting and control and takes an active approach in dealing with all of the risks that a firm faces, has grown rapidly in interest among practitioners and academics during the past two decades. Initially, risk management emerged as a managerial discipline that devoted much attention to the control aspect of risk management. Yet, in recent years the discourse of risk and its management has become a source of principles for managing in general (Power, 2007). In fact, “ideas about risk and risk management have come to play a key role in the very idea of organizing and organization itself” (Scheytt, Soin, Sahlin-Andersson, and Power, 2006: 1336).

Although recent years have seen a considerable increase in practitioner attention on strategic risk management and scholars advocating the need for an integration of risk management and strategic management, the academic fields of strategic management and risk management seem to have railed along and been studied separately despite of the potential for their synergetic integration. Through this thesis, I address calls from scholars to integrate the fields of strategic management and management accounting – especially the management control literature and the literature on ERM (e.g. Beasley, Branson, & Pagach, 2015; Marginson, 2002; Bromiley et al., 2014) - and introduce a strategic perspective on risk management.

1.2. Risk conceptualization and measurement in the management literature

Risk is an inherent part of conducting business and it is arguably a critical aspect of firms' strategic processes (Ruefli, Collins, Lacugna, and Wiley, 1999). Not surprisingly, risk plays an important role in strategic management research (Bromiley, 1991; Pablo, Sitkin, and Jemison, 1996). The following paragraphs will briefly introduce the reader to the concept of risk in the (strategic) management literature.

In the strategy literature the risk term has often been used when referring to the *source* of exposures in terms of external or internal factors that potentially have an impact on the firm (Miller, 1992). From a strategic perspective, such events are often referred to as trends, developments and changes that may have an influence on the firm's long-term strategy (Ansoff, 1980; Dutton, Fahey, and Narayanan, 1983), competitive advantage (Fiegenbaum and Thomas, 2004) and survival (Baird & Thomas, 1985; Slywotzky & Drzik, 2005). Furthermore, March and Shapira (1987: 1404) note that "risk is most commonly conceived as reflecting variation in the distribution of possible outcomes, their likelihoods, and their subjective values". On these lines risk has been perceived as "the unpredictability in corporate outcome variables" (Miller, 1992: 312) and the strategic moves "for which the outcomes and probabilities may be only partially known" (Baird and Thomas, 1985: 231). In this sense, risk is embedded in the organizational *choices* that firms make.

In strategic management research the most common approach of measuring risk has been borrowed from financial economics and decision theory that conceive risk as the variance of a set of returns over time (Ruefli et al., 1999). This measure has been criticized amongst behavioral scholars as managers seem to associate risk more with losses and hazards than with variance in outcomes (March and Shapira, 1987; Shapira, 1995). Ruefli et al., (1999) asserted

that the use of variance as a measure of risk is lacking validity in a strategic management context. This has led to attempts to measuring risk in terms of *downside risk* – the expected deficiencies in performance relative to aspirations (Miller and Leiblein, 1996), and conceptualize risk as “the probability of losing rank position vis a vis the other firms in the reference set” (Collins and Ruefli, 1992: 1709).

Nevertheless, there seems to be a common acceptance that the goal of risk management is not to only reduce downside risk but also to retain the upside potential (Stulz, 1996) by selecting strategic choices that offer both upside and downside potential for the firm (Chatterjee et al., 2003). Thus, *effective risk management* recognizes the two-sided nature of risk by considering both negative as well as positive outcomes of risk (COSO, 2004). This thesis follows this dual approach of conceptualizing risk in terms of distinguishing between the downside and the upside. Rather than measuring risk in terms of variance, risk is measured as the probability of falling below (downside) or above (upside) performance aspirations in accordance to literature on semi-variance (Fishburn, 1977; Miller & Leiblein, 1996). Thus, the aim of the thesis is to overcome limitations of previous research in strategic management that “has been dominated by a few easy-to-calculate, borrowed measures of risk” that neglect the central concerns of managers and strategists (Ruefli et al., 1999: 168).

1.3. The strategic management perspective on risk management

The starting point of this thesis is the strategic management literature. According to Gavetti, Levinthal, and Rivkin (2005: 691) “strategy-making is most critical in times of change and in unfamiliar environments.” And a major area of research in the strategic management field concerns how firms can sustain their competitive advantage in changing environments (Barney, 1991). For firms to sustain their competitive position they must develop adaptive capabilities

that identify strategic risks and take appropriate strategic responses (Andersen, Denrell, and Bettis, 2007). These responses may include substantial risk-taking that replaces obsolete sources of advantage (Chatterjee et al., 2003) and involve significant uncertainty and downside exposure that could erode firm's value (Bettis and Hitt, 1995). Hence, while engaging in strategic risk-taking the greatest challenge for firms is to limit the downside risk while capturing the gains.

From the earliest foundations of strategic management, *strategic planning* has been conceived as an important tool to manage environmental developments and the strategic risk exposures that come with these changes (Boyd, 1991), and today strategic planning is one of the most used strategy practices within firms (Spee and Jarzabkowski, 2011; Whittington, 2006). For this thesis, strategic planning was used to describe the organizational process of developing a firm's mission, long-term objectives and the plans to attain them, as well as the ongoing system that monitors the achievement of the strategic objectives (e.g., Andrews, 1971; Ansoff, 1988; Boyd and Reuning-Elliott, 1998; Cohen and Cyert, 1973). Empirical research on the relationship between strategic planning and firm performance has been inconclusive, not least in studying the relationship under the contingency of environmental uncertainty. Some studies have also concluded that there is no clear systematic relationship between strategic planning and organizational performance (Scott, Mitchell, and Birnbaum, 1981; Shrader, Taylor, and Dalton, 1984).

In the strategic management literature there has been a debate whether strategy-making takes place through formal and deliberate planning processes or if they emerge as a firm muddles through and learns by trial and error. The former approach advocates a rational and systematic planning process (Ansoff, 1988; Schendel and Hofer, 1979), whereas the latter school supports emergent processes (Mintzberg and Waters, 1982; Mintzberg, 1978). The "planning school" stresses that strategic planning enhances performance and efficiency by

careful analysis and it brings the firm together by articulating a unified strategic direction (Ansoff, 1984; Greenley, 1994). The “emergent school” questions the assumption that firms are able to prepare for the future through rigorous analysis and stresses that planning leads to enhanced bureaucracy and rigidity. Further, proponents of the emergent perspective stress that top-down strategy-making approach is inadequate in detecting, interpreting, and handling strategic risks. Rather, organizations need to “discover how to tap people’s commitment and capacity to learn at *all* levels” (Senge, 1990: 4). Hence, the strategic management literature has placed an emphasis on middle managers’ roles when dealing with changing environments and when responsiveness, flexibility, and the ability to capture emergent opportunities are pivotal for firms’ survival (e.g. Bower and Noda, 1996; Burgelman, 1983a; Kanter, 1982; Pascale, 1984; Wooldridge and Floyd, 1990). Due to their closeness to operations, middle managers often have a unique knowledge of strategic risk exposures such as market developments, shifts in customer demands, competitor moves etc. (Kanter, 1982; Mahnke, Venzin, and Zahra, 2007; Pascale, 1984; Wooldridge and Floyd, 1990). This has led to an increased call for a decentralized strategy-making by either *delegating decision authority* or allowing for the middle manager’s *participation in strategic decision-making*.

On the other hand, Grant (2003) stresses that the debate between the two schools is based on a misconception of the reality of strategic planning. In his study of major oil companies he found that strategic planning could be described as a process of “planned emergence.” The primary strategic direction of the firm was derived from decisions made by managers below the top management, while strategic planning coordinated and improved the quality of strategic decisions (Grant, 2003). Along the same lines, Wolf and Floyd (2013: 5) note that “the purpose of strategic planning is to influence an organization’s strategic direction for a given period and to coordinate and integrate deliberate as well as emerging strategic

decisions.” Similarly, Andersen & Nielsen (2009) and Andersen (2004) find that strategic emergence that is derived from responsive actions taken by empowered managers in combination with strategic planning are important for the achievement of superior performance. Thus, it has been proposed that strategic planning can play an important role as a potential integrative device by building a shared understanding and a particular state of mind (Andersen and Nielsen, 2009; Ketokivi and Castañer, 2004; Ohmae, 1982) and provide top managers with a sense of mastery and control (Falshaw, Glaister, and Tatoglu, 2006). Some studies have also suggested that strategic planning acts as an important mediating mechanism between firm performance and decentralized decision-making (Andersen and Nielsen, 2009), top management’s cognitive diversity (Miller, Burke, and Glick, 1998), and risk awareness (O’Regan, Sims, and Gallear, 2008). Based on the review above, it can be asserted that strategic planning plays an important (direct and mediating) role for firms in dealing with strategic risks and therefore strategic planning is an overarching concept throughout the thesis.

While much of the strategic management literature focus has been on firm performance, few studies look at risk-outcomes. For example, Sheehan’s study (1975) on strategic planning relates it to fluctuations in performance. Capon et al. (1994) and Delmar and Shane (2003) find that strategic planning increases the likelihood of the survival of the firm as an entity, which represents a particularly important type of risk-outcomes. While scholars from prospect theory (Kahneman and Tversky, 1979; Voss, Sirdeshmukh, and Voss, 2008) and threat rigidity literature (Sitkin and Pablo, 1992; Staw, Sandelands, and Dutton, 1981) have studied management choice and practices as a consequence of risk, there is a lack of information on how strategy-making practices affect risk outcomes (for a review on risk research in strategic management please see Bromiley et al. (2006) and Ruefli et al. (1999)). More analyses where risk serves as *explanandum*, and not *explanaans*, are necessary in order to provide better

guidance to business practitioners and to further theory-building efforts about various practices, processes, and tools of strategic management.

1.4. The management accounting perspective on risk management

The management accounting literature has pointed to management control systems to handle strategic risk exposures. In particular, *interactive control systems* that according to Simons (1994: 81) “enables top-level managers to focus on strategic uncertainties, to learn about threats and opportunities as competitive conditions change, and to respond proactively.” Similar to strategic planning, management control systems have been described as practices that are concerned with adapting the organization by making sure that organizational objectives are met (Horngren, Foster, and Datar, 1994; Kloot, 1997). These traditional feedback systems used to monitor organizational outcomes have been criticized of being inadequate in terms of meeting demands of flexibility and innovation (Simons, 1995). On the other hand, interactive control systems are systems that “build internal pressure to break out of narrow routines, stimulate opportunity seeking and encourage the emergence of strategic initiatives as future states are re-estimated” (Bruining, Bonnet, and Wright, 2004: 158). These control systems are used by top managers “to regularly and personally involve themselves in the decision activities of subordinates”(Simons, 1994; 171). While traditional feedback systems assist organizations in the pursuit of their intended strategies, interactive control systems focus on strategic uncertainties by creating a pressure to innovate and adapt in response to risk exposures. Thus, interactive control systems are arguably central to strategy formation as they may manage the emergence of strategy (Marginson, 2002; Simons, 1994a, 1994b; Simons, 1991). Nonetheless, the relationship between strategy-making practices and management control systems is largely an unexplored area of strategic management (Kober, Ng, and Paul, 2007; Marginson, 2002).

Furthermore, an increasing number of studies in management accounting have explored how *enterprise risk management* (ERM) can help firms to enhance their performance and create a sustained competitive advantage. During the last two decades, ERM has grown to become a contemporary practice as a means to help management in making the firm more responsive and proactive to the effects of various risk events with strategic implications. It has been defined as a systematic approach to risk management across the entire organization by identifying, assessing, deciding on responses to, and reporting on all of the opportunities and threats that can affect the organization as a whole (COSO, 2004; Institute of Internal Auditors, 2009). In recent years there has been a considerable increase of interest in risk management in business, the public sector, and society in general (Gephart et al., 2009); and today ERM is regarded as the governance of best practice and “just good management” (Fraser, Schoening-Thiessen, and Simkins, 2008). The benefits of adopting ERM processes are enhanced firm value and performance (Barton, Shenkir, and Walker, 2002; Gordon, Loeb, and Tseng, 2009; Hoyt and Liebenberg, 2011; Lam, 2003) as it may induce thoughtful firm-specific risk-taking (Wang, Barney, and Reuer, 2003). Nonetheless, empirical evidence is inconclusive on this matter. The obscurity of the ERM concept in the literature could explain these mixed findings (Kraus and Lehner, 2012). Moreover, the current literature on ERM has, to a large extent, been influenced by accounting and the normative-practitioner literature (Bromiley et al., 2014). Much of this literature has emphasized the role of ERM as a traditional control system by defining risk in terms of achieving organizational objectives. However, some scholars have stressed that rather than just validating corporate objectives, ERM could be of value in the processes of strategy-making (Andersen, 2008; Beasley, Branson, and Pagach, 2015; Frigo and Anderson, 2011).

Additionally, the relationship between ERM and firms’ value and performance has been argued to be contingent on internal conditions. For example, Gordon et al. (2009) suggest and

provide empirical evidence that firm size, firm complexity, and the encouragement of the board of directors constitutes internal key contingencies for the relationship between ERM and firm performance. Others have proposed that leadership style aspects such as encouraging people to speak up and report on risk and a culture that does not penalize or blame but reward such behavior are highly important contextual factors to ERM's success (Mikes and Kaplan, 2014; Spedding and Rose, 2008). So far the literature has not adequately addressed the impact of corporate culture on ERM implementation and practices (Fraser et al., 2008). As far as I know, no research to date has empirically investigated *leadership style* and the *employees' psychological safety for raising voice* and their effects on the relationship between ERM and its performance outcomes. Overall, the shortcomings in exploring risk management processes from a strategic management perspective have been accentuated by a number of scholars (Chatterjee et al., 2003; Power, 2007). For example Bromiley et al. (2014: 265) asserted: "regrettably, the evolving discussion about ERM has not been informed by relevant work in management on risk, strategic management, organizational change and other relevant topics."

The above short review of the literature on risk management from both a strategic management perspective as well as a management accounting perspective reveals that much of this research has been characterized by three major gaps: the lack of 1) studying strategy-making practices on risk outcomes; 2) exploring the relationship between management accounting practices such as interactive control systems and enterprise risk management and strategy-making practices; and 3) investigating internal contingencies that underpin effective risk management processes. Therefore, this thesis aims to synthesis literature from the strategic management field with management accounting, especially the management control literature and the emerging literature on ERM. Hence, the fundamental research question driving the dissertation is:

How does strategic risk management influence firms' ability to deal with risks that may affect long-term competitive advantage and corporate longevity?

Figure 1: Research papers and their respective research questions

Chapters	Papers	Specific research questions
Chapter 2	Linder, S. and Sax, J. (2015) 'Keeping up with aspirations: Middle manager participation in market-related decisions, emphasis on strategic planning, and firms' downside risk.' To this date under second review in <i>Journal of Management</i> (empirical)	How do the strategy-making practices; strategic planning and participative decision-making, affect downside risk?
Chapter 3	Andersen, T. J. and Sax, J. (2015) 'Seeking upside potential through integrative strategy-making and interactive controls.' (empirical)	What is the effect on firms' upside potential from interactive control systems? How are these potentials related to firms' strategy-making practices?
Chapter 4	Sax, J. (2015) 'Making risk management strategic: Integrating enterprise risk management with strategic planning.' (empirical)	How does ERM contribute to enhanced organizational performance? How can firms benefit from integrating the ERM process with strategic planning?
Chapter 5	Sax, J. and Torp, S. (2015) 'Speak up! Enhancing risk performance with enterprise risk management, leadership style and employee voice', <i>Management Decision</i> , 53(7). (empirical)	How is the relationship between ERM and effective risk management outcomes contingent on leadership style and organizational environment for raising voice?

1.5. Empirical data

All four of the papers in the dissertation empirically test hypotheses that have been derived from the literature on strategy-making practices, risk management processes, control systems, organizational leadership styles, and employees' psychological safety for raising voice. The empirical data was built with two sets of cross-sectional surveys. The first paper builds on a survey that was collected in 2009 by my co-authors, Stefan Linder and Simon Torp. It broadly targeted strategy processes in the largest 500 firms in Denmark (Linder and Torp, 2014; Linder,

2011; Torp, 2011). The Chief Financial Officer (CFO) was contacted from each firm in three rounds that resulted in 297 usable answers (i.e. a response rate of 59.4%)². The other three papers were built on a second survey that was collected in early spring 2013, together with Stefan, Simon, and Torben Juul Andersen. The survey included items on strategy, risk management and management control processes.

Several means of addressing *validity* and *reliability* concerns were used throughout the development of the questionnaire and the data collecting process. Validity refers to whether the observations meaningfully capture the ideas that are contained in the concept (Adcock and Collier, 2001); whereas reliability is “the ability of the instrument to measure consistently the phenomenon it is designed to measure”(Black and Champion, 1976: 222). Validity was addressed by using theoretically founded and, when possible, formerly tested items and by testing all measures in an exploratory factor analysis (EFA) to ensure Cronbach’s alphas of at least 0.7 (Nunnally, 1978). Further, to address the composite reliability, the Average Variance Extracted (AVE) as proposed by Fornell and Larcker (1981) was inspected. Also, discriminant validity was addressed by examining the square root of AVE for the correlated latent variables and to establish whether these values were larger than the correlations between the latent variables (ibid).

This dissertation develops a new measure that captures the ERM process based on a literature review of the risk management processes in the management literature and the normative-practitioner ERM literature. To address content validity, the items for the construct were initially tested through an informal discussion with a focus group of ten participants from five different firms about their different approaches to risk management. This test showed that

² Pls. see Linder (2011), Torp (2011), and Linder & Torp (2014) for a more thorough description of the data collecting process.

perceptions and experiences with risk management corresponded to the construct (DeVellis, 2011). The interactive control systems measure was also developed and was built on Simons' (1994, 2003, 2005) definition and description. The rest of the measures included in the survey were built on established scales and have been validated in an extant number of studies.

In a first step, the survey instrument was pre-tested on three managers to attain an idea of how the questions were perceived and to clarify the wording of certain questions. Subsequently, the survey instrument was provided to 45 managers from different firms, who were not included in the sample, to test the robustness of the constructs and to clear out any ambiguity. By pre-testing the items' content validity was addressed. Furthermore, these tests raised no major concerns, but prompted minor modifications. In the first round, a two-page questionnaire was sent by mail to the CFO and the Head of Sales/Marketing of the 500 largest firms in Denmark, which were measured by their number of employees. These firms covered a broad set of industries including manufacturing, construction, retailing, financial institutions and other professional services. The questionnaire asked the CFO about the firm's strategic planning and risk management processes, and the Head of Sales/Marketing about the firm's interactive control systems, decentralized decision-making (both in terms of participation and delegation), leadership style, and the employees' psychological safety for raising voice. After three weeks, a second letter was sent out to the firms that did not respond in the first round. These letters generated a total of 248 initial responses including 141 from the CFOs and 107 from the Heads of Sales/Marketing. In June 2013, the remaining executives that had failed to respond were initially contacted over the phone by a marketing agency. This approach generated 345 extra responses, thus resulting in a total of 593 responses of which 298 were from CFOs and 295 from the Heads of Sales/Marketing where 171 responses were overlapping. This left us with a response rate of approximately 60 %.

To determine whether a *nonresponse* bias existed, tests were conducted on the sector, size, turnover and a number of other financial data that compared the responding companies against the full population of the 500 largest companies in Denmark. These tests did not leave any cause for concern for such bias. The risk of *common method bias* was reduced by using multiple sources from each company and by using external financial data for measuring performance and risk outcomes that were collected from an official database that contained information on every Danish VAT-registered company, branch, and public body (Navne and Numre)³ (Podsakoff, MacKenzie, Lee, and Podsakoff, 2003). Furthermore, a Harman's single factor test was conducted in each paper to address any common-method variance.

1.6. Dissertation outline

Chapter 2 (Keeping up with aspirations: Middle manager participation in market-related decisions, emphasis on strategic planning, and firms' downside risk) deals with risk management from a strategic management perspective. In particular, it explores how the two strategy-making practices of strategic planning and participative decision-making affect a firm's risk outcome; more specifically, the downside risk element of this dual measure. The paper was the first study, to our knowledge, that looks at the implications for downside risk from these strategy practices. Considering downside risk as *explanandum* seems highly important as it may lead to a re-evaluation of strategic practices. This chapter also provides a general research framework of the dissertation, as strategy practices, in particular strategic planning, is an overarching concept throughout the thesis.

Chapter 3 (Seeking upside potential through integrative strategy-making and interactive controls) synthesizes the two overarching pieces of literature in the dissertation: the strategic management and the management accounting literature. It looks at the two strategy-making

³ <http://www.nnerhverv.dk/>

processes that the first paper concerns, but it also includes the delegation dimension of the decentralized decision-making construct in addition to participative decision-making, and it investigates the role of interactive control systems in the strategy formation process. More specifically, the chapter seeks to explore the interplay and effect of strategic planning, decentralized decision making, and interactive control on the upside dimension of the duality of the risk outcomes. Studying the upside dimension seems particularly relevant in that it goes in line with the logic of competitive advantage. Furthermore, the paper adheres to calls to explore the role of interactive control systems on strategy formation.

Chapter 4 (Making risk management strategic: Integrating enterprise risk management with strategic planning) further draws on strategic management and management accounting literature, more specifically the growing body of literature on ERM. Studying ERM seems highly warranted in that more and more firms are applying such risk management practices, and since the firms have been receiving increasing pressure from regulative bodies to adopt ERM. Although the literature on ERM recognizes that it should be integrated with strategic planning processes, no research has explored this relationship to date. The paper further seeks to develop a measure of the ERM process by reviewing the management literature on a firm's processes to notice, interpret and act on risk with strategic implications in combination with the process described in the normative-practitioner literature on ERM.

Chapter 5 (Speak up! Enhancing risk performance with enterprise risk management, leadership style and employee voice) investigates the role of participative leadership style and employees' psychological safety for raising voice as contextual influences on the effect on the risk performance from an ERM process. As a novelty in the risk management literature, the chapter draws on leadership and employee voice theory and explores the contingency

relationship between ERM and effective risk performance and the cultural factors of leadership style and the organizational climate for speaking up about risk.

While each chapter in this thesis individually addresses gaps in the literature, as a whole it seeks to enhance our understanding of the mechanisms that underlie firm's ability to deal with risks that may affect long-term competitive advantage and corporate longevity. Finally, the 6th *chapter* summarizes and discusses the findings as well as the overall contribution in light of the overall research question.

**CHAPTER 2: KEEPING UP WITH ASPIRATIONS: MIDDLE MANAGER
PARTICIPATION IN MARKET-RELATED DECISIONS, EMPHASIS ON
STRATEGIC PLANNING, AND FIRMS' DOWNSIDE RISK⁴⁵⁶**

ABSTRACT

Humans and organizations typically rely on reference points in judging performance and are particularly concerned about falling below the aspiration level set for their performance. However, we still know fairly little about the ways in which strategic management practices, processes, and tools affect the likelihood of such lower-tail outcomes. Considering their effects on what some have called “downside risk” may lead to a re-evaluation of practices, processes, and tools. Drawing on a survey of the largest firms in Denmark, we explore how middle manager participation in decision-making about new products and markets and senior managers’ emphasis on strategic planning reduce firms’ downside risk. Our results suggest that the emphasis put on strategic planning fully mediates the impact of middle manager participation on downside-risk.

Keywords: downside risk; strategic planning; participation; risk management; middle managers; aspirations

⁴ This chapter is co-authored with Linder, S.

⁵ The paper is under second revision in Journal of Management.

⁶ An earlier version of this paper has been presented at the Strategic Management Society Conference, 2012, Prague, and nominated for the Best Conference Paper Award and Practice Implications Award.

1. INTRODUCTION

Much of the behavioral sciences has it that humans and organizations rely on reference points in judging performance and are particularly concerned about falling below aspiration levels set for their performance (e.g., Benartzi and Thaler, 1995; Brenner, Rottenstreich, Sood, and Bilgin, 2007; Cyert and March, 1963; Kahneman and Tversky, 1979; March and Shapira, 1987). This wish to avoid missing the aspired performance is particularly easy to understand in the case of listed firms and their managers, who often see themselves heavily sanctioned via, for example, significant hits to their share prices or their careers, when failing to attain the performance expectations set for them, respectively. Empirical research in (strategic) management studying the organization-level outcome implications of certain practices or tools typically focuses on whether these practices or tools render firms (on average) more financially successful. Whereas obviously, high(er) levels of performance have better chances than low absolute levels to meet or exceed the aspirations, equating the two would be premature. Therefore, acknowledging the human aversion to missing the performance level aspired for, suggests that studying the impact of strategic management practices, processes and tools on what some have termed “downside risk” – that is: the probability of falling below the aspired level in the outcome variable – becomes an important and practically highly relevant subject in its own right.

Hence, it is not surprising that some scholars have started exploring what actions firms can take for lowering the probability of below-aspiration outcomes – for example, whether an increased reliance on joint-ventures and internationalization of operations are effective means (Andersen, 2011; Belderbos, Tong, and Wu, 2014; Reuer and Leiblein, 2000; Tong and Reuer, 2007). Yet, while some notable progress has been made in understanding the downside-risk implications of strategic management practices, much remains to be done. Even for some of the most intensively researched practices, processes and tools within strategic management, knowledge on their downside-risk implications remains scarce or is missing entirely.

Strategic planning and middle manager participation in decision-making provide a case in point. Both have attracted considerable research interest over the past decades and numerous studies have investigated their impact on firm performance (see Wolf and Floyd, 2013 and Wooldridge, Schmid, and Floyd, 2008, for an overview). In contrast, their implications for downside risk have not been explored. Given a lack both of theorizing as well as empirical evidence on the matter, we can only speculate about the downside risk implications of both practices. Moreover, we do not know how the two practices interplay in affecting downside risk: are the two practices complementary for lowering downside risk, are they conflicting with each other, or does one mediate the effect of the other?

We aim to help narrowing this gap in research and focus on what middle manager participation in decision-making about new products and markets (and hence, one particular field of middle manager participation in decision-making) and the firm's emphasis on strategic planning can contribute towards improving the chances that firms are able to live up to their performance aspirations – or differently put: towards lowering firms' downside risk.

Accordingly, we present theoretical reasoning and empirical evidence from among Denmark's 500 largest firms to that participation of middle managers in decision-making about new products and markets to serve reduces a firm's downside-risk via an increase in the emphasis senior managers put on strategic planning.

Our work thus contributes to management literature in at least two ways: It demonstrates how two practices – strategic planning and middle manager participation in decision-making – interplay in affecting the probability of falling below the socially aspired performance level. We thus add to the few empirical studies that so far have linked strategic management concepts to downside risk. We thereby equally respond to calls for combining insights from the strategy and risk management literatures in order to arrive at a more comprehensive understanding of how

organizational practices affect firm-level risk outcomes (Bromiley, McShane, Nair, and Rustambekov, 2014; Chatterjee, Wiseman, Fiegenbaum, and Devers, 2003).

Moreover, the evidence collected from firms in Denmark contributes to a more balanced international set of empirical findings available for ongoing theory building on managing downside risk, which so far has drawn largely on samples generated in a North American context (Miller and Leiblein, 1996; Reuer and Leiblein, 2000).

2. THEORETICAL BACKGROUND & HYPOTHESES

2.1 Why downside risk merits the attention of strategic management scholars

Literature associates middle managers' participation in decision-making with firms' ability to build and sustain competitive advantage by recognizing problems, opportunities and newly emerging trends early on and by facilitating devising appropriate responses to them (Burgelman, 1983; Foss, Laursen, and Pedersen, 2011; Kanter, 1982; Senge, 1990; Teece, 2007). Similarly, much of the literature on strategic management points to strategic planning processes as means for devising and coordinating appropriate responses to environmental developments that, in turn, allow building or sustaining a competitive advantage (e.g., Aguilar, 1967; Andrews, 1971; Ansoff, 1988; Bourgeois, 1980; Hofer and Schendel, 1978; Schäffer and Willauer, 2003). In both cases, the competitive advantage should translate in superior (financial) performance. Numerous empirical studies – particularly in the case of strategic planning (for an overview pls. see Cardinal and Miller, 2015; Miller and Cardinal, 1994) – therefore have investigated the performance effects of strategic planning and middle manager participation in decision-making.

Whereas the effects of strategic planning and of middle manager participation on firm performance thus have attracted significant scholarly attention, the role and interplay of these practices for lowering a firm's downside risk have not been explored yet. This seems a material omission from both a practitioner's perspective as well as for ongoing theory-building efforts.

From a practitioners' perspective, firms and their managers failing to attain the performance expectations set for them by investors or superiors often see themselves heavily sanctioned. Therefore, lowering the risk of missing these expectations is of keen interest to many practicing managers. Besides sophisticated risk management tools, use of appropriate (strategic) management practices and tools might contribute to reducing the danger of missing performance targets. Knowing which of the practices can be used for lowering downside risk is thus a prerequisite for practicing managers to reduce the likelihood of seeing their firms and themselves being sanctioned.

From a scholarly perspective, studying the downside risk implications of strategic management practices seems important, too. Much of the behavioral sciences has it that humans and organizations rely on reference points in judging performance and are particularly concerned about falling below aspiration levels set for their performance (e.g., Benartzi and Thaler, 1995; Brenner, Rottenstreich, Sood, and Bilgin, 2007; Cyert and March, 1963; Kahneman and Tversky, 1979; March and Shapira, 1987; Neumann and Böckenholt, 2014; see Shinkle, 2012 for a recent overview and review). This has led to a significant body of literature looking at how these organizational aspirations are formed and updated and how they affect, for example, organizations' decision-making, strategic choices, and risk-taking (Bromiley and Harris, 2014; Bromiley, 1991; Cyert and March, 1963; Fiegenbaum and Thomas, 1986; Fiegenbaum, 1990; Greve, 1998; March and Shapira, 1987; Parker, Krause, and Covin, 2015; Rudy and Johnson, 2013).

An important insight from this stream of research is, that managers often use their firm's past performance (historical self-aspirations) or that of other comparable organizations (social aspirations) to set such a threshold level (Cyert and March, 1963; Frecka and Lee, 1983; Lant, 1992; Lee and Wu, 1988; Lev, 1969; March and Simon, 1958; pls. see Shinkle, 2012, for a

review). Correspondingly, they also associate risk more with the potential for losses and adversity than with variance in outcomes (Mao, 1970; March and Shapira, 1987).

Consequently, empirical studies using downside risk may be better at capturing what managers (and their organizations) perceive as risk than studies using variance measures of risk (Capel, 1997; Miller and Leiblein, 1996; Miller and Reuer, 1996). Therefore, some finance and risk management scholars have started questioning the prominent role given in much of the literature and practice to volatility (i.e. variance) measures of risk and suggested that semi-variances may be better risk measures (Stulz, 1996), from a behavioral perspective as they more closely mirror the prominent human concern for falling below an aspired performance level (Chatterjee et al., 2003).

Similarly, some management scholars have started shedding more light at what actions managers can take for lowering the probability of below-aspiration outcomes. In particular, the possibility to reduce downside risk through a greater reliance on joint-ventures and internationalization of operations has attracted scholarly attention in recent years (Andersen, 2011; Belderbos et al., 2014; Reuer and Leiblein, 2000; Tong and Reuer, 2007). Yet, while some notable progress has been made in understanding the downside-risk implications of (strategic) management practices, much remains to be done. That is: more analyses where a performance discrepancy is not the *explanaans*, but the *explanandum* are necessary in order to both, provide better guidance to business practitioners and to further theory-building efforts about various practices, processes, and tools of strategic management.

