A MULTILEVEL FRAMEWORK OF THE ROLE OF ENVIRONMENTAL AND ORGANIZATIONAL CONTEXT ON RISK TAKING

By

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A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Strategic Management

2012

ABSTRACT

A MULTILEVEL FRAMEWORK OF THE ROLE OF ENVIRONMENTAL AND ORGANIZATIONAL CONTEXT ON RISK TAKING

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In this dissertation I examine one of the critical processes for each organization – organizational risk taking. To achieve this goal I develop a multilevel framework that explicates on the antecedents, consequences and moderating conditions of organizational risk taking.

While prior research indicates that risk taking is driven by discrepancy between performance and aspiration levels, little work has been done on whether all organizations respond in a similar fashion to poor performance. Using a sample of corporate divisions in multidivisional corporations (M-firms), I argue that a set of factors from the organizational and structural context affect the ability and motivation of managers to respond to poor performance by engaging in risk taking. The structural contingencies of the M-firm also have important implications for the consequences of divisional risk taking by impacting the ability of divisional managers to undertake high-quality risky choices. My results suggest that a set of factors residing at the divisional, corporate, and environmental levels of analysis significantly affects the risk taking behavior of managers. Overall, this dissertation aims to advance our knowledge on the embeddeddness of managerial risky choices in a larger organizational and environmental context and offer insight into how this context impacts organizational risk taking.

DEDICATION

To my lovely mother for all the love and support she gave me and continues to give

ACKNOWLEDGEMENTS

This dissertation marks the end of a long but rewarding period of my life and also serves as a starting point to an exciting new chapter of being a university professor. Looking back at this 5-year journey, I want to thank many people who have helped along the way.

First and foremost, I want to thank my mom Sonya for everything she has done for me. She has taught me honesty, integrity, work dedication, and courage to overcome challenges in life. She has been the perfect example of how to deal with difficulties and disappointments and how to never give up and fight for your dreams. Without her, I would not have achieved anything in my life.

Second, I want to express my appreciation to my advisor Gerry McNamara. Through constant advice, mentoring, and constructive comments, Gerry has pushed me to become a better person and a better scholar. I will always be grateful to Gerry, an excellent scholar and a great person, for giving me an excellent start in the academic career and I wish every student had such an excellent advisor as Gerry.

Third, I want to thank my committee members for their excellent job and directions during the dissertation process. To Bob Wiseman – who has worked with me from the start of the PhD program and has been an excellent and patient mentor who has taught me a lot and has supported me in all of my endeavors. To John Haleblian – who is not only a great scholar but also one of the first people that believed in me and has a major contribution to my first academic publications. To Margaret Hughes-Morgan – she is an excellent person and friend who gave me encouragement and advice during the long journey of a PhD student.

Fourth, I would to thank all professors in the Management department for their dedication and hard work during doctoral seminars and for serving as an example of achieving a successful academic career.

Finally, I want to thank all fellow doctoral students for those great 5 years in my life and for making me feel comfortable and appreciated at MSU. In particular, I thank Jonathan Miles and my cohort mates Seungho Choi and Dustin Sleesman for being excellent and true friends.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

Why do organizations take risks? How does risk taking emerge and develop over time? Over many years scholars in the field of strategic management have tried to answer these questions and outline the driving factors of organizational risk taking and its consequences for firm performance. A common framework utilized to study managerial risk taking is provided by the behavioral theory of the firm (BTOF) (Cyert and March, 1963). It argues that firms have predetermined aspiration goals which they want to achieve and to which they compare their current performance. When they are not able to reach these aspirations, e.g. performance falls short, firms face an attainment discrepancy which urges them to seek alternative solutions and engage in risky strategies. On the contrary, when firms exceed their aspirations, they are less likely to undertake risks due to complacency and satisfaction with the status quo. Prior research has linked performance discrepancies to various managerial decisions, such as factory expansion (Audia and Greve, 2006), innovations (Greve, 2003a), market change (Greve, 1998), and likelihood of acquisitions (Iyer and Miller, 2008). In addition, the BTOF has been utilized across multiple contexts ranging from radio stations (Greve, 1998), to shipbuilding (Greve, 2003a), to furniture and computer software (Lant, Milliken, and Batra, 1992), to airlines and trucking (Audia, Locke, and Smith, 2000).

Despite its broad application and fairly well understood foundations, there still remain a number of under-explained issues central to the theory. First, there has been limited theoretical discussion of or empirical research on the impact of organizational context, and organizational structure in particular, on managerial risky behaviors (e.g. Gavetti, 2005; Gavetti, Levinthal, and Ocasio, 2007). Such a gap is surprising given the fact that managerial decisions and actions are embedded in and influenced by the organizational context (e.g. Granovetter, 1985; McNamara

and Bromiley, 1997; Sutcliffe and McNamara, 2001). Additionally, there has also been little theorizing on the degree to which the intensity and quality of risk taking varies across organizations (e.g. Deephouse and Wiseman, 2000). Developing a theory that incorporates organizational structure with organizational risk taking and that explicates on the former's role on the intensity and quality of risky choices will not only extend the BTOF to yet-untested boundary conditions, but also it will offer a more detailed understanding of organizational risk taking.

To examine the interactions between organizational structure and risk taking, I utilize the context of multidivisional (M-form) firms. The latter are firms that operate multiple businesses in various markets, are comprised of several divisions or subsidiaries with each of them pursuing their own strategic objectives while also being accountable to a corporate office. Such a context will not only allow me to distinguish the unique features of risk taking within M-firms from risk taking in single-business firms, but also it will provide an opportunity to examine whether and when organizational structure inhibits or enhances risk intensity and risk quality.

The structure of M-firms is associated with several important features which are likely to influence divisional risk taking and distinguish it from risk taking in single-business firms. First, the partial isolation of divisions from external market pressure (Bradley et al., 2011), the corporate protection from failure which they receive (Barnett, Greve, and Parks, 1994; Rajan, Servaes, and Zingales, 2000), and the existence of low-powered incentives at the divisional level (Williamson, 1985) reduce the responsiveness of divisional managers to performance shortfalls. Thus, the M-firm structure appears to lead to a sense of security among divisions (Kraatz and Zajac, 2001), making them less attentive to existing performance discrepancies and thus less likely to engage in risk taking compared to single-business firms. However, considering that risk

taking is prescribed as a remedy to poor performance (Bromiley, 1991; Cyert and March, 1963; Lant, 1992) and a means to adjust to environmental shifts (Madsen, 2008), the relative disinclination and inability of divisions, compared to single-business firms, to undertake the necessary amount of risky initiatives jeopardizes their chances of successfully closing performance gaps and avoiding organizational failure.

While these arguments suggest that in contrast to single-business firms M-firm structure might place divisions at a disadvantage in terms of their sensitivity to performance deficiencies, it is unlikely that all divisions would be equally unresponsive to such deficiencies. I argue that within the M-firm there is an additional set of structural and resource endowment characteristics at the divisional and corporate levels that will strongly influence the motivation and ability of divisional managers to respond to poor performance. Thus, it would be premature to argue that inefficiency of divisional risk taking dooms all multidivisional corporations to organizational failure; instead, certain internal structural arrangements and contingencies could alleviate divisions' unresponsiveness to attainment discrepancies and thus partially improve their chances for appropriate adaptation to unfavorable performance conditions.

Second, the structural embeddedness and hierarchical dependence of divisions generate strong social influence forces which are expected to affect the outcomes of divisional risk taking. On one hand, the availability of other divisional counterparts and the common ownership ties among them increase their interactions and encourage utilization of prior experiences and ready-made solutions to problems (e.g. Vissa, Greve, and Chen, 2010). As a result, a focal division has access to rich and useful corporate information which facilitates successful vicarious learning and subsequent improvements in performance (e.g. Baum and Ingram, 1998; Beckman and Haunschild, 2002; Madsen and Desai, 2010). On the other hand, divisions, in contrast to single-

business firms, face rigid decision rules on where and how to invest (e.g. Merton, 1968) which restricts their ability to identify appropriate problem solutions and might lead them to automatic and suboptimal risky choices (e.g. Sutcliffe and McNamara, 2001). In other words, the M-firm structure might prevent divisions from undertaking risk taking which is beneficial to performance. Overall, the above arguments bring to the forefront the following question: Is organizational structure, and in particular M-firm structure, a key element in explaining the association between risk taking and performance? I argue that structure is a critical underexplored contingent factor (e.g. Deephouse and Wiseman, 2000; Wiseman and Bromiley, 1991) that might explain why and how certain organizations are able to engage in value-enhancing risk taking which improves performance (e.g. Miller and Leiblein, 1996) while others undertake performance-detrimental risks (e.g. Bromiley, 1991; Wiseman and Bromiley, 1996). The answer to this question is fundamental because risk taking and organizational design (structure) are critical for achieving organizational effectiveness and survival (e.g. Sutcliffe and McNamara, 2001; Wiseman and Bromiley, 1996).

Furthermore, utilizing the context of M-firms will allow me to examine the role of organizational coalitions (Cyert and March, 1963) on risk intensity and risk quality. Despite their recognition as important factors in organizational decision making and actions (Cyert and March, 1963), organizational coalitions have been overlooked in prior research on organizational risk taking. More specifically, there has been relative lack of theorizing on how the existence of coalitions within an organization influences risky initiatives. Instead, prior studies have implicitly modeled the firm as a single actor and assumed that it pursues a common objective. However, such an assumption is unlikely to hold within a multidivisional firm where the divisions could be viewed as separate coalitions with their own goals and interests. In order to

fulfill those goals, divisions are expected to pursue diverse initiatives, are likely to respond differently to performance feedback which subsequently affects the effectiveness of their risk taking.

Overall, the objective of this dissertation is to build an organizational structure theory of risk intensity and risk quality and thus to offer a more detailed discussion on the processes underlying organizational risk choice and its consequences for organizational performance. To achieve this goal I will structure my dissertation in two chapters. The first chapter will discuss the characteristics of divisional risk taking in an M-form firm and outline the main reasons why it differs from the risk taking of single-business companies. The overarching logic of the chapter is to introduce the idea of coalitions and how their embeddedness in a multidivisional firm affects risky behaviors. Here I challenge prior studies on organizational risk taking which have presented the firm as a unified and single actor and have ignored the existence of internal coalitions characterized by inconsistent interests and pursuing differentiated objectives. I develop a framework that is built on the premise that the hierarchical nesting of corporate divisions and the complex political and social relations among them and the corporate office have a major impeding influence on their risky choices. Furthermore, I argue that the distinctiveness of divisional risk taking is driven by structural and cognitive contingencies that determine which external cues and reference targets are salient to divisional managers and how they respond to them (e.g. Ocasio, 1997). Finally, I investigate how various corporate and divisional factors, such as diversification, corporate governance variables, corporate slack and divisional size, serve as moderating conditions to the relationship between divisional attainment discrepancy and subsequent risk taking.

The second chapter discusses how divisional risk taking is related to subsequent performance by examining the critical role of organizational structure as an underlying mechanism. The central argument is based on the idea that because divisions are not independent entities, are subject to lower external pressures and weak internal motivation (Kraatz and Zajac, 2001; Barnett, et al., 1994; Williamson, 1996), and enjoy the availability of comparing to and learning from other divisions (e.g. Greve, 2003b), the quality of their risky choices will be affected by these contingencies and ultimately will impact their performance outcomes. In addition, I develop a set of cross-level moderating factors that are predicted to alleviate or exacerbate the impact of divisional risk taking on subsequent performance. Drawing on past research on managerial decision making, I argue that environmental-level (munificence, dynamism, and complexity) (Goll and Rasheed, 1997; Henderson, Miller, and Hambrick, 2006; Palmer and Wiseman, 1999), corporate-level (diversification, CEO incentive pay, institutional and blockholder ownership) (Sanders and Hambrick, 2007; Mikkelson and Ruback, 1991; Palmer and Wiseman, 1999), and divisional-level variables (divisional size and divisional managers' incentive pay) (Audia and Greve, 2006) are important contingent factors that might explain why in some contexts risk taking generates "good" organizational performance and in other contexts risk taking results in worsened performance.

In summary, my dissertation will extend the boundary conditions of the BTOF by elaborating on the role of coalitions in organizational risk taking, discussing the role of structural contingencies on intensity of risky activities, and explicating on the performance implications of risky behaviors across various structural arrangements. In developing my dissertation I will rely on a variety of theories and perspectives of managerial behavior, such as BTOF (Cyert and March, 1963), theories of M-form firms (Hill and Hoskisson, 1987; Hoskisson, Hitt, and Hill,

1991, 1993; Hoskisson and Turk, 1990), agency theory (Jensen and Meckling, 1976; Eisenhardt, 1989), theories of environmental dynamism, munificence and complexity (Dess and Beard, 1984; Duncan, 1972; Palmer and Wiseman, 1999), and organizational learning theories (Baum and Ingram, 1998; Beckman and Haunschild, 2002; Chuang and Baum, 2003; Greve, 1998; Ingram and Baum, 1997a, 1997b; Madsen and Desai, 2010).

Behavioral Theory of the Firm Revisited

As previously discussed, organizational structure and design have been overlooked in the BTOF. Instead, the theory's arguments about organizational risk taking have been developed by focusing more broadly on the concept of organization and its tendency to engage in risky activities. Subsequent scholarship on risky choices has continued this line by viewing the firm as a unified actor without paying recognition to the fact that organizations might be comprised of multiple coalitions, such as separate units or divisions. Considering that theory suggests the existence of important links between decision-making and organizational context (McNamara and Bromiley, 1997; Sutcliffe and McNamara, 2001), it is surprising that little attention has been paid to how or whether particular organizational structures might exhibit different patterns of risky activities. To fill this gap I examine how the structural characteristics of multidivisional firms might affect risk taking and its consequences on performance. Studying M-form firms is particularly relevant for two main reasons. On one hand, because multidivisional corporations are wide-spread across industries and represent a large number of all organizational forms, their relative omission from research on organizational risk taking might lead to misspecification and underrepresentation of empirical findings. On the other hand, M-firms have unique features, such as structural hierarchies and social embeddedness of their corporate divisions (e.g. Vissa et al.,

2010), with important implications for managerial behavior, particularly risky choices. First, the M-form firm is characterized by hierarchical structure and relative lack of independence of divisions from the corporate office – divisions rely on the corporate office for internal resource allocations. While in general the corporate office is expected to allocate resources to divisions with strong financial performance and positive investment forecasts (e.g. Thomas III and Waring, 1999), very often capital allocation is biased with underperforming divisions being subsidized and not allowed to fail (Lamont, 1997; Rajan et al., 2000; Scharfstein, 1998; Scharfstein and Stein, 2000; Shin and Stulz, 1998). As a result, instead of achieving optimal level of efficiency the internal capital allocation system generates flawed incentives (e.g. disincentives) for divisional managers. They might develop a false sense of security (Kraatz and Zajac, 2001) and experience lack of urgency in addressing performance problems they face in their divisions. Also, the corporate structure partly isolates them from the external market pressure and criticism of investors which further exacerbates their slow responsiveness to performance shortfalls. Furthermore, the existence of the internal capital allocation system is directly linked to the identification of reference targets against which performance is evaluated. Because divisions are evaluated against one another and the allocation system serves as a mechanism to determine the division's relative standing in the corporation, this system could be viewed as an important attention allocation structure (Ocasio, 1997) that redirects managerial attention internally to salient targets – e.g. other corporate divisions. In other words, the internal allocation system as a unique feature of the M-form firms plays a major role in where and how divisions undertake risks. Furthermore, compared to single-business firms that utilize historical and social comparison targets (e.g. Bromiley, 1991; Cyert and March, 1963), the internal

allocation system creates an additional reference target for divisions to judge their performance against.

Second, M-form firms are composed of multiple divisions with quite distinct and oftentimes conflicting interests and objectives. Divisions are similar to what Cyert and March (1963) discuss as organizational coalitions. And while their definition is centered around the inter-personal (or inter-department) level, the underlying logic is that "participants in a particular "region" (p. 27) have common interests, pursue specific goals, lay particular claims on the whole organization and bargain over payments. Since divisions are relatively autonomous units, might have objectives inconsistent with the overall corporate goals, and compete over internal resource allocations, they could easily be classified as coalitions. While they are expected to work towards achieving the overall corporate goals, they are not immune to pursuing objectives which serve their own interests. In particular, divisions prefer to avoid engaging in uncertain behaviors because of the inherent risk aversion of their managers and the low-powered incentives these managers receive (Williamson, 1985). Because divisions possess information asymmetry advantage over the corporate office they are able to advance their interests even in cases when those interests are not beneficial to the whole corporation. This informational advantage is based on divisional managers' ability to misrepresent information and thus capture more political and bargaining influence against the corporate office. In other words, divisional managers could easily manipulate corporate executives, disguise performance failures or at least undermine their severity, and divert attention away from those problems. As a result, divisional managers are able to avoid the need to solve those existing performance problems through risk taking and maintain the status quo.

The structural contingencies of the M-firm also have implications for the outcomes of divisional risk taking. While the corporation serves as a "safety net" to divisions and helps them survive (e.g. Kraatz and Zajac, 2001), it also discourages them from careful evaluation of risky projects and thus increases the likelihood that those projects will be suboptimal. Being partially isolated from the market pressure and expectations of investors makes divisional managers less diligent and sensitive to the characteristics of their risky initiatives. In other words, they are more tolerant to suboptimal projects – even if their risk strategies are unsuccessful and result in poor performance, the M-firm could compensate for the negative results and absorb divisional losses (e.g. Barnett et al., 1994). In a similar vein, the inherent low powered incentives (Williamson, 1985, 1996) might encourage "bad" risk taking which hurts divisional performance. Finally, the rigid corporate rules and established procedures on how and where to look for problem solutions leave little room for divisional non-compliance and modification of risky choices. However, often those taken-for-granted rules do not fit with a focal division's context and usually result in inappropriate risky strategies which are detrimental to performance.

At the same time, the M-firm and its internal capital market offer rich information to divisional managers and allow them to learn from the strategic choices of other divisions. As a result, divisional managers could utilize vicarious learning (e.g. Baum and Dahlin, 2007; Baum and Ingram, 1998; Ingram and Baum, 1997a, 1997b; Madsen and Desai, 2010) which has a beneficial effect on the quality of divisional risk taking. In summary, the M-firm structure might inhibit or alleviate divisional performance by enhancing or reducing the quality and effectiveness of divisional risk taking.

Contingent perspective on divisional risk taking

Divisional risk taking is an important part of the decision-making repertoire of managers and is subject to particular behavioral biases. For example, prior research offers evidence that various managerial characteristics, such as motivation (Devers, McNamara, Wiseman, and Arrfelt, 2008; Sanders, 2001; Sanders and Hambrick, 2007) and strategic orientation (Gupta, 1987) play an important role on the likelihood and patterns of risky choices. Thus, it is warranted to examine their moderating role on divisional risk taking. In addition, managerial behavior does not happen in "a social vacuum" (Sutcliffe and McNamara, 2001: 486); on the contrary, evidence exists that the decision making process is contextually dependent and because of its embeddedness in the organization, it is influenced by different characteristics of the latter (Audia and Greve, 2006; Granovetter, 1985, 1992; McNamara and Bromiley, 1997; Sutcliffe and McNamara, 2001). In a similar vein, because divisional risk taking has major implications on the functioning of the whole multidivisional corporation and because divisions are structurally situated in and strategically dependent on the M-firm, it is expected that factors from higher levels in the organization (e.g. the corporate) will play a contingent role on divisional risk taking. Finally, considering that the M-firm is situated in an environmental context and given the evidence that the environment might inhibit or facilitate decision making (Goll and Rasheed, 1997; Palmer and Wiseman, 1999), the implications of divisional risk taking are expected to vary across different environmental contexts. Overall, the hierarchical embeddedness of divisions in the M-firm and the "multilevel relational contexts" (Langley 1989; O'Reilly and Chatman, 1996) within which they operate characterize divisional risk taking as a multilevel phenomenon which is affected by factors situated at the divisional, corporate, and environmental levels of analysis.

Intended Contributions

Considering that organizational risk taking represents an important managerial action and recognizing the influence of organizational structure on decision making processes (Hill and Hoskisson, 1987; Hoskisson et al., 1991, 1993; McNamara and Bromiley, 1997), it is surprising that there is a relative lack of research trying to bridge the BTOF with theories on the M-form firm; in particular, our knowledge is incomplete on how the structural contingencies of the M-firm affect the risky choices of corporate divisions. To fill this gap I build an organizational structure theory of risk intensity and risk quality. By developing such a theory, my dissertation could answer several important questions. First, is divisional risk taking different from risk taking in a single-unit corporation and if so, how and why? Second, how do organizational structure and hierarchical embeddedness of divisions impact their propensity to engage in risky activities? Finally, how do the unique features of divisional risk taking influence subsequent performance and organizational effectiveness?

There are several major contributions which this dissertation aims to add to existing research. First, I integrate theories of M-firm structure (Hill and Hoskisson, 1987; Hoskisson, Hitt, and Hill, 1991, 1993) and organizational search theory (Cyert and March, 1963; Greve, 2003a) to outline the critical role of structure on the intensity of divisional risk taking. In particular, I argue that the structural arrangements of the M-firm constrain divisional intensity of risk taking which might contribute to the inefficiency of organizational responses to performance shortfalls. This allows me to address an implicit and often taken-for-granted assumption that poor performance should trigger risk taking. Instead, I posit that whether organizations are able and willing to engage in risky actions following poor performance is dependent on the facilitating or inhibiting features of their organizational design. Second, by developing a model that links divisional risk taking to subsequent divisional performance, I contribute to the vast

literature on risk-return relationships. More specifically, I integrate organizational learning (Baum and Ingram, 1998; Beckman and Haunschild, 2002; Chuang and Baum, 2003; Greve, 1998; Madsen and Desai, 2010) with organizational risk taking to argue that successful vicarious learning is critical for the quality of risky behaviors and is the main reason why some organizations engage in performance-enhancing risk taking. Third, I discuss the role of coalitions within multidivisional corporations. Recognizing the existence of coalitions within corporations, the model challenges the assumption of corporations as unitary economic actors and instead argues that multiple divisions could often have conflicting interests that affect the internal efficiencies in the multidivisional corporations. Thus, I extend the theoretical underpinnings of the BTOF with an analysis focusing on the important but often overlooked role of coalitions. Fourth, my dissertation contributes to research on internal organizational dynamics and the complex interrelationships across various actors. More specifically, I explicate on the inherited conflict of interests between organizational divisions and the corporate office and its impact on the likelihood of divisions engaging in risky activities. Due to their ability to bridge hierarchical and divisional boundaries and thus create power asymmetries vis-à-vis the corporate office, divisional coalitions could ultimately affect the way divisions undertake risky initiatives. Fifth, I provide a theoretical framework which utilizes organizational structure to more clearly link the BTOF with the attention based view of the firm. While those theories are internally consistent and logically connected, less empirical work has been conducted to integrate them in a single framework. While the BTOF is mainly interested in *why* and *when* risk taking is initiated, the ABV allows answering *how* and *where* risky choices are initiated and directed. Sixth, I build one of the first studies to apply a multilevel approach to the BTOF. By introducing factors from the divisional, corporate, and environmental level, I present divisional risk taking as the outcome of

"a cascading hierarchy of influences" (Sutcliffe and McNamara, 2001: 486) which allows me to provide a more coherent picture of the risky behaviors in a multidivisional organization. Finally, my dissertation provides valuable knowledge to practitioners and managers regarding the link between organizational structure and risk taking. Considering that structure might have an overarching impact on risk intensity and risk quality and ultimately on firm survival, it is advisable for managers to consider in advance and avoid suboptimal structural decisions, such as excessive diversification, which have a detrimental impact on organizational performance (Palich, Cardinal, and Miller, 2000).