We aim to help narrowing this gap in research by exploring how middle manager participation in decision-making about new products and markets and a firm's emphasis on strategic planning can contribute towards improving the probability that firms are able to live up to their performance aspirations – or differently put: towards lowering firms' downside risk. To the best of our knowledge, extant empirical work has not studied the impact of involving middle

managers in decision-making about new products and markets to enter on downside risk at all. Likewise, we are not aware of any study shedding light at the role of strategic planning in reducing the probability of falling below social aspirations. Yet, a number of studies have shown that planning has a positive relationship to organization-level performance outcomes (e.g., for review pls. see Cardinal and Miller, 2015; Miller and Cardinal, 1994; Rudd, Greenley, Beatson, and Lings, 2008). Moreover, Sheehan (1975) found that planning reduces fluctuations in firms' performance. Similarly, Capon et al. (1994) and Delmar and Shane (2003) show that strategic planning increases the likelihood of survival of the firm as an entity. Whereas performance, fluctuations in performance, and survival of firms are undoubtedly important outcomes, these studies do not allow directly drawing conclusions about strategic planning's role in reducing the probability to miss social aspirations set for a firm's performance.

2.2 The role of participative decision-making for reducing downside risk

Middle managers are often much closer to operations than top managers are. This allows middle managers to gain unique knowledge of market developments, shifts in customer wishes, competitor moves, or new upstarts promising to shake an industry out of its current equilibrium (e.g., Burgelman, 1983; Kanter, 1982; Mahnke, Venzin, and Zahra, 2007; Mintzberg, 1994; Pascale, 1984; Wooldridge and Floyd, 1990). Such knowledge is useful in identifying threats and opportunities; since "middle managers have their fingers on the pulse of operations, they can also conceive, suggest and set in motion new ideas that [top] managers may not have thought of" (Kanter, 1982: 96). Firms thus stand to benefit from processes and practices that facilitate using middle managers' knowledge and ideas as these processes and practices heighten firms' ability to build and sustain competitive advantage by recognizing problems and trends early on (Burgelman, 1983; Foss et al., 2011; Kanter, 1982; Senge, 1990; Teece, 2007).

Creating a corporate culture that facilitates issue selling activities (Dutton, Ashford, O'Neill, Hayes, and Wierba, 1997) is one way to tap into middle managers' knowledge. Having

middle managers participate in decision-making about new products and new markets to serve or initiatives aiming at strengthening the firm's position in the markets already served by the firm, is another (Andersen and Nielsen, 2009). It allows consideration of more views and perspectives (Amason, 1996; Denison, 1984; Dyson and Foster, 1982) in decision-making and has been associated with improved idea generation (Jelinek and Schoonhoven, 1990; Schilit, 1987) and quality of decisions (Floyd and Wooldridge, 1997; Wooldridge and Floyd, 1990). In particular, when "solving complex, non-routine problems, groups are more effective when composed of individuals having a variety of skills, knowledges, abilities and perspectives" (Bantel and Jackson, 1989: 109). Therefore, literature on employee participation in decision-making has it for many years now that cognitive diversity positively influences decision-making (Amason and Schweiger, 1994; Bantel and Jackson, 1989; Olson, Parayitam, and Bao, 2007). Provided the same holds true for managerial levels, middle managers' participation in decision-making about products and markets should lead to improved idea generation and enhanced quality of decisions that further firm performance. Likewise, it should help reduce the risk of firms falling below the social aspirations for their performance.

Consideration of more views and perspectives in decisions-making due to middle manager participation may also help overcome internal resistance to the decisions made. It allows various constituencies within the firm to share potential concerns early on and, hence, the firm to devise ways of reducing these concerns. Opposing a decision and justifying foot dragging or other practices that slow down the implementation of the decision is more difficult if middle managers were involved in the respective decisions about new products and markets than if these decisions were taken by the senior management team without the participation of middle managers. Middle managers' participation in decision-making thus should contribute to enhanced firm performance and reduced downside risk as it allows reducing resistance to change.

Besides enhancing the quality of decisions and reducing foot dragging activities, granting middle managers a material say in market- and product-related decisions, implies an increase in middle managers' influence and power – and a reduction in the one of senior managers (if the participation is not merely lip service, but is a credible commitment of senior managers, which in turn is an important pre-requisite for benefitting from middle managers' knowledge via participation in the long run). A number of different theories of human motivation suggest that influence and power are motivators. For example, power has been found in numerous studies by McClelland and colleagues to be an important motivator (McClelland and Burnham, 2003). Deci and Ryan (1985), in contrast, point to the central role of needs for self-determination, which are easier to satisfy if one has an experience of choice and an influence over one's destiny (Deci and Ryan, 1985; Gagné and Deci, 2005; for similar thoughts within personal control theory see also Landau, Kay, and Whitson, 2015). Therefore, the increased influence over their and their firm's destiny and actions that middle managers gain from being involved in decision-making about markets and new products should further their motivation. Enhanced motivation of middle managers, in turn, can be expected to lead to greater effort and persistence in their efforts, which should help their units at countering adverse environmental effects or at overcoming challenges related to the exploitation of new business opportunities. Just like enhanced decision quality and lower resistance to the decisions made, higher motivation of middle managers should thus increase firm performance and lower the risk of missing the social expectations for the firm's performance. This leads to our first hypothesis:

H1: Middle management participation in market and product-related decisions reduces a firm's downside risk.

2.3 The role of strategic planning in reducing downside risk

In addition to calling for an increase in middle managers' participation in decision-making, much of the literature on strategic management points to strategic planning as means for

devising and coordinating appropriate responses to developments in the firm's environment that allow for building or sustaining a competitive advantage (e.g., Aguilar, 1967; Andrews, 1971; Ansoff, 1988; Bourgeois, 1980; Hofer and Schendel, 1978; Schäffer and Willauer, 2003). Definitions of strategic planning vary, but most of these definitions highlight a firm's emphasis on means and ends through the development of the firm's mission, long-term objectives and plans for attaining them, as well as an ongoing monitoring of the achievement of the strategic objectives as central characteristics of strategic planning (e.g., Andrews, 1971; Ansoff, 1988; Boyd and Reuning-Elliott, 1998; Cohen and Cyert, 1973). In fact, conceptual literature seems to provide for (at least) three avenues by which the activities implied by strategic planning may help in fostering adaptation and lowering downside-risk: improved decision quality, heightened motivation due to clear goals, and enhanced coordination of efforts necessary for addressing challenges.

The strategic planning process helps at creating "the discipline to pause occasionally to think about strategic issues" (Porter, 1987: 17) and thus to avoid allowing day-to-day decision problems to take precedence over thinking about the future (March and Simon, 1958). Firms using strategic planning have been described as "more likely to identify opportunities, quantify risk factors, and avoid threats" (Kudla, 1980: 13). This is likely to foster both the quality of the decisions made; better quality decisions in turn should help attain higher performance and thus likely also reduce the probability of missing to attain the social aspirations for the firm's performance.

Besides fostering the quality of decisions, much of the literature points towards strategic planning's contribution to achieving a shared understanding among managers of the firm's objectives, priorities, and the preferred means for attaining the goals (Hrebaniak and Snow, 1982; Priem, 1990) and thus to its role in providing "unity of direction and coherence of managerial effort" (Camillus, 1975: 35; see also Grant, 2003; Wolf and Floyd, 2013). Such a

shared understanding is often critical for successful implementation of a decision and an antecedent to enhanced firm performance (Dess, 1987). Moreover, through a clarification of the organization's mission and goals, strategic planning establishes boundaries for the activities of individual units, departments, and managers (Grant, 2003; Jarzabkowski and Balogun, 2009; Ketokivi and Castañer, 2004). Strategic planning thus can be said to guide efforts (Lovas and Ghoshal, 2000); to facilitate judging alternative courses of actions with respect to them fitting with the organization's mission (including which actions are "off limits"); and to support speedy and effective reaction through coordinated actions of different organizational units (Andrews, 1971; Ansoff, 1988; Grant, 2003; Schendel and Hofer, 1979). Enhanced coordination of activities and reduced double-work or frictions between units and projects, thus, should translate into enhanced performance and lowered risk of missing to attain the performance aspirations.

Besides enabling individuals to achieve high performance by guiding their efforts, strategic planning may also enhance the motivation of individuals. Precise rather than vague goals have been found to foster individual's motivation, effort, persistence, and performance (e.g., Locke and Latham, 1990; Mento, Steel, and Karren, 1987; Tubbs, 1986). The activities implied by strategic planning, notably: clarifying the longer term goals and the means for achieving them, help at shaping a firm-wide understanding (Camillus, 1975; Hrebaniak and Snow, 1982; Priem, 1990), which reduces ambiguity in objectives, means for attaining objectives, and the roles of individual units and managers (Ketokivi and Castañer, 2004). Taken together, enhanced decision quality, stronger motivation, and improved coordination, should translate into superior performance. Hence, just like having middle managers participate in decision-making, strategic planning seems a promising tool for practitioners for lowering the probability that their firm fails to attain the social aspirations for its performance.

2.4 How participation and strategic planning interplay in reducing downside risk

Both strategic planning as well as having middle managers participate in decisions about new products to offer or markets to serve should thus heighten the quality of the decisions that the firm makes and enhance motivation of middle managers. On top of these effects shared by both practices, literature sees strategic planning fostering coordination of activities. Participation, in turn, may help reduce resistance to the decisions made and hence facilitate adaptation. This raises the question of whether and how the two practices interplay – that is, whether the one strengthens the effects of the other (i.e. the two are complementary practices), whether combining the two results in a smaller reduction in downside risk than using one of them individually due to the two practices being incompatible for some reason (i.e. conflicting practices), or whether one of them is, in fact, only an antecedent to the others' effects, but does not have a direct effect on downside risk itself (i.e. one mediating the effect of the other). Answering this question seems particularly important given that both practices consume time and managerial attention – two scarce organizational resources (Gifford, 1992, 1999; Ocasio, 1997). Given the dearth of conceptual as well as empirical research on the downside-risk implications of strategic planning as well as middle manager participation in decision-making, no answer can be given to which of these alternative relations apply in practice for the downside risk implications of the two practices. There is some evidence on how participation and strategic planning are related in their impact on firm performance. For example, Andersen and Nielsen (2009), drawing on a U.S. sample, find that strategic planning partially mediates the joint effect of middle manager participation and autonomy on firm performance. Given this finding, one may be tempted to conclude that a mediation model may be the best for explaining the interplay of participation and strategic planning on downside risk. Yet, this might be a too hasty conclusion. Andersen and Nielsen (2009) study the indirect effect of both participation and autonomy via strategic planning on firm performance, but do not look at the individual effects of

participation and autonomy. This makes drawing conclusions about the relation of participation and planning difficult. If either participation or autonomy had have a direct effect, but not the other, this would explain Andersen and Nielsen (2009) finding a partial mediation. Thus, based on their study it is not possible to conclude whether middle manager participation in market and product-related decisions has a direct, independent effect (alongside strategic planning's effect) on performance (and, hence, even less so for downside risk) or only an indirect effect via strategic planning. Further complicating matters is that some scholars suggest participation and strategic planning to be complementary practices while others see them as conflicting (e.g., Mintzberg, 1994). Interestingly, the latter view received empirical support by yet another study by Andersen (2004) in which he found strategic planning and middle manager participation in decision-making to interact negatively in affecting firm performance (albeit only at the $p < 0.10$ level). Thus, his empirical results stand in contrast to those by Andersen and Nielsen (2009) and supporting rather an interaction (“moderation”) model than a mediation model.

Moreover, it might be possible that the relations between participation and strategic planning in reducing downside risk differ from those with performance as a dependent variable if the increase in performance caused by one or both of these practices would not be large enough so to significantly reduce the likelihood of falling below the social aspirations set for the firm's performance. Closer investigation of the interplay between middle manager participation in product and market-related decisions and the emphasis on strategic planning therefore is necessary.

Strategic planning and participative decision-making as conflicting. Several scholars submit that strategic planning and middle manager participation in decision-making each may be effective means when used individually, but may be difficult to combine. For example, Mintzberg, (1994) asserts that decentralizing decision-making by involving middle managers in strategic decision-making conflicts with the inherent nature of strategic planning processes of

centralizing and focusing on controlling the echelons below top management. The idea is that, introducing strategic planning in a firm that strongly involves middle managers in decision-making may reduce the effectiveness of a participatory management style for motivating middle managers. Since strategic planning implies a clarification of those activities, markets, and projects that the firm wants to engage in, it puts other activities, markets, and projects “off limits” thereby putting boundaries on what can be done (Jarzabkowski and Balogun, 2009; Ketokivi and Castañer, 2004). If middle managers perceive strategic planning as limiting what activities, markets, and projects they “legitimately” can engage in, this might reduce middle managers’ felt self-determination and, hence, following Deci and Ryan’s (1985, 2000) Self-Determination Theory, middle managers autonomous motivation for high effort. Emphasizing strategic planning might thus undermine the motivational effect of increased middle manager participation in decision-making. This would suggest that firms might be better off with either emphasizing strategic planning or granting a large say to middle managers in decision-making, but that a combination of both of them might not be optimal for lowering downside risk.

This reasoning would be compatible with the results of a study by Andersen (2004) on the relations between participation, strategic planning, and firm performance. While focused on firm performance and not downside-risk, his analysis of firms in the U.S. food, household, and the computer products industries, points towards a statistically significant negative interaction effect of participation with strategic planning on firm performance. Lower performance, in turn, potentially increases the likelihood of missing the performance expectations, i.e. downside risk. Thus, for firms relying on middle manager participation in decision-making for lowering their downside risk, emphasizing strategic planning should weaken the negative relationship between participative decision-making and the likelihood of falling below the aspired performance. Differently put:

H2a: The more a firm emphasizes strategic planning, the smaller the reduction in downside risk due to participative decision-making.

Planning and middle manager participation as complementary. Looking at the effects of strategic planning and middle manager participation in decision-making outlined earlier, a complementary relationship seems another plausible possibility. Both practices are considered beneficial for the quality of decisions made at the firm and the motivation of middle managers. Yet, some writers stress that strategic planning helps at enhancing coordination by fostering a shared understanding of objectives, priorities of objectives, and means for achieving them (Ansoff, 1984; Grant, 2003; Vancil and Lorange, 1976). If one subscribes to this idea, then strategic planning would offer a benefit that middle manager participation in decision-making alone would not offer. Likewise, as discussed, participation of middle managers in decision-making may lower organizational resistance to these decisions, thereby facilitating adaptation and lowering downside risk. Consequently, firms employing strategic planning and middle manager participation jointly might experience lower downside risk than firms relying only on either of the two.

In line with these thoughts, Grant (2003) in his seminal study of oil companies found that strategic planning in these firms served as an important means for coordinating and controlling the actions of management. Formal strategic planning thus can be said to guide middle managers' search for market and technological opportunities and threats; to enhance the sorting of these opportunities and threats into different grades in terms of fit with and impact on the achievement of the organization's mission and available resources; and to support speedy and effective reaction through the coordinated actions of different organizational units (Andrews, 1971; Ansoff, 1988; Schendel and Hofer, 1979). This seems important, as strategic planning thereby might help keeping some undesired side effects of middle manager participation at bay. Increased participation of middle managers in decision-making not only

implies the benefits for lowering downside risk discussed before, but it equally opens up more leeway for opportunistic behavior by middle managers; in particular, it provides room for destructive entrepreneurship, such as new forms of rent seeking, hold-up creation, or moral hazard (Foss and Foss, 2002; Foss and Klein, 2012). Likewise, for reasons of “micro-politics,” it may lead to the spreading of the organization’s resources across too many projects and ideas (Collier, Fishwick, and Floyd, 2004). The content of decisions in such a setting emerges from internal dynamics; in order to “get their way,” senior managers in firms that invite middle managers in decision-making may have to make many “political deals” (Pettigrew, 1973). Strategic planning can help curb some of these tendencies as it sets boundaries for the activities of individual units, departments, and managers (Grant, 2003; Jarzabkowski and Balogun, 2009; Ketokivi and Castañer, 2004).

Thus, firms emphasizing strategic planning while giving a substantial say to their middle managers in the decision-making about products and markets, may not only benefit from the desirable effects of participatory decision-making, but may equally be better able to keep its undesirable side-effects at bay. Consequently, the more an organization complements its participative decision-making with an emphasis on strategic planning, the more it should be able to reap the full potential offered by participatory decision-making for lowering the firm’s downside risk. This leads to the following hypothesis.

H2b: The more a firm emphasizes strategic planning, the larger the reduction in downside-risk due to participative decision-making.

Planning as a mediator in the participation-downside risk relation. Apart from middle manager participation and strategy planning being conflicting or complementary, a third alternative seems possible if middle manager participation in decision-making influences senior managers’ awareness for challenges and if one assumes them to believe in strategic planning

having beneficial effects – such as the enhanced decision quality and increased motivation and coordination that we discussed earlier.

Given differences between senior managers' and middle managers' perception of the environment due to their different backgrounds and experiences (e.g., Mahnke et al., 2007), having middle managers participate in decision-making should lead to more diverse and more cognitively distant views being discussed during decision-making (Miller, Burke, and Glick, 1998; Miller and Monge, 1986). This increases top management's cognitive diversity (Eddleston, Otondo, and Kellermanns, 2008) and heightens senior managers' awareness of the market and/or product-related challenges that the firm faces. Greater awareness of environmental jolts should heighten senior managers' willingness to invest scarce time and attention into practices, processes or tools that are considered conducive to devising and implementing appropriate responses to these challenges. Provided they believe into strategic planning offering such benefits as the ones discussed earlier, chances are good that many senior managers will see strategic planning a promising means for doing so. Thus, they should heighten the emphasis their organization puts on strategic planning.

Such a response to their increased cognitive diversity and enhanced awareness of the challenges that the firm faces is likely for at least two reasons: Firstly, stock markets have been found to value firms' engagement in strategic planning (Desai, 2000). This suggests that many investors active on stock markets truly believe in strategic planning making a material difference. We do not know whether these investors ascribe to strategic planning the effects that we discussed above, such as, enhanced decision quality and improved coordination of activities and motivation. Yet, there is little reason to assume that senior managers in firms may not share a belief about the effectiveness of strategic planning if investors have such a belief. Consequently, it seems fairly likely that senior managers in firms see strategic planning as a

promising means for addressing the challenges which they got aware of during their exchanges with middle managers participating in decision-making.

Secondly, given the new insights senior managers gain by discussing more diverse and more cognitively distant views when having middle managers participate in decision-making (Miller, Burke, and Glick, 1998; Miller and Monge, 1986), senior managers should experience a loss in perceived control over the environment. Through the exchanges with middle managers they learn about market trends, technological developments, or competitor moves that they likely have not been aware of since middle managers are often closer to the market (e.g., Mahnke et al., 2007). Yet, much evidence suggests that humans have an innate need to feel a sense of mastery in effecting change, in a desired direction, on the environments that they are in (e.g., De Charms, 1968; Friesen, Kay, Eibach, and Galinsky, 2014; Greenberger and Strasser, 1986; Landau et al., 2015; Thompson and Schlehofer, 2008). As a consequence, humans “normally respond to events and cognitions that reduce personal control with efforts to restore perceived control to baseline levels” (Landau et al., 2015: 694; Brehm, 1966; Wicklund, 1974). Thus, empirical research on responses to threatening environmental events, for example, suggests that humans react to such experiences through a search for meaning, efforts to (re-)gain a sense of mastery, and self-enhancement activities (Taylor, 1983, 1991). Since strategic planning is often portrayed as an effective means for devising and coordinating appropriate responses to environmental developments and to thereby facilitate building or sustaining a competitive advantage (e.g., Aguilar, 1967; Andrews, 1971; Ansoff, 1988; Bourgeois, 1980; Hofer and Schendel, 1978; Schäffer and Willauer, 2003), it seems very likely that increasing the emphasis put on strategic planning looks like a promising way for senior managers for regaining a sense of mastery over the environment.

Finally, this reasoning also resonates well with findings on the impact of affect on the information processing of humans; specifically, individuals with a negative mood - as it often

results from learning about challenging developments or problems - have been found to engage in more efforts to gather diagnostic information, more complex information processing strategies, and less use of cognitive heuristics (e.g., Hildebrandt-Saints and Weary, 1989; Sinclair, 1988; Taylor, 1991). Hence, “decision makers’ cognitions and motivations systematically affect the processing of issues and the types of organizational actions taken in response to them” (Dutton and Jackson, 1987: 76). Since middle managers’ participation in strategic decision-making is likely to affect senior management’s cognition regarding their firm’s status and prospects by highlighting challenges and opportunities, middle manager participation is therefore likely to affect the emphasis top management places on strategic planning as a rational means of information processing.

Therefore, the beneficial effect ascribed to having middle managers participate in decision-making for lowering downside risk, should be mediated (at least partially) by the firm’s emphasis on strategic planning. Mediation is said to exist “when the relationship between a predictor and an outcome variable occurs through a third variable; this third variable is referred to as a mediating variable” (Miller, Triana, Reutzler, and Certo, 2007: 296). This leads to our third alternative hypothesis about how middle management participation and strategic planning interplay.

H2c: The beneficial impact of participative decision-making on downside risk is (at least partially) mediated by the emphasis on strategic planning.

3. METHODS

3.1 Data

To reduce dangers associated with common method bias, we relied on two sources of data for testing the hypotheses: (1) primary data collected by means of a mailed questionnaire on middle manager participation and emphasis on strategic planning and (2) secondary data on the firms’

financial situation, industry affiliation, size and age, as reported in Navne and Numre (<http://www.nnerhverv.dk/>), a database that contains information on all Danish VAT-registered companies, branches, and public bodies.

After a pre-test with a sample of 55 managers from medium-sized firms (not included in the main sample), we contacted the CFOs or heads of finance of Denmark's 500 largest firms using a mailed questionnaire in 2009. These 500 firms cover a broad set of industries, including basic material, manufacturing, utilities, retailing, financial services, and other professional services. A mailed follow-up reminder and subsequent phone calls to the non-responding firms served to increase response rate. Careful inspection of responses for completeness and consistency, combined with the availability of the data for calculating downside risk in the Navne and Numre database, left us with 216 usable responses for the subsequent analysis, representing a response rate of 43%. This response rate compares favorably to those of other studies on topics regarding strategic planning conducted on European samples (see exemplarily Rudd, Greenley, Beatson, and Lings, 2008; Schäffer and Willauer, 2003).

Comparing the responding firms' characteristics (such as number of employees, turnover, industry, firm age, etc.) with those of the overall 500 firms and responses from early with late respondents (Armstrong and Overton, 1977) did not point to non-response bias threatening the validity of the results of our subsequent analyses.

Since the data on both middle manager participation and the emphasis on strategic planning were collected within the same survey instrument from the same key informant, we tested for common method bias with respect to these two variables by conducting Harman's one-factor test (Podsakoff, MacKenzie, Lee, and Podsakoff, 2003). The factor analysis underlying this test identified two factors (with the items falling onto their conceptualized factors) and only one item exceeded the common threshold of .30 for cross loadings (with a

cross loading of .34). As discussed in the following section, this item was subsequently removed, as it loaded little on either of the two constructs.

3.2 Measures

Participative decision-making. Inclusion of middle managers in market-oriented decision-making was measured based on a sub-scale of a broader instrument developed by Andersen and Nielsen (2009). Responses were collected on Likert scales ranging from 1 (never) to 7 (always). The three-item Likert scale instrument focuses on the participation of middle managers in market- and product-related decisions (see Appendix A for the exact wording of items). The scale exhibited a satisfactory Cronbach's alpha of .88 for the present sample, and the underlying factor explained 81 percent of the variance. Factor loadings ranged from 0.83 to 0.94.

Emphasis on strategic planning. CFOs were asked to assess their organizations' emphasis on formal strategic planning on a scale developed by Boyd and Reuning-Elliott (1998). We followed several other authors (e.g., Andersen and Nielsen, 2009; Andersen, 2000; Rudd et al., 2008) in using this scale to capture formal strategic planning. Responses were collected using 7-point Likert scales (1=no emphasis; 7=strong emphasis). The reflective scale exhibited an acceptable Cronbach's alpha of .74 for our Danish sample. However, variance explained was of only 51 percent, and a confirmatory factor analysis suggested that one item should be dropped to increase fit. As in Rudd et al. (2008), this item ("emphasis on short-term action plans") in our sample loaded little onto the common factor underlying the other strategic planning items taken from Boyd and Reuning-Elliott (1998). Moreover, it exhibited some cross-loading with the items used for assessing middle manager participation thus raising concerns about discriminant validity of the two constructs. After dropping this one item, the revised reflective scale of strategic planning maintained a Cronbach's alpha of .74, and standardized factor loadings range between 0.73 and 0.80. With Chi-square (2df) of 2.295 (i.e. $p = 0.3175$), RMSEA = 0.026, CFI = 0.999, TLI = 0.996, and SRMR = 0.015, the revised scale exhibited

satisfactory fit. A confirmatory factor analysis on the remaining items of both middle manager participation and strategic planning showed statistically significantly better fit, with items loading onto their conceptualized dimensions, for a two-factor model than for a single-factor model. Appendix B provides details on the measurement of this variable.

Downside risk. Since our study relies on a broad sample of firms (both listed and unlisted), market-based measures of performance – and hence risk – are not available for a large number of the firms. Therefore, we followed the stream of literature in strategic management that uses return on assets (ROA) to calculate the downside risk (e.g., Miller and Leiblein, 1996; Andersen, 2011; Belderbos et al., 2014). In line with previous literature on downside risk (e.g., Belderbos et al., 2014; Miller and Leiblein, 1996; Miller and Reuer, 1996; Reuer and Leiblein, 2000; Tong and Reuer, 2007), we followed Fishburn (1977), who introduced a general definition of downside risk in the form of lower partial moments. Following the operationalization of downside risk provided by Miller and Leiblein (1996), downside risk is defined in terms of the target level of return (IROA), and the relative importance of returns below the target (α):

$$\text{Downside risk} = \sqrt{\frac{\sum(IROA_{t-1} - ROA_t)^\alpha}{n}}; \quad \text{for } ROA_t < IROA_{t-1}$$

$$t = 2008, 2009, \dots, 2012$$

We further followed literature on social aspirations (e.g., Frecka and Lee, 1983; Lee and Wu, 1988; Lev, 1969) and set firm's aspiration level equal to the industry's previous year's average performance ($IROA_{t-1}$) (Reuer and Leiblein, 2000). Thus, if a firm is outperforming its peers, downside risk is set to zero. On the contrary, a high downside risk implies that the firm has a large dispersion of its ROA below the target IROA, i.e. the firm is underperforming relative to the industry. We computed downside risk using ROA over a five-year period and assumed that firms adapt their target level on an annual basis. The five-year period of 2008-

2012 was chosen to obtain sufficient data to construct the downside risk measure while assuming stability in the independent variables. Choice of the second-order root lower partial moment seems justified as empirical studies suggest a coefficient α of loss aversion of about two. Neumann and Böckenholt (2014), for example, found in a meta-analysis across 109 studies on consumers' product choice decisions an average coefficient of 1.73, Bleichrodt, Pinto, and Wakker (2001), a coefficient of 2.17 for health-related outcomes, Tversky and Kahneman (1992), a coefficient of 2.25 for money-related losses, and Pennings and Smidts (2003), equally relating to monetary outcomes, a coefficient of loss aversion of 1.81.

Controls. Organizational slack can act as a buffer against environmental uncertainties (Bourgeois, 1981; Cohen, March, and Olsen, 1972) and allow firms to experiment and undertake investments in strategic opportunities reducing downside risk (Miller and Leiblein, 1996). To control for *slack* resources, we included a subjective measure of financial slack developed and verified by Nohria and Gulati (1996), since most of the ratios used for assessing slack in the literature either are industry-specific – implying that differences in the ratios may reflect industry differences rather than differences in the managerially relevant level of slack in a broad sample such as ours (Miller and Leiblein, 1996) – or relate to data (such as cash flow information) not available to us. Since prior research has yielded mixed results on the functional relationship of slack with performance, we allowed slack to exhibit both a linear and an exponential relationship in the analyses.

Miller and Cardinal (1994) found that *industry* effects may explain a significant part of firm performance. To control for such an influence, we used data on the firm's main industries in terms of NACE codes (the European Commission's equivalent to the United States' SIC codes) from the Navne and Numre database.

Past research suggests that firm *size* may affect strategic processes (e.g., Lindsay and Rue, 1980; Rauch, Wiklund, Lumpkin, and Frese, 2009) and that organizational outcomes such

as size reflect past and possible present success. Therefore, we included size as a control variable. Consistent with previous studies of the formal strategic planning–performance relationship (e.g., Ketokivi and Castañer, 2004; Love et al., 2002; Miller and Cardinal, 1994), firm size was operationalized as the natural logarithm of the number of employees reported for each firm.

Diversity in markets served and environments encountered can contribute to a *diversification* of firm risk (e.g., Bettis and Mahajan 1986). Based on the studies of Varadarajan and Ramanujam (1987) and Wood (1971), we used the number of different four-digit NACE codes in which a firm operates to control for diversification. Similar to diversification, the literature suggests that *internationalization* can affect downside risk (e.g., Andersen, 2011; Reuer and Leiblein, 2000). To account for such an influence, we followed Tallman and Li (1996) in relying on the number of foreign countries in which a firm operates to approximate internationalization. We tested both diversification and internationalization for linear and exponential relationships in the analyses.

Additionally, we controlled for *stock exchange listing* and *firm age*. Stock exchange listing might facilitate access to financial resources necessary for adaptation and exploitation of market opportunities through the introduction of new products or services into the market. In contrast, firm age might lower environmental adaptation due to the tendency for an organization to become increasingly bureaucratic and formalized as it matures, which might interfere with both the benefits of strategic planning and middle management participation in strategic decision-making.

3.3 Method of data analysis

Two of the constructs of interest to us were latent variables: middle manager participation in market- and product related decision-making and strategic planning. This suggests the use of structural equation modeling (SEM) to test the hypotheses. SEM allows us to address problems

resulting from measurement error (Miller, Triana, Reutzler, and Certo, 2007), which might bias studies of mediation effects (Miller et al., 2007; Shaver, 2005) and thus would pose a significant threat to testing H2c. Therefore, we relied on SEM in the following analyses. However, a significant proportion of the observations for downside risk obtained a limited value of zero; thus, the maximum likelihood estimator commonly used in most research employing SEM in the strategic management field is not applicable to our data. The censored nature of our dependent variable requires an appropriate estimation technique and implies certain challenges for testing model fit as well as the significance of mediation effects.

We followed recommendations in the literature for handling such censored data by employing the Weighted Least Squares with Mean and Variance (WLSMV) adjustment as the parameter estimation method (Muthén, 1993). WLSMV is similar to the Asymptotically Distribution-Free (ADF) estimator; however, it is less computationally demanding and is suitable for smaller sample sizes than ADF. Thus, it fits with our sample size of 216 observations. In addition, WLSMV has generally outperformed the ADF estimator in terms of convergence to a proper solution under common data conditions (e.g., Beauducel and Herzberg, 2006; Flora and Curran, 2004). It has also been found to be more efficient than traditional Weighted Least Squares (WLS) (Asparouhov and Muthén, 2010).

Many statistical approaches for testing the significance of indirect effects (and thus for testing our hypothesis 2c) assume normally distributed data. Hence, tests such as the Sobel test (Sobel, 1986) cannot be applied to our data. However, bootstrapping is possible, and bias-corrected bootstrapping with an inspection of the confidence levels for indirect effects is the practice currently recommended for testing mediation effects with the type of non-normally distributed data that we face (e.g., MacKinnon, Lockwood, and Williams, 2004; MacKinnon, 2008). Therefore, the following analyses relied on (bias-corrected) bootstrapping for testing the statistical significance of the indirect effects as well as the significance of relationships in our

models in general. Bootstrapping implies that no assumptions about the shape of the sampling distributions need to be made, which may be violated by the actual distribution of the data. In addition, bootstrap confidence intervals have been found to be more powerful for mediation analysis than other approaches, such as the normal theory approach (Hayes, 2013; Williams and MacKinnon, 2008). To enhance the robustness of these tests, we drew 10,000 bootstrap samples for each model (Hayes, 2013).

As when testing the statistical significance of indirect effects, many of the indices recommended in the SEM literature for assessing model fit do not go together well with the nature of our data (Kline, 2005). Thus, for example, the common Chi-square measure requires multivariate normality for the statistic product of $(N-1)*F$ (where $N-1$ are the overall degrees of freedom in the sample and F is the value of the statistical criterion minimized in the estimation) to be distributed as a Pearson chi-square statistic (see Kline, 2005). Non-normal distribution of endogenous variables in a model thus is likely to lead to erroneous rejections of correct models when relying on the standard Chi-square indicator of model fit (*ibid.*). Thus, the Satorra-Bentler chi-square statistic cannot be used to test the equal fit hypothesis for two hierarchical models (Kline, 2005). Similarly, use of the Steiger-Lind Root Mean Square Error Approximation (RMSEA) is problematic in our case, as the derivation of the confidence interval for an RMSEA point estimate is unknown for the WLSMV estimator (Muthén, du Toit, and Spisic, 1997). Under WLSMV, even the degrees of freedom are estimated, rather than fixed as with more “classical” estimators, and therefore depend on both the model and the data. Hence, the degrees of freedom under WLSMV do not have a substantively interpretable meaning as in regular chi-square testing. Moreover, the two common indices for judging comparative fit of non-nested models, BIC and AIC, are not available for WLSMV. Hence, the censored nature of our dependent variable implies challenges for assessing the fit of alternative SEM models.

Given these issues with assessing fit when using the WLSMV estimator, Muthén and Muthén (2001) developed the WRMR (Weighted Root Mean Square Residual) as a fit index for SEM under WLSMV. WRMR follows a variance-weighted approach for indicating the “badness-of-fit” of a model and it ranges from zero to infinity. Similar to the Chi-square values known from maximum likelihood estimation, smaller values for the WRMR are thus indicative of better model fit. WRMR is well-suited for use with WLSMV and bias-corrected bootstrapping and has been found to be particularly well-suited for models whose variables are not distributed normally, are measured on different scales, or have widely unequal variances (Muthén and Muthén, 2001; Myers, Ahn, and Jin, 2011). Yu and Muthen (2001) suggest a WRMR of below 0.90 as indicative of good model fit.

4. RESULTS

4.1 Descriptive and multivariate analysis

Table 1 provides descriptive statistics of the items used in the SEM analyses. It shows that all items assessing strategic planning and middle manager participation in decision-making are correlated negatively with the firm’s downside risk ($p < 0.10$). Likewise, the participation and the planning items are correlated positively, albeit to varying degrees. However, the two constructs fulfill the Fornell-Larcker criterion (Fornell and Larcker, 1981). Moreover, as discussed in the method section, the items load onto the conceptualized constructs in the Harman one-factor test with cross-loadings below the common threshold of 0.30, and confirmatory factor analysis of the planning and the participation items together shows significantly better fit for a two-factor model than for a single-factor model. Hence, the correlation between the planning and participation items is indicative of a structural relation rather than of a lack in discriminant validity.

----- Insert Table 1 about here -----

As Table 1 shows, some of the control variables exhibit correlations with the two latent constructs of our dependent variable. The relations of slack and firm size with downside risk are not surprising, as discussed in the method section. Likewise, the fact that age and strategic planning are correlated, fits with extant evidence that firms tend to become more formalized and sophisticated as they age.

To test three competing hypotheses regarding how middle manager participation in decision-making and strategic planning interplay we constructed both moderation and mediation models in the *Mplus* software. Following recommendations in the literature for dealing with censored endogenous variables in SEM, we rely on bias-corrected bootstrapping under WLSMV for analyzing these models and on the WRMR (Weighted Root Mean Square Residual) of the model for judging overall model fit. Since we are interested in the impact of the two practices on downside-risk, we additionally provide information on how well the models explain the variance in the dependent variable (R^2), i.e. a kind of “local” fit indicator with respect to downside-risk only.

Table 2 provides information on several alternative models. In addition to a model containing the control variables only (model 0) and two direct-effects models (models 1 and 2) that serve as the base models for the moderation and mediation analyses, it contains a moderation model (model 3) corresponding to hypotheses H2a and H2b, as well as mediation model (model 4) for H2c. The WRMR for all models except model 3 is below the threshold of 0.90 suggested by Yu and Muthén (2001) as indicative of good model fit.

----- Table 2 about here -----

Consistent with Andersen (2011), model 0 suggests that organizational slack is linked negatively to downside risk ($p < .05$). In contrast, the model does not show the impact of

diversification or internationalization predicted by risk management and international business literatures (Reuer and Leiblein, 2000; Tong and Reuer, 2007). One explanation of the results on diversification could be that it is difficult to exploit the synergies from interdependent businesses, especially those synergies that produce sustained competitive advantage (Hitt, Hoskisson, and Ireland, 1994). Prior studies on internationalization suggest that geographic dispersion is associated with significant costs, such as complexity, coordination and managerial information processing demands (Hitt, Hoskisson, and Harrison, 1991). We also do not find a significant impact of firm age or stock exchange listing on downside risk. In contrast, firm size exhibits a statistically significant negative relation with downside risk.

Model 1 looks at the effects of participation on downside risk. It exhibits good fit to the data as judging by the WRMR of 0.736. As the model shows, involving middle managers in strategic decision-making has the predicted negative sign with a firm's downside risk. The coefficient is significant at $p < .10$. This suggests that H1 cannot be rejected.

Models 2 and 3 serve to test H2a and H2b. The prior one shows acceptable fit as its WRMR of 0.875 and is just below the threshold of 0.90 recommended as cutoff value for indicating good model fit. The latter one, in contrast, with a WRMR of 0.970 exceeds this cutoff value. Following Yu and Muthén (2001), model 3 thus fails to fit the data well. The fact that the more parsimonious model 2 explains the same amount of variance in the downside-risk variable, while exhibiting a lower WRMR than model 3 lends further comfort to rejecting H2a and H2b. The interaction of participation with strategic planning does not attain statistical significance at common threshold levels. All this gives a first indication that middle manager participation in decision making and the organization's emphasis on strategic planning are neither complements nor in conflict with each other in their impact on downside risk.

In contrast to model 3, model 4 in Table 2 shows very good fit to the data, as indicated by a WRMR of only 0.651. The lower WRMR suggests that model 4 is preferable to model 2. In

line with recommendations in the literature (Shaver, 2005), we allowed the error terms to correlate between participation and strategic planning when studying the mediation effect of strategic planning on downside risk. As model 4 shows, the indirect effect of middle manager participation on downside risk via strategic planning cannot be rejected at $p < 0.10$. In contrast to the indirect effect, the direct effect does not attain statistical significance. This suggests accepting H2c and points to what Baron and Kenny (1986) called a “full mediation” of the relation between middle manager participation in decision-making and downside risk via the emphasis put on strategic planning. The top of Figure 1 summarizes the estimates and significances for the paths of the mediation model in a graphical manner. For ease of presentation, the figure does not present the control variables. A change of one standard deviation in middle manager participation decision-making seems to correspond to a change of roughly 9 percent of a standard deviation in downside risk ($[0.35 * (-0.035)] / 0.14 = 0.087$).

Looking at the confidence intervals for the direct and the indirect effect generated using bias-corrected bootstrapping with 10,000 bootstrap samples helps shedding additional light at the statistical significances related to testing H2c. The lower part of Figure 1, presents the confidence intervals for the direct and indirect effects of middle manager participation in market-related decision-making and downside risk at various confidence levels. The coefficient of the indirect effect is different from zero and shows a negative sign for all confidence levels tested, except for the upper tail of the 99% confidence interval, where it attains a value of zero. In line with common practice, this suggests that we can be reasonably confident (i.e. more than 95% sure, yet not 99%) that the coefficient is different from zero and shows the predicted sign. This suggests accepting H2c.

----- Figure 1 about here -----

4.2 Robustness checks

In order to test the robustness of our findings, we performed a number of checks. First, we modified the calculation of downside risk so that managers rely on the industry performance of the same year as the reference point instead of the previous year. The results obtained do not differ from those described in Table 2 (using the previous year's industry performance as the reference point for the aspiration level). The results are not reported here for parsimony but are available from the authors. This lends further comfort in accepting H2c and rejecting H2a and H2b.

Second, we tested an alternative mediation model. Even though we have no reason to expect that middle manager participation is a mediator of the strategic planning – downside risk relation (rather than the other way round), we want to rule out this other conceivable mediation model. Thus, model 5 in table 2 tests whether the emphasis on strategic planning affects downside risk via an increase in the level of middle manager middle manager participation in market-related decision-making. As model 5 in Table 2 shows, the indirect effect of strategic planning via middle manager participation on downside risk does not attain statistical significance, whereas the direct effect of planning on downside risk does so. This suggests that middle manager participation is not a mediator of the planning-downside risk relation.

Third, in order to exclude suppression or enhancement effects caused by the control variables biasing our results, we also ran the models without any of the control variables. The results are materially the same as those found for the models presented here with the control variables. Specifically, the results suggest the indirect effect of middle manager participation on downside risk via strategic planning to be statistically significant at $p < .10$, thus suggesting that H2c should not be rejected. Conversely, H2a and H2b are not supported by our data, as indicated by poor model fit of the model testing the interaction effect (WRMR of 1.07).

Moreover, the interaction term does not attain statistical significance. Likewise, participation in decision-making does not receive statistical support as a mediator of the strategic planning–downside risk relation, as the indirect effect fails to attain statistical significance (details on these results are available from the authors upon request).

Fourth, we tested the models on a subsample of 209 out of the 216 firms relying on the solidity ratio (equity/assets) collected from the Navne and Numre database as an objective proxy of slack. Again, the results (available upon request) for model fit and the acceptance/rejection of our hypotheses are materially the same as the ones shown in Table 2 that rely on the subjective measure from Nohria and Gulati (1996).

Finally, we tested the hypothesized relations in a more “classical” manner using censored tobit regressions instead of SEM (e.g., Miller and Leiblein, 1996) and, in the case of H2c, the causal steps approach for testing mediation associated with Baron and Kenny (1986). The results are materially the same as in the analyses relying on SEM and Weighted Least Squares with Mean and Variance (WLSMV) adjustment as estimator. Under the causal-steps approach, if a direct effect (when considering only participation in decision-making) were to become insignificant while the mediator remained significant, this would represent an important step in the process of supporting a full mediation effect. Our data shows exactly this result in the censored tobit regressions. However, given the shortcomings of the causal-steps approach for testing mediation (e.g., Hayes, 2013; Miller et al., 2007; Zhao, Lynch, and Chen, 2010) we report only the results for the SEM in this paper. Nonetheless, the results for all models using tobit regressions are available from the authors upon request.

5. DISCUSSION

Our findings suggest that involving middle managers in market and product-related decision-making has a statistically significant effect on lowering downside risk. Whereas the reduction in

downside risk of roughly 9 percent of a standard deviation for a change in one standard deviation in middle manager participation may look very small, it may matter a lot for managers in practice. Failing to attain the social aspiration-levels set for their firm's performance may mean forgone bonuses, additional pressure from shareholders, and personal dissatisfaction with their firm's performance.

The results further suggest that with respect to lowering firms' downside risk the participation of middle managers in market and product-related decision-making is neither conflicting nor complementary to an emphasis on strategic planning. Rather, when considering the downside risk implications of middle manager participation, the emphasis on strategic planning serves as a mediator between participation and downside risk. This finding is important for theory building. Moreover, it suggests that practitioners who want to reduce their firms' downside risk need to consider that an increase in middle manager participation in decision-making will likely entail an increase in emphasis on strategic planning; thus, their firms may devote more attention and time to the planning process than they have previously. Given that attention is a limited resource, this implies that less attention will subsequently be available for other processes (Gifford, 1992, 1999).

Our findings seem robust with respect to the year used for setting the reference performance level (previous year vs. same year) and the method used for studying mediation (SEM vs. tobit regressions and the causal-steps approach). Inasmuch as we find support for strategic planning being a mediator rather than a moderator, our results are compatible with Andersen and Nielsen (2009) who looked at firm performance as a dependent variable. However, apart from the difference in the dependent variable – performance vs. downside risk – our study differs from theirs in that we focus on the effect of middle manager participation alone, while Andersen and Nielsen (2009) do not tease out the individual effect of participation. Both may explain why we find support for “full mediation” whereas their results suggest

“partial mediation”. The individual effects of participation and autonomy might differ in their interplay with strategic planning. If autonomy had a direct effect, but participation has not (as our study suggests), this might well explain the diverging findings. Yet, it might equally be that the role of participation and strategic planning differ when considering downside risk, rather than firm performance. A practice might well enhance firm performance, but the increase may be too small to significantly reduce the firm’s risk of missing the social aspirations for its performance. Besides these potential explanations, relations between strategic planning and participation might differ between the North American economic and cultural context that Andersen and Nielsen (2009) studied and the Danish context of the present study. Thus, more research on the downside-risk implications of middle manager participation in decision making and the emphasis put on strategic planning is necessary for theory building or practical applications.

More research would also allow overcoming the limitations of the present study. In particular, because a large number of the firms in our sample are unlisted, we are unable to test the robustness of the findings based on stock market data on lower partial moment CAPM beta measures, as suggested by Reuer and Leiblein (2000). Hence, research investigating the relations within a context where stock listing is traditionally more common than in Denmark would help to ascertain the robustness of our findings with respect to the danger of falling below thresholds in capital market measures – a danger potentially felt to be even more pressing by many managers in stock-listed firms than the risk of falling below accounting-return aspiration levels.

In line with extant literature on downside risk (e.g., Miller and Leiblein, 1996; Miller and Reuer, 1996), we assume that past or present industry performance can serve to model the social aspiration level with which managers are concerned. However, this may be an oversimplification of how humans form and update expectations and reference points. Thus,

future research actually asking managers about what they consider to be the aspiration level may help to further our understanding of the real effectiveness of middle manager participation in lowering the risk of incurring downside outcomes.

Our study relies on correlations of data from public records and a survey addressed to one key informant per firm. However, correlations only “reflect the central tendencies ... found across a large sample” (Collier et al. 2004: 76). Consequently, the effect and interplay of middle manager participation may differ in some firms from this central tendency. Furthermore, practices such as strategic planning and middle manager participation are complex, and individuals within a firm may differ in their perception of such practices. During the pre-testing of the survey items, we devoted considerable attention to removing ambiguity and thus reducing measurement error due to different perceptions of the questions. However, this does not address different perceptions of the underlying “facts,” such as diverging perceptions of the level of middle manager participation by different managers within the same firm. Thus, us relying on the firms’ CFOs as single informant may be problematic. Hence, research testing the relations with multiple informants per firm is necessary.

We focus on middle managers’ participation in market- and product-related decision making and the emphasis put on strategic planning only. Yet, downside risk likely is affected by many factors. Moreover, our results may not necessarily generalize to participation in decision making per se and to other managerial levels (e.g., front-line managers). For example, one might speculate that involving additional hierarchical levels heightens the danger of dysfunctional behavior (Collier et al., 2004). One might suggest that there could be a “tipping point” in the number of hierarchical levels involved in the product and market-related decision-making, such that after this point the dysfunctional side-effects become so pronounced that a mediation model is no longer adequate and thus a moderation model becomes the better fit. Similarly, the effects of middle manager participation in decisions regarding production or supply chain processes

(most notably, make or buy decisions, or with respect to cost-cutting initiatives that do not change the products as such), may have different effects on downside-risk than the ones that we found – or participation in such decisions may interplay differently with the emphasis put on strategic planning. Production processes or supply chains often exhibit significant potential for economies of scale and scope. Senior managers might be better placed to perceive such potentials, than middle managers. The effects on downside risk of having middle managers participate in such decisions might therefore be smaller than in the case of involving middle managers in market- or product-related decisions where their knowledge about market trends, disappearing niches, competitor moves, and changing customer wishes may be paramount.

It is important to note that our analyses of participation do not comprise a possible participation of middle managers in the strategic planning process. Yet, besides participating in decision-making about products and markets, middle managers might also participate in strategic planning. Thus, future research explicitly controlling for the way strategic planning takes place in terms of, for example, the players involved, the planning horizon, or the formalization, would help enhancing our understanding of the potential additional effects on downside risk due to alternative ways in conducting strategic planning. Some of these design choices might strengthen or weaken the impact that the emphasis put on strategic planning has on downside risk.

Our study relates survey responses collected in 2009 to the downside risk of firms over the five-year period 2008 to 2012. The data structure, hence, reasonably approximates the sequence between middle manager participation in decision-making and/or strategic planning on the one hand and downside risk on the other. In contrast, it does not do the same for participation in market and product-related decisions and the emphasis put on strategic planning. The data on these two variables were collected at the same point in time. Even though we tested for an alternative mediation that considered the effect from strategic planning on downside risk

via middle managers' participation in decision-making, the fact that both participation and the emphasis on strategic planning were collected at the same point in time calls for caution in making causal claims about the relations between participation and strategic planning. This consideration is even more pronounced because the emphasis on strategic planning and the extent of middle manager participation in decision-making may be a conscious or unconscious choice made by top managers. More research using longitudinal or experimental designs is necessary to assess the robustness of our findings.

6. CONCLUSION

Humans and organizations are particularly concerned about falling below the aspiration level set for their performance (e.g., Benartzi and Thaler, 1995; Brenner, Rottenstreich, Sood, and Bilgin, 2007; Cyert and March, 1963; Kahneman and Tversky, 1979; March and Shapira, 1987). Both strategic management research and practice thus stand to gain from studying the contribution of common strategic management practices, processes, and tools to lowering a firm's downside risk. With the present study, we have made a first step into exploring the impact and path through which strategic planning and the participation of middle managers in decision-making affect downside risk. Our findings suggest that involving middle managers in market and product-related decision-making has a statistically significant effect on lowering downside risk. Yet, we further find that this effect is only an indirect one: it is mediated by the emphasis the organization puts on strategic planning.

Our study thus demonstrates how two practices that have been studied extensively with respect to their implications for the level of performance interplay in reducing the likelihood of failing to attain social aspirations for a firm's performance. We thereby contribute to the literature on the middle manager perspective (Collier et al., 2004; Wooldridge and Floyd, 1990; Wooldridge et al., 2008) as well as to the literatures on strategic planning (Andersen and

Nielsen, 2009; Andersen, 2004; Ansoff, 1988; Grant, 2003; Jarzabkowski and Balogun, 2009; Ketokivi and Castañer, 2004).

We add to the few empirical studies that so far have linked strategic management concepts to downside risk. We thereby respond to calls for combining insights from the strategy and risk management literatures in order to arrive at a more comprehensive understanding of how organizational practices affect firm-level risk outcomes (Bromiley et al., 2014; Chatterjee et al., 2003).

Moreover, the evidence collected from firms in Denmark at the same time contributes to a more balanced international set of empirical findings available for ongoing theory building on managing downside risk, which so far has drawn largely on samples generated in a North American context (e.g., Miller and Leiblein, 1996; Reuer and Leiblein, 2000).

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APPENDICES

Appendix A:

Middle Manager Participation in Decision Making⁷

How often are the middle managers (managers below top management) involved in the following strategic decisions (i.e. not only the implementation process, but the decision-making process):

	Never					Always	
Activities aiming at increasing market share	1	2	3	4	5	6	7
Sales to new segments or markets	1	2	3	4	5	6	7
Development of important new products	1	2	3	4	5	6	7

Cronbach's alpha = .88; single factor explaining 81 % of variance.

Appendix B:

Emphasis on Strategic Planning⁸

Please indicate the emphasis placed on each activity within your organization:

	no emphasis					strong emphasis	
Establishing company mission	1	2	3	4	5	6	7
Development of long-term plans (3-5 years)	1	2	3	4	5	6	7
Yearly goals (sales goals, efficiency, market shares etc.)	1	2	3	4	5	6	7
Short-term action plans (campaigns, short-term projects etc.)	1	2	3	4	5	6	7
Evaluation of the company's strategic goals and the degree of attainment	1	2	3	4	5	6	7

After dropping item 4: Cronbach's alpha = 0.74; single factor explaining 57 % of variance; Chi-square (2df) = 2.295; CFI = 0.99; TLI = 0.99; RMSEA = 0.026; SRMR = 0.015.

⁷ Scale based on Andersen and Nielsen (2009); used in Danish in the survey; Danish version available from the authors upon request; translated by the authors.

⁸ Scale based on Boyd and Reuning-Elliott (1998); used in Danish in the survey; Danish version available from the authors upon request; translated by the authors.

Table 1:

Descriptive Statistics

Variable	Mean	SD	Min	Max	1	2	3	4	5	6	7	8	9	10	11	12	13
1 Downside risk	0.21	0.14	0.00	0.79													
2 MM_Involvement1	5.29	1.43	1.00	7.00	-12 *												
3 MM_Involvement2	5.21	1.51	1.00	7.00	-12 *	.86 ***											
4 MM_Involvement3	5.10	1.59	1.00	7.00	-14 **	.61 ***	.66 ***										
5 Stra_Planning1	5.38	1.44	1.00	7.00	-15 **	.16 **	.11	.05									
6 Stra_Planning2	4.93	1.60	1.00	7.00	-14 **	.08	.13 *	.15 **	.37 ***								
7 Stra_Planning3	6.04	1.02	1.00	7.00	-13 *	.26 ***	.19 ***	.10	.42 ***	.40 ***							
8 Stra_Planning5	5.07	1.30	1.00	7.00	-20 ***	.35 ***	.29 ***	.19 ***	.51 ***	.45 ***	.43 ***						
9 stock listing	0.08	0.27	0.00	1.00	.03	.25 ***	.23 ***	.27 ***	-.01	.04	.02	-.02					
10 slack	2.00	1.08	0.00	5.00	-15 **	.09	.10	.17 **	-.07	.02	-.10	-.03	.02				
11 firm age ^a (yrs)	30.37	21.17	3.00	99.00	-.02	.03	.04	.01	.17 **	.06	.04	.09	.17 **	.00			
12 firm size ^a	721	1474	37	16590	-15 **	-.06	-.06	.02	.03	.15 **	.09	.04	-.01	-.01	.038		
13 internationalization	3.50	7.39	0.00	55.00	-.08	.15 **	.16 **	.19 ***	-.03	.05	.12 *	.02	.19 ***	.00	.04	.07	
14 diversification	2.05	1.09	1.00	5.00	-.03	.07	.06	.02	-.06	-.15 **	-.01	-.01	-.09	.02	.07	.20 ***	.09

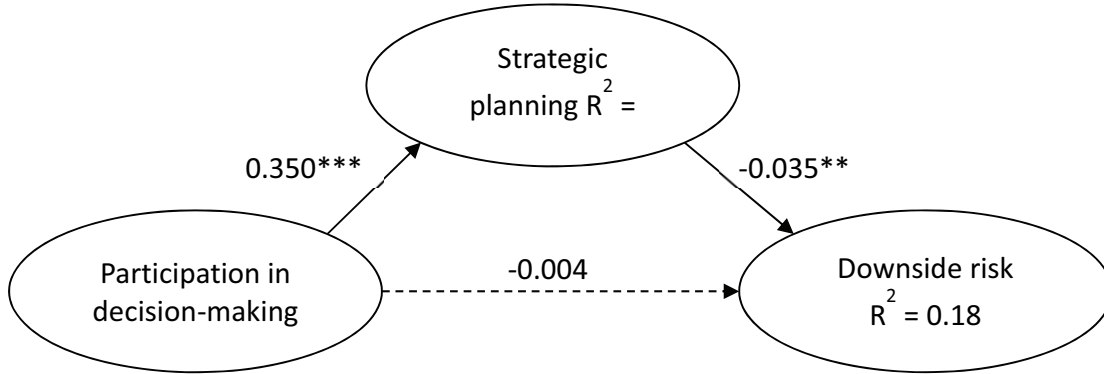
n = 216. ^a for this variable, the log-transformed values are used in subsequent SEM. Industry controls (dummy variables) not reported for parsimony, but available from the authors. *** *p* < 0.01; ** *p* < 0.05; * *p* < 0.10

Table 2: Results of Multivariate Analyses

	<i>Dependent variable: Downside risk</i>											
	Model 0		Model 1		Model 2		Model 3		Model 4		Model 5	
	estimate	S.E.	estimate	S.E.	estimate	S.E.	estimate	S.E.	estimate	S.E.	estimate	S.E.
participation			-0.017*	0.010								
strategic planning					-0.007	0.010						
participation x					-0.038**	0.017						
planning												
participation via												
planning												
direct effect												
participation												
planning via												
participation												
direct effect												
planning												
stock listing	0.069	0.065	0.069	0.066	0.069	0.065	0.069	0.065	0.057	0.064	0.074	0.065
slack	-0.028**	0.011	-0.028***	0.011	-0.028***	0.011	-0.028***	0.011	-0.030***	0.011	-0.028**	0.011
international.	-0.002	0.002	-0.002	0.002	-0.002	0.002	-0.002	0.002	-0.002	0.002	-0.002	0.002
diversification	-0.002	0.011	-0.002	0.011	-0.002	0.011	-0.002	0.011	-0.006	0.011	-0.002	0.011
<i>ln</i> firm age	-0.009	0.015	-0.009	0.015	-0.009	0.015	-0.009	0.015	-0.001	0.015	-0.009	0.015
<i>ln</i> firm size	-0.035**	0.015	-0.035**	0.015	-0.035**	0.015	-0.035**	0.012	-0.029**	0.015	-0.036**	0.015
Industry_1	0.216	0.365	0.216	0.362	0.216	0.360	0.216	0.359	0.211	0.341	0.215	0.360
Industry_2	0.237	0.365	0.237	0.362	0.237	0.360	0.237	0.359	0.240	0.341	0.236	0.360
Industry_3	0.206	0.365	0.206	0.362	0.206	0.359	0.206	0.359	0.200	0.340	0.203	0.359
Industry_4	0.196	0.366	0.196	0.363	0.196	0.361	0.196	0.360	0.190	0.341	0.194	0.361
Industry_5	0.097	0.373	0.097	0.370	0.097	0.368	0.097	0.366	0.109	0.346	0.097	0.368
Industry_6	0.072	1.390	0.072	1.379	0.072	1.368	0.072	1.359	-0.017	1.151	0.076	1.364
Industry_7	0.155	0.366	0.155	0.363	0.155	0.361	0.155	0.360	0.148	0.342	0.156	0.361
R ² downside risk	0.14		0.15		0.18		0.18		0.18		0.18	
WRMR	0.000		0.736		0.875		0.970		0.651		0.706	

Notes: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$; results relying on WLSMV (Muthén, 1993) for 216 observations.

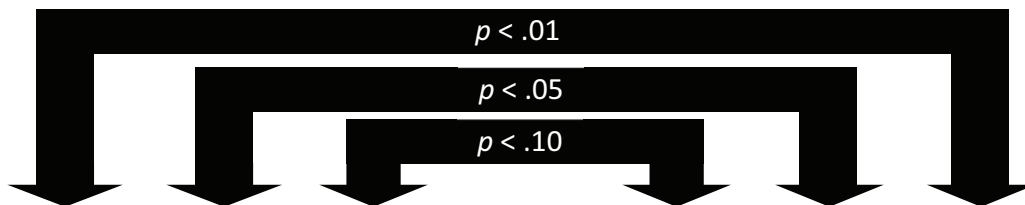
Figure 1: Results of the SEM Analyses with WLSMV for Effects of Involvement



*** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$; results relying on WLSMV with bias-corrected bootstrapping and 10 000 bootstrap samples

Direct and indirect effect of Participation in decision-making

Lower and upper bounds of the confidence intervals for the coefficient at $p < 0.01$, $p < 0.05$ and $p < 0.10$, respectively (all based on 10 000 bootstrap samples).



	Lower 0.5%	Lower 2.5%	Lower 5.0%	Point estimate	Upper 5.0%	Upper 2.5%	Upper 0.5%
Indirect	-0.039	-0.030	-0.026	-0.012	-0.004	-0.003	0.000
Direct	-0.032	-0.026	-0.022	-0.004	0.014	0.018	0.027

CHAPTER 3: SEEKING UPSIDE POTENTIAL THROUGH INTEGRATIVE STRATEGY- MAKING AND INTERACTIVE CONTROLS⁹¹⁰

ABSTRACT

Strategic adaptation in complex environments with frequent changes must balance the tension between innovative opportunistic search and the need for the achievement of pre-established goals. Hence, there is a tension between the aim of avoiding diversion of corporate resources through tight control of plans and the facilitation of decentralized initiatives in search for opportunities. This paper outlines an integrative model that combines strategic planning and decentralized strategy-making with interactive control processes. This combination of management practices arguably creates a dynamic system that drives upside potential for strategic adaptation. Hypotheses are developed and tested through a survey of the 500 largest firms in Denmark. Results suggest a direct relationship between interactive control, strategic planning, and participative decision-making on upside potential of performance. Moreover, the effect from participative decision-making on upside potential is positively moderated by interactive control system.

Keywords: Interactive control systems; strategic planning; participation; decentralization; middle managers; upside potential

⁹ This chapter is co-authored with Andersen, T. J.

¹⁰ An earlier version of this paper has been presented at The 16th International Academy of Management and Business (AIMB) Conference, Washington, United States. 2013.

1. INTRODUCTION

The ability to consistently achieve superior performance outcomes arguably depends on adaptive strategies where new opportunities are explored and their upside potential exploited to preserve the competitive advantage of the firm. This goes to the root of strategic management as the ability to create sustainable competitive advantage by adapting to a changing environment (Schendel and Hofer, 1979; Porter, 1985; Barney, 1991). To accomplish this requires room for decentralized initiatives that can uncover new opportunities but also calls for planned coordination of activities to gain economic efficiencies. In essence, it reflects the dual requirements for exploration and exploitation (March, 1991). The need for a balanced approach is accentuated in increasingly turbulent and unpredictable environments (e.g., Bettis and Hitt, 1995; Teece, Pisano and Shuen, 1997).