Overall, my dissertation presents a comprehensive model that builds on several distinctive literatures – organizational risk taking, agency theory, contextual impact on decision making, and the relationship between risk taking and performance. These literatures are integrated through the lens of organizational coalitions within a multidivisional firm. Thus, this model explicates on the underlying mechanisms and contingency factors affecting the intensity and direction of divisional risk taking, and elaborates on the subsequent impact of divisional risk taking on divisional performance.

The dissertation is organized as follows. In Chapter One I build the theoretical model of divisional risk taking. Here I discuss the antecedents to divisional risk taking. I develop hypotheses elaborating on the factors that are expected to affect the intensity of divisional risk taking. Further, I hypothesize about the moderating conditions that are expected to influence risky behaviors. In addition, I present the analytical part of this chapter (data collection, sampling, estimation methodology, and variable construction) along with empirical results and discussion on the findings.

Chapter Two discusses the implications of divisional risk taking on subsequent divisional performance. I develop theoretical propositions on the expected relationship between risk taking and performance at the division level and advance several hypotheses testing the moderating effects of environmental, corporate, and divisional variables on that relationship. I proceed with empirical analysis and results, followed by discussion on the empirical findings and their meaning in the context of my dissertation and for the general literature on organizational risk and performance. Finally, I conclude with future directions for research and how my dissertation could be extended into further theoretical contexts and domains.

CHAPTER ONE: RISK TAKING AT THE DIVISIONAL LEVEL OF M-FIRMS – ANTECEDENTS AND MODERATING CONDITIONS

INTRODUCTION

Starting with Cyert and March (1963) and continuing to date, organizational risk taking has been studied within the context of firms' attempts to improve on their market position (Greve, 1998), enhance their innovative capabilities (Greve, 2003a), expand interorganizational ties (Baum et al., 2005), or augment corporate scope (Iyer and Miller, 2008). The common denominator among all these initiatives is that they are characterized by uncertainty and significant chance of failure. For example, undertaking innovations is very risky, puts the firm in an unknown territory and often ends up with significant operational losses (e.g. Greve, 2003a). This leads to the question of why firms continue to engage in risky initiatives rather than maintain their current routines and practices (which they know and feel comfortable managing). The reason for these moves is often dissatisfaction with current organizational performance. Organizations establish aspiration levels (both historical and social (e.g. Bromiley, 1991; Cyert and March, 1963)) against which they judge their current performance. When performance is below the aspiration level, it is seen by managers as a threat to the viability of the organization and triggers them to look for alternatives (Bromiley, 1991; Cyert and March, 1963; Tversky and Kahneman, 1986). In other words, the discrepancy between actual performance and initial aspirations serves as a "master switch" to encourage more risk taking (Greve, 2003a). Initially, organizations look for alternatives in the vicinity of their routines and procedures; however, the further performance deviates from aspiration levels the more willing managers become to undertake riskier moves.

While the empirical examinations on organizational risk taking have produced relatively consistent findings, there are still important under-explored issues within the BTOF. We know relatively less about the relationships between risky choices and organizational structure. Considering that managerial decision making processes do not happen in vacuum and are structurally embedded in and influenced by organizationaal design (Granovetter, 1985; McNamara and Bromiley, 1997; Sutcliffe and McNamara, 2001), it is important to examine how organizational structure affects organizational risk taking. To address this knowledge hole, I will investigate divisional risk taking within a multidivisional corporation and compare its characteristics to risk taking of single-business firms.

M-form firms, compared to single-business firms, have at least two important distinctions which are expected to influence the risky activities of their corporate divisions. First, divisions (especially struggling ones) are often subsidized by the corporate office (Lamont, 1997; Rajan et al., 2000) and their survival is partially detached from their operational efficiency. In other words, the M-firm structure protects divisions from market pressures and reduces their sensitivity to own performance misfortunes. Second, the M-firm is comprised of multiple coalitions (e.g. divisions) which have different interests and goals which are not necessarily consistent with overall corporate goals. In particular, due to their risk aversion, partially driven by ineffective incentive systems or inherent risk bearing stemming from employment under-diversification (Fama, 1980; Williamson, 1985), divisional managers are less likely to pursue risky initiatives. By utilizing their informational advantage against the corporate office, divisional managers could avoid risk taking and maintain the existing status quo.

In summary, by combining two distinctive theoretical frameworks – BTOF (Cyert and March, 1963) and theories of M-form firms (Hill and Hoskisson, 1987; Hoskisson, Hitt, and Hill,

1991, 1993) – this chapter aims to provide a more detailed and nuanced picture on divisional risk taking and some of the facilitating and/or inhibiting factors that distinguish the patterns of risk taking across divisions in M-form firms and single-business firms.

HYPOTHESES DEVELOPMENT

Before proceeding with the formal development of hypotheses, I will discuss an important issue which has been overlooked in prior BTOF research and instead has been implicitly taken for granted. More specifically, I will elaborate on the motivation and ability of managers to undertake risky choices in response to poor performance. That is, if managers are to engage in risky strategies, two conditions should be met: 1) managers want to make those risky choices; and 2) they have the discretion to do it. First, within the traditional context in which BTOF has been tested – that is, the firm is viewed as a single actor – it is obvious why managers are motivated to undertake risk taking. Poor organizational performance translates into lower compensation, particularly given the fact that significant portion of that compensation is linked to corporate outcomes (e.g. Jensen and Meckling, 1976; Gomez-Mejia and Wiseman, 1997). In addition, weakening performance might indicate the inability of managers to deal with corporate misfortunes and force principals to oust them from the company. As a result, managers are faced with a significant employment risk which coupled with their over-investment in the firm (Fama, 1980; Jensen and Murphy, 1990) could result in a loss of all potential future income. Thus, managers are not indifferent to decreases in organizational performance and are willing to engage in risky activities that might reverse those corporate misfortunes. Second, managers are hired in the firm to make strategic decisions and undertake actions that result in positive value for corporate shareholders. In order to fulfill those duties managers have the authority and

discretion to manage corporate funds and allocate them in a way they deem most appropriate. And while an overseeing mechanism – the corporate board – is charged with monitoring and constraining managerial strategies and the allocation of corporate funds (e.g. Eisenhardt, 1989; Jensen and Meckling, 1976), there is evidence that the board oversight is not optimal and managers are able to influence directors and secure their approval and support for investment decisions (e.g. Westphal, 1998; Westphal and Zajac, 1995; Zajac and Westphal, 1996). In other words, managers are able to obtain formal and informal discretion in resource allocations.

Within the context of divisions in an M-firm the same two conditions should be met in order for divisional managers to be able to undertake risky choices. With regard to motivation, the logic is quite similar to the argument developed in the previous paragraph. If divisions generate losses and cannot positively contribute to organizational profitability, divisional managers are faced with the possibility of divisional divestiture (Hoskisson, Johnson, and Moesel, 1994; Johnson, 1996) and employment termination.

In parallel to managers of single-business firms, divisional managers are also able to obtain some discretion from the corporate office over resource investment. That is, divisional managers can secure corporate funding and subsequently manage it. First, because divisional managers have a better understanding of their divisional needs and possess an asymmetric informational advantage over corporate executives (Hill and Hiskisson, 1987; Hitt, Hoskisson, and Ireland, 1990), they could influence the latter and secure access to necessary funds which subsequently become at their discretion. More specifically, "divisional managers can expend substantial resources in … internal politics" (Shin and Stulz, 1998: 533) and focus efforts on "convincing" corporate executives to channel more resources towards their divisions (Meyer, Milgrom, and Roberts, 1990). Evidence exists that managers could effectively utilize this

approach to obtain additional resources – for example, Dougherty and Hardy (1996) show that managers leverage their positions in the organization to obtain funding support from corporate executives for otherwise uncertain projects. In a similar vein, Scharfstein and Stein (2000) elaborate on how divisional managers' bargaining power allows them to receive "preferential capital budgeting allocations"(p. 2537). Second, strong empirical evidence from the finance and economics literature suggests that the corporate office makes inefficient allocations to divisions and often engages in "socialism" (in the words of Scharfstein and Stein, 1996) where more resources than needed are given to particular divisions. For example, Scharfstein (1998) offers evidence for overinvestment (e.g. more allocations to) in divisions with poor investment opportunities. In other words, those divisions receive more funding than justified based on their future business prospects. Overall, the empirical results of those papers run counter to the perspective of efficient internal allocations where resources should be directed to the strongest and most promising divisions (e.g. Rajan et al., 2000; Thomas III and Waring, 1999). Thus, inefficiencies in the internal allocation process allow even weak and underperforming divisions to receive funding and have discretion over it.

Additional evidence that the latter divisions could obtain resources for investing in risky initiatives (following poor performance) is provided by the escalation of commitment literature. It argues that managerial reluctance to withdraw from losing projects and businesses (Staw, 1981, 1997) and inability to understand failures (Hayward and Shimizu, 2006) leads managers to maintain financial commitments and resource allocations with the hope of reversing the fortunes of those projects and businesses. For example, corporate executives which are ultimately responsible for divisions' success or failure might be unwilling to admit personal mistakes and in the face of public embarrassment (e.g. McNamara, Moon, and Bromiley, 2002) would choose to

maintain or even increase financial commitments (Ross and Staw, 1993) to underperforming divisions.

In summary, the presented theoretical and empirical evidence suggests that divisional managers have the motivation and ability to obtain funding from the corporate office and subsequently to have discretion over those resources.

Risk taking at the divisional level

Corporate divisions within a multidivisional corporation are charged with obtaining particular financial objectives and thus have specific performance aspiration levels. When their current performance falls below those aspirations, it signals problems for divisions and motivates them to search for potential solutions (Bromiley, 1991; Cyert and March, 1963). That is, poor performance induces problemistic search (described as "search that is stimulated by a problem" – Cyert and March, 1963: 279) and encourages risk taking that is intended to return the division to its prior performance levels. The further performance negatively deviates from aspiration targets, the more likely divisional managers will undertake corrective actions to close this attainment discrepancy (Lant, 1992). Prior research shows that the range of those actions is quite broad – from R&D initiatives (Greve, 2003a) to changes in market scope (Greve, 1998), to investments in mergers and acquisitions (Iyer and Miller, 2008). In a similar vein, capital expenditures in new facilities and projects or expansion of existing capacities could allow divisions to generate positive cash flows and recover some of their operating losses (e.g. Laughhunn, Payne, and Crum, 1980). Overall, engaging in risky initiatives is perceived by divisional managers as a viable alternative to solving performance problems and they are likely to initiate it. Thus, I propose the following:

H1: Divisional negative attainment discrepancy is positively related to divisional risk taking.

Intensity of divisional risk taking

While divisions might try to respond to attainment discrepancies by engaging in risky behaviors, it is still unclear whether the intensity of risk taking across divisions in an M-form corporation is the same as the risk taking in single-unit corporations. In other words, while broad evidence exists *when* organizations undertake risks (Bromiley, 1991; Cyert and March, 1963; Greve, 1998; Greve, 2003a; Iyer and Miller, 2008), prior research has paid less attention to whether all organizations are likely to respond with the same intensity to performance shortfalls. That is, a research gap exists regarding the potential factors that might influence managerial risk intensity. One such factor is organizational structure. Extant research argues that structure has strong implications on bureaucracy and rigidity (Merton, 1968), managerial information processing (Galbraith, 1977), ability to adapt to and resist change (Aldrich and Auster, 1986) and inertial tendencies (Hannan and Freeman, 1984; Tushman and Romanelli, 1985) – all of these are expected to affect managerial decision making and ultimately the ability and motivation of managers to respond to poor performance. These arguments are in line with recent calls to take a more-detailed perspective on organizational risk taking and investigate how it is affected by the organizational context (e.g. Gavetti et al., 2007).

Given the fact that corporate divisions, in contrast to single-business firms, are hierarchically embedded in M-firms, it is necessary to compare risk intensity across these two structural forms. I argue that M-firm divisions and single-business firms will show a different propensity to engage in risk taking with divisions being less sensitive to performance shortfalls. At the heart of this distinction lie the structural arrangements of the M-firm and the behavioral

and cognitive biases of the divisional coalitions. Drawing on the attention based view perspective (Ocasio, 1997), I posit that those arrangements and biases serve as important attention allocation mechanisms which reduce the intensity of divisional risk taking. In other words, those attention allocators lower the sensitivity of divisional managers to performance shortfalls and thus decrease the urgency to engage in risky initiatives. Overall, I argue that M-firm structure exacerbates rigidity tendencies, reluctance to change and unresponsiveness of divisional managers to attainment discrepancies. Below I present four main differences across M-firms and single-business firms which underlie the negative effect of M-firm structure on divisional risk intensity: structural isolation, low-powered incentives, information asymmetries, and complexity.

First, the very structure of the multidivisional firm provides an environment where divisions are relatively insulated from market pressures and do not face directly external stakeholders (e.g. Bradley et al., 2011). It is the corporate executives and more specifically the corporate CEO who have to explain to external constituents why performance is unsatisfactory and how they intend to fix this problem. Thus, the relatively lower level of external pressure faced by divisional managers diverts their attention from carefully observing market alerts; instead, divisional managers will focus more internally on day-to-day operations and personal agendas. Having an internal orientation reduces the likelihood that divisional managers will quickly identify performance shortfalls and intervene with appropriate actions[1]. In addition, the corporate office is likely to engage in cross-subsidization by moving resources from better performing divisions to underperforming ones (see Lamont, 1997; Rajan et al., 2000; Scharfstein, 1998). Thus, divisional managers implicitly develop the expectation that the

[1] Usually, division's performance is evaluated routinely on an annual, semi-annual or quarterly basis which makes identification of problems slower. On the contrary, market's reaction to performance shortfalls is immediate.

corporate office will help them overcome difficulties; also, they perceive the whole organization as a safety net (Kraatz and Zajac, 2001) and generate a sense of security and lack of urgency to engage in risk taking in response to performance shortfalls.

Second, divisional managers are less likely to respond to attainment discrepancy due to their low-powered incentives. According to Williamson (1985), low-powered incentives exist because divisional managers are not able to get claims on the gains from transactions. Hence, divisional managers have lower motivation to undertake actions which benefit the corporation – for example, while risk taking might alleviate performance deficiencies, the benefits might not be captured (or at least not all benefits) by divisional managers. Thus, the latter have less to gain from engaging in risk taking. In particular, divisional managers are assumed to be risk averse (Williamson, 1985) and are less willing to engage in risky initiatives which might endanger the existing status quo. By undertaking risky choices deviate from their division's current routines and practices which threatens the current balance of power (Hoskisson et al., 1991). Hence, the existing incentives (or the lack of high-powered incentives) divert divisional managers' attention away from identifying and quickly resolving performance shortfalls.

Third, divisional managers know how to play "the game" and exploit the internal political system. Due to better knowledge of their divisions which increases the information gap with corporate executives (Hitt et al., 1990), divisional managers exploit information asymmetries and gain an influence advantage over the corporate office. Thus, the bargaining power inherent in their position of divisional managers allows them to easily manipulate corporate officers by diverting attention from real problems to issues preserving the balance of power in the organization. In addition, divisional managers could misrepresent information and "dress" existing underperformance as a minor and temporary issue which does not deserve serious

attention. In other words, divisional managers use their informational and bargaining advantages to divert attention from serious problems and thus avoid the need to have to solve them.

Fourth, the complex organizational structure of M-form corporations inhibits divisional risky initiatives and instead promotes conformity to existing routines and the status quo (Dougherty and Hardy, 1996). Due to bureaucracy, multiple hierarchies and often-conflicting interests across divisions, decision making becomes slower and it takes much longer time between decision making and actual decision implementation (Shimizu and Hitt, 2005). Thus, even if divisional managers are urgent to respond to attainment discrepancies, the structural complexity of M-firms slows down or even suppresses those attempts. As a result, divisional managers are faced with "tremendous persistence forces that make both the recognition of a need for change and its implementation difficult" (Lant, Milliken, and Batra, 1992: 586). With time the persistence of rigid corporate rules (Merton, 1957) and strict adherence to procedures could become too dominant, suppress divisional managers' ability to identify and respond to performance shortfalls and increase unresponsiveness to change (Shimizu and Hitt, 2005). Furthermore, M-firms are characterized by a hierarchical gap between divisions and the corporate office with respect to control over whether or how many resources should be invested in different risky projects. In other words, divisional managers have to obtain corporate approval and coordinate efforts with upper executives regarding risky initiatives (Greve, 2011). While obtaining such support is possible, it is based on a lengthy process of extensive politicking and bargaining which ultimately might discourage divisional managers from initiating necessary change and risk taking.

In comparison to corporate divisions, single-business companies are stand-alone entities which face enormous pressure from shareholders and analysts' expectations to perform

according to predetermined goals. Failure to do so sends negative signals to the investor community and leads to a decrease in firm market value. Contrary to divisional managers, the executives of single-business firms face lower opportunities for political games and manipulation tactics against investors – the latter will be less likely to accept excuses for poor performance and will simply redirect their financial capital to other firms' assets. Additionally, not achieving aspirations might be interpreted as inability of executives to perform their duties accurately and potentially threaten their future employment with the company. All these factors contribute to single-unit companies building a greater sensitivity and attention to attainment discrepancies which encourage risky behaviors. Formally stated, this leads to the following hypothesis:
H2: The relationship between divisional negative attainment discrepancy and divisional risk taking will be weaker in divisions of M-firms than in single-business companies.

Factors affecting intensity of risk taking in divisions

Decision making processes are contextually embedded within the organization (Granovetter, 1985, 1992) and are systematically impacted by a hierarchy of contingent factors (e.g. McNamara and Bromiley, 1999; Misangyi, Elms, Greckhamer, and LePine, 2006; Sutcliffe and McNamara, 2001). That is, because corporate divisions are structurally and hierarchically embedded in the M-firm, they "are hardly "islands" onto themselves" (Gavetti et al., 2007: 531) and their decisions and subsequent actions are likely to be affected by the organizational context. Since risk taking represents a major strategic decision, it is warranted to investigate how divisional risk taking is facilitated or inhibited by various contingencies at the divisional and corporate level. The selection of moderating factors at each level is driven by the idea that those

factors could play a significant role as allocators of divisional managers' attention and affect their motivation and ability to engage in risk taking.

First, I argue that structural factors will serve as important determinants of divisional managers' sensitivity to identify and respond to performance shortfalls (e.g. Hitt et al., 1990; Merton, 1968; Minzberg, 1979). In particular, *corporate diversification* has been found to increase bureaucracy, organizational complexity and difficulties in controlling divisions (Merton, 1968; Hill and Hoskisson, 1987). As a result, the corporate office and divisions become more vertically separated (Hitt et al., 1990) which reduces the former's ability to encourage risk averse divisional managers to initiate risk taking in the face of poor performance. *Divisional size* is expected to positively affect the responsiveness to attainment discrepancies. Size leads to greater visibility and stronger monitoring of larger divisions (e.g. Vissa et al., 2010) and increases the power of divisions to obtain resources which could be deployed in risky projects. Finally, I investigate the effect of *corporate governance variables* on divisions' responsiveness to poor performance. Drawing on agency theoretic arguments (Jensen and Meckling, 1976) about the beneficial role of contingent compensation and external monitoring in aligning the interests of shareholders and managers and in reducing managerial risk aversion, I argue that managerial contingent pay and presence of blockholders and institutional owners will encourage divisional risk taking.

Second, resource endowment factors – *corporate slack* – have been found to act as important drivers of organizational change and engagement in uncertain activities (e.g. Palmer and Wiseman, 1999; Singh, 1986). More specifically, slack could act as a buffer for divisions and affect their managers' risk tolerance (Audia and Greve, 2006) by encouraging risk taking in the face of poor performance (Shimizu, 2007).

In summary, by developing a contingent perspective of the factors that are expected to influence the sensitivity of divisional managers to attainment discrepancies, I am able to present a more detailed picture of divisional risk taking and some of its key determinants.

Structural factors: Level of corporate diversification

One of the most important characteristics of multidivisional corporations is their level of diversification. Traditionally, it reflects the degree to which the organization is engaged in various businesses and operates in multiple industries. I argue that because increasing levels of diversification generate additional complexity in the M-firm coupled with bureaucracy and conservatism (Merton, 1968), divisional responsiveness to poor performance will be impaired (Haveman, 1993). Adding a bigger number and more diverse divisions results in larger "vertical separation from knowledge associated with operational decision-making" (Hitt et al., 1990: 36) which inhibits the corporate office's ability to correctly assess divisions and their initiatives. Simply stated, higher levels of diversification mean a higher information load for corporate executives and given their limited cognitive abilities (March and Simon, 1958), it becomes harder for them to oversee divisions (Hill and Hoskisson, 1987). In other words, there is a certain threshold beyond which the corporate office "cannot be actively involved in the management of more than a very small number of businesses without violating the bounded rationality constraint" (Liebeskind, 2000: 63) – that is, executives are less likely to intervene with corrective actions. As a result, the M-firm becomes more reliant on financial controls (Hoskisson and Hitt, 1988) which further increase the information gap between divisional managers and the corporate office. Due to the informational advantage of the former, they are able to more easily engage in manipulation of the latter. Considering that divisional managers are risk averse and prefer maintaining the status quo (Williamson, 1986), they will exploit this information asymmetry to

protect their interests – e.g. avoid undertaking of risky initiatives. Evidence exists that as diversification increases and financial controls become more prevalent in organizations, managers are less committed to innovation (Baysinger and Hoskisson, 1989; Rappaport, 1978) and become more risk averse (Hayes and Abernathy, 1980; Hitt et al., 1990; Hoskisson, Hitt, and Hill, 1989). Furthermore, higher levels of diversification lead to more divisional competition for investment funding in the internal capital market (Liebeskind, 2000) which increases financial monitoring. However, more monitoring could have a negative effect on divisional initiation of new risky projects (Garud and van de Ven, 1992; Jelinek and Schoonhoven, 1990). Finally, diversification increases bureaucracy and reliance on rigid rules and procedures which further enhance inflexibility and lower divisional managers' ability to initiate change (Audia, Sorensen, and Hage, 2001). In summary, diversification leads to rigid and standardized managerial behavior (Hitt et al., 1990), reduces the ability of the corporate office to control divisional managers' opportunism, hinders initiation of risky initiatives and thus creates facilitating conditions for low sensitivity to performance shortfalls by divisions. Formally stated:
H3: Level of corporate diversification moderates the relationship between divisional negative attainment discrepancy and risk taking, such that the relationship will be weaker as diversification increases.

Structural Factors: Divisional size

Divisional size is an important structural characteristic which influences risk taking of managers. On one hand, size is associated with structural contingencies which are likely to affect the motivation and ability of managers to initiate necessary actionable initiatives in the face of adversity (Aldrich and Auster, 1986; Haleblian, McNamara, Kolev, and Dykes, 2012). On the

other hand, size leads to power advantages which could be leveraged by divisional managers and thus impact their likelihood to engage in risky activities.

Small divisions are more flexible and nimble in conducting search initiatives because of their reduced structural complexity (Mintzberg, 1979), better information processing (Galbraith, 1977) and lower inertial pressures (Hannan and Freeman, 1984; Tushman and Romanelli, 1985), and lower resistance to change (Aldrich and Auster, 1986). In addition, small divisions appear to be more vulnerable and less insulated from negative performance shocks which incentivizes them to be more responsive to performance shortfalls via risky activities (Aldrich and Auster, 1986).

However, since small divisions within the M-firm are likely to play a less important role for the functioning of the corporation, it is less likely that the corporate office will make serious attempts to "bail out" these divisions. Simply stated, corporate executives would be reluctant to allocate additional capital funds to divisions and instead might choose to divest those underperforming divisions (Hoskisson et al., 1994). Thus, the lack of investment funding would limit the discretion of small divisions to engage in risky new projects.