Strategic planning provides a corporate mission, general direction, and coordination of planned business operations across the organization (Ansoff, 1988; Ansoff and McDonnell, 1990; Vancil and Lorange, 1976) whereas decentralization allows low-level managers to take initiatives in response to emerging opportunities (Mintzberg and Waters, 1985; Mintzberg, 1978). Hence, planned (induced) as well as decentralized strategy-making modes play important roles for adaptive strategies where the challenge lies in the ability to integrate the two approaches effectively (Burgelman and Grove, 1996, 2007; Hart, 1992).

In the conventional view of corporate strategy-making, strategic controls are used to update action plans based on periodic performance feedback. However, this approach reflects a command-and-control perspective that may stifle proactive strategic thinking (Simons, 1994, 1995). In contrast, the application of interactive control approaches may provide the means to effectively

integrate the central forward-looking and the decentralized trial-and-error responses of the two strategy modes and thereby facilitate organizational adaptation (Simons, 1991, 1994, 1995b, 2000).

No prior studies have analyzed the potential economic advantages of interactive control in the context of strategic planning and decentralization considering the requests for upside potential. Interactive control systems have received considerable attention in the intra-organizational management control literature but not in inter-organizational settings (Kominis and Dudau, 2012; Otley, 1994).

Hence, we consider how interactive control can link decision makers across hierarchies and functions in the strategy-making process where strategic planning is combined with decentralized decisions. This breaks new ground by studying the economic effects of interactive control in the context of more complex strategy-making processes combining strategic planning and decentralization. The study considers how upside potential derives from decentralized explorative initiatives and central exploitative coordination through the interactive use of budget controls.

In the following, we first discuss central elements of the strategic management and management accounting literatures to outline the strategy-making process and the relationships to interactive control. This theoretical background is used to develop testable hypotheses. An empirical study is presented as are the results from it, and the implications of findings are discussed with suggestions for future research.

2. THEORETICAL BACKGROUND & HYPOTHESES

2.1. The strategic management school

Contemporary environments are often characterized by frequent technological changes, shorter product cycles, and ongoing innovation that challenge existing competitive advantages (Ilinitch,

Aveni, and Lewin, 1996; Thomas, 1996). These settings are associated with fundamental uncertainty (Volberda, 1996) and 'unknowability' where many environmental hazards are difficult to forecast and foresee (Bettis and Hitt, 1995). In this kind of unpredictable setting, strategic response capabilities (Bettis and Hitt, 1995), adaptive capabilities (Volberda, 1996), and dynamic capabilities (Teece et al., 1997) become important drivers of firm performance. In this context, it is suggested that an organization's mastery and adoption of diverse strategy-making modes, such as, command, generative, learning, etc., can be advantageous under turbulent environmental conditions (Banbury and Hart, 1994; Hart, 1992).

The conventional strategic management paradigm is conceived within the tradition of rational comprehensive analyses where organizational actions are guided by plans that include statement of goals and objectives (Ansoff, 1988; Hofer and Schendel, 1978). Overall strategic planning involves clarifying mission, outlining long-term strategic goals and objectives, long-term planning, monitoring strategic outcomes, and updating short-term actions plans (Boyd and Reuning-Elliott, 1998). Critics of strategic planning argue that formalized plans can stifle the ability to note and react to emerging developments (Hamel, 1996; Mintzberg, 1994). Other recent studies suggest that strategic planning has evolved from a prescriptive process that attempts to predict future events to an integral management processes providing general direction while displaying substantial flexibility (e.g. Andersen, 2004; Grant, 2003). Various studies have indeed found positive performance relationships of strategic management conceived as a rational and analytical planning process particularly in dynamic environments (Andersen, 2000; Brews and Hunt, 1999; Miller and Cardinal, 1994). A number of empirical studies have similarly found that organizations that are able to combine strategic planning with strategic initiatives generated by managers at lower-level business entities outperform their peers (Andersen and Nielsen, 2009; Andersen, 2004a).

A decentralized strategy-making mode is conceived as a decision structure allowing for strategic influence from lower-level managers. This influence can emerge in two ways. First, lower-level managers can influence the strategic agenda by allowing them to advocate their ideas and to participate in strategic decision-making (Dutton, Ashford, O'Neill, Hayes, and Wierba, 1997; Dutton and Ashford, 1993; Wooldridge, Schmid, and Floyd, 2008). Second, by delegating decision authority at lower-level business units, managers can take actions in response to observed changes and modify activities in their entities without permission from top management. This corresponds to the common depictions of strategic emergence as initiatives arising from active managers operating within the organization where they instigate and champion new business ventures and product offerings at times even without top management knowing about it (Mintzberg, 1994). In the following, 'participative decision-making' and 'delegation of decision authority' are treated as two distinct dimensions of the decentralized strategy-making process (Andersen, 2004b).

Various qualitative studies have demonstrated the significance of strategic emergence and autonomy in corporate strategy (Burgelman, 1983; Bower, 1986; Mintzberg, 1994; Burgelman and Grove, 1996). These studies depict decentralized initiatives developed within the organization as the source of opportunities that have potential strategic implications (Mintzberg, 1994). Hence, the so-called Bower-Burgelman process model describes strategy-making as managerial actions pursued simultaneously at three hierarchical levels: Top managers, middle managers and functional specialists (Burgelman and Groove, 1996; Bower and Gilbert, 2005). In this set-up, the middle managers supervise the functional managers as they engage in new initiatives and, if they are successful, promote these opportunities to top management where they eventually can become part of the official corporate strategy. Top management influences strategy by formulating corporate policies and setting up the organizational structure. The middle managers act as liaisons between

top management and the lower-level functional managers and specialists by overseeing resource committing decisions in the operating entities and by creating corporate awareness about new strategic opportunities (Bower and Noda, 1996). Since the low-level managers are closer to the customers, suppliers, and internal operational staff, they are arguably in a better position to observe when conditions change and take responsive initiatives in reaction to these observations (Huber, 1990). As Kanter (1982: 96) argues: “Because middle managers have their fingers on the pulse of operations, they can also conceive, suggest and set in motion new ideas that top management may not have thought of”. Hence, lower-level initiatives can have interesting outcomes and may constitute paths to future corporate strategy, if they turn out to be successful business propositions.

Conceiving strategy as a sequence of resource committing decisions and resulting actions in different parts of the organization essentially captures an amalgam of planned and autonomous initiatives taken throughout different parts of the organization (Bower and Gilbert, 2005; Bower, 1986; Mintzberg, 1978). While some strategic investments are committed as part of the planning process many other subsequent decisions commit resources as things evolve. In a decentralized organization new opportunities may emerge from exploratory responsive actions taken by managers at lower levels of the organization. To the extent resources are engaged in operational activities at lower-level entities, they can eventually shape the development of important competencies and thereby influence the strategic direction the corporation can partake (Bower and Gilbert, 2005; Bower and Noda, 1996). In this context, strategic emergence relates to decentralized decision-making where strategy is shaped by experimentation with new business initiatives as responsive actions taken by managers at lower hierarchical levels (Andersen, 2004a; Burgelman, 1983, 1988; Mintzberg, 1994). Decentralized strategy-making can arguably lead to better decision outcomes by considering more diverse perspectives and provide decision processes with more relevant market

insight (Floyd and Wooldridge, 1997). The dispersion of decision power allows managers at lower levels of the organization to take actions in response to performance changes they identify in their task environments and thereby effectively experiment with different initiatives in their functional units. Thus, strategic planning and decentralization are both essential elements of a corporate strategy-making process. Strategic planning provides forward-looking high-level analytics and whereas decentralized strategy-making offers updated experiential insights from low-level operational initiatives.

2.2. The role of interactive control systems in strategy-making

Simons (1995a, 1995b) suggests that *interactive controls* make up one of four management control systems that affect business activities where the other three are: *Boundary* systems, *belief* systems and *diagnostic* control systems. Together these control systems are working as part of the organization's strategy-making process as ways to sustain a balance between creativity and control (Chenhall, 2003; Simons, 1994; Widener, 2007). The belief and boundary systems articulate limits for risk-taking and inform organizational members about the type of strategic opportunities to explore and exploit (Roberts, 1990; Simons, 1994; Widener, 2007). The belief system represents the basic values, purpose and direction of the firm as communicated formally by the top management (Simons, 1995a). The purpose is to secure goal commitment throughout the organization and inspire employees in their search for opportunities and business responses without prescribing the nature of activities in detail (Tuomela, 2005). The boundary system communicates the domain of acceptable activities to ensure effective resource utilization. Thus, a boundary system should form an understanding of acceptable risks and business activities to be avoided altogether (Simons, 1994; Tuomela, 2005). For all intents and purposes, these control systems are commensurate with those elements of the strategic planning process that lays out the firm's mission statement typically

consisting of an overarching purpose, long-term goals and an outline of corporate values with prioritized behaviors (e.g., Boyd and Reuning-Elliott, 1998). Accordingly, Porter (1996) argues that it is as important to determine which type of businesses not to engage in as it is to decide in the strategic planning process what activities one should pursue going forward. Thus, strategic planning is itself a form of control process providing directions and setting boundaries for managerial decisions (Anthony and Govindarajan, 2006; Simons, 1994). It is an inherent part of the development of a framework of reference for the annual operating budget (Anthony and Govindarajan, 2006; Camillus, 1975). As Anthony and Govindarajan (2006: 332) argue: “A company without a strategic planning process considers too many strategic issues in the budgeting stage, potentially leading to information overload, inadequate considerations of strategic alternatives, or neglect of some choices altogether”. Hence, the budget is a natural way to monitor performance and strategic outcomes.

Diagnostic use of budgets constitutes a feedback system that monitors the achievement of predetermined strategic actions in accordance with the presumed performance standards. In this context, the budgets are typically used to assess expected outcomes of the strategic plan for the coming accounting year as the basis for resource allocation and monitoring of business units and their managers. In general, budgets serve as a medium to quantify outcomes of the long-term strategic plan with a focus on a single year (Hofmann, Wald, and Gleich, 2012; Otley, 1999). The completion of budgets provides a means to communicate critical performance variables and monitor the implementation of intended strategic aims. In that sense, budgets provide implied direction towards achieving strategic goals by focusing on established targets and correcting deviations from that path (Hofmann et al., 2012). In the strategy literature, this is referred to as the strategic control

process and is considered part of the strategic planning process (Goold and Quinn, 1990; Lorange, 1977; Schendel and Hofer, 1979; Schreyogg and Steinmann, 1987).

Hence, the planning process effectively incorporates central elements of the belief, boundary and diagnostic control systems (Simons, 1994). Since realized outcomes often differ from the plans, the strategic control systems may enable some learning about the changing environmental conditions and the implied means-ends relationships although this often is exceedingly difficult in uncertain environmental contexts (Goold and Quinn, 1990; Quinn, 1996). Under these conditions, budgeting has been criticized for constraining the operational flexibility of autonomous managers in ways that inhibit collaborative cross-functional initiatives, innovation and creativity (Frow, Marginson, and Ogden, 2010). More specifically, it has been argued that traditional planning and budgeting processes “force managers at all levels to commit to delivering specified outcomes, even though many of the variables underpinning those outcomes are beyond their control” (Hope and Fraser, 2003: 18). So, in turbulent environments these processes may constrain responsiveness and create a “performance trap” (ibid).

Under such environmental conditions subjected to high levels of strategic risks the management accounting literature have suggested interactive control system rather than diagnostic controls as effective means in the handling of these exposures (Marginson, 2002; Simons, 1994). As interactive control systems are used to generate dialog, idea generation and learning rather than control at-a-distance through automatic processes (Burchell et al., 1980; Simons, 1994). This interactive dimension constitutes a distinct mechanism not considered in the strategic control process of the conventional planning model. The interactive use of budgets is defined by the intensive use of budgets by both top management and lower-level managers in frequent face-to-face debates where the information is shared openly across management levels and functions.

Furthermore, the interaction requires a non-invasive, facilitating and inspirational involvement of top management (Simons, 1994). The interactive use of budgets can thus become a pertinent vehicle for the exchange of updated information about environmental changes that facilitates organizational learning by involving managers at different hierarchical levels in the forward-looking analytical considerations as well as retrospective discussions about experiential insights gained from low-level initiatives.

Hence, the process goes beyond budgeting and entails “not only participation between subordinates and superiors in the budget setting, but also an ongoing dialogue between organizational members as to why budget variances occur, how the system or behaviors can be adapted and even whether any actions should be taken in response to these variances” (Abernethy and Brownell, 1999: 191). Although Simons (1995b: 122) highlighted that middle managers are “important in making interactive control processes work effectively” as they are “key nodes of the information networks that reveals senior management’s concern”, the interactive control systems do not imply managerial autonomy per se. In fact, interactive control systems and increased flexibility from dispersed decision rights are not antithetical but mutually compatible (Gul and Chia, 1994; Marginson, 2002; Simons, 1994). The attention is restrained to the activities of the top managers and Simons (1994) acknowledges that interactive processes can be applied to all organizational levels although this view of an interactive use is not the focus of his analysis. In this way the strategic planning process, decentralized strategy-making and interactive use of budgets for control purposes are three distinct but complementary components of the integrative strategy model.

Empirical research have shown a positive direct effect of interactive control systems on strategic change (Abernethy and Brownell, 1999; Naranjo-Gil and Hartmann, 2007) and innovativeness and learning (Henri, 2006). Naranjo-Gil and Hartmann (2007) also found that

interactive use of controls and the extent of change was more positive for prospector firms than defender firms. On these lines, Bisbe and Otley (2004) emphasize that innovation risk are better managed by interactive systems and they found that interactive control systems moderated the impact of innovation on performance. In a study of the link between interactive controls and strategy-making, Widener (2007) found that interactive control was used to scan the external environment, which enhanced performance through increased attention. Contrary to the framework and literature, she did not find evidence that interactive use of controls enhanced organizational learning.

In essence, the interactive control system encourage debate about budget targets in face-to-face meetings and allow subordinates to challenge prevailing assumptions and action plans (Simons, 1994). It can thus play an important role in extending opportunity seeking and collective learning throughout the organization where new strategies can emerge from the process (Henri, 2006). In particular, “interactive control systems are essential to monitor competitive risk in a culture that could potentially create barriers to impede the free flow of information about emerging threats and opportunities” (Simons, 2000: 261). In that way interactive control systems can help top managers to learn about strategic risks and proactively respond to these exposures by breaking out of narrow search routines (Simons, 1994). That being said, interactive control systems can enhance the creation of opportunities and improve the ability to exploit firms’ potential for upside gain. As a portfolio of business opportunities provides more choice and thereby gives maneuverability with a potential to enhance upside potential of firm performance. This leads to the first hypothesis:

H1: The emphasis on interactive use of budgets to control strategic outcomes is positively related to upside potential in corporate performance.

2.3. An integrative strategy-making model with interactive controls

Interactive control systems and strategic planning. In principle, the decisions made within a strategic planning process are based on general assessments across all the functional entities in the corporation. Tailored interactive control systems can monitor business unit performance to control the strategic outcomes and learn from budget deviations and thereby enhance the managerial understanding of the changing business conditions and action effects. More specifically, the knowledge gained from these control processes can be used to guide the forward-looking evaluations of strategic opportunities (Ansoff, 1988; Richards, 1986; Simons, 1990, 2005). Here planning and interactive control systems is seen as the means to gain a shared understanding of the current environment and proactively respond to these events by updating action plans based on an ongoing dialog rather than periodic performance feedback. This suggests that more comprehensive planning and control processes with associated interactive control systems can improve the predictability of new opportunities and thereby reach better decision outcomes. Conversely, a stringent planning and diagnostic control process can conform managerial thinking and limit the ability to fully comprehend ongoing changes in the business environment. Thus, used in combination strategic planning and interactive control systems can provide the firm with important learning on changes in the environment and allow the firm to proactively update action plans that address the emerging strategic risks.

Interactive control systems and decentralized strategy-making. The proposed solution to handle the mounting information processing needs in contemporary organizations has been to involve those managers closer to the location of relevant information and expertise in decision-making (Wooldridge and Floyd, 1990) or move managerial decisions down in the organization (Child and McGrath, 2001; Volberda, 1996). And, there has indeed been a shift from hierarchical

organizations to horizontally operating hybrids with cross-functional collaboration (Achrol, 1997; Galbraith, 1995). But, there is also a mounting realization that effective organizations pursue central integrative processes where decisions are embedded in more rigid organizational structures (Hill, Martin, and Harris, 2000; Jelinek and Schoonhoven, 1990). In particular since decentralized actions may make the organization more vulnerable to opportunistic behaviors including destructive entrepreneurship (Foss, Foss, and Klein, 2007), foot-dragging and sabotage (Guth and MacMilliam, 1986) and result in an uncoordinated 'goose chase' without general direction. Furthermore, middle managers have also been criticized for "putting their own spin on" the input brought upward in the organization (Floyd and Wooldridge, 1994: 53). Sternard (2012) argues that individuals and internal coalitions may use political tactics to influence what responses are being considered and which strategic options are finally selected. As a consequence, firms should combine empowerment with formal control processes that both facilitate communication channels between hierarchical management levels and across middle managers to benefit from decentralized strategy-making. A combination of decentralized strategy-making and interactive control systems enable an open dialog but where top management are involving themselves in the decisions of their subordinates in personal recurring discussions. As Simons (1995b: 163) argues: "control systems must balance empowerment and control in such a way that empowerment does not lead to a control failure, and correspondingly, control does not lead to an empowerment failure". Hence, the underlying budgeting process constitutes an essential monitoring devise that keeps top management informed about corporate performance developments while allowing for open exchanges about current performance outcomes with low-level functional managers (Simons, 1990, 1994, 1995a). The interactive use of budget controls can facilitate discussions about strategic moves based on

opportunities uncovered from decentralized initiatives that address changes in the competitive requirements and thereby explore new business approaches.

Thus, a more complete model of the complex strategy process should comprise interactive strategic controls for example by using the budgeting process as a basis for interpretive discussions around recent performance outcomes and insights from decentralized experimental initiatives. In this context, the use of budgets in the management control systems provide important interaction and medium of information exchange between the strategic monitoring by top management and the experiential learning that takes place within decentralized business units when they act in response to changing conditions.

From the discussion above, it is argued that a more complete understanding of the complex strategy-making process must embrace both intended, i.e., planned, and spontaneous decentralized strategic initiatives responding to emerging events (Mintzberg and Waters, 2009; Mintzberg, 1978). We argue, that it is precisely in this context interactive use of management control systems can channel experiential insights gained from decentralized initiatives taken by lower-level managers in response to changing conditions into the forward-looking planning considerations in open discussions between top management and subordinates (Simons, 1990, 1991). Hence, the centrally planned strategies and the decentralized responsive initiatives together with interactive use of budgets in the control process can form a dynamic system of complementary strategy-making modes. The interactive use of budget controls can facilitate exchange of environmental insights and update the strategic plans, which should enable needed changes in the strategic direction, as well as help in the coordination of decentralized strategic initiatives and thereby improve performance outcomes. These relationships are expressed in the following hypotheses:

H2.1: The emphasis on strategic planning is positively related to upside potential in corporate performance.

H2.2: The positive relationship between strategic planning and upside potential in corporate performance is higher in organizations with high emphasis on interactive use of budgets

H3.1a: The emphasis on participation in strategic decision-making is positively related to upside potential in corporate performance.

H3.1b: The emphasis on delegation of decision authority is positively related to upside potential in corporate performance.

H3.2a: The positive relationship between participation in strategic decision-making and upside potential in corporate performance is higher in organizations with high emphasis on interactive use of budgets

H3.2b: The positive relationship between delegation of decision authority and upside potential in corporate performance is higher in organizations with high emphasis on interactive use of budgets

The hypothesized relationships are illustrated in the model shown in Figure 1. The hypothesized model relationships were subsequently tested in a large-scale empirical study described in the following section.

----- Insert Figure 1 about here -----

2. METHODS

The hypothesized effects of interactive use of budget controls in conjunction with the integrative strategy model was tested in an empirical study based on data collected from a survey sent to a cross-section of the 500 largest Danish firms measured by number of employees. These firms all have a minimum of 300 employees and operate in a broad set of industries including manufacturing, construction, retailing, financial institutions and other professional services (see appendix for an overview). The survey instrument was pre-tested among 45 managers in 45 different firms not included in the sample to test the robustness of the constructs. The pre-tests raised no major concerns but spurred minor adjustments to clarify the wording of certain questions. In early spring 2013 the Chief Financial Officer (CFO) and Head of Sales/Marketing (HoSM) in each of the sampled firms were solicited to complete a two page version of the survey. The questionnaire asked the CFO about the firm's strategic planning process and the Head of Sales/Marketing about the interactive use of budgets and the extent to which the organization had participatory decision processes and delegation of decision rights. This dual approach was adopted as CFOs are assumed to be most knowledgeable about the firm's planning process whereas sales and marketing executives are closer to decisions related to market oriented activities and know how the budgeting process is used to interact with people engaged in the business transactions. Executives that failed to respond in the first round were approached with a follow-up letter three weeks later. This process generated a total of 248 initial responses comprised by 141 from CFOs and 107 from HoSM. Two months later the remaining executives that had failed to respond initially were contacted directly by phone, which generated more completed surveys to reach a total of 593 responses of which 298 were from CFOs and 295 from HoSM, corresponding to a response rate around 59 %.

The sample was tested for potential non-response biases by comparing the average number of employees, total turnover and various financial data across respondents and non-respondents by industry. Potential discrepancies between early and late respondents were also analyzed based on the same variables. These tests did not show any significant differences between respondents and non-respondents or between early and late respondents. Self-report measures are vulnerable to common method variance and we, therefore, took several steps to circumvent this potential problem. In addition to collecting survey data from multiple respondents within the same organizations, the primary data from questionnaires were complemented by secondary accounting data from a national database, Navne and Numre (<http://www.nmerhverv.dk/>), providing basic information of the firm's financials, industry affiliation, and number of employees, as recommended by Podsakoff, MacKenzie and Lee (2003). In addition to this, we used Harman's single-factor test for common variance (ibid.) to ensure that the assembled responses loaded on the proposed theoretical constructs. The test revealed five factors with a first factor explaining 37 % of the total variance thereby suggesting that no single underlying factor accounted for the majority of the variance among the variables (Lane, Salk, and Lyles, 2001).

2.1. Measures

Interactive use of budgets. This measure was built on Simons' (1994, 1995b, 2000, 2005) definition and description of interactive control systems where four items derived from the original description of the construct were developed to measure the interactive use of budgets. Since the focus of the analysis on control behaviors in this study was on the interactive use of budgets to uncover emerging market developments, we directed the questions to the HoSM in the respective firms. The respondents were asked to indicate the extent to which the stated use of the budgeting

process corresponded to the way things were handled in their firm during 2010-2012. The four items describing the use of budgets were as follows: 1) the budget follow-up process is considered important by top management and they use it continuously, 2) top management often uses budget information to question decisions and discuss ongoing actions with department managers, 3) the budget process is ongoing and demands regular and frequent attention from managers at all levels, and 4) there is a lot of interaction between top management and department managers in the budget process. A seven-point Likert-scale (1=no emphasis; 7=strong emphasis) was applied to assess the items and the construct formed by the items exhibited a Cronbach's alpha of 0.85, which is considered highly satisfactory (Nunally, 1978). See the appendix for details on the items used in the questionnaire and the respective factor loadings in the exploratory analysis. The measure that was applied to interactive use of budget was the overall mean of the four items.

Strategic planning. The measurement of strategic planning and decentralized strategy-making was based on existing scales described in the literature and tested in prior studies. Strategic planning was operationalized by the CFO's assessment of the organization's emphasis on formal strategic planning using items developed and tested by Boyd and Reuning-Elliott (1998). The items were assessed on a seven-point Likert scale (1=no emphasis; 7=strong emphasis) comparable to applications in previous studies (e.g., Andersen, 2004; Rudd, Greenley, Beatson and Lings, 2008; Andersen and Nielsen, 2009). In the exploratory factor analysis the items loaded on the planning construct and showed a high Cronbach's alpha of 0.75, which is considered satisfactory (Nunally, 1978). The mean of the five items was used as a measure for strategic planning.

Decentralized strategy-making. The first aspect of decentralized strategy-making; 'participation in decision-making', was assessed by the HoSM on items asking about the degree to

which sales managers reporting to the HoSM were involved in the decision-making on five different activities of potential strategic importance. The second dimension; ‘delegation of decision authority’, was assessed by asking about the degree to which sales managers were authorized to make decisions without prior approval from top management on the same set of activities. These items have been validated in previous studies (e.g., Andersen (2000, 2004)). An exploratory factor analysis found that the items loaded on the two decentralized strategy-making constructs, exhibiting Cronbach’s alpha’s of 0.81 for participation and 0.88 for delegation which is considered highly satisfactory (Nunally, 1978). The mean of the five items was used to measure the two dimensions of decentralized strategy-making.

Upside potential. We followed the extant literature on semi-variance and downside risk (e.g. Belderbos, Tong, and Wu, 2014; Miller and Leiblein, 1996; Tong and Reuer, 2007) and constructed a corresponding measure of upside potential determined as the second-root upper partial moment (Fishburn, 1977):

$$Upside\ potential = \sqrt{\frac{\sum (ROA_t - IROA_t)^2}{n}}; \quad \text{for } ROA_t > IROA_t$$

$$t = 2010, 2011, 2012, 2013$$

We followed the inclination of behavioral decision theory where executives exhibit a tendency to see risk as a failure to meet a certain aspirational performance level (Mao, 1970). Behavioral studies find that firms tend to use average industry performance as reference points (Frecka and Lee, 1983; Lee and Wu, 1988). In line with Miller and Reuer (1996) we assumed that firms adapt their target level (IROA) on an annual basis computing the upside potential based on return on assets (ROA) as the relevant measure of performance. That is, if a firm is underperforming its peers, upside potential is equal to zero. If the firm is outperforming its peers,

the firm has a dispersion of its ROA relative to its target, IROA. A four-year period, 2010-2013, was chosen to obtain data for the construct because besides from corresponding to the period addressed by the questionnaire it provides a time lag in the dependent variable. Ascribing the process constructs and performance outcomes to the same time period assumes that the processes and their resulting effects are contemporaneous over the measured time periods and thereby reduces the possibility of reverse causality. The measure of upside potential de facto captures the probability of over-performance of the firm compared to the closest competitors in the industry during the four-year period.

Control variables. Past research has found that *industry context* can have a significant influence on general performance and the relationship between planning and firm performance (Dess, Ireland, and Hitt, 1990; Miller and Cardinal, 1994). Hence, we used the NACE industry codes as indication of specific industry contexts and to control for industry-related effects. Furthermore, the management literature has found that *firm size* can influence both direct performance and the interacting planning–performance relationships (e.g., Khandwalla, 1972; Lindsay and Rue, 1980). It is also suggested that firm size can affect the choice of management control systems and thereby their relationship to performance outcomes (e.g., Khandwalla, 1972). Hence, we included firm size measured as the natural logarithm of the number of employees in the firm as a control variable. Additionally, we controlled for both *organizational* and *strategic change* by asking the CFO if the organization has made significant structural changes and changes to its strategy in recent years on a 7-point Likert scale. Further, we included *diversification and internationalization* as control variables by asking the CFO of the percentage share of the firm’s turnover from primary and foreign markets, respectively. As these strategies may make the firm less vulnerable to abrupt changes in business or local markets, as they provide access to new businesses

or regional markets, diversification and internationalization can have an influence on the firm's upside potential of performance. Additionally, *stock-listing and firm age* was included as controls. Stock-listed firms may have an advantageous access to financial resources that can affect the ability to exploit market opportunities. Firm age might lower the potential to seize upside potential due to increasing bureaucratization over time as the firm matures.

2.2. Validity

The reliability and validity of the construct measures of interactive use of budget control, strategic planning, participation in decision-making, and delegation of decision authority was initially assessed by the alpha coefficients. The four measures showed a Cronbach's alpha between 0.75 and 0.88 well in excess of the commonly used threshold of 0.70 suggested by Nunnally (1978). Furthermore, we calculated the composite reliability, average variance extracted (AVE), and the discriminatory validity using confirmatory factor analysis (CFA) with Maximum Likelihood (ML) as estimator. The composite reliability of the measures ranged between 0.77 and 0.87 with AVE ranging between 0.41 and 0.59, where strategic planning obtained the lowest AVE. Thus, all measures except strategic planning exceeded the commonly accepted threshold value of 0.50 (Hair, Black, Babin, Anderson, and Tatham, 2006). Since this is ascribed to a single factor included in the generic scale, we considered this acceptable.

As recommended by Hu and Bentler (1999) the model fit was evaluated using several fit indices including the comparative fit index (CFI), the standardized root mean square residual (SRMR) and the root mean square error of approximation (RMSEA) (see Table 1). CFI was above the recommended threshold of 0.8 (Bentler, 1990). The RMSEA was calculated as 0.09 and the SRMR equaled 0.07 which indicates acceptable fit for the model (Jöreskog and Sörbom, 1996;

Medsker, Williams, and Holahan, 1994). Furthermore, all the items loaded onto the constructs with a high level of significance ($p < 0.001$).

----- Insert Table 1 about here -----

The measures were found to have satisfactory discriminant validity where the AVE for the correlated latent variable was greater than the square of the correlation between the latent variable (Fornell and Larcker, 1981). Convergent validity was assessed by examining the correlation between the items in their respective constructs, where values above 0.50 are considered to demonstrate convergent validity (Hulland, 1999). Convergent validity was satisfactory for the interactive use of budget control measure and the participation and delegation scales since all items displayed correlations greater than 0.50. However, the strategic planning scale does not satisfy the criterion in particular because the fourth item displays validity problems. Nonetheless, the item was retained in the measure used in this study since it has exhibited good quality in prior dataset (e.g., Andersen, 2000; Rudd et al., 2008). Furthermore, excluding the item from the measure does not materially affect the reported results. The correlations between items are presented in the appendix.

3. RESULTS

3.1. Descriptive statistics

The basic descriptive data on the model constructs and the correlations calculated between those constructs are shown below (Table 2). Upside potential captures the firm's probability to achieve results above the industry norm and reflects an effectiveness capability in seizing and exploiting opportunities. There is very little correlation between strategic planning and the two decentralized strategy-making constructs indicating that they constitute distinct strategy modes. The interactive

use of budgets is significantly correlated to strategic planning, participation and delegation suggesting that many firms tend to combine planning with interactive budget controls and the two decentralized strategy-making constructs.

----- Insert Table 2 about here -----

3.2. Results

The hypotheses and models were tested in regression analyses. Since a significant proportion of the observations obtained a value of zero censored Tobit regression instead of ordinary least squares (OLS) regression was applied (Reuer and Leiblein, 2000). The two interaction terms were mean adjusted. In the first model we ran a model with only the control variables to assess the relative importance of adding the independent variables to the model (Wooldridge, 2002).