On the contrary, large divisions occupy a central place in the M-firm and their activities are highly visible by corporate executives and other divisions. Thus, the low performance of these divisions is magnified and their managers are under pressure to respond to performance shortfalls (e.g. Vissa et al., 2010). Moreover, since large divisions become critical for the functioning of the whole organization, their managers generate significant power against the corporate office and could leverage it to obtain additional funds. Ultimately, those funds play a buffering role and could encourage divisional risk taking. That is, the provision of additional

resources to big divisions lowers their survival point and shifts attention away from it towards closing the performance gap (Audia and Greve, 2006).

Overall, because large divisions are closely scrutinized to close performance gaps and have the necessary resources to do it, they are more likely to engage in risky efforts.

H4: Divisional size will moderate the relationship between divisional negative attainment discrepancy and divisional risk taking, such that the relationship will be stronger for larger divisions.

Structural factors: Corporate governance mechanisms

A central feature of the majority of today's organizations is the separation of control and management. On one hand, there are professional managers who are hired to devise strategies, implement them and determine the direction of the organization. On the other hand, principals of the firm are the legal owners who exercise control over managers. This situation leads to divergence in interests and objectives between the two groups, generates agency costs and ultimately could create detrimental effects for corporate wealth (Jensen and Meckling, 1976). Because managers are assumed to be risk-averse and prefer to avoid risky initiatives (Eisenhardt, 1989; Jensen and Meckling, 1976), classical agency theory prescribes several governance mechanisms – boards of directors, equity ownership and external monitoring – for constraining managerial opportunism and self-serving behaviors (Dalton, Daily, Certo, and Roengpitya, 2003; Jensen and Meckling, 1976; Jensen and Murphy, 1990). However, the effectiveness of those monitoring mechanisms has been premised on the assumption that managers are able to extend their control down the organization and manage the actions of their own agents. As a result, prior research in the corporate governance field has focused "almost exclusively on the first control

relationship, that between owners and other stakeholder groups on the one hand, and corporate management, on the other. It has largely ignored the second control relationship between corporate management and others in the firm who execute plans and policies" (Child and Rodrigues, 2003: 339). That is, the existence of double agency has been overlooked.

Double agency exists when there are two sets of control relationships involving agents at two separate levels. A situation like that is present in M-firms where divisional managers are the first-level agents and corporate executives are the second-level agents. Double agency generates additional complexities in multidivisional firms and creates more options for managerial opportunistic behaviors at the expense of shareholders. In particular, while corporate executives act as principals to divisional managers, the former are agents to corporate shareholders. As a result, there exist self-serving divisional managers (e.g. Williamson, 1985) who are monitored by other self-serving corporate executives. Thus, if shareholder-beneficial strategies are to be executed at the divisional level, effective governance mechanisms should be placed at both the divisional and the corporate levels in M-firms. This argument is in line with Hoskisson and Turk's (1990) contention that agency costs in M-firms could be curtailed only when adequate governance controls are implemented at the divisional and corporate level simultaneously. In other words, while divisional governance structures might be a necessary condition for implementing value-enhancing strategies, the existence of appropriate corporate-level governance mechanisms would play a complimentary role.

Divisional-level governance mechanisms. Within the context of a multidivisional firm, divisional managers (as argued above) are considered risk-averse, try to avoid undertaking risky projects and prefer to maintain the status quo (Williamson, 1985; Hoskisson et al, 1991). However, assuming that risky initiatives alleviate performance misfortunes (e.g. Cyert and

March, 1963; Miller and Leiblein, 1996), it is clear how divisional managers' risk aversion might be detrimental to corporate and shareholder value. In order to alleviate such suboptimal behavior and align the interests of managers and shareholders, various corporate governance mechanisms are put in place (Jensen and Meckling, 1976). One such mechanism is stock-based compensation where part of managerial income is dependent on corporate performance. Because managers possess shares and/or options in the organization, they have an increased motivation to undertake strategies, such as initiation of risky projects in response to performance shortfalls, that are beneficial to the organization (Dalton et al, 2003; Jensen and Murphy, 1990) and themselves. In other words, stock options and ownership in the corporation alleviate the inherent risk-aversion of divisional managers (e.g. Sanders, 2001; Sanders and Hambrick, 2007), increase their responsiveness to poor performance and are expected to play a positive moderating role on the relationship between attainment discrepancy and subsequent risk taking.

H5a: Divisional managers' ownership will moderate the relationship between divisional negative attainment discrepancy and divisional risk taking, such that the relationship will be stronger with higher levels of ownership.

H5b: Divisional managers' stock options will moderate the relationship between divisional negative attainment discrepancy and divisional risk taking, such that the relationship will be stronger with higher levels of stock options.

Corporate-level governance mechanisms. The multidivisional firm offers an additional layer of monitoring over divisional managers' behaviors. It is related to the firm's CEO incentive alignment and the presence of institutional and blockholder ownership. These corporate governance mechanisms represent what I call a second-level monitoring. Take for example the

role of CEO incentive alignment (e.g. contingent forms of pay, such as stocks and stock options). Being awarded ownership in the firm and having his income partially dependent on firm's performance, the CEO is likely to be a better protector of shareholder value (Dalton et al, 2003; Scharfstein, 1998), and in this particular case the CEO will not be indifferent to divisions that are irresponsive to poor performance. Considering that the CEO is hired to manage the whole multidivisional firm, to carefully monitor the actions and decisions of divisional managers and to intervene when those actions are detrimental to shareholder value, contingent compensation will incentivize the CEO to conduct those duties more diligently. On the contrary, lack of corporate ownership or stock options might exacerbate the self-serving nature of the CEO, including maintaining existing political balance (Hoskisson et al., 1991; Lant et al., 1992) and friendship relationships with divisional managers (e.g. Scharfstein, 1998) at the expense of the interests of shareholders. In other words, the CEO is likely to protect divisional managers even in situations when they are less responsive to performance shortfalls and side with them even if this is detrimental to shareholders.

H6: CEO contingent pay will moderate the relationship between divisional negative attainment discrepancy and divisional risk taking, such that the relationship will be stronger with higher levels of contingent pay.

While the above arguments discussed incentive alignment at the divisional and corporate levels primarily in isolation, it is also necessary to examine their interdependent nature. More specifically, in addition to divisional managers' decisions being affected by the level of their contingent pay, the latter could also be influenced by the relative difference in pay between divisional managers and corporate CEOs – or what is often referred to as the pay gap across

managerial hierarchical positions. Tournament theory arguments suggest that a wider pay gap serves as a motivating mechanism for lower-level managers to exert extra effort and diligence in their actions in the hope of advancing up in the career ladder (Lazear and Rosen, 1981; Rosen, 1986). Translating these arguments to the divisional context, I argue that as the gap in pay between divisional managers and the corporate CEO increases, divisional managers will have stronger incentives to undertake strategic initiatives which are consistent with the interests of shareholders (Henderson and Fredrickson, 2001). In particular, when facing performance shortfalls divisional managers are more likely to engage in risk taking and prevent further shareholder value losses under conditions of high pay gaps. In other words, the internal compensation arrangements in M-firms could serve as a positive moderating mechanism that incentivizes divisional managers to be more responsive to poor performance. Formally stated: *H7: The gap between CEO pay and divisional managers' pay will moderate the relationship between divisional negative attainment discrepancy and divisional risk taking, such that the relationship will be stronger as the pay gap widens.*

In addition to managerial incentive alignment, institutional investors and large blockholders could also serve as effective monitoring devices by increasing the alignment between managers and shareholders (Brickley, Lease, and Smith, 1988; Hansen and Hill, 1991). The main mechanism that underlies the positive role of external investors is the consistent pressure they exercise over corporate executives to undertake only value-enhancing strategies. Applying this logic to the multidivisional-firm context suggests that the presence of institutional investors and blockholders will increase divisions' risk taking under poor performance. This effect could materialize through two paths. First, external investors could exercise direct pressure

on corporate CEOs to conduct better monitoring of corporate divisions. Since CEOs are the main people to blame for ineffective corporate decisions, they are more likely to be sensitive to inappropriate divisional strategies (such as risk aversion in the face of poor performance) under conditions of strong institutional ownership and blockholders. Research by Brickley and colleagues (1988) and Mikkelson and Ruback (1991) suggests that blockholders could constrain managerial decisions which are considered detrimental to principals. Second, blockholders and institutional investors could also directly affect risk taking by divisions. For example, the presence of strong external monitoring is a very salient cue to divisional managers that their (lack of) actions and initiatives would not go undetected. Thus, the existence of corporate governance mechanisms is expected to play a strong attention allocation role for divisional managers (Ocasio, 1997) and more specifically to shift their attention towards higher sensitivity and responsiveness to poor performance.

H8a: Institutional ownership will moderate the relationship between divisional negative attainment discrepancy and divisional risk taking, such that the relationship will be stronger with higher levels of institutional ownership.

H8b: Blockholders will moderate the relationship between divisional negative attainment discrepancy and divisional risk taking, such that the relationship will be stronger with larger number of blockholders.

Resource endowment factors: corporate slack resources

Due to the hierarchical nature of M-form corporations, divisional decision making is strongly affected by the corporate office. Alternatively, divisional decisions are not fully independent and might be influenced by higher-order factors in the corporation (e.g. McNamara

and Bromiley, 1997; Suttclife and McNamara, 2001). One such factor is the availability of resources at the corporate level. In other words, the possession of or lack of corporate slack resources is highly likely to affect the risky behaviors at the divisional level. While each division's risk taking is determined mainly by its own performance aspirations, the moderating role of corporate slack should not be overlooked. I argue that when the corporate office possesses no slack, this "resource scarcity may lead to less risk taking" (Shimizu, 2007: 1501) by corporate divisions. In this situation, divisions incur extremely unfavorable conditions – poor performance and inability to receive financial resources from the corporate office. Hence, they are likely to face threat rigidity (Staw, Sandelands, and Sutton, 1981). That is, divisional managers are expected to become conservative, rigid and unwilling to engage in new strategic initiatives (D'Aveni, 1989; Iyer and Miller, 2007; Staw et al, 1981). Moreover, "with limited slack, unit performance losses may become more critical" (Shimizu, 2007: 1501) and further discourage divisional managers to initiate any change to the status quo which ultimately results in conservative behavior (Palmer and Wiseman, 1999). On the contrary, when the level of corporate slack is significant, it could serve as a safety net to divisions and alleviate their inherent risk aversion. Simply stated, the margin for error of divisions increases – even if their future risky initiatives turn unsuccessful, those additional losses could be covered with the available corporate slack resources. For example, Shimizu (2007) finds support for the buffering role of slack on organizational risk taking. More specifically, his study shows that when slack resources are scarce, managers respond to poor performance in a conservative manner and reduce risky initiatives (e.g. by divesting poorly performing units). Overall, the above arguments suggest that poor divisional performance coupled with corporate slack scarcity could lead to freeze in strategic initiatives (threat rigidity). On the contrary, the availability of corporate resources

encourages divisional managers to respond to poor performance through increased engagement in risky actions.

H9: Corporate slack will moderate the relationship between divisional negative attainment discrepancy and divisional risk taking, such that the relationship will be stronger with higher levels of slack.

METHODS

For Chapter One I utilize two separate samples which allow me to test the proposed relationships in a more robust manner and reach conclusions with higher external validity. More specifically, Sample 1 includes a wider range of firms and focuses on a broader construct of risk taking – e.g. divisional capital expenditures. Also, I am able to obtain all variables necessary for testing the proposed hypotheses. Sample 2 focuses on the banking industry and offers a more fine-grained examination of banking divisions' risk taking. In particular, I analyze banking managers' decisions to alter the structure of their risk portfolios by changing the relative weights of various risk-laden categories comprising the portfolio. Due to data limitations, this sample allows me to test only some of the proposed relationships (see details below).

Sample 1

Data was drawn from several sources: corporate and segment financial data comes from Compustat, executive compensation and governance measures are accessed through Execucomp, and divisional managers' compensation data is obtained through manual search of corporate annual reports. The sample includes all US-based firms from 1998 to 2009. The sample is subject to the following screening criteria. First, units with less than $10 million in sales or assets are excluded (McGahan and Porter, 2003; McNamara, Vaaler, and Aime, 2005). Second, I drop

units which are classified as "corporate" or "other" because they are not active units. Third, if the unit's four-digit SIC category is defined as "not elsewhere classified" or "nonclassifiable establishment", this unit is not included in the sample.

Hypotheses 5a-b are tested on a subsample of Compustat firms. During the period of the study (1998-2009) I identified all diversified S&P corporations and matched them to the initial sample. For all corporations that had no missing values on all variables in the model I executed a manual search of their DEF 14A statements which provide information on the compensation of the top five highest paid executives. After identifying the compensation of a divisional executive, I matched it back to the initial sample. One caveat should be recognized – because not all divisional executives are among the top five highest paid executives during a year, there is a large underrepresentation in this subsample and it is likely that it is biased and not generalizable to the entire population of multidivisional firms (the sample size here is about 6 % of the initial sample). Thus, the results – presented in Appendix 1 – should be interpreted with caution.

Dependent variable

Capital expenditures. My measure of divisional risk taking is represented by the amount of capital expenditures undertaken by divisions. Capital expenditures are an appropriate measure of managerial risk taking because: a) they represent difficult-to-reverse, long-term investments (Audia and Greve, 2006); and b) "their consequences are uncertain and depend partly on difficult to predict environmental factors" (Desai, 2008: 598). Thus, capital expenditures represent an ex-ante decision of allocating financial resources to projects with uncertain outcomes. Further support for the use of this measure is found in several prior studies that have utilized capital expenditures as reflecting managerial risk taking (Devers et al, 2008; Lant and Hurley, 1999;

Larker, 1983; Sanders and Hambrick, 2007). Finally, research by Miller and Bromiley (1990) identifies capital expenditures as one of the key dimensions of strategic risk.

Independent variables

Attainment discrepancy represents the difference between divisional performance (measured in period *t-1*) and aspiration levels (measured in period *t-2*). Divisional performance is measured as return on assets (ROA) (Iyer and Miller, 2008). I draw on prior research to construct my aspiration level variables (Baum et al., 2005; Greve, 2003; Iyer and Miller, 2008). *Social aspirations* is the mean ROA of all other single-business firms and all other diversified firms' divisions in the same 4-digit SIC code as the focal division. I exclude ROA of the focal division.[2] Thus,

$$\text{Social aspirations}_{it} = (\sum_j P_{jt})/N$$

where j is another division (or single-business firm), P is performance, and N is the number of other divisions and single business firms, j. *Historical aspirations* are based on the focal division's ROA one year prior to past performance.

To account for differences in the slope of attainment discrepancy depending on whether divisions are above or below the aspiration point (Greve, 2003; Iyer and Miller, 2008), I use a spline function (Greene, 2003) and create the following variables:

$$\text{Performance above aspirations}_{it} = \text{ROA}_{it} - \text{aspirations}_{it} \text{ if } \text{ROA}_{it} > \text{aspirations}_{it}$$

$$= 0 \text{ if } \text{ROA}_{it} \leq \text{aspirations}_{it}$$

$$\text{Performance below aspirations}_{it} = \text{aspirations}_{it} - \text{ROA}_{it} \text{ if } \text{ROA}_{it} < \text{aspirations}_{it}$$

$$= 0 \text{ if } \text{ROA}_{it} \geq \text{aspirations}_{it}.$$

[2] I include single-business firms since they represent a salient comparison for a focal division.

Corporate slack. It is operationalized as potential slack (inverse ratio of debt to equity) and free cash flow (Bourgeois, 1981; Haleblian et al., 2012; Iyer and Miller, 2008).

Level of diversification. I argued that the primary impact of diversification is to increase organizational complexity and inhibit the monitoring ability of corporate executives over divisional actions. Thus, more complexity results from high diversification which could stem either from the existence of diverse divisions or from large number of divisions. In other words, diversification could also be represented by: 1) the number of divisions within the M-firm (Robins and Wiersema, (2003); and 2) the entropy index (Jacquemin and Berry, 1979). More specifically, the entropy measure consists of related diversification (DR) and unrelated diversification (DU) component which sum to total diversification (DT):

$$\text{Entropy} = (\sum P_i \ln(1/P_i)$$

where P_i is the firm's share of sales in segment *i* and $\ln (1/P_i)$ is the weight of each segment.

To test hypothesis 2 regarding differences among divisions' and single-business firms' sensitivity to performance shortfalls, I create a dummy variable which equals 1 if two or more divisions belong to a corporation and 0 otherwise.

Institutional ownership is calculated as the total number of shares owned by institutional investors, such as pension funds, mutual funds, and hedge funds, divided by the total number of outstanding firm shares (Brickley et., 1988).

Blockholders is the number of shareholders with at least 5% stake in the company (Hoskisson et al., 1994; Sanders and Boivie, 2004).

CEO contingent pay is measured in two ways – CEO option pay and CEO stock ownership. Instead of combining these two forms of contingent pay together, as classical agency theory would suggest (Jensen and Meckling, 1976; Jensen and Murphy, 1990), I follow more

recent research which argues that stocks and options should be treated separately (Sanders, 2001). CEO stock ownership is measured as the value of shares owned by the CEO (Sanders, 2001; Wright et al., 2002). CEO option pay is measured as the value of options granted during a year using Black-Scholes method.

Pay gap is calculated as the difference in total compensation between the corporate CEO and the next highest paid executive (Henderson and Fredrickson, 2001).

Divisional relative size is calculated as the ratio of divisional assets to total corporate assets.

Divisional managers' ownership is measured as the value of corporate shares listed in the annual corporate report.

Divisional managers' stock options reflect the annual award of options.

Control variables

Drawing on past research I include several control variables. *Divisional size* is associated with additional bureaucracy and inertia (Hannan and Freeman, 1984; Tushman and Romanelli, 1985) which might inhibit the ability and diligence of corporate executives to encourage risky initiatives. Divisional size is calculated as the natural log of divisional assets. *Divisional sales growth* is measured as the annual change in sales and is included in the model following prior evidence that it might impact the engagement of firms in major strategic actions (e.g. Haleblian et al., 2012). *Prior risk taking* is measured as capital expenditures in period *t-2*. All other independent and control variables are measured at period *t-1*.

Sample 2

In this sample I utilize data on the banking industry and more specifically, I collect variables for parent and divisional banking establishments. The data is obtained from Federal

Reserve Bank Regulatory (Call Reports) databases. In these databases parent banks are represented as bank holding companies that are comprised of several commercial banks which operate like divisional units. For example, Citicorp Holdings is the corporate parent of several nationally represented commercial banks, including Citibank NV NA, Citibank NY NA, Citibank South Dakota NA, Citibank Delaware.

The cut-off criterion for inclusion of banks in the sample was $80 million in line with recommendations from prior research (McNamara, Luce, and Thompson, 2002).

Hypotheses 5a and 5b (moderating role of divisional managers' incentive pay) will not be tested in the Banking sample due to data unavailability. Hypotheses 6, 7, and 8a-b will be tested on a subsample of banks. After estimating the models with the initial available data from the Call Reports, I identified all bank holding corporations with no missing data on all variables. Then, I manually searched the ticker symbols of those corporations and used those tickers to obtain data for CEO compensation and external governance factors from Compustat. After adding those supplementary variables to the rest of the sample, I reestimated my models. It should be noted that this subsample is much smaller (around 10% of the initial sample), it is likely to be biased and not representative of the entire banking population. Thus, the results from this subsample, presented in Appendix 1, should be interpreted with caution.

Dependent variable

Bank divisional risk taking. Following recommendation by Miller and Bromiley (1990) and Wiseman and Catanach (1997) regarding the multidimensional nature of risk taking, I use three types of risk taking – bank, loan, and liquidity risk. Bank risk is an indicator of capital adequacy and solvency (Marcus, 1983) and reflects the risk position of the banking institution. It

is measured as the ratio of risk weighted assets to total assets (Shrieves and Dahl, 1992). Loan risk represents an operational risk stemming from accepting loans with high probability of borrower default. It is calculated as sum of non-accrual loans and one half of loans past due 90 days to total loans (Meeker and Gray, 1987; Shrieves and Dahl, 1992) Liquidity risk indicates the ability of a bank to stay solvent and pay its obligations (c.f. Hambrick and D'Aveni, 1988; Wiseman and Catanach, 1997). It is measured as the inverse ratio of liquid assets to total assets (Hambrick and D'Aveni, 1988).

Independent variables

Attainment discrepancy is calculated following the same procedure as in Sample 1. Performance is based on ROA (net income over total assets). ROA is the most commonly used measure of profitability in banking research (Deephouse, 1996, 1999; Haveman, 1993; Reger, Duhaime, and Stimpert, 1992) and is considered as an excellent indicator of earnings efficiency (McNamara et al., 2002). The only difference from Sample 1 is that social aspirations are based on comparison with single-banks and banking divisions in the same Metropolitan Statistical Area (MSA). The choice of MSA is driven by the fact that MSAs consist of a "core urban area, as well as any adjacent counties that have a high degree of social and economic integration (as measured by commuting to work) with the urban core" (U.S. Census Bureau, 2012) and thus banks that operate in the same MSA are likely to compare with each other in that MSA.

Bank divisional slack is operationalized as potential slack and free cash flow. Potential slack is the inverse ratio of debt to equity (Bourgeois, 1981). Free cash flow is equal to

(operating profit – taxes – interest expense – depreciation – preferred dividends – common dividends)/equity (Haleblian et al., 2012)[3].

Level of diversification is measured as the number of banking divisions within a bank holding corporation (Robins and Wiersema, 2003).

To test hypothesis 1 regarding differences among banking divisions' and single banks' sensitivity to performance shortfalls, I create a dummy variable which equals 1 if two or more banking divisions belong to a bank holding corporation and 0 otherwise.

Institutional ownership is calculated as the total number of shares owned by institutional investors, such as pension funds, mutual funds, and hedge funds, divided by the total number of outstanding firm shares (Brickley et., 1988).

Blockholders is the number of shareholders with at least 5% stake in the company (Hoskisson et al., 1994; Sanders and Boivie, 2004).

CEO contingent pay is measured in two ways – CEO option pay and CEO stock ownership. Instead of combining these two forms of contingent pay together, as classical agency theory would suggest (Jensen and Meckling, 1976; Jensen and Murphy, 1990), I follow more recent research which argues that stocks and options should be treated separately (Sanders, 2001). CEO stock ownership is measured as the value of shares owned by the CEO (Sanders, 2001; Wright et al., 2002). CEO option pay is measured as the value of options granted during a year using Black-Scholes method[4].

[3] In the Banking sample I measure slack at the divisional level rather than at the corporate level. First, the availability of data allows me to do this. Second, calculating slack for the bank holding corporation reduces largely my sample due to underrepresentation of bank holding corporations' identification variables (RSSD 9348). Third, I do not see any theoretical rationale for a different impact of divisional versus corporate slack on risk taking.

[4] Due to limitations in data availability, I test the moderating impact of blockholders, institutional ownership and CEO contingent pay on a smaller sample of banks.

Pay gap is calculated as the difference in total compensation between the corporate CEO and the next highest paid executive (Henderson and Fredrickson, 2001).

Bank divisional relative size is calculated as the ratio of divisional assets to bank holding company assets.

Control variables

I use several control variables. *Bank divisional size* accounts for bureaucracy and inertia (Hannan and Freeman, 1984) and is operationalized as log of assets by the banking division. *Bank divisional age* has been argued to create additional inertial tendencies (Amburgey and Miner, 1992; Baum, 1990). It is measured as the time in years since incorporation. *Bank divisional growth* is represented as the annual change in deposits. I also control for prior risk taking in period *t-2*. All other independent and control variables are measured at time *t-1*.

Analysis

The data for my dissertation has a panel structure where repeated observations over time (e.g. divisional risk taking) are nested within divisions, which are nested within corporations. That is, I have variables (e.g. divisional size, divisional managers' contingent pay, and sales growth) which exist at the divisional level and variables (level of diversification, corporate slack, institutional ownership, blockholder ownership, CEO contingent pay, and corporate size) that should be modeled at the corporate level. The nesting of lower levels within higher levels leads to lack of independence between observations and might result in incorrect estimates of the regression coefficients (Raudenbush and Bryk, 2002) if standard OLS regression is used. Thus, I use multilevel linear modeling (MLM) to account for the interdependence between lower levels. MLM allows for the appropriate modeling across time of the relationship between the variables in my model while simultaneously considering the nesting structure of the data (Bryk and

Raudenbush, 1989). Overall, by using MLM I could obtain "unbiased and efficient estimates of the regression coefficients and their standard errors despite the dependence among observations" (Fong, Misangyi, and Tosi, 2010: 637; Bryk and Raudenbush, 1989). An additional benefit of MLM is that by partitioning the variance across levels it "effectively controls for industry effects" (Fong et al., 2010: 638; Bloom and Milkovich, 1998).

I rely on the statistical software STATA XT MIXED to conduct the panel data estimation where level-1 equation represents the within-division variance in risk taking and level-2 equation models the cross-sectional (e.g. between divisions) variance in divisional risk taking.
Below I present the expected model specification with the appropriate equations at each level of analysis.

(1) $\text{Risk taking}_{tij} = \pi_{0ij} + \pi_{1ij}\,(\text{Attainment discrepancy})_{t-1ij} + \pi_{2ij}\,(\text{Relative divisional size})_{t-1ij} + \pi_{3ij}\,(\text{Divisional contingent pay})_{t-1ij} + \pi_{4ij}\,(\text{Attainment discrepancy* Relative divisional size})_{t-1ij} + \pi_{5ij}\,(\text{Attainment discrepancy* Divisional contingent pay})_{t-1ij} + \pi_{6ij}\,(\text{Sales growth})_{t-1ij} + \pi_{7ij}\,\text{Risk taking}_{t-2ij} + \pi_{8ij}\,(\text{Divisional size})_{t-1ij} + e_{tij}$

(2) $\pi_{0ij} = \beta_{00j} + \beta_{01j}\,(\text{Level of diversification})_{ij} + \beta_{02j}\,(\text{Corporate slack})_{ij} + \beta_{03j}\,(\text{Institutional ownership})_{ij} + \beta_{04j}\,(\text{Blockholders})_{ij} + \beta_{05j}\,(\text{CEO contingent pay})_{ij} + u_{0ij}$

(3) $\pi_{1ij} = \beta_{10j} + \beta_{11j}\,(\text{Level of diversification})_{ij} + \beta_{12j}\,(\text{Corporate slack})_{ij} + \beta_{13j}\,(\text{Institutional ownership})_{ij} + \beta_{14j}\,(\text{Blockholders})_{ij} + \beta_{15j}\,(\text{CEO contingent pay})_{ij} + u_{1ij}$

(4a) $\pi_{2ij} = \beta_{20j}$; (4b) $\pi_{3ij} = \beta_{30j}$; (4c) $\pi_{4ij} = \beta_{40j}$; (4d) $\pi_{5ij} = \beta_{50j}$; (4e) $\pi_{6ij} = \beta_{60j}$; (4f) $\pi_{7ij} = \beta_{70j}$; (4f) $\pi_{8ij} = \beta_{80j}$;

(5a) $\beta_{00j} = \gamma_{000}$; (5b) $\beta_{01j} = \gamma_{010}$; (5c) $\beta_{02j} = \gamma_{020}$; (5d) $\beta_{03j} = \gamma_{030}$; (5e) $\beta_{04j} = \gamma_{040}$; (5f) $\beta_{05j} = \gamma_{050}$;

(6a) $\beta_{10j} = \gamma_{100}$; (6b) $\beta_{20j} = \gamma_{200}$; (6c) $\beta_{30j} = \gamma_{300}$; (6d) $\beta_{40j} = \gamma_{400}$; (6e) $\beta_{50j} = \gamma_{500}$; (6f) $\beta_{60j} = \gamma_{600}$; (6h) $\beta_{70j} = \gamma_{700}$; (6i) $\beta_{80j} = \gamma_{800}$;

(7a) $\beta_{11j} = \gamma_{110}$; (7b) $\beta_{12j} = \gamma_{120}$; (7c) $\beta_{13j} = \gamma_{130}$; (7d) $\beta_{14j} = \gamma_{140}$; (7e) $\beta_{15j} = \gamma_{150}$;

Equation (1) represents the time level where risk taking in year *t* by division *i* in corporation *j* is regressed on attainment discrepancy (year *t-1*), relative divisional size (year *t-1*), divisional contingent pay (year *t-1*), sales growth (year *t-1*), the interaction term of attainment discrepancy and relative divisional size, the interaction term of attainment discrepancy and divisional contingent pay, and controls. Thus, π_{0ij} is the mean risk taking over time for division *i* in corporation *j*, accounting for the impact of the independent variables.

In Equation (2) I use the intercept of Equation (1), π_{0ij}, as the dependent variable and regress it on level of diversification, corporate slack, institutional and blockholder ownership, and CEO contingent pay. Thus, I am able to account for the direct effect of these explanatory variables on between-division variance in risk taking.

Equation (3) models the slope coefficient, π_{1ij}, as a dependent variable regressed on the variables (level of diversification, corporate slack, institutional and blockholder ownership, CEO

contingent pay) predicted to moderate the relationship between divisional attainment discrepancy and divisional risk taking. Thus, Equation (3) allows for testing of cross-level interactions.

Finally, Equations 4a-4f, 5b-5h, 6a-6i, and 7a-7e represent the coefficients from equations (1), (2), and (3) as dependent variables at a higher level of analysis.

All coefficients are modeled as fixed effects.

Equations (1), (2), and (3) have separate error terms – e_{tij} is the across-time residuals, and u_{ij} is the between-unit residual.

RESULTS

Tables A1 and B1 provide descriptive statistics and correlation coefficients coefficients for the Compustat and Banking samples, respectively[5]. I calculated VIFs and all of them are below 3 which is an indication that multicollinearity is not a concern.

Tables A2-4, Tables B2-5 present the MLM regression analyses. To control for the effect of unobserved factors I have included year dummies in the analyses[6]. To conserve space, those variables are not included in the tables. All variables are standardized with a mean of 0 and standard deviation of 1. Of the control variables, divisional size, CEO shares, and pay gap exhibit positive associations with divisional risk taking, while divisional age are negatively correlated with the dependent variable.

[5] Variables have been winsorized at the 99% level to avoid the impact of extreme outliers.
[6] In a supplementary analysis I created a dummy variable to distinguish between bank holding corporations consisting of only bank-type divisions and bank holding corporations consisting of multi-purpose divisions (e.g. credit card, services, etc.). The results remained consistent across these two estimations.

According to Hypothesis 1, performance discrepancy should encourage divisional risk taking. In the Compustat sample, the coefficients for social and historical negative attainment discrepancy are in the expected directions but they are statistically insignificant and do not support the hypothesis. In the Banking sample (Tables B2 and B3), I find varying results regarding H1– poor performance exhibits a significant negative relationship with bank risk ($p<0.001$ – historical aspirations and $p<0.01$ – social aspirations) and with liquidity risk ($p<0.1$ – historical aspirations and $p<0.05$ – social aspirations); however, performance discrepancy and loan risk are positively and statistically significantly related ($p<0.001$), indicating that as divisional performance drops below aspirations, divisions take more loans risks. Overall, across the two samples, H1 is not supported. Hypothesis 2 argued that divisions compared to single business firms will exhibit lower responsiveness to poor performance. As seen from Models 6 and 8 in Table A4, the interaction term between diversification dummy and negative attainment discrepancy is positive ($p<0.01$ – historical aspirations and $p<0.05$ – social aspirations). While, the slope of the main relationship is almost flat for divisions, the slope for single firms is steeper but in an opposite direction than hypothesized. In the Banking sample, when loan risk and historical aspirations are utilized, the results support H2 ($p<0.001$). All remaining interaction terms between performance discrepancy and diversification dummy in Tables B4 and B5 are insignificant. Thus, across the two samples, results do not support H2 (see Figures A1 and B1).

Hypothesis 3 proposed that level of diversification will negatively moderate the relationship between performance discrepancy and risk taking. Figure A2 (based on historical aspirations in the Compustat sample) provides contrary results to this argument, such that as level of diversification increases, divisions engage in more risk taking ($p<0.001$). When social aspirations are used, I find insignificant results for the interaction term between performance discrepancy

and level of diversification. In the Banking sample, results are statistically insignificant with the exception of the model for loan risk (based on social aspirations); the latter shows that as diversification increases the relationship between performance discrepancy and risk taking weakens. Overall, the results across the two samples provide no support for H3 (see Figures A2 and B2).

In Hypothesis 4 I theorized that larger divisions will exhibit a stronger relationship between poor performance and risk taking. Using the Compustat sample I find opposite results – when faced with poor performance smaller divisions take more risks than larger divisions ($p<0.001$ for both historical and social aspirations). I do not find statistically significant results from the Banking sample. Thus, H4 is not supported (see Figure A3).

Hypotheses 5a and 5b argued that divisional managers' shares and options would positively moderate the relationship between performance discrepancy and risk taking. Results from Tables AP2 and AP3 are insignificant and thus the hypotheses are not supported. It should be noted that those hypotheses were tested on a smaller subsample of S&P 500 companies and thus this sample is likely to be biased and not representative of the general population of firms.

According to Hypothesis 6, CEO contingent pay moderates the relationship between poor performance and risk taking, such that the relationship is strengthened with higher levels of contingent pay. Utilizing historical aspirations in the Compustat sample in Table A2, I find opposite results for CEO shares ($p<0.01$) and CEO options ($p<0.01$). Relatively similar results are found when social aspirations are used in Table A3 – CEO shares play a negative moderating role ($p<0.01$) but the interaction term between CEO options and performance discrepancy is insignificant.

In the Banking sample, results for CEO shares based on historical aspirations are similar – in the models with bank risk ($p<0.01$) and liquidity risk ($p<0.05$) findings are opposite to hypothesized. The results for CEO shares based on social aspirations are insignificant. Regarding the moderating role of CEO options, when historical aspirations are used and bank risk ($p<0.05$) and loan risk ($p<0.01$) are the dependent variables, there is some support for the hypothesis. Results for CEO options based on social aspirations are insignificant. Overall, H6 is not supported (see Appendices 4 and 5, and Figures A4-A5).

Hypothesis 7 developed the argument that pay gap will positively moderate the relationship between performance discrepancy and risk taking. Results (in the Compustat sample) based on historical ($p<0.001$) and social aspirations ($p<0.05$) are contrary to predictions – as pay gap increase, the slope of the main relationship turns negative. In the Banking sample, only the interaction between historical discrepancy and pay gap in the model for loan risk is significant ($p<0.001$) and in the opposite direction than hypothesized (see Figure A6).

Hypotheses 8a and 8b introduced institutional ownership and blockholders as moderators which are expected to strengthen the relationship between poor performance and risk taking. For the Compustat sample, in both the historical aspiration and social aspiration models, results are insignificant. In the banking sample, only the interaction between social discrepancy and institutional ownership in the model with loan risk is significant ($p<0.05$) and contrary to predictions. Thus, support is not found for H8a and H8b (see Figure B5).

Finally, in Hypothesis 9 I argued that slack will positively moderate the relationship between poor performance and risk taking. In the Compustat sample, I find that free cash flow exhibits positive moderating role in line with the hypothesis ($p<0.001$ – historical aspirations and ns – social aspirations). However, potential slack has a negative moderating role ($p<0.001$ – historical

aspirations and ns – social aspirations). In the Banking sample, models for loan risk and liquidity risk show statistically significant interactions both for historical and social aspirations. The models for liquidity risk ($p<0.05$ – historical aspirations and $p<0.05$ – social aspirations) and bank risk ($p<0.05$ – historical aspirations and ns – social aspirations) offer support for H9. However, when loan risk is used as DV the results are opposite to H9 ($p<0.001$ – historical aspirations and $p<0.001$ – social aspirations). Overall across the two samples, there is only weak support for Hypothesis 9 (see Figures A7, A8, B3, and B4 about here).

DISCUSSION

In this chapter, I theorized how the embeddedness of risk taking in the broader organizational context impacts the responsiveness of organizations to performance shortfalls. More specifically, I developed a multilevel model about the role of organizational context, including organizational structure and several multi-level organizational factors, on the intensity of divisional risk taking. Summarized results are presented in Table S.

The starting argument in this chapter is that performance discrepancies encourage risk taking and motivate divisional managers to seek solutions to poor performance. However, the empirical findings do not lend support to this claim and are in contrast to the theoretical foundations of the BTOF. In particular, with the exception of loan risk, poor performance either discouraged risk taking or showed insignificant associations with risk taking. While contrary to the hypothesis, these results are in line with an extensive research on threat rigidity (Staw et al., 1981). This is particularly relevant considering the way risk taking is operationalized in this study. Bank risk, and capital expenditure in particular, represent major organizational commitments of resources with highly uncertain outcomes and probability of failure if market conditions change (Desai,

2008). In additional, capital expenditures are viewed as largely irreversible investments which are fixed and difficult to change once implemented. In line with the nature of the risk taking measures in the dissertation, it is not surprising to find that managers in underperforming divisions would be hesitant to commit large resources hoping of turning their division's fortunes. The threat-rigidity hypothesis argues that when faced with poor performance, managers experience anxiety and low information processing capabilities (Sitkin and Pablo, 1992; Staw et al., 1981) which reduce their ability to identify and undertake risky alternatives (Audia and Greve, 2006; Iyer and Miller, 2008). In such situations managers are faced with the choice of looking for risky solutions and making large investments of resources, which are already hard to find in an underperforming organization, or taking "a position of safety by avoiding additional losses" (Audia and Greve, 2006: 85). My findings are strongly consistent with these arguments and indicate that divisional managers are unwilling to commit their divisions to major strategic investments with uncertain outcomes. Another explanation for the difference between my results and a stream of prior research (Baum et al., 2005; Greve, 1998, 2003; Miller and Chen, 2004) is that those studies operationalize risk taking in a different way – e.g. R&D investment and nonlocal partnership ties. The measures utilized by those authors do not necessarily represent major investment commitments; rather, those measures of risk taking could be viewed as less-binding strategic options where an organization is making an initial attempt to engage in some less-known activities. A strong argument could be made that while R&D and partnership ties involve uncertainty and unpredictability in outcomes, they are considerably less-risky strategies compared to the measures I have utilized in this dissertation. Thus, it is easier for managers to engage in these types of behaviors when facing poor performance rather than make fixed resource commitments in the form of capital investments.

The finding that loan risk increases under conditions of poor divisional performance could be understood when considering what loan risk represents. Loan risk is operationalized as the sum of non-accrual loans and one half of loans past due 90 days to total loans. Thus, loan risk represents the realized risk of prior managerial lending choices and reflects the quality of loans from prior periods. Thus, loan risk should not be seen as a managerial intention to engage in risky initiatives but as an outcome of prior unsuccessful decisions. In other words, it is not surprising to see that poorly performing divisions are associated with large loan risks. While in my regressions I lagged performance discrepancy compared to loan risk, it could not be argued with certainty that bad loans (associated with high loan risk) did not simultaneously exist with poor performance.

Regarding the theorizing about how divisions and single firms respond to performance discrepancies, the majority of my results are insignificant with two exceptions. First, when loan risk was used as the dependent variable, results conformed to H2. However, the interpretation of these finding should be tentative considering what actually loan risk represents (as argued above). Second, when I used capital expenditures in the Compustat sample, single firms appeared to reduce their risk taking rather than increase it when experiencing performance shortfalls. One explanation to this finding might relate to the fact that single firms are smaller than diversified corporations. In a supplementary analysis, I found that single firms have fewer assets, employees, and financial resources compared to divisions. Prior research argues that smaller firms are less insulated from poor performance and thus are more likely to experience threat rigidity in the face of poor performance (Audia and Greve, 2006). Small firms are not characterized by "extensive financial assets, manufacturing infrastructure, and a large workforce" (Audia and Greve, 2006: 86; Levinthal, 1991) which limit their chances to

"overcome problems that threaten their survivals" (Mitchell, 1994: 577). In other words, smaller firms do not possess and are limited in obtaining the necessary financial resources (Brüderl and Schüssler, 1990) to be deployed in major commitments, such as capital expenditures.

In addition to using organizational structure to distinguish between divisional and single-business risk taking, this dissertation introduced a set of multi-level organizational and contextual factors that were found to significantly moderate the risk taking of corporate divisions. Overall, I utilized factors from the divisional and corporate levels of analysis that either enhance or restrict the ability and motivation of divisions to engage in risk taking. At the divisional level of analysis, I examined the moderating role of divisional size. I expected that among larger divisions performance deficiencies will encourage more risk taking because larger divisions have more access to corporate resources. However, the results do not support this argument. Smaller divisions in the Compustat sample were more responsive to performance discrepancies. On one hand, their flexibility, lower inertial pressures and lower resistance to change (Aldrich and Auster, 1986; Hannan and Freeman, 1984; Mintzberg, 1979) generate stronger incentives to respond to performance shortfalls via risky activities. On the other hand, smaller divisions could still have access to internal corporate resources and obtain capital funding from the corporate office in contrast to small stand-alone firms that have no such options. Overall, across the Compustat and the Banking samples (here all results are insignificant), the results on the moderating role of divisional size are inconclusive and suggest that two competing forces might be at play. The flexibility and low inertia of small divisions to undertake actions are counterbalanced by the greater ability of large divisions to obtain necessary funding for investing. As a result, the moderating effect of division size is diminished and reduced to statistically insignificant.

At the corporate level, I studied how structural and resource endowment factors impact intensity of risk taking. The role of level of diversification was primarily non-significant with two exceptions – when capital expenditures (with historical aspirations) and loan risk (with social aspirations) were used as a dependent variable. In the Compustat sample, as diversification increased, divisions were more responsive to performance cues. Since diversification is represented by the entropy measure, higher levels of diversification indicate more divisions operating in diverse and distinctive product markets. As a result, more divisions face various environments which increase their exposure to a variety of events and ideas (Barkema and Vermeulen, 1998). Ultimately, this could lead to them having the ability and knowledge to engage in more risk taking when faced with performance discrepancies.

In the Banking sample, diversification played a negative moderating role when loan risk was the dependent variable. The distinction from the Compustat sample could be attributed to several factors. First, diversification here is measured as the number of banking divisions and reflects the geographic rather than product dispersion of division. As the number of divisions increases, it raises the internal competition among those very similar divisions for resources (Liebeskind, 2000). Thus, it becomes harder for the corporate office to decide which of the underperforming divisions to allocate resources to and overall this could lead to reduced risk taking of the latter. Second, it is likely that diversified banking corporations have highly routinized loan decision processes which encourage consistency in managerial decision making (Sutcliffe and McNamara, 2001) and thus reduce the likelihood of managers underwriting bad loans and increasing the loan risk of their divisions. Finally, research shows that banking managers "are conservative in adjusting to new information" (McNamara and Bromiley, 1999 p. 333; Sutcliffe and McNamara, 2001) which would limit their ability to see emerging opportunities and engage in additional risk taking.

Internal governance factors, in the form of CEO contingent pay, provided consistent results on their impact on risk taking intensity. The stronger those factors were, the lower the degree to which performance discrepancies encouraged risk taking across divisions. While this finding might seem surprising in terms of the proposed hypotheses, it has a logical and theoretical explanation. When divisions experience poor performance the only way to engage in more risk taking is by receiving additional funds from the corporate office. However, this usually happens at the expense of other (well-performing) divisions (Rajan et al., 2000; Scharfstein and Stein, 2000). As a result, to a certain degree the engagement of underperforming divisions in risk taking is conducted at the expense of achieving optimal internal capital allocations. When CEOs and corporate executives have compensation designs that encourage them to be better monitors of divisional strategies, those executives appear to reduce internal inefficiencies through discouraging risk taking by troubled divisions. The gap between CEO pay and divisional managers' pay discouraged risk taking in the face of poor performance. While contrary to hypothesized, this finding is not inconsistent with prior research. It has been argued that instead of motivating lower-level managers to engage in beneficial decisions, larger pay gaps could discourage them from taking actions that are appropriate to the organization (e.g. Henderson and Fredrickson, 2001), such as taking more risks when performance deteriorates.

External governance factors, such as institutional ownership and blockholders, did not produce statistically significant results. In other words, those factors did not impact the responsiveness of divisional managers to poor performance. One potential explanation is the relative distance between those mechanisms and the actions of divisional managers. Usually, external monitors exercise pressure on the CEO and corporate executives and hold them directly accountable for the performance of the corporation. Then those executives are expected to

oversee divisional managers and their actions. As a result, multidivisional corporations are faced with a double agency problem where one set of agents (CEOs and corporate executives) need to monitors lower-level agents (divisional managers) (Child and Rodriguez, 2003). Overall, this could decrease the strength and efficiency of external monitoring mechanisms. The different impact (or lack of impact) between internal and external governance raises two important issues. First, it is possible that different organizational actions residing at different levels of analysis are better managed through more proximal sets of governance mechanisms (e.g. Devers et al., 2008). Because CEOs are relatively closer to divisional managers and could oversee them more easily, the former's contingent pay may be more effective in influencing divisional responsiveness to performance shortfalls. Second, a possibility for substitution between external and internal governance mechanisms exists. In other words, external mechanisms might not be necessary when strong internal mechanisms exist. To test this argument, I conducted a post-hoc analysis where I excluded from the model the interaction terms of performance shortfalls and internal governance factors. In that case, the interaction term between performance discrepancy and blockholders was negative and significant ($p<0.05$) indicating that external governance mechanisms influenced divisional responsiveness to performance deficiencies. Future work could extend this line of thought and investigate what the optimal combination of internal and external governance mechanisms might be for aligning the interests of shareholders, corporate executives, and divisional managers.

Finally, the existence of resource endowments in the form of slack resources exhibits some interesting interactions with attainment discrepancy. The results indicate that potential slack and free cash flow have contrasting moderating effects. More specifically, low levels of potential slack and high levels of free cash flow enhance the responsiveness of divisions to

attainment discrepancies. In other words, these two types of slack conform to two different perspectives on slack – the hunger-driven view (Bromiley, 1991; Cyert and March, 1963) and experimentation view (Sigh, 1986). While free cash flows are readily available resources to be deployed when divisions face poor performance, potential slack indicates only ability to access external funding and attempts to obtain such resources would be made only when the corporation is deprived of other available resources. Furthermore, slack (free cash flow) had a different moderating role on loan and liquidity risk. For liquidity risk, slack enhances the responsiveness of banking divisions to low performance via engaging in more liquidity risks. Liquidity risk represents ability to meet current obligations (Wiseman and Catanach, 1997) and the more free cash flow available, the more likely managers are to pay those obligations even when performance is poor. When free cash flow interacts with attainment discrepancy, the combined effect is reduction in loan risks because some of those available funds could be used to recover bad loans and ultimately reduce the exposure to loan risks.