In the second model, interactive control displayed a significant direct positive relationship to upside potential ($p < 0.01$) (Table 4). Hence, these results provided support for first hypothesis. In the third model, the strategic planning, participation, delegation and the interaction terms were added to the model. Adding interaction terms increased the explanatory power significantly at the 5 percent confidence level. Strategic planning exhibited a direct relationship to upside potential ($p < 0.01$) but no interaction effect with interactive use of budget controls. Hence, these results provide support for H2.1 but not for H2.2. Participation in decision-making showed a direct effect on upside potential and an interaction effect with interactive use of budget controls ($p < 0.05$). Thus, both H3.1a and H3.2a are supported. Delegation of decision authority did not exhibit a significant relationship to upside potential, thus failing to support H3.1b and H3.2b.

----- Insert Table 3 about here -----

4. DISCUSSION & CONCLUSION

4.1. Discussion, limitations, and future research

This research contributes to the literature in several ways. It uses the lens of interactive control processes drawing on insights from the management accounting literature to perform an updated analysis of how strategic planning and decentralization affect performance. The proposed model suggests that these two distinct strategy-making modes coexist and support firms in achieving upside potential where planning play an important role in coordination of business activities while decentralization enables responsive initiatives by developing cutting-edge market opportunities. Moreover, it suggests that interactive control system can serve as an important mechanism linking these two strategy-making practices by enhancing their respective effect on upside potential of firm performance. Hence, the study synthesizes contributions from the strategic management and management accounting literatures to outline a corporate strategy-making model that allows the organization to deal more effectively with emerging environmental changes by developing and exploiting opportunities to enhance economic potential.

The data collected from a large cross-sectional corporate sample uncover some new and potentially revealing insights. The results from the empirical study partially confirm the hypothesized performance relationships. We found that interactive use of budgets, participative decision-making and strategic planning all had a significant direct relationship with upside potential of performance. Surprisingly, we did not find a significant relationship with the dimension of decentralized strategy-making; ‘delegation of decision authority’. One reason might be that delegation of decision authority increases the exposure to self-interest behavior and middle-level managers could possibly pursue market opportunities in contravention of overall strategy (Foss et

al., 2007; Guth and MacMilliam, 1986). Interactive control systems may fail to capture these negative effects derived from decisions taken without top management's prior acceptance.

Furthermore, from the empirical investigation interactive control processes are found to support a participative decision-making structure in ways that significantly enhance upside potential. Thus, upside potential is achieved through the involvement of people in the sales and marketing functions in identification of new market potential and initiatives to rein in these emerging opportunities. This is achieved because the regular direct discussions between top and middle-level managers is an effective way to exchange updated market insights from responsive initiatives in the field and using this updated knowledge proactively to organize new market opportunities. In other words, the interactive use of budget controls act as an effective information processing vehicle that integrates important elements of participative decision-making. More specifically, interactive use of budget controls may provide the important mechanism that link decision-makers across hierarchical levels and functional areas through open exchange of information and direct engagement in discussions about performance developments, environmental changes, and needed adjustments to corporate activities.

Finally, from the empirical investigation interactive controls does not seem to enforce the positive relationship between strategic planning and the upside potential of corporate performance. This raises questions of the asserted benefits from interactive control systems in providing real-time strategic feedback and redirecting strategy by revising and updating strategic plans. This encourages further research that looks into the relationship between these control systems and strategic planning.

While these insights are tested in significant statistical relationships they are also uncovered from a single study, which despite a sound methodology has its limitations. Hence, we sampled

representative firms from among the largest companies in Denmark that obviously may represent a particular bias towards a geographical region that adhere to particular management principles practiced in a setting with a specific national culture. Even though all firms in the sample have a high degree of international business activities, we cannot exclude the possibility that some national headquarter biases persist. While we based the analysis on reliable responses and valid model constructs controlling for potential confounding factors, a single study poses limitations in the generalizability of the results. Hence, we encourage further replication studies in other country settings and with other industry constellations to retest the core results. We also see a promising potential in conducting more detailed studies to uncover the intricate relationships between the interactive use of budget controls, the strategic planning process and the decentralized decision structures that advance upside potential. This seems to open a fruitful path for future research efforts to better understand the role of interactive control in enhancing the performance effects of the dual strategy-making modes of planning and decentralization.

4.2. Conclusion

In short, a strategy-making model that incorporates strategic planning and decentralized initiatives balances opportunistic search for market opportunities with optimization of business operations where the interactive use of budget controls has positive moderating effects on the relationship between participation and the ability to realize upside potential. Upside potential reflects economic efficiencies in seizing and exploiting new business activities. This requires a high level of coordination of business activities that effectively seizes opportunities and turns them into viable commercial ventures that consistently realize their economic potential. This ability to combine decentralized exploration and central exploitation of opportunities with interactive control processes

is the basis for an adaptive dynamic capability that can deal effectively with turbulent environmental conditions.

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Figure 1: The Integrative Strategic Management Model with Interactive Controls

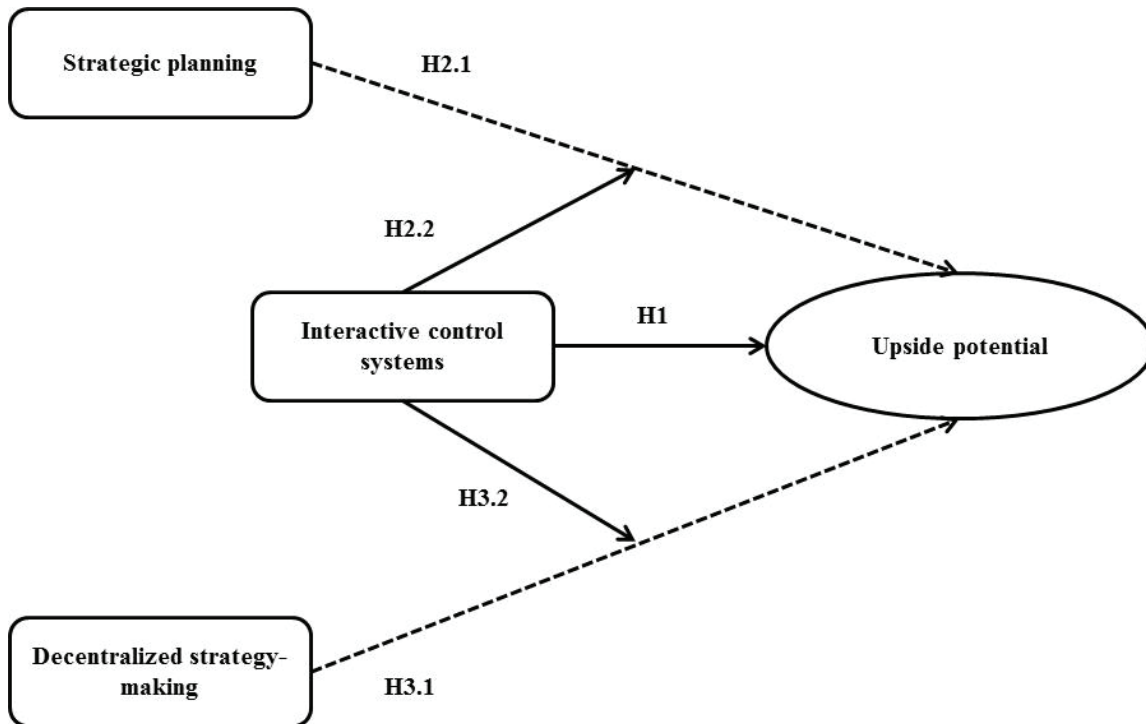


Table 1. Fit indexes and correlation between constructs derived through CFA

Fit Indexes:	
Estimator: Maximum Likelihood (ML)	
CFI	0.85
TLI	0.83
SRMR	0.07
RMSA	[0.08 ; 0.10]

Table 2. Descriptive statistics and correlation analysis

Variable	Mean	SD	Min	Max	1	2	3	4	5	6	7	8	9	10	11	12
1 Interactive control systems (ICS)	5.33	1.18	1.50	7.00	1.00											
2 Strategic Planning (SP)	5.11	1.02	2.20	7.00	0.20 **	1.00										
3 Participation	5.60	1.00	2.40	7.00	0.22 **	0.09	1.00									
4 Decentralization	4.03	1.51	0.00	7.00	0.19 *	0.05	0.45 ***	1.00								
5 Firm size	5.81	1.30	1.10	9.02	0.09	0.11	-0.01	0.05	1.00							
6 Operational changes	5.17	1.61	1.00	7.00	0.11	0.17 *	0.03	0.08	0.07	1.00						
7 Strategic changes	4.68	1.65	1.00	7.00	0.17 *	0.35 ***	0.06	0.04	-0.02	0.59 ***	1.00					
8 Internationalization	41.63	40.68	0.00	100.00	-0.06	0.06	0.06	0.08	-0.24 **	0.05	0.02	1.00				
9 Diversification	93.65	12.04	25.00	100.00	-0.02	-0.03	0.01	0.05	-0.21 **	-0.13 †	-0.05	0.06	1.00			
10 Stock-exchange Listing	0.87	0.33	0.00	1.00	0.00	-0.07	-0.11	0.08	0.03	-0.05	-0.01	-0.03	0.09	1.00		
11 Legal Form	0.91	0.29	0.00	1.00	0.22 **	-0.08	-0.05	0.08	-0.04	0.17 *	0.02	0.02	-0.04	-0.06	1.00	
12 Firm Age	35.88	22.29	4.00	103.00	-0.04	-0.01	-0.10	0.04	0.00	-0.09	-0.08	0.06	-0.04	-0.03	0.17 *	1.00

Note: † $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 3. Censored Tobit regressions for upside potential

Dependent variable \ Independent variable	Model 1		Model 2		Model 3	
	Upside Potential		Upside Potential		Upside Potential	
	Est,	SE	Est,	SE	Est,	SE
Intercept	0.14	0.08 †	0.11	0.07	-0.05	0.08
Interactive control systems (ICS)			0.01	0.00 **	0.01	0.00 *
Strategic Planning (SP)					0.02	0.01 **
Participation					0.01	0.01 *
Decentralization					0.00	0.00
ICS*SP					0.00	0.00
ICS*Participation					0.01	0.00 *
ICS*Decentralization					0.00	0.00
Firm size	0.00	0.01	-0.01	0.01	-0.01	0.01
Operational changes	-0.01	0.00 *	-0.01	0.00	-0.01	0.00 †
Strategic changes	0.00	0.00	0.00	0.00	0.00	0.00
Internationalization	0.00	0.00 **	0.00	0.00 **	0.00	0.00 **
Diversification	0.00	0.00	0.00	0.00	0.00	0.00
Stock-exchange Listing	0.01	0.02	0.01	0.02	0.01	0.02
Legal Form	0.00	0.02	-0.01	0.02	0.00	0.02
Firm Age	0.00	0.00	0.00	0.00	0.00	0.00
Industry 1	-0.06	0.02 **	-0.06	0.02 **	-0.06	0.02 *
Industry 2	-0.03	0.02	-0.03	0.02	-0.02	0.03
Industry 3	-0.04	0.02 †	-0.04	0.02 *	-0.04	0.02
Industry 4	-0.03	0.03	-0.04	0.03	-0.03	0.03
Industry 5	-0.08	0.03 **	-0.08	0.03 **	-0.09	0.03 **
Industry 6	-0.07	0.06	-0.07	0.05	-0.07	0.04
Industry 7	-0.01	0.02	-0.01	0.02	-0.01	0.03
Industry 8		Omitted		Omitted		Omitted
N	174.00		174.00		174.00	
F	4.02		3.95		2.90	
d,f,	15.00		16.00		22.00	
Significance	0.00		0.00		0.00	

Note: † $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

APPENDIX

Sampled firms across different industries based on NACE codes

Industry	Industry number	NACE codes	# Firms
Manufacturing, mining and quarrying, and utility services	1	06-39	61
Construction	2	41-43	13
Trade and transport etc.	3	45-56	50
Information and communication	4	58-63	8
Financial and insurance	5	64-66	14
Real estate	6	68	2
Other business services	7	69-82	22
Arts, entertainment and other services	8	90-99	4

Correlation-matrix for items measuring interactive control, strategic planning, participation and delegation

Variable	Mean	SD	Min	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
1 Interactive control system 1	6.13	1.10	1.00	7.00	1.00																			
2 Interactive control system 2	4.94	1.58	1.00	7.00	0.53 ***	1.00																		
3 Interactive control system 3	5.21	1.48	2.00	7.00	0.60 ***	0.71 ***	1.00																	
4 Interactive control system 4	5.02	1.50	1.00	7.00	0.46 ***	0.62 ***	0.58 ***	1.00																
5 Strategic Planning 1	4.61	1.63	1.00	7.00	0.13 †	0.08	0.17 *	0.05	1.00															
6 Strategic Planning 2	5.16	1.48	1.00	7.00	0.14 †	0.00	0.10	0.09	0.42 ***	1.00														
7 Strategic Planning 3	5.57	1.26	2.00	7.00	0.09	0.15 *	0.15 *	0.08	0.38 ***	0.53 ***	1.00													
8 Strategic Planning 4	5.06	1.44	1.00	7.00	0.09	0.12	0.20 ***	0.13 †	0.13 †	0.24 **	0.41 ***	1.00												
9 Strategic Planning 5	5.14	1.36	2.00	7.00	0.17 *	0.08	0.20 ***	0.17 *	0.40 ***	0.58 ***	0.48 ***	0.23 **	1.00											
10 Participation 1	5.98	1.12	1.00	7.00	0.17 *	0.11	0.18 *	0.27 ***	0.01	0.06	0.14 †	0.04	0.12	1.00										
11 Participation 2	5.91	1.17	2.00	7.00	0.13 †	0.18 *	0.19 *	0.27 ***	-0.01	0.10	0.14 †	-0.02	0.12	0.62 ***	1.00									
12 Participation 3	5.71	1.31	2.00	7.00	0.07	0.14 †	0.12	0.23 **	0.03	0.19 *	0.13	0.01	0.18 *	0.42 ***	0.60 ***	1.00								
13 Participation 4	5.30	1.44	1.00	7.00	0.04	0.10	0.10	0.28 ***	-0.04	0.02	0.06	-0.05	0.02	0.39 ***	0.35 ***	0.45 ***	1.00							
14 Participation 5	5.07	1.54	1.00	7.00	-0.05	0.02	0.07	0.19 *	-0.01	-0.01	0.06	0.03	0.03	0.39 ***	0.34 ***	0.44 ***	0.72 ***	1.00						
15 Delegation 1	4.74	1.77	0.00	7.00	-0.02	0.09	0.11	0.18 *	0.10	0.12	0.07	0.07	0.05	0.43 ***	0.30 ***	0.24 **	0.25 **	0.25 **	1.00					
16 Delegation 2	4.15	1.97	0.00	7.00	0.04	0.19 *	0.12	0.20 **	0.05	0.01	0.03	0.05	-0.01	0.34 ***	0.29 ***	0.17 *	0.18 *	0.23 **	0.73 ***	1.00				
17 Delegation 3	3.37	1.94	0.00	7.00	0.00	0.17 *	0.14 †	0.20 **	0.13 †	-0.01	0.03	0.02	-0.07	0.17 *	0.14 †	0.21 ***	0.24 **	0.29 ***	0.50 ***	0.63 ***	1.00			
18 Delegation 4	4.09	1.80	0.00	7.00	-0.01	0.15 *	0.18 *	0.25 ***	0.01	-0.06	-0.03	-0.04	-0.05	0.34 ***	0.20 **	0.27 ***	0.52 ***	0.45 ***	0.57 ***	0.66 ***	0.66 ***	1.00		
19 Delegation 5	3.82	1.78	0.00	7.00	-0.03	0.12	0.10	0.20 **	0.09	0.03	0.07	0.05	0.03	0.34 ***	0.18 *	0.23 **	0.39 ***	0.44 ***	0.51 ***	0.51 ***	0.55 ***	0.67 ***	1.00	

Note: †p<0.10, *p<0.05, **p<0.01, ***p<0.001.

Measurement instruments - Factor loadings derived from EFA

Interactive Control Systems	Cronbach's α 0.85	Factor Loading
To what extent do you agree with the following statements based on the period 2010-2012: 1. Budget follow-up is an important and continuous part of top management's tasks 2. Top management often uses budget information as a means of questioning and debating the ongoing decisions and actions of department/managers 3. The budget process is continuous and it demands regular and frequent attention from managers at all levels 4. In the budget process, there is much interaction between top management and department/unit managers		0.77 0.87 0.88 0.80
Strategic Planning	Cronbach's α 0.75	
State how much the company in the period 2010-2012 has attached importance to the following activities: 1. Establishing company mission 2. Preparation of long-term plans (3-5 years) 3. Yearly goals (sales goals, efficiency, market shares etc.) 4. Short-term planning (campaigns, short-term projects etc.) 5. Evaluation of the company's strategic goals and the degree of fulfillment		0.65 0.81 0.80 0.50 0.78
Participation	Cronbach's α 0.81	
How often have middle managers (managers below top management) in the period of 2010-2012 been involved in the following strategic decisions (i.e. not only the implementation process, but also the decision-making process): 1. Activities aiming at increasing market share 2. Sales to new segments or markets 3. Development of important new products 4. Development of new competences 5. Development of new policies and routines		0.74 0.77 0.77 0.77 0.76
Delegation	Cronbach's α 0.88	
How often have middle managers (managers below top management) in the period of 2010-2012 independently (without prior acceptance by top management) made the following decisions on: 1. Activities aiming at increasing market share 2. Sales to new segments or markets 3. Development of important new products 4. Development of new competences 5. Development of new policies and routines		0.81 0.83 0.82 0.84 0.79

**CHAPTER 4: MAKING RISK MANAGEMENT STRATEGIC:
INTEGRATING ENTERPRISE RISK MANAGEMENT
WITH STRATEGIC PLANNING^{ab}**

ABSTRACT

In recent years, Enterprise Risk Management (ERM) has grown in significance. An increasing number of firms put substantial amounts of resources into ERM frameworks that claim to manage the risks and opportunities that affect the entire organization. Yet, there is a lack of knowledge whether and, if so, how these frameworks add value and improve firms' performance. This study narrows the gap in ERM research by providing evidence that an integration of ERM and strategic planning is necessary to reap all of the potential that ERM has to offer. In other words, this study shows that strategic planning serves as a mediator between ERM's effect on firm performance and the probability of financial distress through the lowering of a firm's leverage. It further develops a measure of ERM that introduces more dimensions to the construct than earlier studies that have relied on dichotomous proxies. Drawing on a survey of 500 of the largest firms in Denmark, support is found for the proposed mediation relationship.

Keywords: Enterprise risk management; strategic planning; firm performance; financial leverage

^a An earlier version of this paper has been presented at the Strategic Management Society Conference, 2014, Madrid.

^b I thank, without implicating, Jacob Lyngsie for comments on earlier versions of this chapter.

1. INTRODUCTION

Early strategic management literature has shown that firms engage in sophisticated scanning, decision analysis, controls, and communication devices to keep up with fast-moving environments (Hambrick, 1982; Miller and Friesen, 1978; Priem, Rasheed, and Kotulic, 1995b). Much of the literature in strategic management has pointed to strategic planning as a way for firms to manage uncertainty and to prepare for the future direction of the firm (Andersen, 2000; Ansoff, 1988; Brews and Hunt, 1999; Kudla, 1980; Miller and Cardinal, 1994; O'Regan, Sims, and Gallear, 2008; Schendel and Hofer, 1979). In recent years there has been an increasing attention of embedding Enterprise Risk Management (ERM) within the strategic management processes (Fraser & Simkins, 2009; Moeller, 2007). Originating from the field of management accounting, ERM has presented a shift in how firms deal with risks (Power, 2009) and ERM is increasingly regarded as an essential management device that holistically evaluates and manages all of the risks faced by a firm. Literature suggests that ERM provides a significant opportunity for competitive advantage by identifying and assessing all of the risks that affect a firm's value, and thus it enhances corporate risk awareness that encourages more sound operational and strategic decision-making (e.g. Arena, Arnaboldi, and Azzone, 2011; Hoyt and Liebenberg, 2011).

Nonetheless, the literature provides mixed support to the idea that ERM contributes to the value of a firm and its performance. A few studies have shown a positive relationship (Eckles, Hoyt, and Miller, 2014; Gordon, Loeb, and Tseng, 2009; Grace, Leverty, Phillips, and Shimpi, 2014; Hoyt and Liebenberg, 2011), others find no beneficial effects (Pagach and Warr, 2010; Quon, Zeghal, and Maingot, 2012; Sekerci, 2012), while Lin, Wen, and Yu (2011) show that it erodes firm value. Such inconsistencies raise questions about whether the anticipated beneficial effects of ERM can be realized. Further, ERM proponents claim that firms need to

integrate ERM with their strategic planning process to benefit from so called ‘strategic risk management’ or ‘integrated risk management.’ Yet, surprisingly little academic attention has been paid to how these two management processes are integrated. Most research on ERM draws on literature from the field of finance and accounting. However, an integration of risk management with strategic management literature is warranted (Beasley and Frigo, 2009; Bromiley, McShane, Nair, and Rustambekov, 2014; Frigo and Anderson, 2011). This study responds to these calls and aims to add to the emerging ERM literature, as well as the strategic management literature, by enhancing the understanding of the relationship between the two practices. The study addresses two research questions. First, does ERM contribute to enhanced organizational performance? Second, how is this potential related to strategic planning? Specifically, how can firms benefit from integrating the ERM process with strategic planning?

Furthermore, ERM has been described as an obscure and under-specified concept with several definitions (Mikes, 2005). This could explain the mixed findings of the relationship between ERM, firm value, and performance (Kraus and Lehner, 2012). Most of the research on ERM relies on publicly accessible data, measuring ERM as the appointment of a Chief Risk Officer (CRO), or on the basis of a word search on ERM in financial reports or other media. These dichotomous variables allow for little variance which might bias the results (Boyd, Gove, and Hitt, 2005; Nielsen, 2013). Neither do they capture the extent of ERM implementation (Beasley et al., 2008), nor the quality of the risk management processes (Mikes and Kaplan, 2014). As Mikes and Kaplan (2014: 8) describe it: ERM exists in a vast variety, “deployed at different levels, for different purposes, by different staff groups in different organizations.” The lack of contemporary ERM frameworks, or not having a CRO, does not necessarily indicate that ERM processes are absent. Firms may not have an articulated ERM vocabulary, yet they may have risk management embedded into their managerial tactics (Corvellec, 2009). Rather than

addressing only those firms that explicitly subscribe to a specific ERM framework (e.g. COSO, 2004; ISO31000, 2009), this study assumes that ERM is embedded into a firm's practices and tactics, and it is not always articulated in the notion of ERM. Therefore, it develops an ERM measure based on the risk management process described in the literature. It further advances prior studies by using a data set from a survey conducted on the 500 largest firms in Denmark.

Overall, this study contributes to the literature in two important ways. Firstly, the study sheds light on the relationship between risk management and strategic planning. It suggests that ERM can provide a firm with organizational capabilities that include an enterprise-wide risk awareness. Such risk consciousness in turn stimulates an incentive to emphasize strategic planning that coordinates strategic risk responses for obtaining or sustaining competitive advantage. Consequently, this study contributes to the strategic planning literature by discussing how risk management processes can increase the top managements' ability to acquire and process information about the risks and opportunities that affect corporate survival and translate it into strategic decisions. The study also contributes to previous research on ERM by providing empirical evidence that ERM does indeed increase financial performance. Secondly, this study introduces a new measure of ERM, more specifically: the process dimension of ERM. Thus, the present study overcomes earlier shortcomings that treated ERM as a dichotomous variable.

The rest of the paper is divided into four sections. The first section outlines the theoretical arguments for the proposed association between ERM and strategic planning which leads to a series of hypotheses. Subsequent sections include the methodology of the empirical study and a presentation of the results. The final section includes a discussion, evaluation of the limitations, and a summarization of the findings.

2. THEORETICAL BACKGROUND & HYPOTHESES

2.1. A current stance on the enterprise risk management literature

The recent years' numerous debacles, from frauds and scandals to the financial crisis, have created a demand from institutional investors, rating agencies, and stock exchanges for firms to take a more systematic approach to handling risks that can affect the entire organization. These developments in the business environment dynamism and legal requirements have spurred the growth of different risk management frameworks including ERM (Arena, Arnaboldi, and Azzone, 2010). Today ERM is regarded increasingly as signaling sound corporate governance, so firms can put themselves at risk by disregarding it (Martin and Power, 2007). Since the rise in the popularity of ERM in 1990s several guidelines and frameworks have been published that all claim to be a systematic process that treats the vast variety of risks that firms face in a holistic and integrated way (e.g. COSO, 2004; ISO31000, 2009). According to these frameworks, firms should seek to identify all of the risks, assess and evaluate them, design responses and mitigations, monitor the entire processes and make feedback adjustments if necessary, and communicate/report to the top management and the board of directors (Olson and Wu, 2008). These activities are executed in systematic processes with standardized procedures across the organization (Moeller, 2007). Further, the purpose of ERM is to handle risks in an integrated manner rather than the traditional risk management approach where risk management is a specialized and isolated activity; for instance the separation of insurance risk, financial risk, and technology risk into independent departments (Barton, Shenkir, and Walker, 2002). Instead, risks are analyzed and reported across the entire organization. Accordingly, ERM represents an integrated approach to the management of the total risk that a firm faces (Dickinson, 2001). While there are numerous risk management frameworks, the COSO (2004) version has become one of the templates for best practice (Power, 2007, 2009). Comparing the described risk management process across the frameworks reveals several similarities, although there may be a terminological difference (Olson and Wu, 2008).

Empirical research in ERM has mainly focused on two areas: the impact of ERM on a firm's value and performance, and the characteristics of ERM adopters. For example, Liebenberg and Hoyt (2003) and Pagach and Warr (2011) show that firms that carry higher levels of financial leverage are more likely than their less risky counterparts to adopt ERM. These results are supported by the prediction that firms with higher financial risk face a higher likelihood of financial distress, and thus have a stronger incentive to adopt methods aimed at reducing that likelihood (Pagach and Warr, 2011). Both studies use the appointment of a CRO as a proxy for ERM. Other studies reveal that a firm's size and the presence of a CRO are important antecedents to ERM adoption (Beasley, Clune, and Hermanson, 2005). Reviewing the literature on ERM and its relationship with the value of a firm and its performance indicate mixed findings. Further, the methods used to measure ERM and the outcome variables are inconsistent, ranging from surveys and publically available data. One of the earlier studies using the CRO as an ERM proxy, found no statistically significant stock price reaction after adopting ERM (Beasley, Pagach, and Warr, 2008). Hoyt and Liebenberg (2011) compare firms with and without ERM initiatives by using word searches in financial reports and media as a measure, and they found that firms with ERM initiatives were associated with larger value premiums. Another study measuring ERM by word search similarly shows that firms experienced increasing operating profits per unit of risk and a reduction in stock volatility after ERM adoption (Eckles et al., 2014).

Some studies have moved beyond measuring ERM as a dichotomous variable. For example, Gordon et al. (2009) developed an index for the firm's ERM and demonstrated that the ERM and the firm value relationship is contingent on the firm's contextual factors including environmental uncertainty, industry competition, firm size, firm complexity, and board monitoring. McShane et al. (2011) used S&P's risk management rating of insurance companies

as a proxy for ERM sophistication. The authors found that as firms put more emphasis on reliable control systems for managing risks the firms' value increased. They did not find a statistically significant relationship between the value of the firms and the firms' movement beyond silo risk management into coordinated ERM. Baxter et al. (2013) also used S&P's ERM rating as an ERM proxy and found a statistically significant positive relationship between ERM rating and firm performance in insurance and banking firms. Quon, Zeghal, and Maingot (2012) measured ERM adoption by the level of risk assessment reported in annual reports and financial statements and did not find an effect on performance. The result of a study by Grace et al. (2014) shows that firms that put more emphasis on a combination of ERM-related activities (including weight on a simple economic capital model, having a dedicated risk manager or risk management team, and risk managers reporting to the board) reaped the benefits of an improved cost and revenue efficiency. The authors also found that moving from simple risk-based capital allocation models to more advanced models – based on scenarios, stress test, and stochastic simulation – did not contribute to any further performance efficiency improvements.

2.2. Enterprise risk management from a strategic management perspective

The ERM process has been described in the literature as a continuous process of identifying, analyzing, evaluating, responding, reporting, and monitoring risks in an iterative cycle (Moeller, 2007). Management scholars have argued that the process of identifying, analyzing, and responding to risks is key for managing strategic risks (Baird and Thomas, 1985) and critical components of firm capabilities (Day, 1994) for organizational adaption (Milliken, 1990). Hence, the assessment of risks and opportunities typically constitutes the first phase of the normative model of the strategic management process (Wheelen and Hunger, 2010). The identification of strategic risks has received different descriptions in the literature such as awareness (Lant, Milliken, and Batra, 1992), strategic surveillance (Preble, 1992; Schreyogg

and Steinmann, 1987), and environmental scanning (Aguilar, 1967). The risk identification is the processes of acquiring information on potential events (Aguilar, 1967; Daft, Sormunen, and Parks, 1988) with potential strategic implications (COSO, 2004). In the strategic management literature, environmental scanning has been described as an organizational necessity for long-term survival (Weitzel and Jonsson, 1989). Failure to scan the environment can be an early indicator of organizational decline (Daft and Weick, 1984; Thomas, Clark, and Gioia, 1993; Thomas and McDaniel, 1990). Although the literature has focused on external scanning, emerging literature posit that both internal and external scanning are important to firm performance (Garg, Walters, and Priem, 2003). Firms that acquire extensive information before making decisions are better equipped to identify viable choices (Dean and Sharfman, 1996), which has been shown to be essential for strategic success (Child, 1997) and to firm performance (Bourgeois, 1985; Garg et al., 2003). Hence, scanning is an important initial step in a chain of activities that leads to organizational adaption as an “organization’s executives can only act on those phenomena to which their attention is drawn” (Hambrick, 1981: 299).

By interpreting the identified events (risk and opportunities), information on both the environment itself and the actions required to meet those conditions are structured to foster meaning and understanding (Paine and Anderson, 1977). In fact, “the imposition of meaning on issues characterized by ambiguity has become a hallmark of the modern top management” (Thomas et al., 1993: 240). The purpose of interpretation is to analyze risk and opportunities that are relevant to the firm and to develop a comprehensive analysis of the complete organization-environment ‘fit’ (Newgren, Rasher, and LaRoe, 1984). Barr explained that “a key component in a firm's strategic response to unfamiliar environmental events is the interpretation managers develop about the event itself” (Barr, 1998: 644). Along the same lines, Mintzberg, Raisinghani, and Théorêt (1976: 274) emphasize that “diagnosis is probably the single most important routine, since it determines in large part, however implicitly, the subsequent course of

action.” Langley (1990) found that a systematic study of issues and events in strategic decisions aided the convergence toward actions. Such formal analysis supports strategic decision-making by reducing uncertainty around a decision, providing analysis for decision alternatives, and assessing the internal viewpoints in the firm (Langley, 1989). Thus, the phase of interpretation has been characterized as critical to a firm’s success and survival (Dutton and Duncan, 1987a).