Overall, this chapter extended research on the organizational responsiveness to poor performance by developing a model where the ability and motivation of divisional managers to address performance shortfalls is dependent on factors residing in the broader organizational and structural context. As a result, this chapter contributes to existing research on risk taking by outlining the contingencies under which performance deficiencies encourage or discourage additional risk taking. Moreover, the results presented here help to resolve some of the conflicting findings in prior research (Greve, 1998, Greve, 2008; Iyer and Miller, 2008; Wiseman and Bromiley, 1996) by highlighting that the relationship between poor performance and risk taking is more complex than previously thought. In addition to the moderating factors impacting this relationship, the type of risk choices also affected the sign and strength of that

relationship. I found that when risk taking is represented by major fixed commitments, such as capital expenditures, poor performance makes managers more hesitant and reluctant to make those commitments due to fear of generating further losses. This finding offers potential avenues for future research by pointing that further efforts need to be made to understand the multidimensional nature of risk taking and the complex interactions between those different types of risks. Furthermore, while prior research has focused on how the distance from an aspiration level encourages risk taking, my dissertation presents evidence that the degree of commitment inherent in a risky choice (e.g. high degree of commitment in large fixed investments, such as capital expenditures versus less-binding obligations across R&D investments and partnership ties) might play an important role in how poor performance affects managerial risk taking.

One interesting finding across the two samples and multiple regression analyses is the relatively weaker results when social aspirations were utilized. While those findings are consistent with prior research (e.g. Audia and Greve, 2006; Greve, 1998; Iyer and Miller, 2008), it still unclear why that is the case. Prior studies have focused more on how to construct aspirations – separate historical and social levels, combination of the two levels (e.g. Greve, 2003) or substitution between the two aspirations depending on where performance is against the aspiration (e.g. Bromiley, 1991) – rather than develop theoretical frameworks whether and why social and historical aspirations generate different results. It might be that managers are more familiar with historical aspirations, receive more consistent cues from the latter and are willing to pay more attention to those aspiration levels rather than to social ones; it might be that managers selectively choose aspiration levels which depict their organizations in a positive light vis-à-vis shareholders (e.g. Audia and Brion, 2005). However, it is also possible that the surrounding

context influences where managers look for performance cues; in other words, various factors from that context could serve as important attention allocation mechanisms (Ocasio, 1997). One such factor could be organizational structure and more specifically the structural embeddedness of divisions in a multidivisional corporation. This chapter presents some tentative evidence that organizational structure leads to prioritizing of historical aspirations over social aspirations. Because the multidivisional firm partially isolates divisions from the external market (Bradley et al., 2011) and utilizes different financial controls and monitoring compared to the free market, divisional managers become primed to focus internally on their own historical performance. In addition, this quasi isolation from external markets could create the perception among divisional managers that other firms in the market are more distinct than their divisions and thus managers could overlook social comparisons (e.g. Greve, 2003b). Future research should delve deeper into other factors, such as firm characteristics, resource endowments, and market conditions that make firms focus more on social or historical aspirations.

As any study, this one is not void of limitations. All the proposed relationships relied on secondary data where the behavior of managers is implied. Although the arguments and theorizing are based on well-established theoretic frameworks, it is hard to disclose the real motivations and perceptions of managers unless surveys and observations of the latter are conducted. The choice of the banking sample and its risk measures could be questioned due to the timing of the study. Some could argue that during this period the banking industry was expanding and bank managers might have perceived their investments and risky choice as less uncertain. However, this should create a common bias among all managers and thus should not influence the variability in amount of risk taken and the quality of risk across multiple banks. In addition, if such a bias exists, it would make it more difficult to find statistically significant

results; the fact that I find significant results indicates that this is a conservative estimation of the proposed relationships. Using measures that are specific to an industry is often a challenge and might raise questions regarding the validity of those measures. Although my bank risk measures relied on prior research (Shrieves and Dahl, 1992; Wiseman and Catanach, 1997), it could be argued that those measures, and loan risk in particular, represent realized risks and reflect prior decisions by managers rather than future risky choices.

In addition, liquidity risk is very similar to available slack – the measurement of this risk indicates that lower liquid resources reflect higher risk of not covering obligation. While this is definitely a risk for a bank, it is very different from investment and/or market risks.

The selection of capital expenses could also be put under question. However, I relied on prior theorizing and research to utilize this measure as reflecting risk taking. Capital expenditures are major capital outlays with uncertain outcomes and once the organization commits to them it is hard to reverse them; thus, changes in the external conditions could put such an organization in a position to experience significant losses (Desai, 2008).

In conclusion, this chapter examined the embeddedness of organizational risk taking in a larger organizational context and the impact of the latter on the intensity of risk taking. The chapter also suggests that to better understand organizational risk scholars should 1) consider the impact of the organizational structure and context; 2) examine how multi-level factors enhance or inhibit the intensity of risk taking; and 3) distinguish between various types of organizational risks.

Table S: Summary of hypotheses and findings for Chapter 1

Hypothesis	Compustat findings	Banking findings
H1: Divisional negative attainment discrepancy is positively related to divisional risk taking.	No support – NS	Support for loan risk as DV (HA and SA) Opposite results for liquidity risk as DV (SA) Opposite results for loan risk as DV (HA and SA)
H2: The relationship between divisional negative attainment discrepancy and divisional risk taking will be weaker in divisions of M-firms than in single-business companies.	No support – single-firms reduce risk taking (HA and SA)	Support only for loan risk as DV (HA)
H3: Level of corporate diversification moderates the relationship between divisional negative attainment discrepancy and risk taking, such that the relationship will be weaker as diversification increases.	No support – results are in the opposite direction (HA)	Support for loan risk as DV (SA)
H4: Divisional size will moderate the relationship between divisional negative attainment discrepancy and divisional risk taking, such that the relationship will be stronger for larger divisions.	No support – results are in the opposite direction (HA and SA)	No support – NS
H5a: Divisional managers' ownership will moderate the relationship between divisional negative attainment discrepancy and divisional risk taking, such that the relationship will be stronger with higher levels of ownership.	No support – NS	NA (not tested)
H5b: Divisional managers' stock options will moderate the relationship between divisional negative attainment discrepancy and divisional risk taking, such that the relationship will be stronger with higher levels of stock options.	No support – NS	NA (not tested)

Table S (cont'd)

H6: CEO contingent pay will moderate the relationship between divisional negative attainment discrepancy and divisional risk taking, such that the relationship will be stronger with higher levels of contingent pay.	No support – results are in the opposite direction (HA and SA)	* No support – opposite results for CEO shares when using bank risk and liquidity risk as DV (HA) * Support for CEO options when using bank risk and loan risk as DV (HA)
H7: The gap between CEO pay and divisional managers' pay will moderate the relationship between divisional negative attainment discrepancy and divisional risk taking, such that the relationship will be stronger as the pay gap widens.	No support – results are in the opposite direction (HA and SA)	* No support – opposite results for loan risk as DV (HA)
H8a: Institutional ownership will moderate the relationship between divisional negative attainment discrepancy and divisional risk taking, such that the relationship will be stronger with higher levels of institutional ownership.	No support – NS	* No support – opposite results for loan risk (only SA)
H8b: Blockholders will moderate the relationship between divisional negative attainment discrepancy and divisional risk taking, such that the relationship will be stronger with larger number of blockholders.	No support – NS	No support – NS
H9: Corporate slack will moderate the relationship between divisional negative attainment discrepancy and divisional risk taking, such that the relationship will be stronger with higher levels of slack.	Support for free cash flow (HA) Opposite results for potential slack (only HA)	Support for liquidity and bank risks as DVs (HA and SA) Opposite results for loan risk as DV (HA and SA)

DV – dependent variable; HA – historical aspirations; SA – social aspirations * tested on a smaller sample

TABLE A1: Descriptive statistics and correlation coefficients for the study performance discrepancies – risk taking

	M	SD	1	2	3	4	5	6	7	8
1. Risk taking	143.3	357.1	1.00							
2. Sales growth	0.07	0.25	0.06	1.00						
3. Div. size	6.1	1.85	0.53	0.07	1.00					
4. PBH	0.05	0.19	-0.04	-0.15	-0.10	1.00				
5. PAH	0.04	0.19	-0.02	0.05	-0.14	-0.07	1.00			
6. PBS	0.05	0.18	-0.05	-0.08	-0.12	0.60	0.01	1.00		
7. PAS	0.11	0.27	-0.04	0.03	-0.19	0.05	0.28	-0.13	1.00	
8. Relative size	0.35	0.26	0.23	0.05	0.34	-0.05	-0.07	-0.08	-0.03	1.00
9. Diversification	0.51	0.41	0.05	-0.05	0.21	-0.05	-0.02	-0.07	-0.06	-0.26
10. Potential slack	1.1	1.35	-0.08	0.02	-0.32	0.03	0.04	-0.02	0.17	0.08
11. Free cash flow	0.05	0.39	0.02	0.10	0.03	0.05	0.00	0.01	0.10	-0.01
12. CEO shares	1838	6257	0.18	0.02	0.16	0.00	-0.02	0.02	-0.02	0.00
13. CEO options	2197	4120	0.18	0.01	0.32	0.00	0.00	-0.02	0.06	-0.06
14. Pay gap	7.6	1.3	0.24	0.05	0.46	-0.02	0.00	-0.02	0.05	-0.10
15. Inst. ownership	0.55	0.31	-0.06	0.10	0.01	0.00	0.00	0.02	0.05	0.02
16. Blockholders	1.68	1.6	-0.13	-0.01	-0.19	0.03	0.04	0.06	0.01	0.03

TABLE A1 (cont'd)

	9	10	11	12	13	14	
1. Risk taking							
2. Sales growth							
3. Div. size							
4. PBH							
5. PAH							
6. PBS							
7. PAS							
8. Relative size							
9. Diversification	1.00						
10. Potential slack	-0.17	1.00					
11. Free cash flow	0.02	0.03	1.00				
12. CEO shares	0.02	0.03	-0.01				
13. CEO options	0.16	-0.04	0.04	0.15			
14. Pay gap	0.21	-0.21	0.10	0.10	0.58		
15. Inst. ownership	-0.10	-0.02	0.07	-0.09	0.03	0.20	
16. Blockholders	-0.15	0.05	-0.09	-0.07	-0.15	-0.07	0.58

N=4982 Correlations larger than 0.03 and smaller than -0.02 are significant at $p<0.05$

TABLE B1: Descriptive statistics and correlations for the study performance discrepancies – risk taking

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Bank risk	0.69	0.14	1.00											
2. Loan risk	0.01	0.02	0.08	1.00										
3. Liquidity risk	0.91	0.10	0.35	-0.03	1.00									
4. Sales growth	0.08	0.15	0.07	-0.03	0.03	1.00								
5. Divisional size	12.97	1.58	0.14	0.06	-0.05	0.15	1.00							
6. Divisional age	63.8	44.6	-0.06	-0.07	-0.01	-0.11	0.16	1.00						
7. PBH	0.003	0.004	0.03	0.24	-0.03	-0.09	0.03	-0.04	1.00					
8. PAH	0.002	0.004	0.01	-0.07	0.01	0.08	0.02	-0.03	-0.36	1.00				
9. PBS	0.002	0.003	0.01	0.23	0.00	-0.04	-0.01	-0.05	0.50	-0.24	1.00			
10. PAS	0.003	0.004	-0.01	-0.04	-0.03	0.04	0.07	-0.04	-0.25	0.51	-0.37	1.00		
11. Relative size	0.29	0.27	0.10	0.05	-0.01	0.09	0.35	0.23	-0.01	-0.03	-0.01	-0.04	1.00	
12. Slack	-0.01	0.09	0.03	-0.17	0.02	0.15	-0.03	-0.09	-0.44	0.27	-0.42	0.27	0.05	1.00
13. Diversification	7.8	8.9	0.03	-0.03	-0.02	-0.02	0.07	-0.07	0.02	0.02	-0.01	0.04	-0.51	-0.06

N= 8454 Correlations larger than 0.02 and smaller than -0.02 are significant at $p<0.05$

TABLE A2: Performance discrepancy-risk taking relationship based on historical aspirations

	Model 1		Model 2	
Variables	Coeff	SE	Coeff	SE
Constant	136.4***	(10)	134.2***	(9.9)
Sales growth	7.5***	(2.1)	6.74**	(2.1)
Divisional size	67.5***	(5.3)	70.6***	(5.4)
Risk taking $_{t-2}$	195.5***	(4.55)	192***	(4.5)
Historical attainment discrepancy <0	3.7	(2.5)	2.8	(3.5
Historical attainment discrepancy > 0	5.3†	(3.2)	6.7	(5.3)
Relative divisional size	4.96	(3.7)	4.4	(3.7
Diversification	-6.4†	(3.8)	-5.2	(3.8)
Potential slack	7.1†	(4.2)	7.4†	(4.2)
Free cash flow	4.2	(3)	4.4	(3.1)
CEO shares	8.5*	(4.2)	8.3†	(4.5)
CEO options	-3.7	(3.2)	-4.7	(3.2)
Pay gap	6.98*	(3.22)	5.9†	(3.2
Institutional ownership	-5.6†	(4.7)	-7.2†	(4.7)
Blockholders	-3.04	(3.1)	-2	(3.1)
Relative divisional size X				
x historical attainment discrepancy < 0			-23.3***	(2.9)
x historical attainment discrepancy > 0			-2.7	(4.6)
Diversification				
x historical attainment discrepancy < 0			10.99***	(2.5)
x historical attainment discrepancy > 0			0.3	(2.6)
Potential slack X				
x historical attainment discrepancy < 0			-13***	(2.9)
x historical attainment discrepancy > 0			-4.6	(4.5)
Free cash flow X				
x historical attainment discrepancy < 0			8***	(1.6)
x historical attainment discrepancy > 0			1.8	(4.7)
CEO shares				
x historical attainment discrepancy < 0			-11.3**	(3.7)
x historical attainment discrepancy > 0			4.6	(11.2)
CEO options				
x historical attainment discrepancy < 0			-17.9**	(6.1)
x historical attainment discrepancy > 0			21.4***	(6)
Pay gap				
x historical attainment discrepancy < 0			-24.1***	(4.2)
x historical attainment discrepancy > 0			-8.5	(5.1)
Institutional ownership				
x historical attainment discrepancy < 0			-8.3†	(4.3)
x historical attainment discrepancy > 0			1.51	(6.9)

TABLE A2 (cont'd)

Blockholders				
x historical attainment discrepancy < 0			-3.8	(3.8)
x historical attainment discrepancy > 0			2.7	(3.8)
N	5583		5583	
Wald χ^2	3427		3472	
Prob > χ^2	0.000		0.000	
Variance within divisions	0.54		0.51	
Variance between divisions	0.31		0.33	
Variance between firms	0.15		0.16	

Standardized coefficients are reported. Standard errors are in parentheses.
† $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

TABLE A3: Performance discrepancy-risk taking relationship based on social aspirations

	Model 3		Model 4	
Variables	Coeff	SE	Coeff	SE
Constant	140.3***	(10.6)	140.3***	(10.7)
Sales growth	7.5***	(2.1)	7.2**	(2.2)
Divisional size	75.2***	(5.8)	77.4***	(5.8)
Risk taking $_{t-2}$	194.9***	(4.7)	192.8***	(4.7)
Social attainment discrepancy < 0	1.8	(2.4)	4.3	(3.7)
Social attainment discrepancy > 0	10.7**	(3.97)	16.4*	(6.6)
Relative divisional size	4.2	(3.95)	4.1	(3.99)
Diversification	-6.5	(4.04)	-6.1	(4.1)
Potential slack	7.6†	(4.5)	7.9†	(4.5)
Free cash flow	4.04	(3.2)	4.99	(3.3)
CEO shares	9.5*	(4.3)	7.6†	(4.4)
CEO options	-5.8†	(3.3)	-4.99	(3.3)
Pay gap	9.04**	(3.4)	7.1*	(3.4)
Institutional ownership	-7.1	(4.9)	-8.2†	(4.96)
Bockholders	-1.2	(3.3)	-0.9	(3.3)
Relative divisional size X				
x Social attainment discrepancy < 0			-11.1***	(2.9)
x Social attainment discrepancy > 0			11.4*	(4.9)
Diversification				
x Social attainment discrepancy < 0			-2.5	(2.95)
x Social attainment discrepancy > 0			5.2	(4.6)
Potential slack X				
x Social attainment discrepancy < 0			4.5	(4.6)
x h Social attainment discrepancy > 0			-0.7	(3.9)
Free cash flow X				
x Social attainment discrepancy < 0			0.5	(1.7)
x Social attainment discrepancy > 0			-0.03	(3.2)
CEO shares				
x Social attainment discrepancy < 0			-7.7**	(2.8)
x Social attainment discrepancy > 0			-13.9†	(7.4)
CEO options				
x Social attainment discrepancy < 0			5.3	(5.2)
x Social attainment discrepancy > 0			2.96	(4.5)
Pay gap				
x Social attainment discrepancy < 0			-10.4*	(4.2)
x Social attainment discrepancy > 0			-6.4	(4.7)
Institutional ownership				
x Social attainment discrepancy < 0			-3.7	(3.7)
x Social attainment discrepancy > 0			0.9	(7.6)

TABLE A3 (cont'd)

Blockholders				
x Social attainment discrepancy < 0			-2.6	(3.4)
x Social attainment discrepancy > 0			-3.7	(4.8)
N	5073		5073	
Wald χ^2	3258		3254	
Prob > χ^2	0.000		0.000	
Variance within divisions	0.49		0.49	
Variance between divisions	0.36		0.36	
Variance between firms	0.15		0.15	

Standardized coefficients are reported. Standard errors are in parentheses.
† $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

TABLE A4: Hypothesis Two – comparing risk taking between single-business firms and divisions

	Model 5		Model 6		Model 7		Model 8	
Variables	Coeff	SE	Coeff	SE	Coeff	SE	Coeff	SE
Constant	128.3***	(7.8)	126.4**	(7.9)	128.4***	(8.4)	126.2***	(8.4)
Sales growth	12.31***	(1.90)	11.7***	(1.9)	12.00***	(1.96)	11.88***	(1.96)
Divisional size	66.27***	(3.67)	66.6***	(3.7)	71.15***	(3.96)	71.20***	(3.96)
Risk taking $_{t-2}$	229.23***	(2.72)	228.2***	(2.7)	230.49***	(2.81)	230.29***	(2.82)
Historical attainment discrepancy <0	2.27	(2.01)	-16.9**	(6.3)				
Historical attainment discrepancy > 0	4.16†	(2.49)	-1.13	(5.7)				
Social attainment discrepancy <0					1.13	(2.42)	-12.94†	(6.75)
Social attainment discrepancy > 0					8.42**	(2.65)	4.11	(5.44)
Diversification dummy	-6.52	(5.51)	-4.07	(5.6)	-5.13	(5.84)	-2.50	(5.96)
Potential slack	1.87	(2.70)	1.8	(2.7)	1.99	(2.83)	1.77	(2.84)
Free cash flow	6.07*	(2.77)	5.05†	(2.8)	4.20	(3.01)	3.42	(3.03)
CEO shares	3.25	(2.93)	3.2	(2.9)	3.31	(3.08)	3.31	(3.08)
CEO options	-2.48	(2.54)	-2.2	(2.5)	-3.69	(2.62)	-3.48	(2.62)
Pay gap	8.22**	(2.65)	8.4**	(2.7)	8.66**	(2.79)	8.57**	(2.79)
Institutional ownership	-4.73	(3.31)	-5.13	(3.3)	-5.36	(3.48)	-5.84†	(3.49)
Diversification dummy								
x historical attainment discrepancy < 0			21.1**	6.6				
x historical attainment discrepancy > 0			6.11	6.3				
Diversification dummy								
x social attainment discrepancy < 0							16.04*	(7.19)
x social attainment discrepancy > 0							5.31	(6.03)
N	9145		9145		8403		8403	
Wald χ^2	12614		12458		12132		12134	
Prob > χ^2	0.000		0.000		0.000		0.000	

TABLE A4 (cont'd)

Variance within divisions	0.72	0.72	0.71	0.71
Variance between divisions	0.14	0.14	0.17	0.17
Variance between firms	0.13	0.14	0.12	0.12

Standardized coefficients are reported. Standard errors are in parentheses.
† $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

TABLE B2: Relationship between performance discrepancy and risk taking based on historical aspirations

	Model 1 – Bank Risk		Model 2 – Bank Risk		Model 3 – Loan Risk		Model 4 – Loan Risk		Model 5 – Liquidity risk		Model 6 – Liquidity risk	
Variables	Coeff	SE	Coeff	SE	Coeff	SE	Coeff	SE	Coeff	SE	Coeff	SE
Constant	71.1***	(0.33)	71.1***	(0.33)	0.84***	(0.06)	0.80***	(0.06)	92.7***	(0.18)	92.7***	(0.18)
Sales growth	-0.34***	(0.07)	-0.33***	(0.07)	-0.03*	(0.01)	-0.04**	(0.01)	-0.03	(0.05)	-0.03	(0.05)
Divisional size	0.89***	(0.19)	0.90***	(0.19)	0.14***	(0.03)	0.13***	(0.03)	0.02	(0.08)	0.03	(0.08)
Divisional age	-0.87***	(0.14)	-0.88***	(0.15)	-0.09***	(0.02)	-0.09***	(0.02)	-0.16**	(0.06)	-0.16**	(0.06)
Risk taking $_{t-2}$	7.83***	(0.12)	7.80***	(0.12)	0.49***	(0.02)	0.49***	(0.02)	7.77***	(0.06)	7.78***	(0.06)
PBH	-0.27***	(0.08)	-0.19*	(0.09)	0.17***	(0.02)	0.06**	(0.02)	-0.10†	(0.06)	-0.05	(0.07)
PAH	0.04	(0.07)	0.02	(0.08)	0.02	(0.01)	-0.01	(0.02)	0.03	(0.05)	0.03	(0.06)
Relative divisional size	0.82***	(0.17)	0.82***	(0.17)	0.01	(0.03)	0.01	(0.03)	-0.03	(0.08)	-0.03	(0.08)
Slack	0.22**	(0.08)	0.18*	(0.08)	-0.08***	(0.02)	-0.05**	(0.02)	-0.05	(0.06)	-0.07	0.06)
Diversification	0.62**	(0.23)	0.61**	(0.23)	0.16***	(0.04)	0.17***	(0.04)	-0.27*	0.12	-0.28*	(0.12)
PBH * relative size			0.02	(0.08)			0.02	(0.02)			0.02	(0.06)
PAH * relative size			-0.04	(0.08)			0.01	(0.02)			0.02	(0.06)
PBH * diversification			0.08	(0.07)			0.01	(0.02)			0.09†	(0.05)
PAH * diversification			0.14†	(0.08)			0.01	(0.02)			-0.03	(0.06)
PBH * slack			0.10*	(0.04)			-0.10***	(0.01)			0.06*	(0.03)
PAH * slack			0.13†	(0.07)			-0.04*	(0.01)			0.07	(0.05)

TABLE B2 (cont'd)

N	10361	10361	10327	10327	10225	10225
Wald χ^2	5813	5798	5590	5804	15764	15785
Prob > χ^2	0.000	0.000	0.000	0.000	0.000	0.000
Within division variance	0.48	0.48	0.67	0.68	0.92	0.9
Between div. variance	0.26	0.27	0.06	0.06	0.00	0.00
Between firm variance	0.26	0.26	0.27	0.26	0.08	0.08

Standardized coefficients are reported. Standard errors are in parentheses.
† $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

TABLE B3: Relationship between performance discrepancy and risk taking based on social aspirations