The interpretation of the events and associated actions enables firms to prepare informed risk response choices of accepting, avoiding, transferring, or mitigating the risk exposure (Lam, 2003; Moeller, 2007) and turning these exposures into opportunities (Bromiley et al., 2014). Dependent on how risks are assessed, judgements of the correct course of action are not homogenous across organizations (Adner and Helfat, 2003). Several of these responses toward risks may involve some change dependent on probability, impact, and urgency. These changes may be small-scale such as procedural changes, or extensive changes such as decisions about mergers and acquisitions, product launches, or corporate restructurings. The important role of strategic planning in managing change has been emphasized in seminal work on formal planning processes (Ansoff, 1982; Chandler, 1962; Schendel and Hofer, 1979), because strategic planning may serve as an important mechanism in translating risk exposures into an “effective and timely initiation and implementation of strategic change” (Dutton and Duncan, 1987b: 103). By integrating ERM with strategic planning these risk responds can arguably turn into “reality as the organization ‘programs’ them into the development of new routines and capabilities aimed at achieving the kinds of outcomes that the ideal future envisions” (Liedtka, 2000: 197). The identification and decision-making process is distinct from the creation of strategic plans, and these two processes call for very different, but integrated, processes (Mankins and Steele, 2006). Thus, it can be argued that firms that manage to integrate the ERM process with their strategic planning can develop important managerial capabilities. As such, integrating ERM and strategic

planning can enhance the ability to successfully respond and adapt to changing circumstances by enhancing firms' capabilities to effectively configure and deploy resources (Eisenhardt and Martin, 2000; Nair, Rustambekov, Mcshane, and Fainshmidt, 2013). Thus, integration of these processes can represent a dynamic managerial capability (Adner and Helfat, 2003) and contribute to the ability of firms to build and sustain competitive advantage.

2.3. Hypotheses

In the ERM literature, proponents claim that the underlying objective of ERM is to increase shareholder value and firm performance (Beasley et al., 2008; Kraus and Lehner, 2012; Pagach and Warr, 2010). Further, ERM adds value by reducing or eliminating "costly lower-tail outcomes" (Beasley et al., 2008; Pagach and Warr, 2010) such as financial distress (Pagach and Warr, 2011). On the other hand, ERM should not only protect against lower-tail outcomes but it should support the firm in recognizing untapped opportunities (COSO, 2004). As ERM is not just about reducing or mitigating risks but turning these exposures into opportunities (Bromiley et al., 2014).

Nocco and Stulz (2006) posit that ERM can provide firms with a long-running competitive advantage if it is managed appropriately. For example, it differs to ad-hoc risk management in that it entails a systematic process of identifying and analyzing risks and deciding on risk responses from a company-wide perspective (Dickinson, 2001; Kleffner, Lee, and McGannon, 2003; Sobel and Reding, 2004). That is, it takes a strategic approach to risk management taking into account the firm-specific (unsystematic) risks that firms face (Bromiley et al., 2014). As "the continuous management of unsystematic risk lies at the heart of strategic management" (Bettis, 1983: 408) studying ERM from a strategic management perspective may offer some important advantages. Firm-specific risk-taking concerns investments in markets or resources intended to create a competitive advantage (Damodaran,

2007). Because of the increasing globalization of markets, intensified competition, and constraints from fast-developing technologies, firms must continually search for new sources of advantage through firm-specific risk-taking in investments that have both significant upside and downside potential (Chatterjee, Wiseman, Fiegenbaum, and Devers, 2003). Firms should “manage the riskiness of these investments by engaging in risk management activities that reduce the probability that a company will experience financial distress” (Wang, Barney, and Reuer, 2003). Thus, the firm-specific investment rationale can be seen as a plausible explanation for positive effects that are derived from ERM processes (Andersen, 2008).

In order for ERM to be of value, by continually identifying and assessing how firms can respond to and take on strategic risks, it must become part of the firm’s core competences (Chatterjee et al., 2003). By developing ERM into a core competence, firms can experience an increased capital efficiency in that ERM enhances a firm’s ability to allocate corporate resources on an informed risk-reward trade off basis (Grace et al., 2014; Aabo, Fraser, and Simkins, 2005). That is, firms choose between firm-specific investments by assessing the return on the investments after compensating for the costs associated with the increase in the total risk of the firm (Nocco and Stulz, 2006). Hence, ERM may add value by proactively seeking to improve the risk-return aspect of decision-making. On the contrary, ad hoc risk management may lead to an inefficient resource allocation (Hoyt and Liebenberg, 2011) and result in temporary advantages at best (Chatterjee et al., 2003). Thus, ERM can serve as an important management device that can improve firm performance through firm-specific risk taking, which are in turn essential sources of competitive advantage (Andersen, 2008; Bromiley et al., 2014; Chatterjee et al., 2003; Wang et al., 2003). The discussion above leads to the first hypothesis:

H1: Emphasis on the ERM process increases firm performance.

Strategic planning and its benefits have been studied extensively in the strategic management literature (for a recent literature review see Wolf and Floyd, 2013) and is considered as one of the most influential tools for strategic management (Meissner, 2014). Several studies indicate that strategic planning results in superior financial performance (Boyd, 1991; Capon, Fakley, and Hulbert, 1994; Hopkins and Hopkins, 1997; Pearce, Freeman, and Robinson, 1987; Schwenk and Shrader, 1993). Yet, critics of strategic planning argue that plans that are too formalized stifle the organizations ability to react to unexpected environmental developments (Hamel, 1996; Mintzberg, 1994), as strategic plans “are blinders designed to focus direction and block out peripheral vision” (Mintzberg, 1990: 184). Other studies suggest that strategic planning has evolved beyond simply being a forecasting and resource allocation device to become a mechanism that provides both guidance and flexibility (Andersen, 2009; Canales and Vilá, 2008; Grant, 2003). For example, strategic planning has been found to be of additional value for decisions of a more risky nature (Sinha, 1990). More recent studies provide findings that show that strategic planning does indeed result in a superior performance particularly in dynamic environments (Andersen, 2000; Brews and Hunt, 1999; Miller and Cardinal, 1994; O’Regan et al., 2008). Several studies propose that firms operating in environmentally complex and uncertain environments tend to put more emphasis on rational decision-making processes such as strategic planning (Banbury and Hart, 1994; Bourgeois and Eisenhardt, 1988; Brews and Hunt, 1999; Kukalis, 1991).

In the strategic management literature, planning has been described as a systematic and rational process of establishing ends and means (Andrews, 1971; Chandler, 1962; Gimbert, Bisbe, and Mendoza, 2010). Ends represent missions, goals, and objectives set by the organization, and means are the programs of actions and operational plans that marshal organizational resources (Brews and Hunt, 1999). Accordingly, the strategy literature on rational

decision-making describes strategic planning as a four-step model: specification of objectives, strategy generation, strategy evaluation, and monitoring of results (Boyd and Reuning-Elliott, 1998).

Scholars who advocate strategic planning have asserted that strategic planning provides benefits and drives performance by coordinating strategic decision-making through aspirations and performance goals, and by providing direction and control by integrating different parts of the organization (Meissner, 2014). Langley (1988: 49) asserts that “strategic planning is really a plea for leadership and direction.” It has been described as a process that codifies actions and processes leaving little to chance and helping firms to avoid being caught off guard in unstable environments (Slevin and Covin, 1997). Further, strategic planning has been described as assistance to managers in the integration and control of various parts of a firm (Grinyer, Al-Bazzaz, and Yasai-Ardekani, 1986; Vancil and Lorange, 1976). Firms put an emphasis on strategic planning as a means to enhance coordination and communication, which can ensure that firm members are working toward the same goals (Andersen and Nielsen, 2009; Andersen, 2004; Grant, 2003), and thus reduce position bias (Ketokivi and Castañer, 2004). Such integrative capabilities and functional coordination should enhance organizational effectiveness and ultimately firm performance.

From the discussion above the following hypothesis has been developed:

H2: Emphasis on strategic planning increases firm performance.

According to COSO, ERM is directly related to “strategy setting” (COSO, 2004). Proponents of ERM have been advocating the importance of integrating ERM and strategic planning (Beasley, Branson, & Pagach, 2015; Fraser & Simkins, 2009; Frigo & Anderson, 2011; Moeller, 2007). Overlooking linking risk management to strategic planning can create critical “blind spots” in strategy execution (Beasley and Frigo, 2009). In the strategic management literature there is a

vast consensus that systematic scanning activities (to identify, analyze, and monitor risks and opportunities) are considered to be an imperative antecedent to strategic planning and strategic decision-making (Garg et al., 2003; Hambrick, 1982; Rhyne, 1986). Scanning and environmental analysis are considered to be a necessary precursor to the development of goals and strategic plans (Dess, 1987); and statistically a significant relationship between systematic scanning practices and strategic planning has been displayed (Temtime, 2004).

An ERM process that extensively identifies and analyzes firm-specific risks and proactively prepares risk responses increases the corporate risk awareness of the firm (Liebenberg and Hoyt 2003). Research has shown that such a stronger awareness increases the firm's emphasis on strategic planning. For example, O'Regan et al. (2008) found that firms' awareness of environmental threats leads to more emphasis on strategic planning. Their study further showed that strategic planning serves as an important mediating mechanism between risk awareness and financial performance. This mediating relationship can be explained by that firms that are aware of risks that threaten them tend to respond by trying to achieve control of those risk situations. In the threat-rigidity literature, risk has been conceptualized as a loss of control rather than a loss of tangible resources (Chattopadhyay et al., 2001; Ocasio, 1995). Strategic planning may provide senior managers with a feeling of confidence and control (Falshaw, Glaister, and Tatoglu, 2006). In that, a stronger awareness of the environmental jolts that the firm faces leads to efforts to gain a sense of mastery by emphasizing strategic planning since "it sets a general direction for the firm and allows the top management team and the rest of the organization to focus on execution" (Bourgeois and Eisenhardt, 1988: 829).

Consequently by ensuring convergence toward action (Langley, 1990), ERM may provide the decision threshold trigger for change; while strategic planning incorporates these decisions on how to respond to risks and opportunities through the strategic decision-making of the firm. As "strategic planning is the continuous process of making present entrepreneurial

(risk-taking) decisions systematically and with the greatest knowledge of their futurity” and by “organizing systematically the efforts needed to carry out these decisions (Drucker, 1974: 125).

In conclusion, ERM can assist the firm in developing an aggregated picture of how it can maneuver most advantageously in the risk landscape; while strategic planning coordinates and communicates these efforts into corporate actions through means and ends. ERM provides an input over causal links between desired outcomes, events that possibly affect these outcomes, and actions that respond to these events. Strategic planning filters and processes these inputs and provides a clear and workable scheme for taking action (Liedtka, 2000). Thus, it is expected that firms that put more emphasis on having ERM processes are more inclined to make use of strategic planning to ensure that these decisions are implemented through goal setting, planning, and evaluation.

Together, the above arguments suggest that strategic planning mediates ERM’s positive effect on firms’ performance, and suggest the following hypothesis:

H3: ERM’s positive effect on firms’ performance is mediated by strategic planning.

The hypothesized relationships are illustrated in the model shown in Figure 1.

----- Insert Figure 1 about here -----

3. METHODS

To test for the hypothesized relationships, the study used both primary and secondary data. The primary data was collected in 2013 using a mailed questionnaire that was sent to the Chief Financial Officer (CFO) or the head of finance in 500 of the largest Danish firms. Secondary data was collected from the Navne and Numre database (<http://www.nnerhverv.dk/>), including the firms' financials, industry affiliation, number of employees, stock market listing, legal form, and founding year. The 500 firms cover a broad set of industries, including manufacturing,

construction, retailing, financial services, and other professional services. Before the actual study took place, the survey instrument and measures were pretested on three managers to receive an impression of how the questions would be perceived. Subsequently the survey was tested on 45 managers from firms that were not included in the main sample. Based on the pre-test, some minor clarification improvements were made. In April 2013, the CFO's of the respective firms were approached with a personalized covering letter and a two page questionnaire. Three weeks later, a second letter was sent to the managers who had not responded in the first round; these letters produced 141 responses. In June 2013, a marketing bureau was engaged to contact the remaining managers by phone resulting in a total of 298 responses (i.e. a response rate of 59.6 %). The obtained data was tested for a potential non-response bias by sector, size, turnover, and a number of other financial aspects to compare the responding companies with the population of the 500 largest companies in Denmark. None of the tests gave any cause for concern. The dependent variable was based on data from a different source than the independent variables which limits the danger of a common method bias. Only firms with a complete data set were included in the subsequent analyses, resulting in 260 observations.

In all of the analyses, the independent variables were lagged by one year (t-1) to ensure that the explanatory variables occurred before the outcome variable. Also in line with the recommendations of Petersen (2009), robust standard errors were applied throughout the data analysis.

3.1. Measures

The enterprise risk management process. The activities of the ERM process described in two of the leading ERM frameworks (COSO, 2004; ISO31000, 2900) served to define the components of the overriding ERM process construct. Further, the ERM process shares

characteristics of the scanning, interpretation, and action processes described in the management literature (e.g. Baird and Thomas, 1985; Thomas et al., 1993). Finally, the ERM process was assessed by asking the CFOs to judge the extent to which the firm, during the past three years, had been putting an emphasis on: (1) having a policy for handling major risks that could affect the firm's ability to reach its strategic objectives, (2) having standard procedures in place for identifying major risks and opportunities, (3) analyzing risks and opportunities as a basis for determining how they should be managed, (4) having standard procedures in place for launching risk-reducing measures, (5) preparing regular risk reports for the top management and the board of directors, and (6) having standard procedures in place for monitoring the development of major risks and the risk-reducing measures that have been launched. The respondents used a 7-point Likert-scale ranging from 1 ("totally disagree") to 7 ("totally agree"). The scale was tested further on a focus group of ten participants from five different firms, all of them have had different approaches toward risk management, which showed that perception and experience with risk management corresponded to the construct (DeVellis, 2011). Finally, employing exploratory factor analysis (EFA) the construct exhibited a high Cronbach's alpha estimate (.93). The mean of the six items was used as a measure for ERM.

Strategic planning. Following several other authors, this study used Boyd and Reuning-Elliott's (1998) scale to capture strategic planning (e.g. Andersen, 2000; Rudd et al., 2008). Responses were collected using a 7-point Likert scale (1 equaling "no emphasis" to 7 equaling "strong emphasis"). For the present data set, the scale exhibited a Cronbach's alpha of .77. The measure that was applied to strategic planning was the overall mean of the five items. The appendix provides details on the measures used in the survey.

Dependent variable. Profitably or financial performance has been the dominant measure of performance in strategy research (Venkatraman and Ramanujam, 1986). Similar to a large

number of studies that have tried to appreciate the effectiveness of strategic decision-making processes, the success of the ERM process and strategic planning was measured as the firm's financial performance (e.g. Mueller, Mone, and Barker, 2007; Priem et al., 1995a; Robert Baum and Wally, 2003). The firm's performance was assessed by their return on assets (ROA), which has been a common measure of operating performance in the strategic management literature (Collins and Ruefli, 1992).

Controls. Several variables were used as controls in the data analyses. To control for potential sample heterogeneity, *industry* controls were included in the model (Dess, Ireland, and Hitt, 1990).^a Past research suggests that *firm size* may affect strategy making processes (e.g. Lindsay and Rue, 1980; Rauch, Wiklund, Lumpkin and Frese, 2009), and was therefore included as a control variable and operationalized as the natural logarithm of the average of the number of employees between 2010-2012. To control for performance effects due to recent strategic or structural changes, the survey respondents were asked to assess whether the firm had made recent significant *structural* and *strategic changes* on two respective 7-point Likert scales. To control for managerial career horizon effects, the *tenure* of the respondents (the CFOs) was included as a control in the analysis (Abernethy, Bouwens, and Van Lent, 2013). *Diversification* and *internationalization* were measured by asking the CFO of the percentage share of the firm's turnover from primary and foreign markets, respectively. Both strategies expand the number of strategic choices and make the firm less vulnerable to abrupt changes in business or local markets, and thus can generate favorable risk outcomes (Andersen, 2011; Reuer and Leiblein, 2000). Additionally, *stock-exchange listing*, *legal form*, and *firm age* were controlled. The firm's stock-exchange listing might facilitate access to financial resources that are necessary for adaptation and exploitation of market opportunities. The firm's legal form can have an effect on

^a The firms were organized into their main industries in terms of NACE codes (the European Commission's equivalent to the United States' SIC codes). The codes were divided according to Statistics Denmark's standard grouping (Statistics Denmark, 2007). The appendix provides details on the industries based on the NACE codes.

its risk behavior, since sole proprietorship entails personal liability whereas corporations have a limited liability. The firm's age tends to be related to more bureaucratization which promotes lower flexibility and adaptability. Further, since the appointment of a *CRO* has been found to be associated with ERM adoption (Beasley et al., 2005), this variable was included in the analysis.

3.2. Validity

Given the high zero-order correlation between the ERM and strategic planning constructs and theoretical inter-relatedness between scanning, interpretation, and planning (Love, Priem, and Lumpkin, 2002), common factor analysis (with Maximum Likelihood (ML) used as the estimator) was applied in order to evaluate convergent and discriminant validity. The Comparative Fit Index (CFI) was .97, and thus greater than the recommended threshold of .8. The Root Mean Square Error of Approximation (RMSEA) was .07 and the Standardized Root Mean Square Residual (SRMR) was .04, thus the model fit was acceptable (Loehlin, 1998) (see appendix for the results). All of the items loaded significantly ($p < .001$).

An exploratory factor analysis (EFA) was applied with an oblique rotation method (promax) since the constructs are theoretically expected to be highly correlated (Gorsuch, 1983). From the analysis, the ERM construct exhibited high factor loadings ranging from 0.84 to 0.91. The strategic planning construct had weights of between .55 and .80. Any items with a low score were retained because they have exhibited good quality in prior data sets (e.g. Andersen, 2000; Rudd et al., 2008). The reliability of each scale was assessed with Cronbach alpha coefficients. Each scale achieved an alpha varying between .77 and .93, which exceeds the commonly used threshold value for exploratory research (Nunnally, 1978). To assess composite reliability and discriminant validity, the method by Fornell and Larcker (1981) was used. The composite reliability was all greater than .70 (from .75 to .93, with the strategic planning and ERM processes in respective ends), thus above the commonly accepted threshold value of .70. For the

risk management construct, the average variance extracted (AVE) measured 0.70, and thus exceeded the commonly accepted threshold value of .50 (Hair, Black, Babin, Anderson, and Tatham, 2006). Strategic planning fell below this threshold with AVE = .43.

The AVE for the correlated latent variable was greater than the square of the correlation between the latent variables, thus discriminant validity was obtained (Fornell and Larcker, 1981). Furthermore, convergent validity was satisfactory for the ERM construct since all of the items had correlations greater than .50 with their respective constructs (Hulland, 1999). (The correlations between the items and construct are presented in appendix).

4. RESULTS & ROBUSTNESS ANALYSIS

4.1 Results

Descriptive statistics and correlation coefficients for all of the variables used in the study are provided in Table 1. The correlation coefficients between the two independent variables were below 0.60, suggesting that multicollinearity was no cause of concern. Further, both ERM and strategic planning exhibited low variance inflation factor (VIF) scores of 1.63 and 1.43 respectively, indicating that there was no multicollinearity problem (Belsey, Kuh, and Welsch, 1980). The correlation coefficients were significant ($p < 0.05$) and in the predicted direction.

----- Insert Table 1 about here -----

The hypotheses were tested by ordinary least squares (OLS) regression analysis to determine the relationship between the independent variable, mediator, and dependent variable. Regressions were run with and without the control variables to assess the relative importance of the variables (Wooldridge, 2002). The base model in Table 2 presents the results.

----- Insert Table 2 about here -----

The results show that the control variable 'structural change' is statistically significant to firm performance ($p < 0.05$) and with a negative association. Extensive transformations frequently represent large capital outlay and return on investments is often delayed. Thus, lagged effects in performance can be captured only if the data is collected over longer time periods (Faulkner, 2002). Conflicting with Beasley, Pagach, and Warr's (2008) study, this study finds that the appointment of a CRO is associated with an enhanced performance ($p < 0.05$).

Hypothesis 1 was tested by entering ERM into model 1, and the hypothesis was accepted ($p < 0.05$). Strategic planning was entered in model 2 accepting hypothesis 2 on performance ($p < 0.01$). To test hypothesis 3, Baron and Kenny's (1986) mediation approach was followed. Model 3 shows that ERM has a positive significant effect on strategic planning ($p < 0.001$). Finally, it is shown in model 4 that when both ERM and strategic planning are included in the model, ERM turns out to be insignificant while strategic planning remains significant ($p > 0.05$), indicating full mediation. In addition to this, after entering ERM and strategic planning in model 4 a significant change in the F-statistics was produced ($p < 0.05$), therefore it can be concluded that these variables significantly contribute to the model's explanatory power. In addition to Baron and Kenny's 4-step approach a Sobel test was conducted (Sobel, 1982). The indirect effect on the outcome variable was significant ($p < 0.05$).

4.2. Auxiliary study: ERM, financial leverage, and financial distress

ERM is said to add value by preserving as much of the upside while reducing or eliminating costly lower-tail outcomes (Beasley et al., 2008; Pagach and Warr, 2010) such as financial distress (Pagach and Warr, 2011). Although the effect on leverage from ERM adoption is ambiguous (Pagach and Warr, 2010), one can assume that if firms have decided to lower the probability of financial distress, a reduction in financial leverage as a consequence of ERM seems likely (Hoyt and Liebenberg, 2011). As leverage increases financial risk (Miller and

Bromiley, 1990) and studies have found that high leverage is a primary cause of financial distress (Al-Najjar and Taylor, 2008; Leland and Pyle, 1977). Firms that operate in environments with high business risk need to be in stronger equity positions that provide the availability of funds for firm-specific investments, such as R&D investments or new product launches (O'Brien, 2003). By maintaining low leverage ratios, firms retain more capital reserves as a buffer to absorb adverse impacts from risk exposures (Andersen, 2009) and thereby decrease the probability of financial distress (Meulbroek, 2002). Hence, further investigation of ERM and strategic planning's effect on financial leverage (or what has been defined as the indirect effect on the probability of financial distress (Pagach and Warr, 2010)) seems merited. Therefore, an alternative model with the same specifications using ERM and strategic planning as independent variables but with financial leverage as an outcome variable was examined. Leverage has been used as a proxy for the severity of financial distress (e.g. Whitaker, 1999) and it has been measured as the total debt divided by the total assets (Donker, Santen, and Zahir, 2009; Whitaker, 1999), or the total debt divided by the total equity (Andersen, 2009; Shapiro and Titman, 1986). The results from the analysis are shown in Table 3.

----- Insert Table 3 about here -----

All of the models were tested on a logged variable of debt-to-equity and debt-to-asset. The results show that large firms have larger leverage ratios than small firms ($p < 0.001$). These results are in accordance with previous empirical studies (e.g. Hall, Hutchinson, and Michaelas, 2000; Michaelas, Chittenden, and Poutziouris, 1999; Petersen and Rajan, 1994). This can be explained by the fact that larger firms have easier access to borrowing capital at a reasonable rate, which affects their financing decisions (Titman and Wessels, 1988). Furthermore, the results indicate that 'internationalization' decreases the leverage ratio. Earlier studies have found

that geographical diversification can lower a firm's financial risk (Andersen, 2011; Liang and Rhoades, 1988).

When the variables presented in the base model are controlled for, ERM has a negative and significant ($p < 0.05$) effect on leverage (model 1). Specifically, one standard deviation increase in ERM show a decrease in the predicted leverage measured by debt-to-assets and debt-to-equity by approximately 7% and 14% respectively. Similarly, strategic planning has a negative and significant ($p < 0.05$) effect on leverage (model 2). Model 4 includes the mediation between ERM and strategic planning. The results indicate that strategic planning fully mediates the effect from ERM on leverage and the model improves the overall explanatory power. One interpretation of these findings is that from the process of systematically identifying risks, senior managers may foresee an increase in the firm's business risk and as a consequence decide to reduce these exposures by reducing its leverage. This reduction in leverage can provide the firm with future flexibility if these risks develop into actual events or, in the worst case scenario, a firm crisis. In turn, it may reduce the probability of financial distress.

4.3. Robustness Analysis

One major concern in management studies is endogeneity. To mitigate any concern of endogeneity due to a reverse causality, the explanatory variables were regressed on lagged dependent variables (Aebi, Sabato, and Schmid, 2012). The data on the explanatory variables represents an average emphasis on an ERM process and strategic planning throughout 2010-2012. The outcome variable was lagged for one year, representing financial data from 2013.

Stock-listed firms are more regulated and face higher legal requirements of ERM than non-listed firms (Liebenberg and Hoyt, 2003). Thus, the ERM process may be different in listed firms than in non-listed firms. Further, larger firms may have more resources at their disposal to

facilitate the ERM process, therefore such processes might differ to the ERM processes in small firms. To rule out that the association between ERM and performance was driven by these factors, two additional robustness analyses were conducted. The model was re-run on two different sub-samples: (1) listed firms (n=229) and (2) large firms (more than 100 employees; n= 232). The two additional analyses did not alter the findings of the original model.

Finally for a subsample (n=149), strategic planning in 2009 was controlled to ensure that ERM's effect on the strategic planning in 2010-2012 (Model 4) was not a result of a duration effect from any previous strategic planning (Boyd, 1991; Bracker and Pearson, 1986). The strategic planning in 2009 variable came out positively significant, without changing ERM's effect on the strategic planning in 2010-2012. Altogether, these robustness analyses substantiate the validity of the study's results.

5. DISCUSSION & CONCLUSION

5.1. Discussion, limitations, and future research

By generating risk awareness and providing comprehensive information of which risks and opportunities to prioritize, ERM can support firms to proactively allocate resources and coordinate strategic risk responses to obtain or sustain a competitive advantage. This paper investigates the performance effects of ERM and its relationship with strategic planning. The findings of this study suggest that emphasis on ERM processes has a statistically significant effect on both financial performance and leverage. Hence, it advances the knowledge in the line of research that investigates whether ERM achieves the intended goal of enhancing performance while protecting against lower-tail outcomes by lowering financial leverage. While ERM presents a new shift in the management of those risks that may influence a firm's strategic position, there is limited empirical evidence on whether ERM fulfills its purpose. Furthermore, ERM proponents claim that in order to reap the benefits as a strategic management tool, ERM

needs to be integrated with the firm's strategic planning process. Nevertheless, there is no research to date that investigates this relationship empirically. This study provides evidence on the value of integrating both management processes and it suggests that ERM and strategic planning are neither substitutes nor complementary processes. Instead, strategic planning serves as a mediator between ERM's effect on a firm's performance and leverage. This relationship seems plausible in that ERM arguably increases the organizations' risk awareness. Such awareness may evoke the need for taking control by emphasizing strategic planning as a rational means of gaining mastery through goal setting and programming actions that avoid situations whereby the firms could be caught off guard.

Further, this paper argues that ERM serves as an important precursor to strategic planning by continually assessing the important risks and opportunities that may have strategic implications. Thus, it can advance firms' 'strategic thinking' of where to place their strategic bets and take on firm-specific risks. These proactive responses and potential strategic changes are more advantageously carried out through strategic planning that translates these decisions into coordinated and purposeful actions. Thus, firms that adopt ERM processes should integrate it with strategic planning by putting more emphasis on the latter. Doing this successfully, and by developing ERM into a core competence, such integration can enable firms to benefit from competitive advantages.

While the findings of the study seem robust, certain limitations should be noted. First, the sample is based on a cross sectional data set, therefore strict causality cannot be claimed and causal assertions must be based on priori theory (Lee and Lings, 2008). Thus, longitudinal studies are recommended to extend the findings. Third, this study measures ERM with a firm's emphasis on the ERM process. Yet, there are more dimensions to the ERM concept. As Mikes and Kaplan (2014: 8) describes; it can be "deployed at different levels, for different purposes, by different staff groups in different organizations." Thus, there might be features of ERM that are

not measurable that reduces the power of the present analysis. Further research is encouraged on how ERM is practiced throughout the organization, e.g. the implications on allocating versus centralizing the identification and interpretation responsibility and the decision authority on risk responses. Moreover, studies on how firms respond to risk show conflicting findings. The threat-rigidity stream of literature suggests that firms facing potential negative outcomes display risk-averse behavior when responding to risks (Sitkin and Pablo, 1992; Staw, Sandelands, and Dutton, 1981). On the other hand, prospect theory suggests that firms embrace hostile environments with the potential to erode their strategic position through taking on more risk by increasing investments in innovative competences to counter these threats (Kahneman and Tversky, 1979; Voss, Sirdeshmukh, and Voss, 2008). Hence, research on how ERM might influence the strategic agenda by studying the organizational risk responses is warranted. Case studies could be a promising avenue for investigating these questions.

5.2. Conclusion

Notwithstanding the limitations of the study, its findings have provided evidence on the role of strategic planning for ERM's anticipated beneficial effects to materialize. Hence, the findings contribute to both ERM research and strategic management literature. It contributes by opening the black box of the process-related analysis of ERM. Such research on ERM is highly warranted in that firms receive increasing pressure from regulatory authorities to adopt ERM processes (Baxter et al., 2013). It contributes to strategic management research by studying contemporary management processes of dealing with risks and opportunities with strategic implications. Thus, it responds to calls to synthesize these two streams of literature (Beasley and Frigo, 2009; Bromiley et al., 2014; Frigo and Anderson, 2011). Furthermore, the study advances prior research by relying on a data set of 500 Danish firms and by employing a measure that captures the complexity of ERM more exhaustively than relying on publically available data and dichotomous variables. The number of firms and the variety of industries represented in this

sample make the results more generalizable, since most of the studies on ERM are limited to the insurance and financial sectors. Thus, this study responds to calls from scholars to investigate ERM across several different industries (e.g. Baxter et al., 2013).

In conclusion, the results of this study suggest that the integration of ERM and strategic planning is indeed necessary for harvesting the full potential of ERM. Strategic planning and risk management have been criticized as often running in parallel with each other, where strategic planning makes assumptions about the business and ERM explores the risks that challenge the assumptions of these objectives and strategies throughout implementation (Brodeur, Buehler, Patsalos-Fox, and Pergler, 2010). Instead, this study suggests that ERM should precede strategic planning and adopting ERM should increase a firm's emphasis on strategic planning. These results accentuate the importance of examining ERM from a strategic management perspective, and how ERM as a precursor to strategic planning can enhance a firm's performance while protecting against lower-tail outcomes through the lowering of financial leverage.