	Model 1 – Bank Risk		Model 2 – Bank Risk		Model 3 – Loan Risk		Model 4 – Loan Risk		Model 5 – Liquidity risk		Model 6 – Liquidity risk	
Variables	Coeff	SE	Coeff	SE	Coeff	SE	Coeff	SE	Coeff	SE	Coeff	SE
Constant	71.1***	(0.35)	71.2***	(0.36)	0.82***	(0.07)	0.77***	(0.07)	92.6***	(0.20)	92.6***	(0.20)
Sales growth	-0.39***	(0.07)	-0.38***	(0.07)	-0.04*	(0.02)	-0.04**	(0.02)	-0.03	(0.05)	-0.02	(0.05)
Divisional size	0.78***	(0.20)	0.78***	(0.20)	0.14***	(0.03)	0.13***	(0.03)	-0.05	(0.08)	-0.05	(0.08)
Divisional age	-0.85***	(0.16)	-0.86***	(0.16)	-0.11***	(0.02)	-0.10***	(0.02)	-0.16*	(0.06)	-0.17*	(0.06)
Risk taking $_{t-2}$	7.77***	(0.13)	7.77***	(0.13)	0.48***	(0.02)	0.48***	(0.02)	7.83***	(0.07)	7.83***	(0.07)
PBS	-0.24**	(0.09)	-0.22†	(0.12)	0.18***	(0.02)	0.04	(0.02)	-0.14*	(0.06)	-0.03	(0.09)
PAS	0.04	(0.09)	0.05	(0.10)	0.01	(0.02)	-0.04†	(0.02)	-0.12*	(0.06)	-0.10	(0.07)
Relative divisional size	0.84***	(0.19)	0.84***	(0.19)	0.03	(0.03)	0.03	(0.03)	-0.01	(0.08)	-0.01	(0.08)
Slack	0.24**	(0.09)	0.24**	(0.09)	-0.09***	(0.02)	-0.07**	(0.02)	0.03	(0.06)	0.00	(0.06)
Diversification	0.61*	(0.24	0.61*	(0.24)	0.20***	(0.05)	0.20***	(0.05)	-0.22†	(0.13)	-0.21	(0.13)
PBS * relative size			0.16†	(0.09)			0.03	(0.02)			0.06	(0.06)
PAS * relative size			0.06	(0.09)			0.01	(0.02)			0.03	(0.07)
PBS * diversification			0.04	(0.09)			-0.04*	(0.02)			0.12†	(0.06)
PAS * diversification			0.05	(0.10)			0.01	(0.02)			0.10	(0.07)
PBS * slack			0.02	(0.04)			-0.08***	(0.01)			0.08*	(0.03)
PAS * slack			0.01	(0.07)			-0.01	(0.01)			0.06	(0.05)

TABLE B3 (cont'd)

N	8599	8599	8565	8565	8486	8486
Wald χ^2	4825	4832	4733	4889	13816	13854
Prob > χ^2	0.000	0.000	0.000	0.000	0.000	0.000
Within division variance	0.45	0.45	0.66	0.67	0.93	0.93
Between div. variance	0.29	0.29	0.07	0.07	0.00	0.00
Between firm variance	0.26	0.26	0.27	0.26	0.07	0.07

Standardized coefficients are reported. Standard errors are in parentheses.
† $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

TABLE B4: Hypothesis Two – comparing risk taking between single banks and banking divisions (using historical aspirations)

	Model 7 – Bank Risk		Model 8 – Bank Risk		Model 9 – Loan Risk		Model 10 – Loan Risk		Model 11 – Liquidity Risk		Model 12 – Liquidity Risk	
Variables	Coeff	SE	Coeff	SE	Coeff	SE						
Constant	69.5***	(0.14)	69.4***	(0.14)	0.92***	(0.03)	0.93***	(0.03)	92.7***	(0.08)	92.7***	(0.08)
Sales growth	-0.23***	(0.03)	-0.23**	(0.03)	-0.05***	(0.01)	-0.05***	(0.01)	0.11***	(0.02)	0.11***	(0.02)
Divisional size	0.60***	(0.07)	0.59***	(0.07)	0.23***	(0.01)	0.23***	(0.01)	-0.02	(0.02)	-0.02	(0.02)
Divisional age	-1.24***	(0.08)	-1.24***	(0.08)	-0.23*	(0.01)	-0.23***	(0.01)	0.05*	(0.02)	0.05*	(0.02)
Risk taking $_{t-2}$	6.45***	(0.05)	6.45***	(0.05)	0.54	(0.01)	0.54***	(0.01)	7.56***	(0.02)	7.56***	(0.02)
PBH	-0.25***	(0.03)	-0.23***	(0.0)	0.20***	(0.01)	0.22***	(0.01)	-0.09***	(0.03)	-0.09**	(0.03)
PAH	0.02	(0.03)	0.02	(0.04)	0.05**	(0.01)	0.05***	(0.01)	-0.02	(0.02)	-0.03	(0.03)
Slack	0.21***	(0.04)	0.21***	(0.00)	-0.12***	(0.01)	-0.12***	(0.01)	-0.03	(0.02)	-0.03	(0.02)
Diversification dummy			0.23	(0.14)			-0.04	(0.03)			0.01	(0.06)
PBH * diversification			-0.04	(0.07)			-0.06***	(0.02)			0.02	(0.05)
PAH * diversification			0.02	(0.07)			-0.02	(0.02)			0.05	(0.05)
N	41075		41075		41031		41031		40706		40706	
Wald χ^2	22189		22178		22784		22811		106754		106652	
Prob > χ^2	0.000		0.000		0.000		0.000		0.000		0.000	

TABLE B4 (Cont'd)

Within division variance	0.47	0.47	0.71	0.71	0.97	0.93
Between div. variance	0.34	0.34	0.06	0.06	0.00	0.00
Between firm variance	0.2	0.19	0.23	0.23	0.03	0.03

Standardized coefficients are reported. Standard errors are in parentheses.
† $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

TABLE B5: Hypothesis Two – comparing risk taking between single banks and banking divisions (using social aspirations)

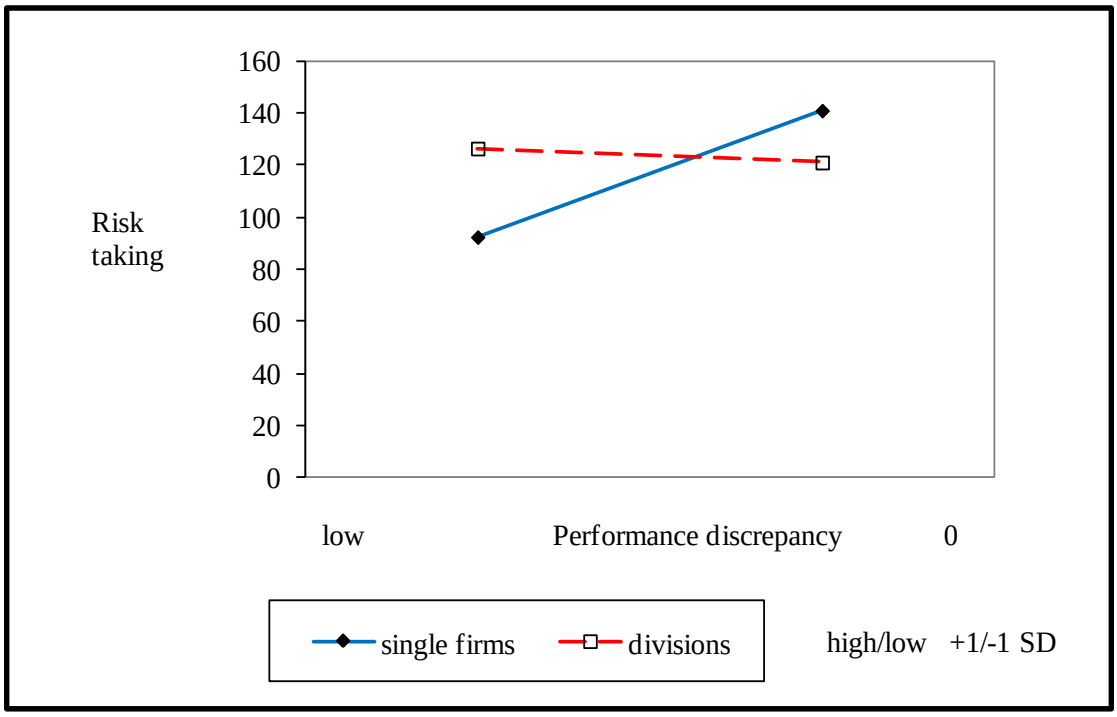
	Model 7 – Bank Risk		Model 8 – Bank Risk		Model 9 – Loan Risk		Model 10 – Loan Risk		Model 11 – Liquidity Risk		Model 12 – Liquidity Risk	
Variables	Coeff	SE	Coeff	SE	Coeff	SE						
Constant	69.5***	(0.16)	69.5***	(0.16)	0.92***	(0.04)	0.94***	(0.04)	92.5***	(0.09)	92.7***	(0.08)
Sales growth	-0.23***	(0.03)	-0.23***	0.03)	-0.06***	(0.01)	-0.06***	(0.01)	0.12***	(0.02)	0.12***	(0.02)
Divisional size	0.52***	(0.08)	0.52***	0.08)	0.25***	(0.01)	0.25***	(0.01)	-0.05†	(0.03)	-0.05*	(0.03)
Divisional age	-1.23***	(0.08)	-1.23***	0.09)	-0.25***	(0.01)	-0.25***	(0.01)	0.05*	(0.03)	0.05*	(0.03)
Risk taking $_{t-2}$	6.40***	(0.06)	6.40***	0.06)	0.52***	(0.01)	0.52***	(0.01)	7.6***	(0.03)	7.6***	(0.03)
PBS	-0.17***	(0.04)	-0.16**	0.05)	0.18***	(0.01)	0.18***	(0.01)	-0.05	(0.03)	-0.03	(0.03)
PAS	-0.09*	(0.04)	-0.12*	0.05)	0.06***	(0.01)	0.07***	(0.01)	-0.13***	(0.03)	-0.14***	(0.03)
Slack	0.33***	(0.04)	0.33***	0.04)	-0.15***	(0.01)	-0.15***	(0.01)	0.05†	(0.03)	0.05†	(0.03)
Diversification dummy			0.21	0.16)			-0.07†	(0.04)			0.05	(0.07)
PBS * diversification			-0.05	(0.08)			-0.03	(0.02)			-0.07	(0.06)
PAS * diversification			0.07	(0.08)			-0.03	(0.02)			0.01	(0.05)
N	33785		33785		33741		33741		33471		33471	
Wald χ^2	18015		18001		19124		19137		91964		91810	
Prob > χ^2	0.000		0.000		0.000		0.000		0.000		0.000	

TABLE B5 (cont'd)

Within division variance	0.46	0.46	0.7	0.7	0.98	0.98
Between div. variance	0.36	0.36	0.07	0.07	0.00	0.00
Between firm variance	0.19	0.19	0.24	0.24	0.02	0.02

Standardized coefficients are reported. Standard errors are in parentheses.
† $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

FIGURE A1: Interaction between performance discrepancy and diversification dummy comparing divisions and single firms (Compustat sample) *



* For interpretation of the references to color in this and all other figures, the reader is referred to the electronic version of this dissertation

FIGURE B1: Interaction between performance discrepancy and diversification dummy comparing single banks and banking divisions (historical aspirations using loan risk)

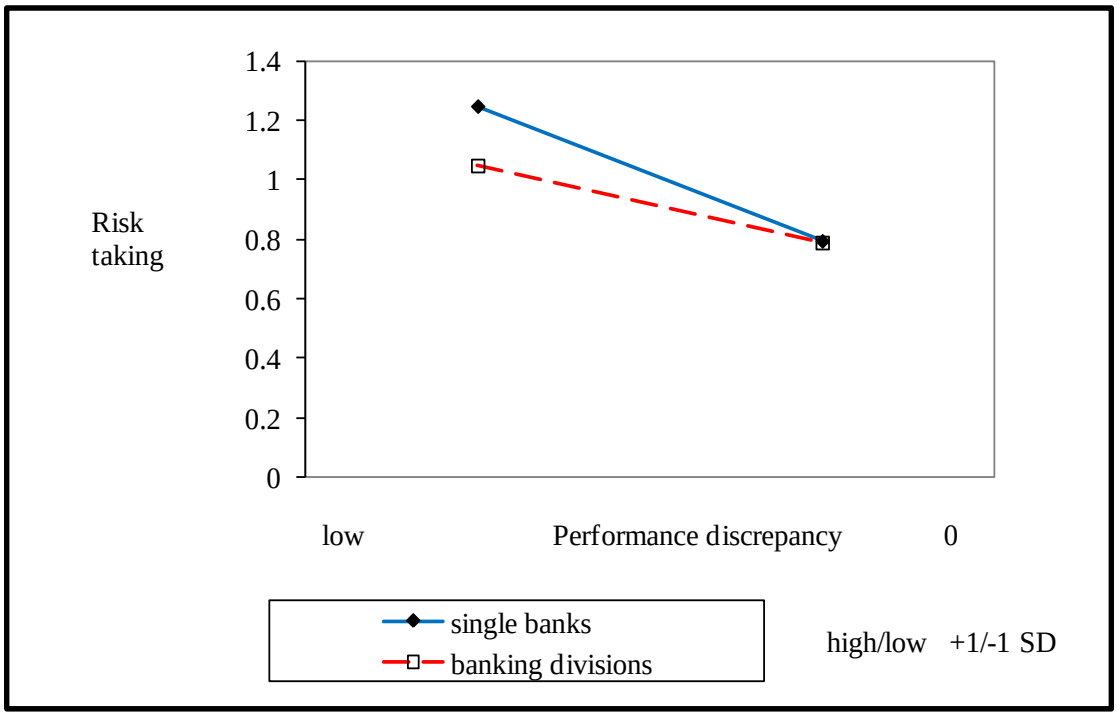


FIGURE A2: Interaction between performance discrepancy and level of diversification (Compustat sample)

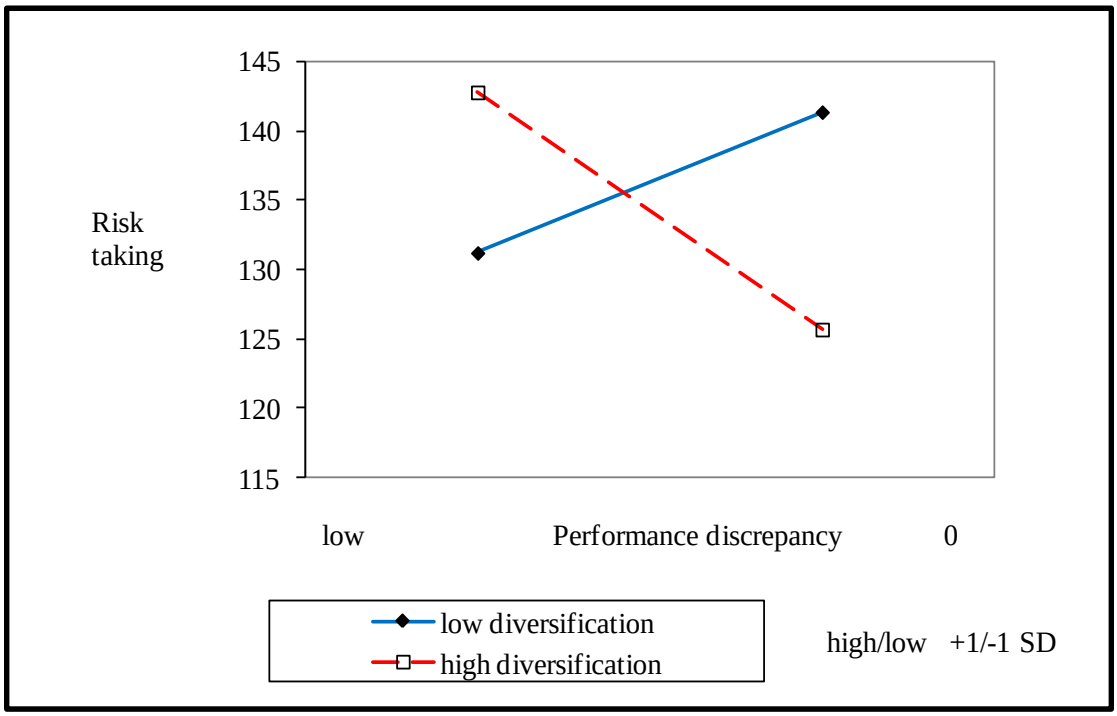


FIGURE B2: Interaction between performance discrepancy and level of diversification based on social aspirations (Banking sample and using loan risk)

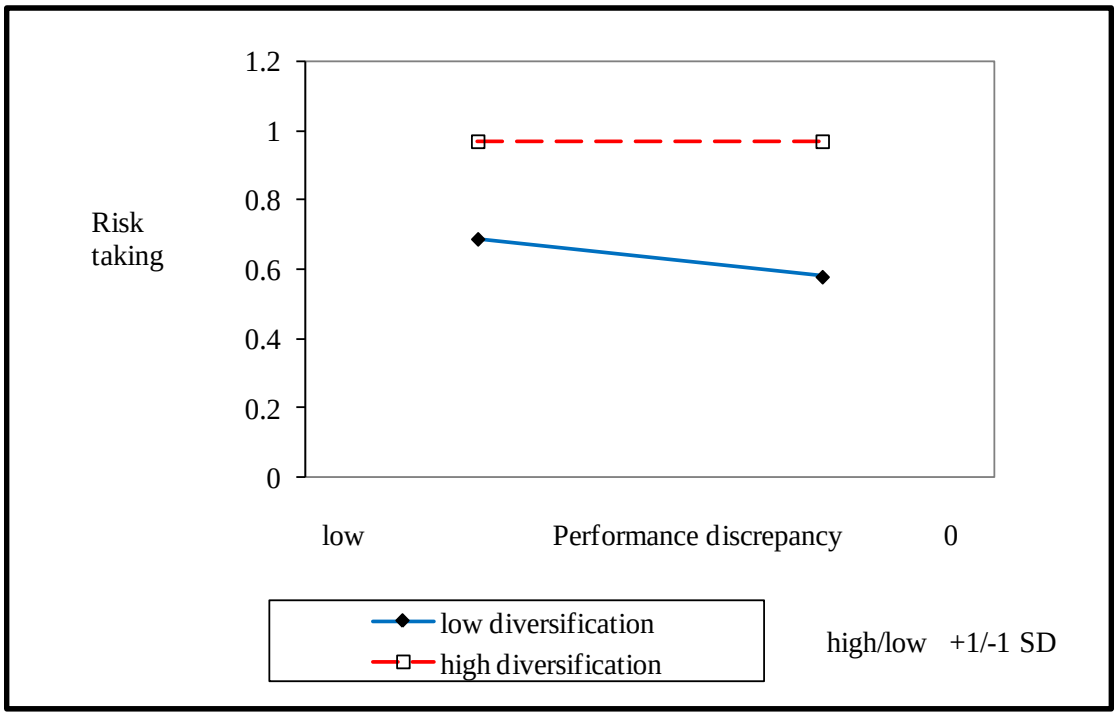


FIGURE A3: Relationship between performance discrepancy and divisional relative size (Compustat sample)

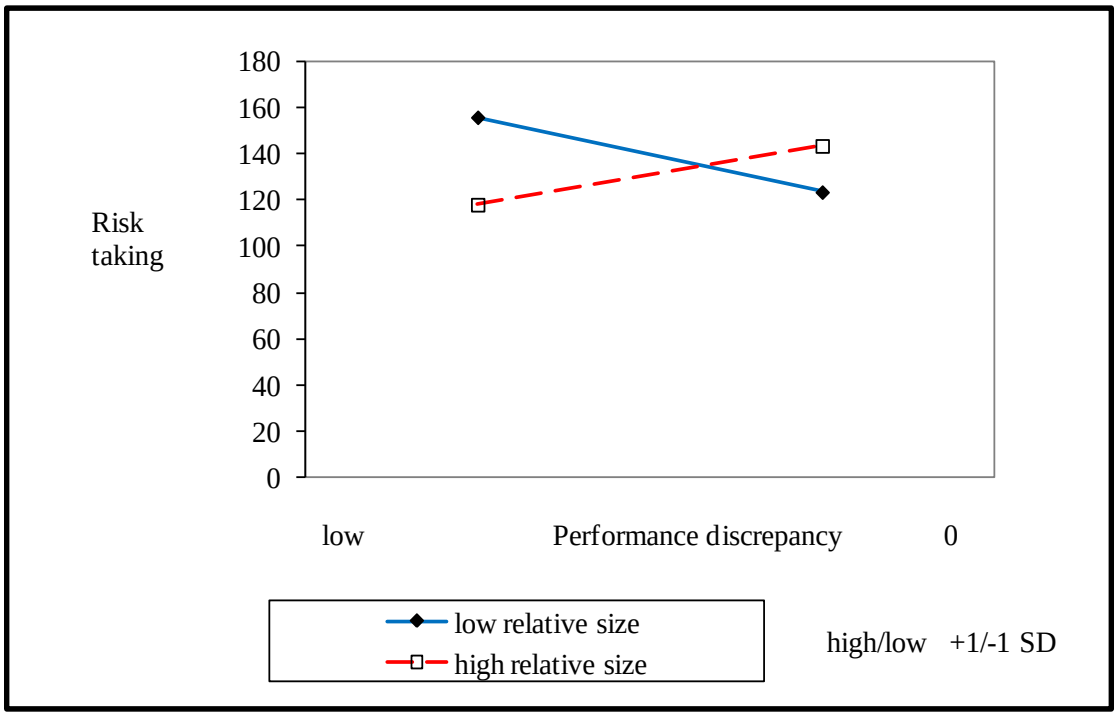


FIGURE A4: Relationship between performance discrepancy and CEO shares (Compustat sample)

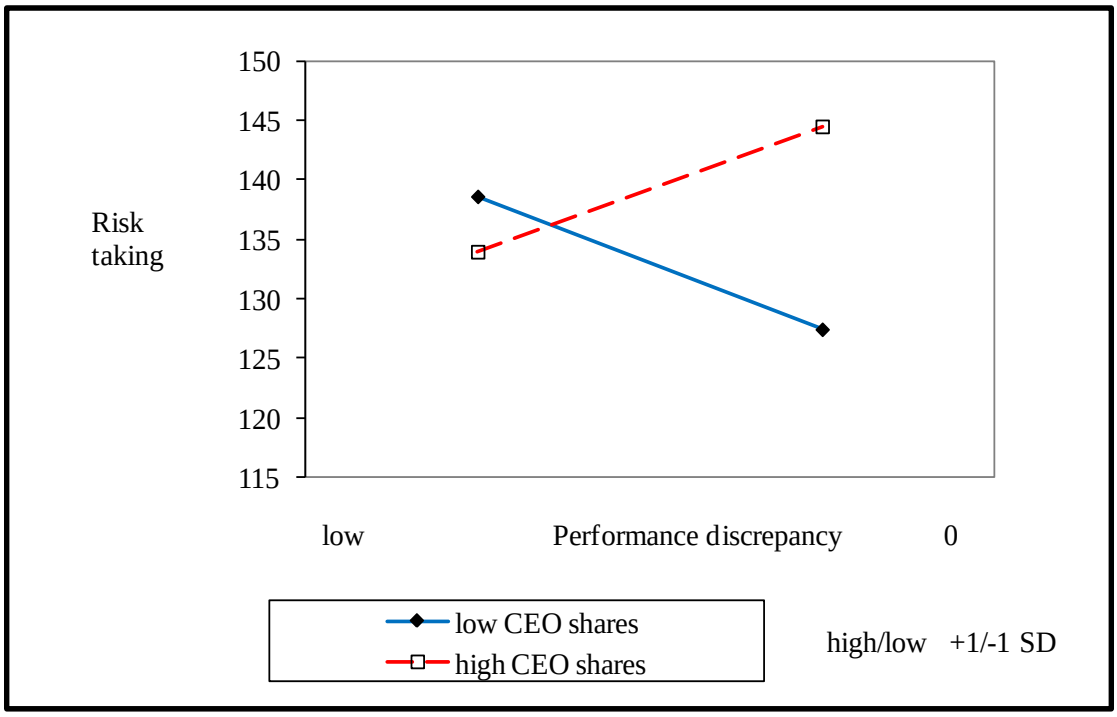


FIGURE A5: Relationship between performance discrepancy and CEO options (Compustat sample)

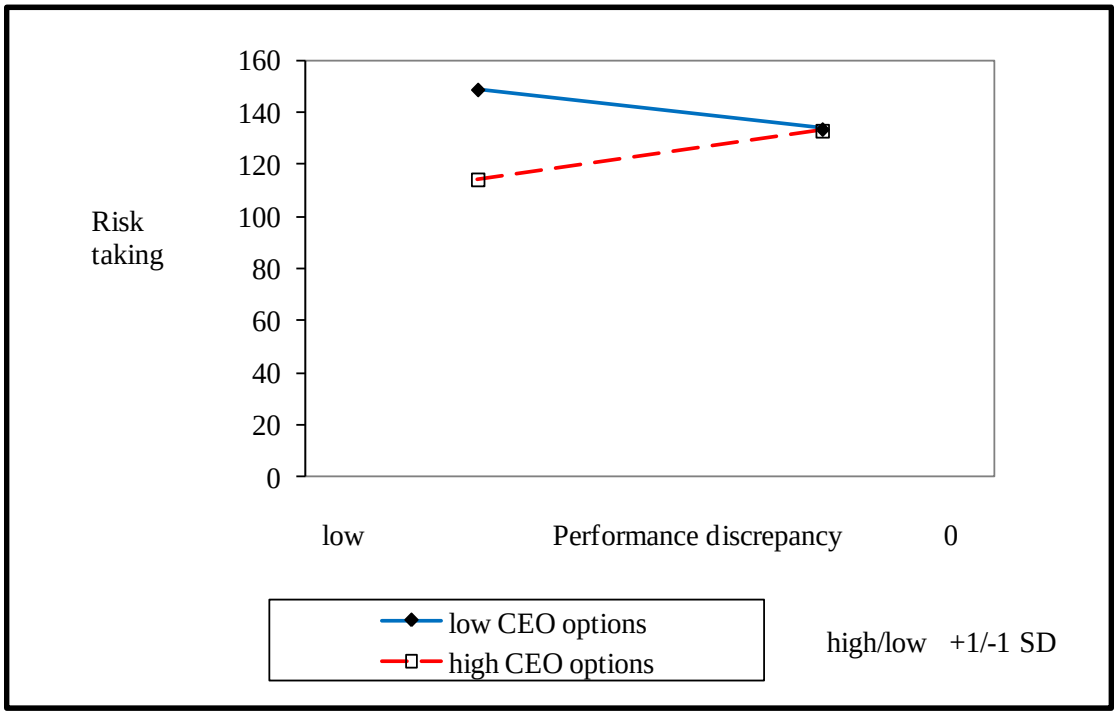


FIGURE A6: Relationship between performance discrepancy and pay gap (Compustat sample)

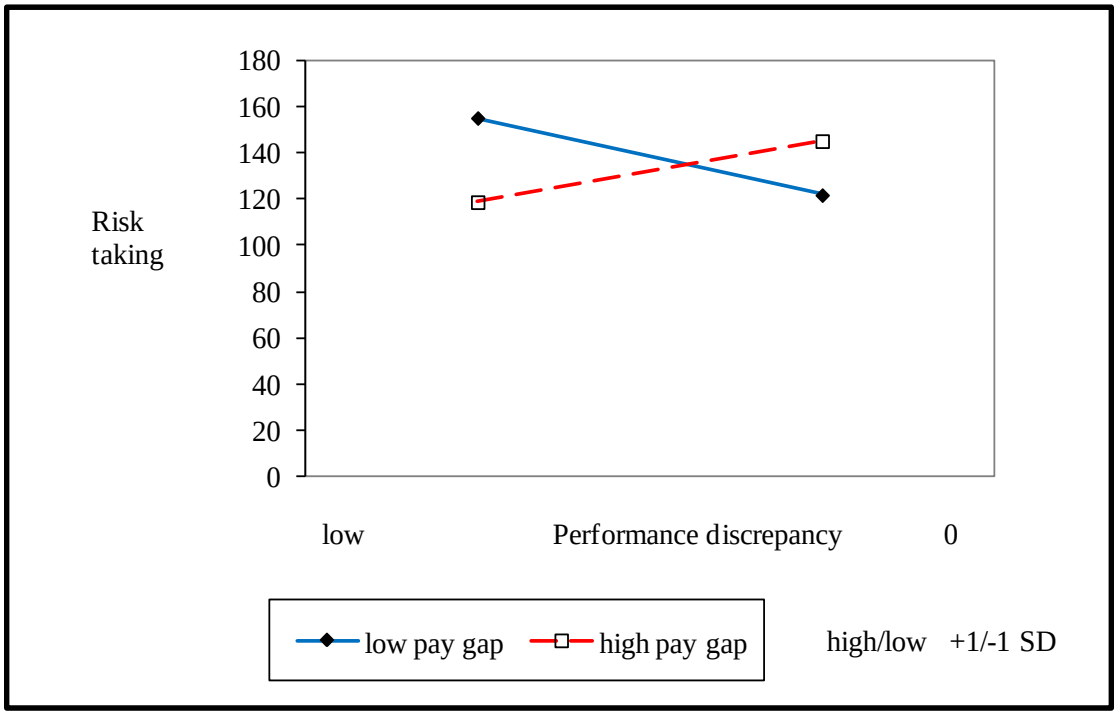


FIGURE A7: Relationship between performance discrepancy and potential slack (Compustat sample)

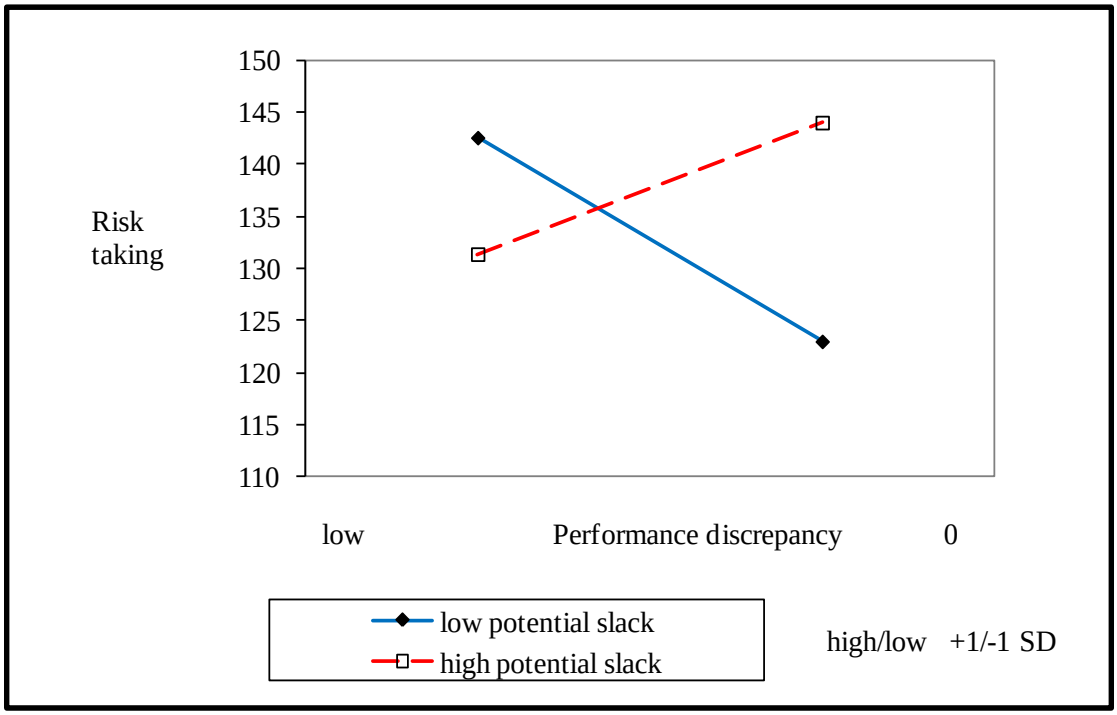


FIGURE A8: Relationship between performance discrepancy and free cash flow (Compustat sample)

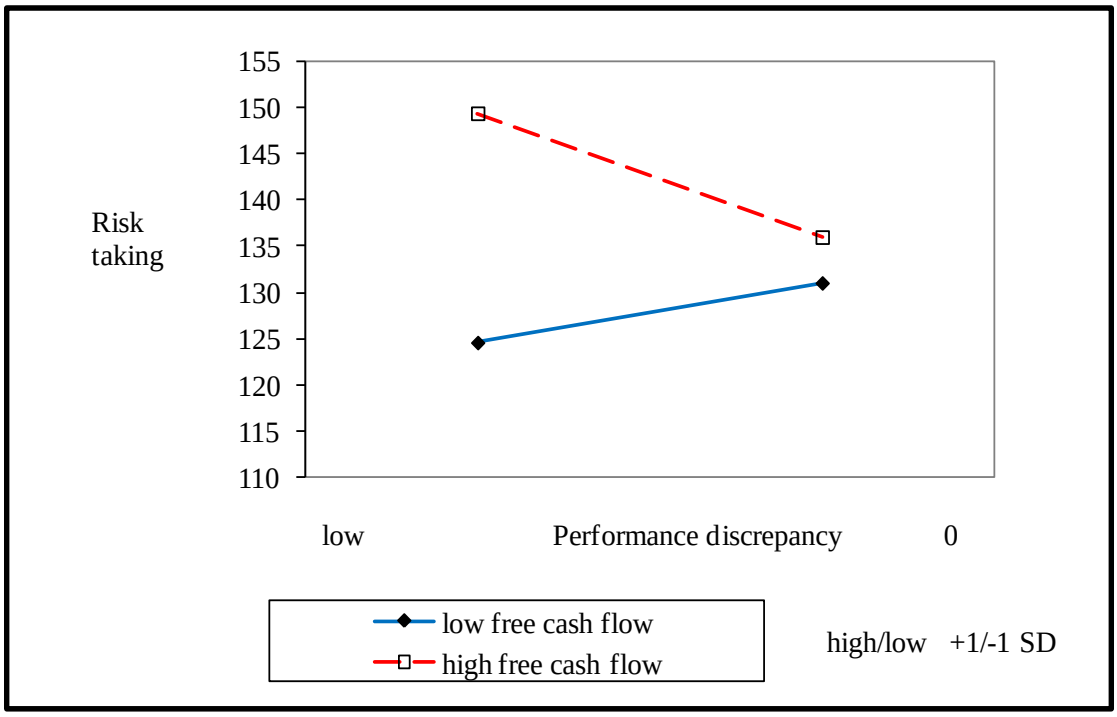


FIGURE B3: Interaction between performance discrepancy and free cash flow (Banking sample and using loan risk)

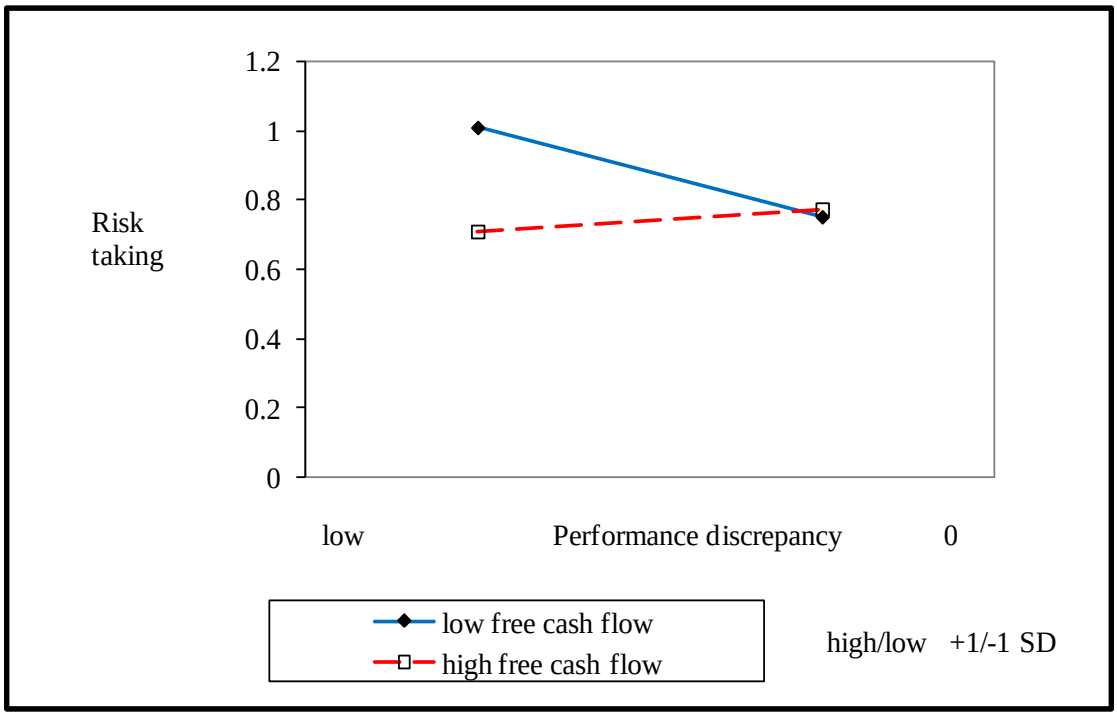
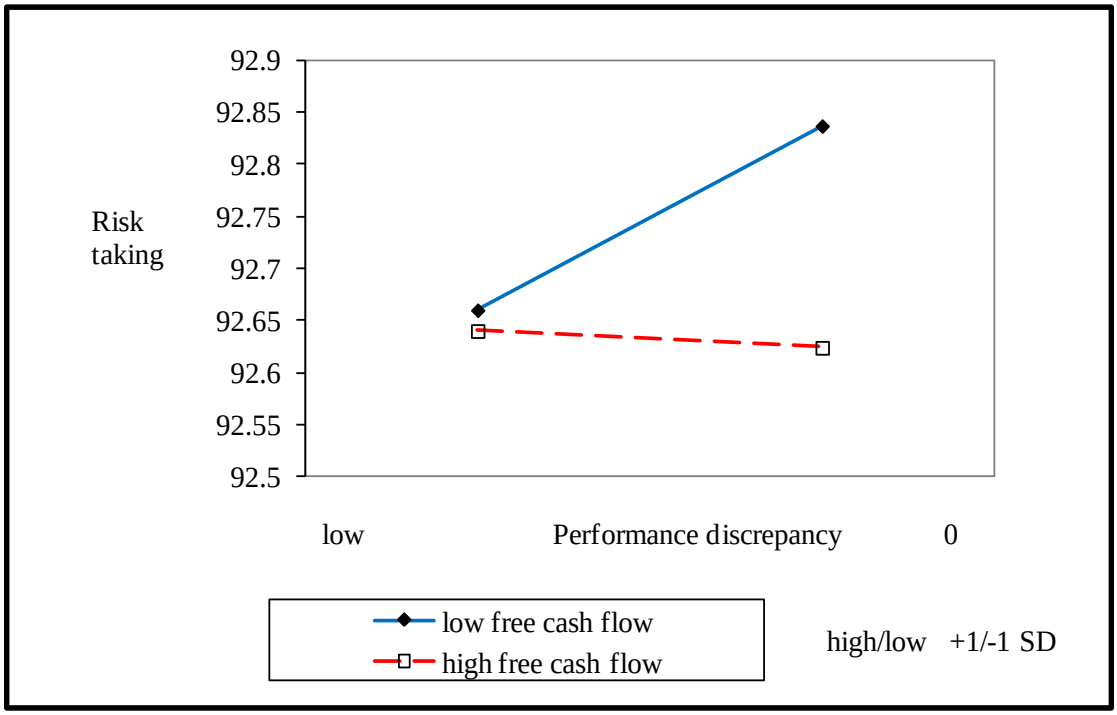


FIGURE B4: Interaction between performance discrepancy and free cash flow (Banking sample and using liquidity risk)



APPENDICES

APPENDIX 1

In this appendix I present supplementary analyses using hand-collected divisional managers' compensation data (for the Compustat sample) and internal and external governance data (for the Banking sample).

TABLE AP1: Correlation table for the reduced sample testing H5a-H5b

	M	SD	1	2	3	4	5	6	7	8	9	10
1. Risk	143.3	357.1	1.00									
2. Sales growth	0.07	0.25	0.13	1.00								
3. Div. size	6.1	1.85	0.67	0.16	1.00							
4. PBH	0.05	0.19	-0.07	-0.12	-0.15	1.00						
5. PAH	0.04	0.19	-0.10	0.23	-0.21	-0.06	1.00					
6. PBS	0.05	0.18	-0.09	-0.21	-0.13	0.31	-0.06	1.00				
7. PAS	0.11	0.27	-0.10	0.10	-0.19	0.09	0.52	-0.15	1.00			
8. Relative size	0.35	0.26	0.55	0.10	0.59	-0.03	-0.05	0.03	-0.04	1.00		
9. Divisional shares	624.6	1131.3	0.38	0.20	0.41	-0.03	-0.06	-0.04	-0.02	0.15	1.00	
10. Divisional options	1180.1	1683.6	0.08	0.07	0.18	-0.04	-0.04	-0.02	-0.10	0.09	0.28	1.00
11. Diversification	0.51	0.41	-0.24	-0.02	-0.08	-0.11	0.02	-0.08	0.04	-0.34	-0.02	0.24
12. Potential slack	1.1	1.35	0.19	-0.02	-0.04	0.16	-0.11	0.01	0.03	0.28	-0.01	-0.02
13. Free cash flow	0.05	0.39	0.01	0.13	0.04	0.03	0.02	0.07	0.08	0.07	0.04	-0.02
14. CEO shares	1838	6257	0.51	0.09	0.27	-0.04	-0.05	-0.04	-0.07	0.38	0.19	0.11
15. CEO options	2197	4120	0.00	-0.05	0.14	0.00	-0.04	0.00	0.06	0.07	0.23	0.47
16. Pay gap	7.6	1.3	0.14	-0.02	0.31	-0.05	-0.05	-0.10	0.03	0.09	0.29	0.33
17. Inst. ownership	0.55	0.31	-0.22	0.14	-0.17	0.07	0.09	0.09	0.01	0.02	-0.20	-0.04
18. Blockholders	1.68	1.6	-0.14	0.02	-0.29	0.08	0.15	0.06	0.06	-0.11	-0.20	-0.14

TABLE AP1 (cont'd)

	11	12	13	14	15	16	17
1. Risk							
2. Sales growth							
3. Div. size							
4. PBH							
5. PAH							
6. PBS							
7. PAS							
8. Relative size							
9. Divisional shares							
10. Divisional options							
11. Diversification	1.00						
12. Potential slack	-0.27	1.00					
13. Free cash flow	0.07	0.04	1.00				
14. CEO shares	-0.15	0.29	-0.01	1.00			
15. CEO options	0.10	0.29	-0.08	0.04	1.00		
16. Pay gap	0.11	0.11	-0.08	-0.07	0.64	1.00	
17. Inst. ownership	-0.13	0.01	0.18	-0.34	-0.15	0.00	1.00
18. Blockholders	-0.03	-0.06	0.10	-0.05	-0.26	-0.16	0.46

N=292 Correlations larger than 0.11 and smaller than -0.11 are significant at $p<0.05$

TABLE AP2: Relationship between performance discrepancy and risk taking based on historical aspirations (Compustat sample)

	Model 1		Model 2	
Variables	Coeff	SE	Coeff	SE
Constant	139.1	(101.2)	241.8*	(110.4)
Sales growth	5.4	(14.7)	7.5	(15.8)
Divisional size	196.9***	(44.5)	144.3**	(45)
Risk taking $_{t-2}$	176.2***	(16.6)	216.8***	(17.9)
Historical attainment discrepancy <0	-2.2	(7.9)	17.7	(131.7)
Historical attainment discrepancy > 0	4.5	(31.6)	65.8	(246.9)
Relative divisional size	4.3	(26.1)	4.59	(27.9)
Divisional managers' shares	53.4**	(15.4)	75.5**	(23.6)
Divisional managers' options	5.0	(24.7)	0.58	(35.1)
Diversification	-48.7†	(29.0)	-57.7†	(32.98)
Potential slack	-3.6	(63.4)	-6.3	(85.2)
Free cash flow	-5.7	(20.8)	-84.98	(62.3)
CEO shares	54.3*	(25.3)	78.6	(54.4)
CEO options	-45.1	(28.2)	-128.5**	(37.3)
Pay gap	-29.1	(33.4)	-9.9	(42.5)
Institutional ownership	-78.5	(65.7)	-107.3	(80.2)
Bockholders	0.4	(27.3)	11.3	(34.7)
Relative divisional size X				
x historical attainment discrepancy < 0			11.4	(34)
x historical attainment discrepancy > 0			-34.3	(92.7)
Divisional managers' shares				
x historical attainment discrepancy < 0			-26.8	(64.97)
x historical attainment discrepancy > 0			231.1*	(104.1)
Divisional managers' options				
x historical attainment discrepancy < 0			12.1	(92.96)
x historical attainment discrepancy > 0			-103.3	(135.2)
Diversification				
x historical attainment discrepancy < 0			-70.4	(58.6)
x historical attainment discrepancy > 0			12.4	(80.7)
Potential slack X				
x historical attainment discrepancy < 0			-56.1	(89.8)
x historical attainment discrepancy > 0			181.6	(282.9)
Free cash flow X				
x historical attainment discrepancy < 0			8.1	(48.8)
x historical attainment discrepancy > 0			-393.4	(279.4)
CEO shares				
x historical attainment discrepancy < 0			14.1	(148.4)
x historical attainment discrepancy > 0			192.3	(163.5)

TABLE AP2 (cont'd)

CEO options				
x historical attainment discrepancy < 0			-17.3	(75.6)
x historical attainment discrepancy > 0			-635.1***	(156.95)
Pay gap				
x historical attainment discrepancy < 0			-5.5	(111)
x historical attainment discrepancy > 0			198.7	(152.3)
Institutional ownership				
x historical attainment discrepancy < 0			-129.9	(183.3)
x historical attainment discrepancy > 0			205.97	(228.4)
Blockholders				
x historical attainment discrepancy < 0			103	(103.8)
x historical attainment discrepancy > 0			-63.1	(96.3)
N	321		321	
Wald χ^2	390		475	
Prob > χ^2	0.000		0.000	
Variance within divisions	0.52		0.57	
Variance between divisions	0.16		0.06	
Variance between firms	0.33		0.38	

Standardized coefficients are reported. Standard errors are in parentheses.
† $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

TABLE AP3: Relationship between performance discrepancy and risk taking based on social aspirations (Compustat sample)