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Figure 1: Model

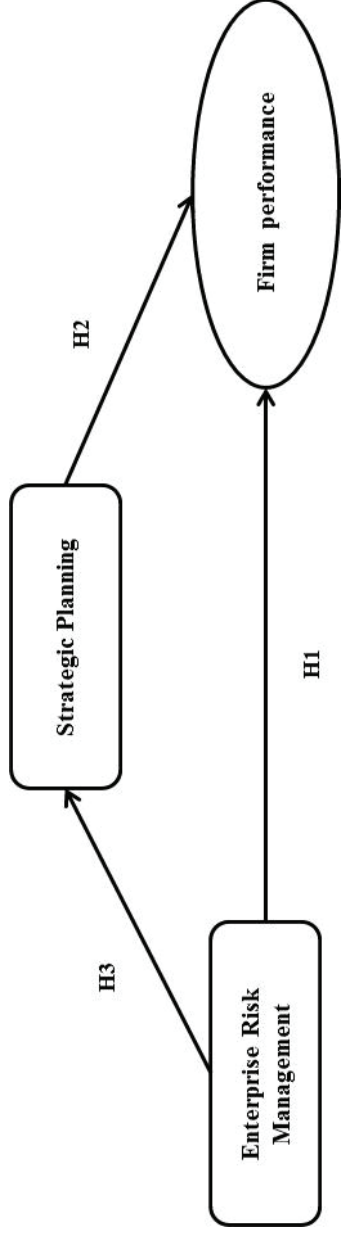


Table 1: Descriptive Statistics

Variable	Mean	SD	Min	Max	1	2	3	4	5	6	7	8	9	10	11	12	13
1 Firm Performance (ROA)	0.05	0.10	-0.32	0.79	1.00												
2 ERM	5.10	1.09	1.60	7.00	0.13 *	1.00											
3 Strategic Planning	4.47	1.41	1.00	7.00	0.12 †	0.44 ***	1.00										
4 Firm Size	5.82	1.27	1.10	9.35	-0.02	0.14 *	0.14 *	1.00									
5 CFO Tenure	10.49	8.01	0.00	44.00	0.02	0.08	0.24 ***	-0.04	1.00								
6 Structural change	5.10	1.67	1.00	7.00	-0.18 **	0.14 *	0.07	0.04	-0.10	1.00							
7 Strategic change	4.58	1.67	1.00	7.00	-0.16 **	0.26 ***	0.07	0.02	-0.04	0.62 ***	1.00						
8 Internationalization	44.10	39.84	0.00	100.00	0.12 †	0.00	0.07	0.07	0.13 *	0.07	0.02	1.00					
9 Diversification	92.07	14.44	0.00	100.00	-0.12 *	-0.02	0.08	-0.13 *	0.07	-0.10	-0.03	0.03	1.00				
10 Stock-exchange Listing	0.88	0.32	0.00	1.00	0.00	-0.11 †	-0.20 **	-0.04	-0.11 †	-0.03	0.05	0.01	0.01	1.00			
11 Legal form	0.93	0.25	0.00	1.00	0.11 †	-0.02	0.06	-0.04	0.06	0.19 **	0.08	0.02	-0.03	-0.05	1.00		
12 Firm Age	36.65	23.18	4.00	113.00	0.08	0.04	0.05	0.02	0.08	-0.07	-0.03	0.08	0.01	-0.15 *	0.16 *	1.00	
13 CRO	0.22	0.41	0.00	1.00	0.10	0.19 **	0.39 ***	0.08	0.11 †	0.05	0.08	0.00	0.04	-0.15 *	0.00	-0.06	1.00

Note: † $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 2: Results from OLS regression

Dependent variable Independent variable	Base model		Model 1		Model 2		Model 3		Model 4	
	Est.	SE	Est.	SE	Est.	SE	Est.	SE	Est.	SE
Intercept	0.02	0.04	-0.04	0.03	-0.05	0.04	0.38	0.49	-0.05	0.04
ERM			0.01	0.00 *			0.33	0.05 ***	0.00	0.00
Strategic planning					0.02	0.01 **			0.02	0.01 *
Firm size	0.00	0.01	0.00	0.01	0.00	0.01	0.05	0.05	0.00	0.01
CFO tenure	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
Structural change	-0.01	0.00 *	-0.01	0.00 **	-0.01	0.00 *	-0.03	0.05	-0.01	0.00 *
Strategic change	-0.01	0.00 *	-0.01	0.00	-0.01	0.00 *	0.18	0.04 ***	-0.01	0.00 †
Internationalization	0.00	0.00 *	0.00	0.00 *	0.00	0.00 *	0.00	0.00	0.00	0.00 *
Diversification	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Stock-exchange Listing	0.01	0.02	0.02	0.02	0.02	0.02	-0.18	0.20	0.02	0.02
Legal from	0.06	0.03 *	0.06	0.03 †	0.06	0.03 *	-0.29	0.22	0.06	0.03 *
Firm Age	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CRO	0.03	0.01 **	0.03	0.01 †	0.03	0.01 *	0.02	0.17	0.03	0.01 †
Industry 1	-0.05	0.03	-0.04	0.03	-0.06	0.03 †	0.69	0.42	-0.05	0.03 †
Industry 2	-0.04	0.04	-0.04	0.04	-0.04	0.04	-0.22	0.46	-0.04	0.04
Industry 3	-0.04	0.03	-0.03	0.03	-0.04	0.03	0.52	0.43	-0.04	0.03
Industry 4	0.02	0.04	0.03	0.04	0.02	0.04	0.47	0.48	0.02	0.04
Industry 5	-0.04	0.04	-0.04	0.03	-0.05	0.04	0.38	0.49	-0.05	0.04
Industry 6	0.00	0.08	0.00	0.07	0.00	0.06	-0.07	0.95	0.01	0.06
Industry 7	-0.04	0.03	-0.03	0.03	-0.04	0.03	0.58	0.44	-0.04	0.03
Industry 8	Omitted		Omitted		Omitted		Omitted		Omitted	
N	260.00		260.00		260.00		260.00		260.00	
F	2.60		3.04		2.96		6.07		2.99	
d.f.	17.00		18.00		18.00		18.00		19.00	
Significance	0.00		0.00		0.00		0.00		0.00	
R2	0.14		0.15		0.17		0.30		0.17	

Note: † $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 3: Results from auxiliary study

Dependent variable Independent variable	Base model						Model 1						Model 2						Model 3						Model 4								
	Debt-to-assets			Debt-to-equity			Debt-to-assets			Debt-to-equity			Debt-to-assets			Debt-to-equity			Strategic Planning			Debt-to-assets			Debt-to-equity								
	Est.	SE		Est.	SE		Est.	SE		Est.	SE		Est.	SE		Est.	SE		Est.	SE		Est.	SE		Est.	SE							
Intercept	-0.02	0.24		-2.18	0.83 *		-0.03	0.23		-1.97	0.82 *		0.46	0.27 †		-1.40	0.81 †		0.38	0.49		0.47	0.27 †		0.38	0.49		0.47	0.27 †		-1.38	0.81 †	
ERM							-0.06	0.03 *		-0.10	0.05 *		-0.10	0.04 *		-0.21	0.07 **		0.33	0.05 ***		-0.09	0.04 *		0.33	0.05 ***		-0.09	0.04 *		-0.04	0.05	
Strategic planning							0.24	0.05 ***		0.39	0.08 ***		0.24	0.05 ***		0.39	0.08 ***		0.05	0.05		0.25	0.05 ***		0.05	0.05		0.25	0.05 ***		0.40	0.08 ***	
Firm size							-0.01	0.01 †		-0.01	0.01		-0.01	0.01 †		-0.01	0.01		0.00	0.01		-0.01	0.01 †		0.00	0.01		-0.01	0.01 †		-0.01	0.01	
CFO tenure							0.04	0.04		0.05	0.06		0.04	0.04		0.04	0.06		-0.03	0.05		0.04	0.04		-0.03	0.05		0.04	0.04		0.04	0.06	
Structural change							0.00	0.03		0.00	0.05		0.01	0.02		0.04	0.05		0.18	0.04 ***		0.01	0.02		0.18	0.04 ***		0.01	0.02		0.03	0.05	
Strategic change							0.00	0.00 *		-0.01	0.00 *		0.00	0.00 *		-0.01	0.00 **		0.00	0.00		0.00	0.00 **		0.00	0.00		0.00	0.00 *		-0.01	0.00 *	
Internationalization							0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00	
Diversification							0.11	0.11		0.24	0.25		0.09	0.11		0.22	0.24		-0.18	0.20		0.08	0.11		-0.18	0.20		0.08	0.11		0.21	0.24	
Stock-exchange Listing							0.05	0.15		0.40	0.26		0.07	0.15		0.35	0.25		-0.29	0.22		0.04	0.14		-0.29	0.22		0.04	0.14		0.36	0.25	
Legal from							0.00	0.00 *		-0.01	0.00 *		0.00	0.00 †		-0.01	0.00 *		0.00	0.00		0.00	0.00 †		0.00	0.00		0.00	0.00 †		-0.01	0.00 *	
Firm Age							-0.21	0.14		-0.24	0.22		-0.17	0.13		-0.16	0.20		0.02	0.17		-0.15	0.13		0.02	0.17		-0.15	0.13		-0.14	0.20	
GRO							0.20	0.23		0.25	0.49		0.17	0.22		0.38	0.43		0.69	0.42		0.23	0.20		0.69	0.42		0.23	0.20		0.35	0.43	
Industry 1							0.26	0.23		0.46	0.50		0.24	0.22		0.40	0.44		-0.22	0.46		0.22	0.20		-0.22	0.46		0.22	0.20		0.39	0.44	
Industry 2							0.18	0.24		0.34	0.49		0.15	0.23		0.42	0.43		0.52	0.43		0.20	0.20		0.52	0.43		0.20	0.20		0.40	0.43	
Industry 3							-0.02	0.24		-0.12	0.51		-0.03	0.23		-0.04	0.45		0.47	0.48		0.01	0.21		0.47	0.48		0.01	0.21		-0.05	0.45	
Industry 4							0.40	0.30		1.32	0.62 *		0.43	0.29		1.44	0.57 *		0.38	0.49		0.46	0.27 †		0.38	0.49		0.47	0.27 †		1.45	0.58 *	
Industry 5							0.35	0.26		0.42	0.64		0.28	0.24		0.32	0.47		-0.07	0.95		0.27	0.20		-0.07	0.95		0.27	0.20		0.29	0.47	
Industry 6							0.23	0.24		0.41	0.49		0.19	0.23		0.49	0.43		0.58	0.44		0.24	0.20		0.58	0.44		0.24	0.20		0.46	0.44	
Industry 7							Omitted			Omitted		Omitted				Omitted		Omitted		Omitted		Omitted		Omitted		Omitted		Omitted		Omitted		Omitted	
Industry 8							Omitted			Omitted		Omitted				Omitted		Omitted		Omitted		Omitted		Omitted		Omitted		Omitted		Omitted		Omitted	
N	260.00			255.00			260.00			255.00		260.00				255.00			260.00			260.00						260.00			255.00		
F	3.73			4.33			3.57			4.03		4.25				4.50			6.07			4.11						4.11			4.21		
df.	17.00			17.00			18.00			18.00		18.00				18.00			18.00			19.00						19.00			19.00		
Significance	0.00			0.00			0.00			0.00		0.00				0.00			0.00			0.00						0.00			0.00		
R2	0.32			0.29			0.33			0.30		0.34				0.32			0.30			0.34						0.34			0.32		

Note: †p<0.10, *p<0.05, **p<0.01, ***p<0.001.

APPENDIX

Industries based on NACE codes

Industry	Industry number	NACE codes	# Firms
Manufacturing, mining and quarrying, and utility services	1	06-39	95
Construction	2	41-43	16
Trade and transport etc.	3	45-56	76
Information and communication	4	58-63	15
Financial and insurance	5	64-66	20
Real estate	6	68	3
Other business services	7	69-82	31
Arts, entertainment and other services	8	90-99	4

Factor loadings derived from EFA

ERM	Cronbach's α 0.93	Factor Loading
To what extent do you agree with the following statements based on the period 2010-2012:		
1. Our firm has a policy for handling major risks that could affect the firm's ability to reach its strategic objectives		0.84
2. In our firm, we have standard procedures in place for identifying major risks and opportunities		0.91
3. Risks and opportunities are analysed as a basis for determining how they should be managed		0.86
4. We have standard procedures in place for launching risk-reducing measures		0.84
5. We regularly prepare risk reports for the top management and the board of directors		0.85
6. We have standard procedures in place for monitoring the developments in major risks and the risk-reducing measures launched		0.90
Strategic Planning	Cronbach's α 0.77	
State how much the company in the period 2010-2012 has attached importance to the following activities:		
1. Establishing company mission		0.70
2. Preparation of long-term plans (3-5 years)		0.79
3. Yearly goals (sales goals, efficiency, market shares etc.)		0.78
4. Short-term planning (campaigns, short-term projects etc.)		0.55
5. Evaluation of the company's strategic goals and the degree of fulfilment		0.80

Fit index derived through CFA

Fit Indexes:	
Estimator: Maximum Likelihood (ML)	
CFI	0.965
TFI	0.955
SRMR	0.037
RMSA	0.072 [0.09 ; 0.05]

Correlation-matrix for ERM and strategic planning

Variable	Mean	SD	Min	Max	1	2	3	4	5	6	7	8	9	10	11	
1 ERM 1	5.04	1.59	1.00	7.00	1.00											
2 ERM 2	4.77	1.66	1.00	7.00	0.77 ***	1.00										
3 ERM 3	4.98	1.46	1.00	7.00	0.69 ***	0.76 ***	1.00									
4 ERM 4	3.75	1.64	1.00	7.00	0.62 ***	0.71 ***	0.62 ***	1.00								
5 ERM 5	4.19	1.71	1.00	7.00	0.64 ***	0.70 ***	0.69 ***	0.65 ***	1.00							
6 ERM 6	4.10	1.73	1.00	7.00	0.65 ***	0.77 ***	0.70 ***	0.76 ***	0.75 ***	1.00						
7 Strategic Planning 1	4.59	1.73	1.00	7.00	0.25 ***	0.25 ***	0.26 ***	0.19 **	0.27 ***	0.24 ***	1.00					
8 Strategic Planning 2	5.07	1.60	1.00	7.00	0.26 ***	0.29 ***	0.36 ***	0.24 ***	0.33 ***	0.25 ***	0.46 ***	1.00				
9 Strategic Planning 3	5.62	1.26	2.00	7.00	0.31 ***	0.36 ***	0.33 ***	0.28 ***	0.33 ***	0.33 ***	0.39 ***	0.50 ***	1.00			
10 Strategic Planning 4	5.13	1.43	1.00	7.00	0.18 **	0.23 ***	0.27 ***	0.17 **	0.14 *	0.20 **	0.19 **	0.26 ***	0.46 ***	1.00		
11 Strategic Planning 5	5.10	1.49	1.00	7.00	0.37 ***	0.35 ***	0.40 ***	0.31 ***	0.36 ***	0.33 ***	0.50 ***	0.58 ***	0.49 ***	0.00 ***	1.00	

Note: $\hat{p} < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

**CHAPTER 5: SPEAK UP! ENHANCING RISK PERFORMANCE WITH ENTERPRISE
RISK MANAGEMENT, LEADERSHIP STYLE AND EMPLOYEE VOICE¹⁴¹⁵**

ABSTRACT

The purpose of this paper is to test the effect of psychological safety and participative leadership style on risk performance as well as its interaction with enterprise risk management (ERM) processes to evaluate if a decentralisation in the form of a safe environment and participative leadership style enhances or crowds out the effect of an ERM process. Based on a survey among top-500 Danish companies, the paper tests in SEM the relationships between ERM, participative leadership style and psychological safety on risk performance. The paper finds that not only do both ERM and participative leadership style enhance risk performance but a positive interaction effect is also found. In addition, the findings suggest that a safe environment precede participative leadership style indicating this as a prerequisite for management to introduce participative leadership style. These findings underpin that an effective risk management system should include both a holistic, formalised ERM system and organisational initiatives that enhance a strategic responsiveness through employee involvement. The current study provides new empirical insights about the effect of a formal ERM process on risk performance as well as cultural factors for ERM success. As something new to the risk management literature, it draws on leadership and employee voice theory and investigates participative leadership style and psychological safety for employee voice as contextual influences on the effect of a formal ERM process on risk performance.

Keywords: Performance; autonomy; risk management; participation

¹⁴ This chapter is co-authored with Torp, S. S.

¹⁵ The paper is published in Management Decision (2015) Vol. 53; Issue: 7.

1. INTRODUCTION

To remain viable in today's dynamic business environments, firms depend on their capability to prepare for and react to more- or less-unexpected events of strategic importance. Future success is dependent on the firms' ability to take proper responsive action and the flexibility to react timely to these changes. To keep up with these fast-changing environments, an increasing number of firms employ proactive risk management techniques, and especially enterprise risk management (ERM) has become a key resource in the design of risk management systems (Choi, Ye, Zhao, and Luo, 2015; Mikes and Kaplan, 2014; Power, 2009). Despite its popularity in research (Choi et al., 2015), the field of ERM is still evolving, and Mikes and Kaplan (2014: 3) believe that "risk management approaches are largely unproven and still emerging". This calls for more research in the area of ERM to further extend our knowledge of how to create an effective risk management system.

ERM takes a systematic approach to risk management across the entire organization "for identifying, assessing, deciding on responses to, and reporting on opportunities and threats that affect the achievement of its objectives" (Institute of Internal Auditors, 2009). The purpose of ERM is to handle in an integrated manner the total risks that firms face, as opposed to traditional risk management, which conducts risk management isolated and specialised in different parts of the organisation, i.e., financial risk in the finance department, operational risk in the production department, supply risk in the logistic department, legal risk in the legal department, etc. (Barton, Shenkir, and Walker, 2002). This might imply that the allocation of risk hedging resources is decided locally and not based on an overall knowledge of the entire enterprise risk. In ERM, it is possible to holistically evaluate risks across departments and in a systematic way prioritise resources, apply a portfolio thinking as well as address more strategic risks that might not be

identified in lower-level departments. Hence, an enterprise-wide approach to risk management promotes risk awareness and risk understanding to all managers and employees throughout the corporate structure. It recognises the value of the information and suggestions from people at all levels of the firm (COSO, 2004). As Senge writes: to survive and excel in environments with rapid changes, organisations must “discover how to tap people’s commitment and capacity to learn at all levels” (Senge, 1990: 4). Additionally, Andersen (2009) finds that an increased level of responsiveness, adaptability and speed enhances effective risk management outcomes. Enhanced responsiveness is largely dependent on decentralisation in the form of participation or autonomy, and it is supported by management through a participative leadership style (Andersen, 2010). This suggests that companies, on the one hand, need a structure and a central system that holistically and strategically can identify, measure and address risks across the organisation and, on the other hand, must be capable of creating a culture, in which all employees are empowered and focused on identifying, addressing and reporting potential risks and opportunities. This latter point calls for entrepreneurial “judgement” (Foss and Klein, 2012) by the entire organisation, and a substantial amount of work has highlighted the importance of empowerment of employees for supporting their willingness to participate in these innovative processes that can lead to reduced risks by more rapidly and effectively identifying and exploiting/hedging risks and opportunities (Mantere and Vaara, 2008; Sarpong and Maclean, 2014).

The empowerment of employees is largely dependent on management’s ability to exhibit a leadership style that supports involvement and the creation of a safe environment, where employees feel comfortable in raising any concerns, even if it contradicts management’s opinion or traditional procedures (Huang, Iun, Liu, and Gong, 2010; Mantere and Vaara, 2008). Intolerance towards

failure and persecution of people who voice issues and risks can be destructive for ERM's success (Drew, Kelley, and Kendrick, 2006). A risk management culture should support knowledge transfer and learning processes.

Despite a conceptual understanding of the need for involving employees in the risk management culture and an extant amount of research on involvement and empowerment of employees through the distribution of decision power, a participative leadership style and the introduction of different incentives (Foss, Foss, and Klein, 2007; Sarpong and Maclean, 2014), our knowledge of how the combination of a structured approach to ERM and a dispersed, trust-based and empowering participative leadership style affects risk performance seems limited, and the need for more research is highly warranted.

In their study, Mantere and Vaara (2008) found that mystification, disciplining and technologisation all constrained involvement, while self-actualisation, dialogisation and concretisation were found to support involvement. These findings underpin the importance of a participative leadership style in the pursuit of involvement and empowerment of employees at all levels as well as the importance of a culture based on trust. When management conducts participative leadership, employees know how to raise their concerns and participate. They experience an eye-to-eye dialogue and, by being able to influence and develop their own work situation, employees will be more willing to engage in processes that allow the company to more rapidly benefit from new opportunities and respond to newly emerging threats. While the effect of a participative leadership style and empowerment of employees has been widely tested on employee behaviour and motivation (e.g. Deci and Ryan, 2000) and company performance (Huang et al., 2010), the effect on risk management outcomes has been largely neglected.

The specific purpose of this study is to address, first, the effect of ERM on risk performance using a detailed measure of ERM and, second, the importance of the organisational culture – in terms of leadership style and a working climate that allows the employees to speak up – for the success of an effective risk management system. Our study advances literature in several ways. First, it applies a new and detailed measure of ERM based on the different elements in the risk management process, thus capturing those firms that do not explicitly subscribe to a contemporary framework. We thereby sophisticate the knowledge on how to capture the concept of ERM compared to earlier studies, where the majority of research so far has used a binary proxy in the form of the presence of a CRO (Beasley, Pagach, and Warr, 2008; Liebenberg and Hoyt, 2003; Pagach and Warr, 2011), SEC filings (Hoyt and Liebenberg, 2011) or S&P ERM ratings (Baxter, Bedard, Hoitash, and Yezege, 2013; McShane, Nair, and Rustambekov, 2011). Second, as something new, we draw on leadership and voice literature to develop predictions for how specific leadership behaviour and voice climate affect risk management performance. By supporting employee involvement through a participative leadership style and the creation of a safe environment in which employees have a voice, companies can more rapidly identify and address potential threats and opportunities, thereby reducing volatility and risk. Not surprisingly, the study finds that companies employing ERM processes experience better risk performance (i.e. ability to hedge important known risks and uncertainties, ability to react to and reduce unforeseen risks and ability to exploit new opportunities). In addition, the study suggests that the creation of a culture where voicing is considered safe precedes managers exercising a participative leadership style, indicating that a safe environment is a prerequisite for a participative leadership style. Moreover, the study finds that a participative leadership style in itself improves risk performance, which supports earlier findings that companies can more rapidly exploit new opportunities and address

new threats and, consequently, reduce long-term risks by allowing employees to be involved in decisions. Finally, the study emphasises that an effective risk management strategy needs to combine ERM techniques and processes with a participative leadership style in order to, on the one hand, create a central, holistic risk management system that allows the company to address risks across the entire organisation and, on the other hand, develop a dynamic organisation that empowers all employees and rapidly can identify and address potential threats and opportunities. Thus, the findings of the study may also be considered to be of significant interest to the practitioner community, as they provide a richer description and quantification of a risk management culture to support the ERM in their organisation.

2. LITERATURE REVIEW & HYPOTHESES

ERM is often seen as identifying, measuring and hedging a number of different risks in the form of economic risks (e.g. currency and interest risk), operational risks (e.g. insurance, customer and supplier risk) and strategic risks (e.g. legal, patent and environmental risk) (Doherty, 2000; Lam, 2003). By applying systematic ERM processes, which involve identifying, assessing and responding to all of the risks that pose a challenge to an organisation and its ability to achieve its strategic objectives, firms are presumed to lower their overall risk exposure and thus increase performance (Beasley, Clune, and Hermanson, 2005; Brustbauer, 2014; Choi et al., 2015; Gordon, Loeb, and Tseng, 2009; Hoyt and Liebenberg, 2011; Nocco and Stulz, 2006). ERM is used to provide firms with an informational advantage that allows them to systematically identify, measure and address potential risks and thereby create a competitive advantage (Walker, 2013). Firms that focus on ERM are also found to exhibit higher corporate performance (Beasley et al., 2008; Gordon et al., 2009) and increased company value (Hoyt and Liebenberg, 2011).

Despite the extant amount of ERM literature (Choi et al., 2015), it has failed to directly capture ERM (Mikes and Kaplan, 2014), as the majority of the literature so far has used a binary proxy for ERM in the form of the presence of a CRO (Liebenberg and Hoyt, 2003; Beasley et al., 2008; Pagach and Warr, 2011), SEC filings (Hoyt and Liebenberg, 2011) or S&P ERM ratings (Baxter et al., 2013; McShane et al., 2010). Furthermore, the effect of ERM on risk performance seems surprisingly neglected in literature (Paape and Speklé, 2012), and with the concern raised by Paape and Speklé (2012) that no evidence is found to support that applying the COSO framework improves risk management effectiveness, a test of the effect of ERM on risk performance seems highly warranted.

Thus, we expect the following hypothesis:

H1. Emphasis on ERM processes enhances risk performance.

The management literature has for several decades emphasised lower-level employee behaviour in complex and fast-changing environments where locally held knowledge is important for risk recognition and evaluation (Burgelman and Groove, 2006; Dodgson, Gann, and Salter, 2008; Meeus and Edquist, 2006). Voices from below widen the scope of input and increase the speed at which top management receives information on risks, opportunities and emerging trends (Dutton and Ashford, 1993). As such, employee voice may be considered an important source to organisational learning and change (Weick and Ashford, 2001). Yet, several individuals work in environments where it is not safe to raise concern about organisational issues and potential risks (Detert and Burris, 2007; Milliken, Morrison, and Hewlin, 2003). Speaking up about risks can be intimidating because risk in itself tends to have negative connotations and often implies calling attention to a need for change. Thus, employees are expected to implicitly weigh the net potential benefits of speaking up about perceived risks against the potential costs of doing so (Dutton and

Ashford, 1993; Withey and Cooper, 1989). By signaling that leaders “are interested in and willing to act on subordinate voice, subordinates’ motivation to speak up should be maintained or enhanced: absent such leader behaviors, subordinates may see potential risks as outweighing perceived benefits” (Detert and Burris, 2007: 807). Potential benefits of speaking up include promotion, recognition or having one’s ideas being well received and possibly implemented, whereas potential risks could be demotion, layoffs or humiliation (Detert and Burris, 2007). In response to these potential impediments, several firms have implemented whistleblowing systems and anonymous risk voting systems to ensure participation and honesty (Fraser and Simkins, 2009).

Issue-selling literature has found that the organisational context is imperative when it comes to whether subordinates find it safe and worthwhile to communicate information on threats and opportunities upward in the organisation (Detert and Burris, 2007). Detert and Burris (2007: 869) asserted that “even the most proactive or satisfied employees are likely to ‘read the wind’ as to whether it is safe and/or worthwhile to speak up in their particular context”. In their qualitative study of middle managers, Dutton, Ashford, O’Neill, Hayes, and Wierba (1997) found that top-management support and its openness to ideas were the most important contextual factors for the employees’ willingness to provide top management with input on potential threats and opportunities. In their study of ERM processes in a firm, Mikes and Kaplan (2014) found, that management support, in creating a no-blame culture to further encourage people to speak up and report deviances, issues and potential threats that they were worried about, was perceived as highly important to ERM’s success.

The role of top management has been highly emphasised in the employee voice literature, since top management is the target of voice and has the authority to administer rewards and punishments (Ashford, Sutcliffe, and Christianson, 2009; Detert and Burris, 2007). Leaders thus

play an important role in creating psychological safety (Edmondson, 1999), and they may influence voice by their general leadership style (Dutton et al., 1997; Mantere and Vaara, 2008). The literature suggests that top management needs to create an atmosphere where employees feel that their opinion is valued and where open-minded discussions of opposing positions are acknowledged (Ekaterini, 2010). To create such a culture, top management should support the involvement of employees in decision making by soliciting their ideas and taking them into consideration (Kaufman, 2001; Somech, 2006). Furthermore, top management should signal that individuals are allowed to express themselves, challenge the status quo and ask questions without fear of negative consequences (Scully, Kirkpatrick, and Locke, 1995). Such a participative leadership style can therefore be an important factor in stimulating a climate in which ideas on risks are proposed, discussed, evaluated and reflected on (Torp and Linder, 2014).

We thus expect the beneficial effects of ERM on risk performance to be higher in firms with a psychologically safe environment for speaking up and an emphasis on a participative leadership style:

H2a. The ERM process will have a greater effect on risk performance when the level of psychological safety for speaking up is high.

H2b. The ERM process will have a greater effect on risk performance when the level of participative leadership is high.

Before managers implement a leadership style that involves all employees in decisions making, distributes decision authority and exhibits receptiveness (to discuss new ideas and challenge existing processes and customs) and supports as well as encourages experimentation, proactivity and risk-taking, they need to create a culture of psychological safety in which speaking up is considered safe. If managers experience that employees do not trust management or feel safe

in expressing their opinions, that is, if they do not believe that employees will or dare express their true opinions, management may not see any benefits in trying to involve employees in decisions. This indicates that, to be able to exercise a participative leadership style, it is crucial first to establish a culture where making your voice heard is considered safe and where the employees trust the management. Therefore, we would expect that the creation of psychological safety among employees by developing a culture in which employees feel that their opinions are valued and where open-minded discussions of opposing positions are acknowledged (Ekaterini, 2010) precedes a participative leadership style, hence:

H2c. Companies with a high level of psychological safety more often employ a participative leadership style.

3. METHODS

Data for the study were collected as a cross-sectional mail survey. The 500 largest companies in Denmark measured by number of employees were approached by a two-page questionnaire in April 2013. The companies covered a broad set of industries and had at least 300 full-time employees. The questionnaire was initially tested on three managers to obtain an impression of how the questions were perceived and to clarify any ambiguity. Subsequently, the questionnaire was tested on 45 managers from 45 different firms (not part of the main data set) to test the robustness of the constructs. The pre-tests raised no concerns.

In a first step, the accounting managers (CFO) and sales/marketing managers were approached by a personalised cover letter and a two-page questionnaire. Three weeks later, a second letter was sent to those who had not yet responded. These letters produced a total of 248 responses (141 from CFOs and 107 from marketing managers). In June 2013, a marketing agency was assigned to contact the remaining managers by phone, resulting in 345 extra responses and thus

a total of 593 responses (298 from CFOs and 295 from marketing managers), i.e., a response rate of 59.3 per cent. After careful inspection, 171 double responses from the top-500 companies were included in the analysis. Using multiple sources allows us to reduce the risk of common method bias, which may arise if the use of a single data source creates spurious covariance between variables (Podsakoff, MacKenzie, Lee, and Podsakoff, 2003).

A test for non-response bias was conducted on sector, size, turnover and a number of other financial data comparing the responding companies with the population of the 500 largest companies in Denmark. None of the tests gave any cause for concern.

3.1. Measures

Formal ERM. The items are developed from the risk management process described in the ERM frameworks: COSO (2004) and ISO31000 (2009). The items explore to which extent the company during the last three years has assigned priority to having a policy to handle strategic risks, having standard procedures for identifying major risks and opportunities, analysing risks and opportunities as a basis for determining how they should be managed, having standard procedures in place for launching risk-reducing activities, preparing regularly risk reports for top management, and having standard procedures in place for monitoring the development in major risks and the risk reducing activities launched. The respondents were asked to rate the priority assigned on a seven-point Likert scale. The construct has been tested in a factor model, showing only one factor with an eigenvalue higher than 1 (eigenvalue=5.216).

Participative leadership style. Assessment of top-management's leadership style was based on Choi (2004). The instrument focuses specifically on the participatory leadership style, leaving out other aspects of (a more broadly defined) leadership climate, such as individual work effort, work duration or the like. The instrument is derived from Choi's (2004) construct of supportive

leadership. The resulting four-item measure asked the managers to rate the degree to which top management was open to middle managers' ideas and willing to let middle managers experiment with new concepts or products on a seven-point Likert scale (1=fully disagree; 7=fully agree).

The construct has been tested in a factor model, showing only one factor with an eigenvalue higher than 1 (eigenvalue=2.754).

Psychological safety. The effect of involving employees in strategic or risk-reducing actions is heavily dependent on the employees' willingness to participate and, ultimately, the perception of safety associated with speaking up. The construct is based on a scale developed by Liang, Farh, and Farh (2012) with four items measuring to what extent all employees in the company are able to express their own opinions and feelings, all employees can freely express their thoughts and ideas, the employees feel appreciated for expressing their opinions, and the employees feel that they will be blamed or given penalties because they have a different opinion than the majority/top management. The construct has been tested in a factor model, showing only one factor with an eigenvalue higher than 1 (eigenvalue=3.220).

Risk performance. The risk performance was measured by three items designed to uncover the relative risk management performance over the last three years compared to the sector in general. The respondents were asked to rate on a seven-point Likert scale (1=significantly worse; significantly better) how the company had performed compared to the sector in its ability to hedge important known risks and uncertainties, ability to react to and reduce unforeseen risks, and ability to exploit new opportunities. All latent constructs were measured with multiple items, thereby increasing construct validity. Internal consistency and reliability were assessed by Cronbach's α , factor loadings, composite reliability (CR) and average variance extracted (AVE) for all latent variables, as shown in Table AI.

The constructs display a high level of reliability, as indicated by the CR (above 0.85) and the AVE (ranging from 0.59 to 0.74) (Fornell and Larcker, 1981). A Harman one-factor test was conducted on all 17 items that report four constructs and explain 32.45-6.62 per cent, confirming the validity of the constructs. Since no single factor accounted for the majority of the covariance in the independent and criterion variables and items related to perceptual measures all loaded on distinct factors with eigenvalues exceeding one, we find no evidence of common method variance (Podsakoff et al., 2003).

3.2. Analytical procedure

The proposed theoretical model suggests simultaneous estimation of multiple relationships between observed and latent constructs, and the survey data are subject to potential measurement error. As a result, the hypotheses were tested in a structural equation model using AMOS 21 SEM software in a two-stage procedure, as recommended by Gerbing and Anderson (1988). The first stage involved estimation of the measurement model using confirmatory factor analysis to determine convergent and discriminant validity. The second stage compared the theoretical model with the measurement model. Based on the results of the test, the structural model was used to provide path coefficients for testing the different hypotheses. Additional fit measures, such as the goodness-of-fit index (GFI) and the root mean square residual (RMSEA), were calculated to test the model fit, as recommended by Gerbing and Anderson (1992). A sequence of nested-structural models (competing models) were evaluated in order to determine the model representing the best fit between the hypothesised relationships and the observed variance in the data.

4. RESULTS

Table AII shows the means, the standard deviations and the correlations of all items. All correlations between items representing different latent variables are well below 0.6, indicating no multicollinearity problems.

The χ^2 test of the measurement model was significant; however, its sensitivity to sample size is well known and criticized (Kline, 2005). Thus, relying on multiple fit indices rather than on the χ^2 test alone is recommended, and we proceeded to inspect a number of comparative GFIs that measure the proportional improvement of the model fit by comparing the hypothesised model with a restricted baseline model. As recommended by Hult et al. (2006) and Gerbing and Anderson (1992), the fit of the models was tested using the RMSEA and the global comparative fit index (CFI) in addition to the normed fit index (NFI) and the Tucker-Lewis index (TLI). The CFI (Bentler, 1980) takes into consideration sample size, and values of 0.90 or better indicate a model with a good fit. The RMSEA is sensitive to the number of estimated parameters in the model, as it considers the error of approximation in the population; values below 0.08 indicate a good fit. The fit characteristics of the measurement model indicated a model that fits the data very well (NFI=0.95; TLI=0.97; CFI=0.98; RMSEA=0.03) (Table AIII).

Since SEM does not test for causality and the direction of the effect, the assessed models must be based on theory. The initial model tested in AMOS 21 indicated a direct effect between the three latent variables and risk management performance, supporting the argument that formal ERM (Beasley et al., 2005; Gordon et al., 2009; Hoyt and Liebenberg, 2011; Nocco and Stulz, 2006), a participative leadership style (Mikes and Kaplan, 2014) and psychological safety (Ashford et al., 2009; Detert and Burris, 2007) all directly affected the risk performance. The model showed good fits (NFI=0.92; TLI=0.93; CFI=0.95; RMSEA=0.06), and the χ^2 test revealed a significant

improvement. The direct effect of psychological safety on risk management performance was, however, insignificant and, as earlier theorised, psychological safety may precede managers' willingness to engage in a participative leadership style, suggesting that the effect of psychological safety is mediated by a participative leadership style. This leads to model 3, which significantly improved the fits (NFI=0.95; TLI=0.98; CFI=0.98; RMSEA=0.03), suggesting a model with very good fit. Model 4 added a moderation effect between risk management and participative leadership style, as suggested in H2b.

While a focus on ERM presumably has a positive effect on a company's risk performance, Senge (1990) and Moeller (2007) have stressed the need for creating a culture of risk management at all levels in the organisation as well as emphasised the need for "discovering how to tap people's commitment and capacity to learn at all levels" (Senge, 1990: 4). This suggests that the combined effect of a motivating participative leadership style and a holistic systematic focus on ERM can interact and create a positive effect which is greater than the sum of its parts. This implies that a moderating effect exists, which leads to model 4. The fits of model 4 (NFI=0.95; TLI=0.98; CFI=0.98; RMSEA=0.03) are not significantly better than model 3, but they are more theoretically embedded, indicating a better model. Combined with a slightly significant ($p<0.10$) moderation effect, model 4 is preferred. The model is depicted in Figure A1.

5. DISCUSSION & CONCLUSION

5.1. Discussion, limitations, and future research

In consistency with recent calls for integrating insights from strategic management and organisation into strategic risk management in the search for tools to engage all employees in a shared risk management culture (Andersen, 2009; Slywotzky, 2007), this study investigates the combined effect of a safe employee voice culture, a participative leadership style and ERM processes on risk

performance. Recent research in the field of strategic risk management has emphasised the importance of creating a culture of risk management at all levels of the organisation (Moeller, 2007) to ensure a strategic responsiveness that allows companies to rapidly identify and hedge important risks, react to and reduce unforeseen risks and, at the same time, be able to identify and exploit new opportunities in a timely manner (Andersen, 2010). While the effect of ERM and strategic responsiveness has been tested on company performance and company value, little is known about the effect on strategic risk performance. This study has developed an applicable and sophisticated measure of ERM processes aiming at covering the diverse processes embedded in a holistic ERM system that identifies and hedges risk as well as enhances opportunity recognition and exploitation across the entire organisation. Compared to earlier studies, which have measured ERM by the presence of a CRO, S&P ERM ratings or a simple scale measuring the degree of ERM implementation (Mikes and Kaplan, 2014), we have developed an approach to measuring ERM and shown that ERM do enhance risk management performance. This is in line with the few studies actually testing the effect of ERM on risk management performance (Paape and Speklé, 2012). These findings are also in keeping with Hoyt and Liebenberg (2011) who have emphasised that by applying systematic ERM processes, which involve identifying, assessing and responding to all of the risks that pose a challenge to an organisation and its ability to achieve its strategic objectives, firms are presumed to lower their overall risk exposure. Additionally, the findings suggest that the creation of a safe employee voice culture can be seen as an antecedent of a participative leadership style, implying that managers need to address the culture issue before introducing a participative leadership style. As expected in H2b, allowing employees to participate in decisions through a participative leadership style is also found to enhance risk performance. This is in line with findings from strategic management that suggest that a participative leadership style supports empowerment

of middle- and lower-level members of an organisation, facilitates “derived judgement” (Foss et al., 2007) and supports a strategic responsiveness that allows companies to more rapidly identify and hedge potential threats and exploit potential opportunities (Sarpong and Maclean, 2014).

This indicates that the findings from strategic management can be incorporated in effective strategic risk management processes and thereby create a bridge between the risk management literature and strategic risk management. This highlights that risk management is not only a matter of a central risk management department; to create an effective risk management system, the company also needs to create a dynamic organisation that can rapidly identify and address new threats and opportunities. Risk management thus becomes strategic, since it involves culture, leadership style and is enhanced by strategic responsiveness. Finally, the findings emphasise that ERM processes must engage all employees in a risk management culture, and we thus find that a participative leadership style not only enhances risk performance, but also moderates the positive effect of formal ERM processes.

5.2. Limitations and future research

As in any other study, the current paper has its limitations. With respect to the empirical data, it is important to stress the fact that we have relied on cross-sectional data collected by means of a survey. As a consequence, the study does not allow for identifying the direction of the relationships between the variables studied, as the model and the structural equation modelling approach suggest. SEM analysis tests for associations and only assumes a certain direction of the relations based on theoretical grounds. Therefore, further testing with longitudinal or lagged data is necessary to corroborate our findings.

Collecting such longitudinal or lagged data may also provide an opportunity to address a second empirical limitation of our data: its exclusive focus on Danish companies. Whereas the open

Danish economy and the flat hierarchies in most companies support the introduction of involvement and open-hearted discussions, cross-cultural research indicates, among other things, that individuals from low-power distance cultures (such as Denmark or the USA) may react differently to a lack of opportunity to voice their ideas than their counterparts from high-power distance cultures (e.g. China) (Brockner et al., 2001; Hofstede, 2001). Thus, the power distance – and cultural dimensions in general – may moderate the impact of participation and top-management support on innovativeness and, consequently, also on risk. Individuals in low-power distance cultures are likely to react more negatively to a lack of participation and management support. This, in turn, could imply that studies conducted in high-power distance cultures may find the positive impact of top-management support on risk performance to be smaller or even non-existent. More research on exploring the moderating role of cultural factors and other potential moderating factors, e.g., a country's legal and economic environment, seems highly warranted.

5.2. Conclusion

The current study provides new empirical and theoretical insights into the effect of a formal ERM process on risk performance as well as the significance of cultural factors for ERM success. As a novelty in the risk management literature, this study draws on leadership and employee voice theory and investigates participative leadership style and psychological safety for employee voice as contextual influences on the effect on the risk performance of a formal ERM process. We find a significant, positive, direct effect of the formal ERM process on risk performance, supporting earlier findings that a structured, holistic approach to ERM is expected to enhance risk performance. In addition, we find a significant, direct effect of a participative leadership style on risk outcomes, highlighting the importance of combining traditional risk management literature with findings from the strategic management and organisation field for creating a culture in which all

employees are engaged in the risk management process and constantly strive to ensure that the company can rapidly identify and hedge potential risks and exploit potential opportunities. The regression coefficient on the interaction term between participative leadership style and the ERM process was found to be significant at the 10 per cent confidence level, which provides some support for H2b. We did, however, not find support for H2a on psychological safety for employee voice and the ERM process, but by running a mediation model instead, we found that psychological safety for employee voice has an effect on risk performance; this effect, however, is influenced by leadership style. Since structural equation modelling does not test for causality, the effect may oppositely directed, indicating that a participative leadership style enhances psychological safety. As psychological safety had no significant effect on risk performance, the expected positive effect of psychological safety on risk performance may be mediated or moderated by another factor, suggesting further research to enhance our understanding of the effects.

Collectively, our findings suggest that understanding ERM and its performance effects requires an appreciation of the risk management culture in terms of leadership characteristics. As such, the findings have practical implications for firms that already have an ERM process or consider implementing such a process. The results indicate that, while an ERM process is beneficial for risk performance, its impact is amplified by a participative leadership style. By considering the voices of those that are closest to the customers and suppliers and have operational expertise in decision making, firms may detect risks early and react faster to circumvent adverse outcomes. Open-minded discussions may lead to alternative solutions and different strategic directions. By combining proactive management systems such as ERM with a participative leadership style, firms can arguably create an adaptive advantage and enhance risk performance.

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APPENDICIES

TABLE I: FACTOR LOADINGS AND RELIABILITIES

Dimensions and variables	n	Cronbach's alpha	Construct Reliability	AVE	Factor loadings	Indicator reliability
Leadership style	170	0.85	0.85	0.59	0.83	0.69
Topmanagement actively seeks MM opinions and ideas on strategic issues					0.81	0.66
Topmanagement are open to new ideers and initiatives from all employees					0.81	0.66
Topmanagement appreciate that MM experiments with new ideers and products					0.87	0.75
Topmanagement ensure that the interest of MM are considered when making strategic decisions						
Psychological safety	170	0.92	0.92	0.74	0.90	0.81
All employees in the company can express their own opinion and feelings					0.93	0.86
All employees can freely express thoughts and ideas					0.91	0.82
In our company, it is appreciated that employees express their opinion						
No one in this company will be blamed or given penalties because the person has a different opinion than the majority/top management					0.85	0.72
Formal Enterprise Risk Management	170	0.94	0.93	0.69	0.84	0.70
Our firm has a policy for handling major risks that could affect the firm's ability to reach its					0.91	0.82
In our firm, we have standard procedures in place for identifying major risks and opportunities					0.86	0.74
Risks and opportunities are analysed as a basis for determining how they should be managed					0.83	0.69
We have standard procedures in place for launching risk-reducing measures					0.85	0.72
We regularly prepare risk reports for the top management and the board of directors						
We have standard procedures in place for monitoring the developments in major risks and the risk-reducing measures launched					0.89	0.79
Strategic Risk Management Performance (performed in the last 3 years compared to the sector in general)	170	0.80	0.82	0.62	0.89	0.79
Ability to hedge important known risks and uncertainties					0.92	0.85
Ability to react to and reduce unforeseen risks					0.72	0.51
Ability to exploit new opportunities						

TABLE 2: DESCRIPTIVE STATISTICS AND CORRELATIONS

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1 Risk management1	5.05	1.58	1																
2 Risk management2	4.72	1.63	.75 ***	1															
3 Risk management3	4.95	1.45	.70 ***	.76 ***	1														
4 Risk management4	3.72	1.64	.60 ***	.71 ***	.61 ***	1													
5 Risk management5	4.21	1.73	.63 ***	.69 ***	.68 ***	.63 ***	1												
6 Risk management6	4.08	1.72	.65 ***	.76 ***	.70 ***	.73 ***	.75 ***	1											
7 Leadershipstyle1	5.51	1.39	-.02	-.03	.01	.03	.09	-.02	1										
8 Leadershipstyle2	5.80	1.23	-.01	.00	.01	-.01	.10	.07	.57 ***	1									
9 Leadershipstyle3	5.31	1.42	-.05	-.01	-.05	.04	.03	-.02	.51 ***	.57 ***	1								
10 Leadershipstyle4	5.35	1.36	-.06	.01	-.02	.00	.07	.03	.67 ***	.57 ***	.62 ***	1							
11 Psych safety1	5.53	1.36	.02	-.04	.00	.07	.02	-.09	.36 ***	.46 ***	.42 ***	.40 ***	1						
12 Psych safety2	5.75	1.26	.00	.07	-.04	.11	.07	.10	.42 ***	.50 ***	.42 ***	.43 ***	.81 ***	1					
13 Psych safety3	5.71	1.34	-.08	.00	-.12	.03	-.01	.03	.44 ***	.50 ***	.46 ***	.49 ***	.76 ***	.80 ***	1				
14 Psych safety4	5.74	1.27	-.04	.01	-.07	.07	-.05	-.01	.40 ***	.42 ***	.40 ***	.44 ***	.67 ***	.71 ***	.70 ***	1			
15 Performance1	4.56	1.13	.51 ***	.51 ***	.50 ***	.41 ***	.51 ***	.54 ***	.10	0.14	.10	.09	.14	.15 *	.11	.02	1		
16 Performance2	4.58	1.19	.47 ***	.45 ***	.46 ***	.35 ***	.45 ***	.51 ***	.16 *	0.17 *	.13	.16 *	.14	.11	.13	.04	.79 ***	1	
17 Performance3	4.72	1.10	.27 ***	.22 ***	.23 ***	.12 *	.24 ***	.26 ***	.13	0.21 **	.17 *	.13	.13	.09	.12	.07	.42 ***	.50 ***	1

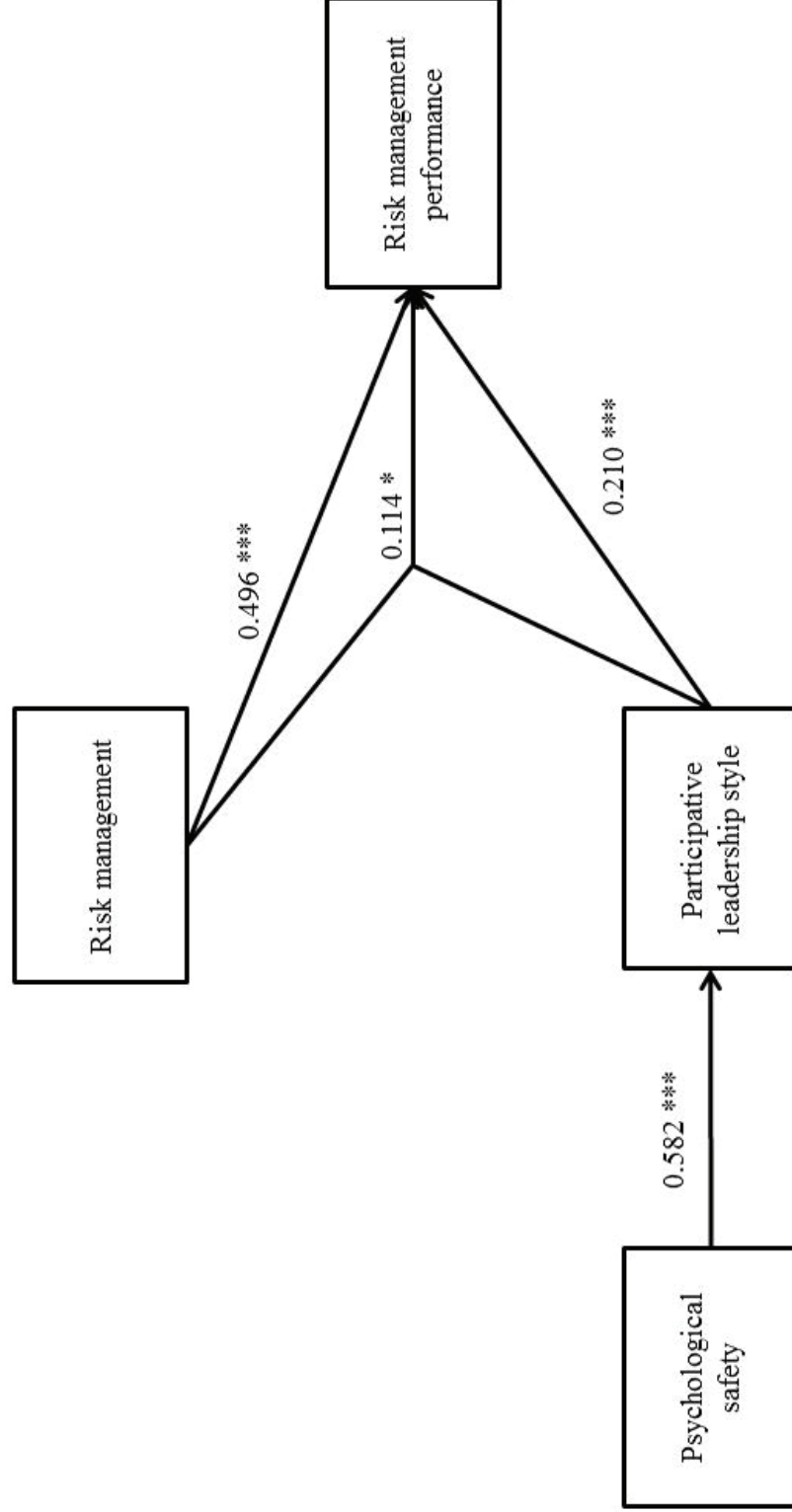
n = 170. Significance of correlations: *** *p* < .001; ** *p* < .01; * *p* < .05 (two-tailed test).

TABLE 3: Structural Equation Models (AMOS)

Model and description	c²	df	NFI	Delta2	TLI	CFI	RMSEA
1: Measurement model	178.87	113	0.949	0.981	0.973	0.980	0.034
2 Model with direct relationships	297.17	116	0.915	0.946	0.929	0.946	0.056
3 Model with mediation	179.02	116	0.949	0.981	0.975	0.981	0.033
4 Model with moderation	194.92	132	0.945	0.981	0.976	0.981	0.031

Significance levels: *** $p < .001$; ** $p < .01$; * $p < .05$ (two-tailed test).

Figure 1: Structural Equation Model



The betas are unstandardized. * < 0.1 ; ** < 0.01 ; *** < 0.001

CHAPTER 6: CONCLUDING REMARKS

6.1. Conclusion & Contribution

The overall purpose of this thesis has been to contribute with an investigation into strategic risk management practices from a strategic management and management accounting perspective. In particular, the purpose of the thesis has been to fill the gaps in the literature by furthering the understanding of *how strategic risk management influence firms' ability to deal with risks that may affect long-term competitive advantage and corporate longevity.*

As understanding of risk in organizations is an important goal in strategic management and management accounting, these areas of literature have been synthesized. This approach of combining the two literature streams has suggested that, besides the adoption of contemporary risk management and control processes, the use of appropriate strategic management practices can contribute to effectively dealing with strategic risks. Thus, knowing which of the practices that can be used for managing such exposures, and in which constellation, is valuable in enhancing our understanding of how firms can proactively influence their long-term competitive advantage and survival. Besides, the study of risk implications of management practices resonates well with the strong interest in management research in how firms can develop rapid decision-making processes (Andersen et al., 2007; Eisenhardt, 1989), adaptive processes, strategic response capabilities (Bettis and Hitt, 1995; Volberda, 1996), and dynamic capabilities (Teece et al., 1997; Teece, 2007).

My aim with the combination of the four papers in the thesis (chapter 2-5) has been to provide both theoretical and empirical contributions. While the 2nd chapter has focused on strategic management practices that deal with strategic risks, chapter 3 and 4 respond to calls to integrate

literature from strategic management and management accounting. The 5th chapter has investigated some of the cultural factors that underpin effective risk management.

The importance of strategic planning

Since strategic planning emerged as a formal discipline and practice in the 1960s, a large body of research has investigated the relationship between strategic planning and performance, however with inconclusive and conflicting results. This thesis shows that strategic planning is certainly important for dealing with strategic risk. The thesis finds empirical support from two different data sets (collected at different times) from 500 largest Danish firms and two different methods (OLS and SEM) that strategic planning has a statistically significant direct effect on enhancing upside potential and firm performance, while reducing downside risk and the probability of financial distress through the lowering of a firm's leverage. Furthermore, the thesis suggests, and finds empirically, that strategic planning may serve as an important mediating mechanism that both filter the effects of participative decision-making and an ERM process. Studying the mediating characteristics of strategic planning is arguably important in that it can enhance our understanding of the mechanisms that drive an emphasis on such a widely used management practice. It seems particularly important since the practice of strategic planning consumes scarce organizational resources such as time and managerial attention (Gifford, 1999; Ocasio, 1997).

To my knowledge this is the first study to date that has explored the effects of strategic planning on risk outcomes in terms of downside risk. This seems highly relevant in that given a lack of both theorizing as well as empirical evidence on the matter; it can only be speculated about the risk outcomes from this practice. Although previous research have shown that strategic planning enhances a firm's performance, such an increase may not be high enough to reduce the firm's

downside risk. Thus, equating the two can lead to overly hasty conclusions. Thus, this study contributes to theory by providing a more nuanced understanding of the potential benefits derived from strategic planning.

The importance of interactive control systems

Another important contribution of this thesis is to the limited body of knowledge concerning the ways in which management accounting practices, in particular interactive control systems, and strategic management practices interplay to enhance the upside dimension of risk outcomes. The thesis proposed an integrative model that combines strategic planning and decentralized strategy-making with interactive control processes. It is argued that interactive control systems, strategic planning, and decentralized strategy-making creates a dynamic system that drives upside potential for strategic adaptation, which in turn is vital for sustaining a competitive advantage. It provides empirical support for a direct effect from interactive control systems on the upside potential of performance. These findings suggest that interactive control systems may indeed be helpful in anticipating and effectively managing strategic risks and opportunities that are important for capturing the upside potential of a firm's performance. It further finds evidence that interactive control systems can enhance the relationship between participative decision-making and upside potential. Thus, it is suggested that interactive control systems may be an essential mechanism for information processing that integrates important elements of participative decision-making by linking decision-makers across hierarchical levels through an open exchange of information and direct engagement in discussions about performance developments, environmental changes, and strategic responses. These suggestions and findings offers a fertile ground for future research efforts

to better understand the role of interactive control to enhance the effects of the dual strategy-making modes of strategic planning and decentralization.

The importance of enterprise risk management

This study further advances knowledge to the line of research that investigates whether ERM achieves the intended goal of enhancing performance while protecting against lower-tail outcomes. The thesis has tested the effects of ERM on three different sets of outcomes: firm performance, the probability of financial distress through the lowering of a firm's leverage, and a perceptual measure for risk management effectiveness. By replicating the study on several different outcome variables its findings were substantiated.

This thesis has also attempted to fill the gap in research by ascertaining the link between ERM and strategic planning. More specifically, it shows that ERM's effect on performance is fully mediated by strategic planning. Thus, it responds to calls to look at this particular risk management approach through the lens of strategic management. These results may offer important insights for further research into both of these practices that are considered important to manage strategic risks. It suggests that the two practices are not in conflict with another, but rather they should co-exist. In fact, firms should not replace strategic planning with ERM but if they invest resources in ERM processes they should also put more attention and time to the planning processes than before.

Furthermore, the study provides an insight into the process-related analysis of ERM by developing a new and detailed construct of ERM that captures the ERM process. Thus, it advances prior studies by capturing those firms that do not explicitly subscribe to a contemporary framework and those studies that have relied on dichotomous variables for measuring ERM.

The importance of participation, leadership style and the employee voice

The present study finds empirical support of the effect of participative decision-making on the downside risk and upside potential of a firm's performance. Surprisingly, a statistically significant relationship with the dimension of decentralized strategy making; the 'delegation of decision authority', was not found to influence the upside potential of a firm's performance. A plausible explanation for this could be that the delegation of decision authority increases the firm's exposure to self-interest behavior, and middle-level managers could possibly pursue destructive market opportunities in contravention to the overall strategy (Foss, Foss, and Klein, 2007).

While an increasing number of studies have shown that delegation and participative decision-making is important, especially when risk exposures and uncertainty is high, they have also shown that this approach of strategy-making is contingent on a favorable context for communicating information and championing issues such as a supportive leadership style and the managements openness to ideas and suggestions (Dutton, Ashford, O'Neill, Hayes, and Wierba, 1997). Also, the literature on risk management suggests that successful ERM is underpinned by a supportive culture that involves a participative leadership style and the psychological safety of the employee voice (Mikes and Kaplan, 2014; Spedding and Rose, 2008). This thesis has provided new empirical and theoretical insights into the significance of such cultural factors for ERM's success by drawing on leadership and employee voice theory. It finds a direct influence of a participative leadership style on risk outcomes. However, the same hypothesized direct effect was not found from the employees' psychological safety of raising voice. Instead, it seems that employee voice is mediated through a participative leadership style. Also, the study finds some support of the hypothesized moderating role of a participative leadership style on ERM's effect on risk

performance. Nevertheless, the study contributes to a blind spot in the literature by suggesting that understanding ERM and its performance effects requires an appreciation of certain leadership characteristics. These results should be of value to both the academic field as well as practitioners that already have an ERM process or are considering implementing such a process.

From this thesis, it can be concluded overall that, instead of weathering the storm and ignoring risks, firms can take an active stance in making better decisions about risk-taking by preparing for the inherent uncertainty of strategic decisions. It is suggested that proactive management practices such as strategic planning, interactive control systems and enterprise risk management processes, can be effective means when dealing with strategic risk. It further emphasizes the role of participative decision-making, a participative leadership style, and employees' psychological safety for raising voice as important factors in order to benefit from these management practices most advantageously.

6.2. Limitations and future research

In spite of the body of evidence that has been provided in this thesis to support the conclusions, it should be viewed in light of its overall limitations. First, the empirical data for the analyses were based on cross sectional data-sets, therefore strict causality cannot be asserted (Lee and Lings, 2008). Even though quantitative data may be subjected to lower interpretation biases than qualitative data, it may be less suited to capturing some of the more complex and subtle aspects of the management process, practices, and systems that deal with strategic risks. Studies that take into account some of the inherent cognitive biases in managerial and organizational risk perception are encouraged. Case studies could be a promising avenue to contribute to our understanding of such complex phenomena. That being said, the strategic management literature arguably has a lack of

empirical testing where risk serves as *explanandum* and ERM as a relatively new academic research field is arguably in more need of hypothesis testing in order to generalize and support conjectures of ERM as a value creating management device.

Furthermore, as ERM is a rather new management practice and a gradual learning process (Aabo, Fraser, and Simkins, 2005), one can suspect that this management process will be subjected to changes over time. The cross-sectional approach takes a snap shot of a population at a certain time. Although this indeed provides a fairly good idea of ERM's effect on firm performance, it would be beneficial to take the time to integrate temporal research. One can also suspect a time lag between the management practices and processes studied and their effect on a firm's performance. As decision derived from ERM and strategic planning potentially need a certain amount of time before financial gains can be realized. Thus, further studies with longitudinal data are highly warranted.

Even though the thesis did not find support for the conjecture that interactive control systems play an important role in the relationship between strategic planning and the upside potential of performance, it would be valuable for future investigations to explore the role of interactive control systems in strategy formulation, potentially with a different measure of these control systems and a different sample.

Although the findings of the thesis contribute to an internationally more balanced set of empirical findings, since most of extant studies on the management processes, practices and systems have relied on samples that were generated in a North American context, the geographical limitation is of importance as the data used was collected from Denmark. Consequently, different effects could be expected in countries with different cultures and traditions to the management

practices and processes studied in the thesis. For example, the general flat hierarchies in Danish firms may generally be more supportive to the participation of middle managers in decision-making, the delegation of authority, and the degree of interaction between top management and lower-level managers in control systems. Also a low-power distance culture (such as Denmark or the US) potentially exhibit different leadership styles and organizational climates for open-hearted discussions than in other countries with high-power distance cultures. Thus, further studies in other country settings such as (non-western) developing and emerging countries will be required to confirm the findings of this thesis.

Although the robustness of the findings is enhanced by looking at several aspects of risk outcomes, such as a firm's performance, downside risk, upside potential, financial leverage and a perceptual measure of risk management effectiveness, there might be other non-financial or indirect improvements that are not captured in the thesis. Such improvements could be related to the quality or effectiveness of strategic decisions from the strategic planning process or the mitigation of strategic exposures. The subjectivity and ambiguity of indirect effects make them inherently difficult to capture empirically. Further research is encouraged to look into and properly analyze such effects, potentially through case studies.

With this being said, it is my hope that future research will be inspired to build upon the theoretical and empirical findings of this thesis by filling the gaps that have been suggested above and providing an increasingly comprehensive analysis of how firms can effectively deal with strategic risks. The findings and knowledge developed in this thesis may also have implications for managers who wish to take an active stance on their handling of strategic risks. Even though it does not provide a universal recipe on how to solve the challenges that come with strategic risks, it does

indeed provide support to show that it can pay off to take a proactive stance on the management of and preparation for these exposures.

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