	Model 1		Model 2	
Variables	Coeff	SE	Coeff	SE
Constant	107.6	(105.7)	160.1	110.5
Sales growth	4.4	(14.4)	7.4	(16.5)
Divisional size	233.7***	(48.1)	217.9***	(57.5)
Risk taking $_{t-2}$	170.0***	(17.3)	171.7***	(19.5)
Social attainment discrepancy <0	14.3	(21.1)	-14.2	1(37.6)
Social attainment discrepancy > 0	27.8	(29.7)	174.9	1(09.6)
Relative divisional size	-8.1	(28.0)	-16.2	(31.5)
Divisional managers' shares	52.4**	(16.0)	52.0*	(24.6)
Divisional managers' options	12.5	(26.0)	-26.6	(34.9)
Diversification	-55.1†	(28.8)	-21.9	(37.8)
Potential slack	8.9	(65.7)	-36.0	(75.5)
Free cash flow	-9.6	(22.9)	-37.8	(32.7)
CEO shares	56.5*	(25.9)	-28.8	(57.7)
CEO options	-52.6†	(29.7)	-66.4†	(39.1)
Pay gap	-32.3	(35.0)	-38.6	(48.9)
Institutional ownership	-80.4	(67.6)	-124.5	(78.2)
Bockholders	-0.5	(29.4)	8.8	(38.1)
Relative divisional size X				
x social attainment discrepancy < 0			-30.2	(51.8)
x social attainment discrepancy > 0			118.7**	(41.5)
Divisional managers' shares				
x social attainment discrepancy < 0			74.5	(85.8)
x social attainment discrepancy > 0			-101.8*	(46.1)
Divisional managers' options				
x social attainment discrepancy < 0			-162.2†	(90.7)
x social attainment discrepancy > 0			-76.5	(69.6)
Diversification				
x social attainment discrepancy < 0			182.5†	(99.6)
x social attainment discrepancy > 0			110.7*	(50.3)
Potential slack X				
x social attainment discrepancy < 0			222.8	(139.0)
x social attainment discrepancy > 0			198.9†	(108.6)
Free cash flow X				
x social attainment discrepancy < 0			0.2	(79.8)
x social attainment discrepancy > 0			-103.6	1(14.4)
CEO shares				
x social attainment discrepancy < 0			-352.0†	(199.5)
x social attainment discrepancy > 0			-47.8	(85.6)

TABLE AP3 (cont'd)

CEO options				
x social attainment discrepancy < 0			-92.0	(137.2)
x social attainment discrepancy > 0			-173.5**	(67.7)
Pay gap				
x social attainment discrepancy < 0			-24.5	(159.8)
x social attainment discrepancy > 0			64.4	(88.7)
Institutional ownership				
x social attainment discrepancy < 0			9.5	(183.2)
x social attainment discrepancy > 0			-192.5†	(108.5)
Blockholders				
x social attainment discrepancy < 0			-12.5	(107.3)
x social attainment discrepancy > 0			-11.3	(46.6)
N	296		296	
Wald χ^2	380		370	
Prob > χ^2	0.000		0.000	
Variance within divisions	0.52		0.43	
Variance between divisions	0.21		0.22	
Variance between firms	0.27		0.35	

Standardized coefficients are reported. Standard errors are in parentheses.
† $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

TABLE AP4: Relationship between performance discrepancy and risk taking based on historical aspirations (Banking sample)

	Model 1 – Bank Risk		Model 2 – Bank Risk		Model 3 – Loan Risk		Model 4 – Loan Risk		Model 5 – Liquidity risk		Model 6 – Liquidity risk	
Variables	Coeff	SE	Coeff	SE	Coeff	SE	Coeff	SE	Coeff	SE	Coeff	SE
Constant	76.1***	(1.2)	76.1***	(1.2)	0.68**	(0.15)	0.75**	(0.16)	94.6***	(0.7)	94.6***	(0.71
Sales growth	-0.62*	(0.28)	-0.57*	(0.28)	-0.01	(0.04)	-0.02	(0.04)	0.01	(0.21	-0.03	(0.21)
Divisional size	-0.66	(0.63)	-0.84	(0.64)	0.15†	(0.09)	0.16†	(0.09)	-0.18	(0.36	-0.29	0.36)
Divisional age	0.12	(0.41)	0.17	(0.41)	-0.13*	(0.06)	-0.14*	(0.06)	-0.19	(0.24	-0.17	(0.24)
Risk taking $_{t-2}$	12.04***	(0.36)	12.18***	(0.37)	0.57***	(0.04)	0.55***	(0.04)	8.19***	(0.21	8.11***	(0.21)
PBH	0.74*	(0.32)	0.65†	(0.39)	0.06	(0.05)	0.06	(0.05)	0.21	(0.24	0.17	(0.29)
PAH	0.58†	(0.30)	0.62	(0.39)	0.08†	(0.04)	0.07	(0.05)	0.05	(0.22	0.04	(0.29)
Relative div. size	0.47	(0.57)	0.61	(0.58)	0.06	(0.08)	0.04	(0.08)	-0.24	(0.33	-0.08	(0.34)
Slack	0.70*	(0.30)	0.61†	(0.31)	-0.08†	(0.04)	-0.03	(0.04)	-0.10	(0.22	-0.08	(0.23)
Diversification	0.73	(0.63)	0.67	(0.63)	0.10	(0.08)	0.09	(0.09)	-0.15	(0.32	-0.22	(0.32)
CEO shares	1.14*	(0.46)	1.30**	(0.47)	0.05	(0.06)	0.03	(0.06)	0.43	(0.31	0.38	(0.32
CEO options	-1.06**	(0.37)	-1.30**	(0.41)	0.04	(0.05)	0.01	(0.06)	-0.34	(0.27	-0.35	(0.30)
Pay gap	0.34	(0.51)	0.28	(0.52)	-0.15*	(0.07)	-0.10	(0.07)	-0.33	(0.30	-0.33	(0.31)
Institutional ownership	0.68	(0.62)	0.95	0.63)	0.14†	(0.08)	0.16†	(0.09)	-0.11	(0.32	-0.01	(0.32)
Blockholders	-1.04**	(0.39)	-1.22**	(0.40)	0.12*	(0.05)	0.15**	(0.05)	-0.001	(0.28	-0.02	(0.28)
PBH * relative size			0.34	(0.39)			0.05	(0.05)			0.23	(0.29)
PAH * relative size			0.72†	(0.42)			-0.03	(0.06)			0.70*	(0.31)
PBH * diversification			0.38	(0.33)			0.02	(0.05)			0.002	(0.25)
PAH * diversification			-0.10	(0.34)			0.01	(0.05)			-0.04	(0.25)
PBH * slack			0.13	(0.22)			0.03	(0.03)			0.07	(0.16)
PAH * slack			0.47	(0.34)			-0.01	(0.05)			0.46†	(0.25)
PBH * CEO shares			-1.24**	(0.45)			-0.11†	(0.06)			-0.80*	(0.32)
PAH * CEO shares			-0.52*	(0.21)			-0.01	(0.03)			0.11	(0.16)
PBH * CEO options			0.73*	(0.33)			0.13**	(0.04)			0.38	(0.25)

TABLE AP4 (cont'd)

PAH * CEO options			0.38	(0.41)			0.02	(0.06)			-0.39	(0.30)
PBH * Pay gap			0.37	(0.31)			-0.24***	(0.04)			0.01	(0.23)
PAH * Pay gap			-0.09	(0.38)			-0.15**	(0.05)			-0.05	(0.28)
PBH * Inst. ownership			0.46	(0.41)			0.05	(0.06)			0.32	(0.30)
PAH * Inst. ownership			0.90*	(0.40)			-0.01	(0.05)			-0.23	(0.29)
PBH * Blockholders			-0.25	(0.33)			-0.05	(0.05)			0.47†	(0.25)
PAH * Blockholders			0.30	(0.33)			-0.09†	(0.04)			0.61*	(0.25)
N	959		959		950		950		959		959	
Wald χ^2	1359		1378		767		837		1753		1820	
Prob > χ^2	0.000		0.000		0.000		0.000		0.000		0.000	
Within division variance	0.8		0.79		0.8		0.75		0.98		0.98	
Between division variance	0.1		0.11		0.14		0.17		0.00		0.00	
Between firm variance	0.09		0.1		0.06		0.08		0.02		0.02	

Standardized coefficients are reported. Standard errors are in parentheses.
† $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

TABLE AP5: Relationship between performance discrepancy and risk taking based on social aspirations (Banking sample)

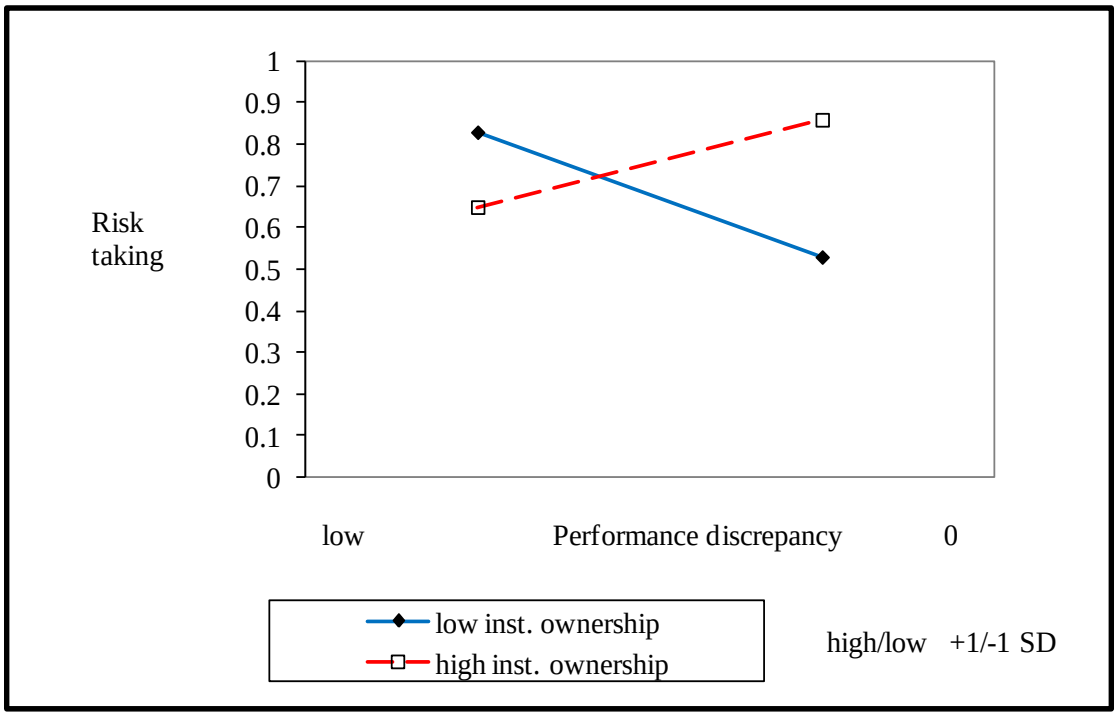
	Model 1 – Bank Risk		Model 2 – Bank Risk		Model 3 – Loan Risk		Model 4 – Loan Risk		Model 5 – Liquidity risk		Model 6 – Liquidity risk	
Variables	Coeff	SE	Coeff	SE	Coeff	SE	Coeff	SE	Coeff	SE	Coeff	SE
Constant	75.2***	(1.4)	75.1***	(1.4)	0.73**	(0.16)	0.71***	(0.16)	94.3***	(0.69)	94.3***	(0.69)
Sales growth	-0.82**	(0.28)	-0.74**	(0.28	-0.02	(0.04)	-0.04	(0.04)	0.04	(0.21)	0.07	(0.22)
Divisional size	-0.70	(0.84)	-0.96	(0.85	0.14	(0.10)	0.14	(0.10)	-0.19	(0.36)	-0.16	(0.36)
Divisional age	0.12	(0.58)	0.15	(0.58	-0.13*	(0.06)	-0.12†	(0.06)	-0.15	(0.25)	-0.18	(0.25)
Risk taking $_{t-2}$	9.54***	(0.46)	9.67***	(0.47	0.57***	(0.05)	0.58***	(0.05)	8.20***	(0.21)	8.11***	(0.22)
PBS	-0.21	(0.34)	-0.71	(0.47)	0.01	(0.05)	0.03	(0.07)	-0.12	(0.25)	-0.29	(0.35)
PAS	-0.34	(0.38)	-0.52	(0.42)	0.03	(0.05)	0.03	(0.06)	-0.38	(0.26)	-0.52†	(0.30)
Relative div. size	0.71	(0.72)	0.81	(0.73)	0.05	(0.08)	0.06	(0.08)	-0.26	(0.33)	-0.17	(0.34)
Slack	0.67*	(0.30)	0.31	(0.31)	-0.05	(0.04)	-0.06	(0.05)	-0.06	(0.22)	-0.10	(0.24)
Diversification	1.34†	(0.70)	1.30†	(0.72)	0.09	(0.09)	0.12	(0.09)	-0.07	(0.31)	-0.02	(0.30)
CEO shares	1.08*	(0.45)	0.96†	(0.51)	0.05	(0.06)	0.02	(0.07)	0.35	(0.30)	0.07	(0.34)
CEO options	-0.82*	(0.35)	-0.96*	(0.38)	0.03	(0.05)	0.05	(0.05)	-0.27	(0.27)	-0.22	(0.29)
Pay gap	0.37	(0.55)	0.37	(0.55)	-0.10	(0.07)	-0.10	(0.07)	-0.31	(0.30)	-0.20	(0.30)
Institutional ownership	0.84	(0.70)	1.30†	(0.71)	0.13	(0.08)	0.08	(0.09)	-0.08	(0.30)	0.06	(0.30)
Blockholders	-0.99*	(0.39)	-1.22**	(0.40)	0.16**	(0.06)	0.19**	(0.06)	-0.04	(0.29)	-0.05	(0.30)
PBS * relative size			-0.27	(0.39)			0.08	(0.06)			0.27	(0.30)
PAS * relative size			0.38	(0.40)			-0.02	(0.06)			0.64*	(0.29)
PBS * diversification			-0.72	(0.46)			0.16*	(0.07)			-0.19	(0.35)
PAS * diversification			-0.14	(0.39)			0.03	(0.06)			0.29	(0.28)
PBS * slack			0.09	(0.21)			-0.03	(0.05)			-0.02	(0.17)
PAS * slack			1.20***	(0.25)			0.03	(0.04)			0.17	(0.20)
PBS * CEO shares			-0.09	(0.30)			0.02	(0.04)			0.41†	(0.22)
PAS * CEO shares			0.00	(0.28)			0.04	(0.04)			0.31	(0.21)
PBS * CEO options			-0.21	(0.38)			0.03	(0.06)			-0.36	(0.29)

TABLE AP5 (cont'd)

PAS * CEO options			-0.33	(0.41)			-0.04	(0.06)			-0.50	(0.32)
PBS * Pay gap			-0.34	(0.30)			0.06	(0.06)			-0.25	(0.23)
PAS * Pay gap			-0.80†	(0.47)			-0.03	(0.07)			0.26	(0.35)
PBS * Inst. ownership			0.74	(0.46)			-0.17*	(0.07)			0.43	(0.35)
PAS * Inst. ownership			0.69	(0.46)			-0.06	(0.07)			0.27	(0.34)
PBS * Blockholders			-0.78	(0.49)			0.13†	(0.07)			0.01	(0.37)
PAS * Blockholders			-0.27	(0.33)			-0.06	(0.05)			-0.15	(0.26)
N	872		872		863		863		872		872	
Wald χ^2	644		683		590		619		1782		1824	
Prob > χ^2	0.000		0.000		0.000		0.000		0.000		0.000	
Within division variance	0.54		0.54		0.77		0.77		0.99		0.99	
Between division variance	0.33		0.33		0.16		0.16		0.00		0.00	
Between firm variance	0.13		0.14		0.07		0.07		0.01		0.01	

Standardized coefficients are reported. Standard errors are in parentheses.
† $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

FIGURE B5: Interaction between performance discrepancy and institutional ownership (Banking sample and using loan risk)



CHAPTER TWO: OUTCOMES OF DIVISIONAL RISK TAKING – HOW THE STRUCTURAL EMBEDDEDNESS OF DIVISIONS IN THE M-FIRM AFFECTS THE QUALITY OF THEIR RISK TAKING

INTRODUCTION

The relationship between organizational risk taking and subsequent performance plays an important role in the field of strategic management. The overall conclusion is that risk has important implications for organizational outcomes (e.g. Bowman, 1980, 1982, 1984; Bromiley, 1991; Fiegenbaum and Thomas, 1985; 1986; 1988; Miller and Bromiley, 1990; Miller and Leiblein, 1996; Wiseman and Bromiley, 1996) and thus represents one of the central decision making processes for organizations. Despite its long history, research on that relationship is inconclusive, with many questions still remaining unanswered.

On one hand, majority of research reports a negative association between risk and performance where managers undertake risky choices which are detrimental to performance and do not result in higher returns (Bowman, 1980, 1982; Bromiley, 1991; Fiegenbaum and Thomas, 1988). Alternatively, continuous engagement in risky initiatives leads to a downward spiral in organizational performance (Wiseman and Bromiley, 1996). On the other hand, there are studies finding a positive link between risky choices and subsequent performance. For example, Miller and Leiblein (1996) offer evidence that managers will engage in and persists with risky efforts until they encounter solutions with high-enough returns.

Overall, these findings are quite puzzling and necessitate the question: Why do some firms undertake "good", value-enhancing risky choices (e.g. Miller and Leiblein, 1996) and other organizations conduct "bad" and detrimental risky choices?[7] In other words, it is critical to

[7] I define "good" risks as risks leading to improvements in performance; on the contrary, "bad" risks are associated with performance declines (e.g. Wiseman and Bromiley, 1996).

understand how some managers are able to recognize and implement organizationally-beneficial risky strategies and other managers are not.

Another question that needs an answer is: For managers who "fall into a trap of taking unprofitable risks" (Wiseman and Bromiley, 1996: 524), what is their motivation to continue with risky choices and can they learn to avoid such unsuccessful risky efforts?

The purpose of this chapter is to answer these questions and offer more insights about when and why risk taking might be positively or negatively related to subsequent performance. To achieve this objective, I argue that it is necessary to investigate unexplored contingencies and varying moderating conditions, and more specifically corporate and industry factors (Deephouse and Wiseman, 2000; Wiseman and Bromiley, 1991), that might reconcile previously inconclusive results. Although prior research has examined some potential moderators (see Bromiley, 1991; Fiegenbaum and Thomas, 1988), those studies have not emphasized differences across types of firms – e.g. they have viewed firms as stand-alone entities that function independently. In contrast, in this chapter I distinguish between divisions across M-firms and single-business firms and I argue that important structural contingencies will affect the relationship between risk taking and performance. That is, since divisional managers' decision making is contextually situated (Granovetter, 1985, 1992), I examine how "a cascading hierarchy of influences" (Sutcliffe and McNamara, 2001: 486) will moderate the relationship between their risk taking and performance. In particular, I present how environmental-level (Goll and Rasheed, 1997; Henderson et al., 2006; Palmer and Wiseman, 1999), corporate-level (Sanders and Hambrick, 2007; Mikkelson and Ruback, 1991; Palmer and Wiseman, 1999), and divisional-level variables (Audia and Greve, 2006) impact the degree to which risk taking is beneficial or detrimental to subsequent performance.

Furthermore, I posit that it is necessary to take a deeper look at the facilitating and/or inhibiting mechanisms that distinguish between "good" and "bad" risk taking. More specifically, the existence of structural and cognitive contingencies in the M-firm is expected to have strong impact on the ability and motivation of divisional managers to conduct effective risk taking which positively impacts performance at the divisional level. On one hand, low-powered incentives of divisional managers (Williamson, 1996) may discourage the latter to diligently distinguish between "good" and "bad" risky choices which might translate into suboptimal risk taking. In addition, the informational disadvantage of the corporate office vis-à-vis divisions (Williamson, 1985) reduces its ability to properly monitor the effectiveness and quality of the risky strategies undertaken by divisions (e.g. Kim et al., 2004). On the other hand, a focal division could gain access to richer information and solutions provided by other corporate divisions, possibly facilitating the quality of its risk taking (e.g. Hansen, 1999; 2002; Beckman and Haunschild, 2002).

Overall, this chapter aims to develop a theory of risk taking and performance at the divisional level. By looking at divisions I elaborate on the role of important structural and cognitive constraints in the M-firm that impact the quality of divisional risk taking and subsequently divisional performance. Moreover, utilizing the context of multidivisional firms allows me to examine the impact of unexplored moderating conditions from multiple levels of analysis, such as divisional, corporate and environmental. Thus, I am able to build a cross-level model of the impact of divisional risk taking on divisional performance. To develop my theoretical arguments I integrate BTOF (Cyert and March, 1963), agency theory (Jensen and Meckling, 1976; Eisenhardt, 1989), theories of environmental dynamism, munificence and complexity (Dess and Beard, 1984; Duncan, 1972; Palmer and Wiseman, 1999), and

organizational learning theories (Baum and Ingram, 1998; Beckman and Haunschild, 2002; Chuang and Baum, 2003; Greve, 1998; Ingram and Baum, 1997a, 1997b; Madsen and Desai, 2010).

This chapter provides several contributions to existing research. First, I develop arguments why some organizations are able to engage in beneficial risk taking and others undertake value-destroying risky initiatives. By using the context of corporate divisions, I argue that a key factor for successful risk taking is the ability to learn from related organizations and utilize this knowledge in one's own risky efforts.

Second, I bridge theories of M-firm structure (Hill and Hoskisson, 1987; Hoskisson, Hitt, and Hill, 1991, 1993; Hoskisson and Turk, 1990) and organizational learning theories (Baum and Ingram, 1998; Beckman and Haunschild, 2002; Chuang and Baum, 2003; Greve, 1998) to develop a model outlining their critical role on organizational performance. More specifically, I theorize about the impact of corporate diversification (as a central tenet of organizational structure) on divisional vicarious learning which affects the ability of divisional managers to undertake high-quality risky strategies.

Third, I answer calls for investigating additional contingent factors that might affect the performance consequences of risk taking (Deephouse and Wiseman, 2000). To achieve this, I extend prior research on the risk-return relationship by utilizing a comprehensive multilevel approach. More specifically, I develop theoretical arguments for the moderating role of factors at the divisional (divisional size and divisional managers' compensation), corporate (corporate diversification, executive compensation, and external monitoring), and environmental (industry munificence, complexity and dynamism) levels of analysis and outline their facilitating or inhibiting impact on the risk taking-performance relationship.

Finally, I employ a different methodological approach in testing the relationship between risk and performance. On one hand, prior research following the BTOF has directly related organizational *risk* to subsequent performance (e.g. Miller and Leiblein, 1996). However, by using such an approach (see Fiegenbaum and Thomas, 1988; Miller and Leiblein, 1996; Wiseman and Bromiley, 1996)[8], scholars have failed to pay proper attention to the managerial risky actions (e.g. *risk taking*) which actually affect organizational performance. Thus, in order to better understand the underlying mechanisms of organizational performance I follow the recommendations of the holistic model of risk (Palmer and Wiseman, 1999) and model the impact of *risk taking* on performance. On the other hand, using the firm (and diversified firms in particular) as the unit of analysis has led to studying the risk-return relationship via an aggregation approach which masks the specificities of that relationship[9]. On the contrary, I utilize divisions as a lower unit of analysis and thus I am able to examine more accurately the impact of risk taking on performance.

HYPOTHESES DEVELOPMENT

Do divisions take on "good" or "bad" risks? – The moderating role of M-firm structure

Existing research investigating the impact of risk on firm performance has implicitly assumed that managerial risky actions are relatively independent of other firms' strategies and initiatives. In other words, managers have the ability, authority and motivation to decide on and

[8] Initially, the relationship between risk and return has been analyzed through a mean-variance approach where risk has been operationalized as the variance of firm returns/performance. Subsequently, scholars have begun to utilize various measures of risk, such as managerial perceptions (Singh, 1988), earnings forecasts (Bromiley, 1991), credit risk (McNamara and Bromiley, 1999; Wiseman and Catanach, 1997).

[9] McNamara and Bromiley (1999) is one of the few studies to test the risk-return relationship using the lending decision as a unit of analysis.

undertake risky choices. However, while those assumptions might be relevant for stand-alone firms, they are relatively less applicable to divisional managers who face more structural constraints in their risk taking strategies. More specifically, the existence of salient interdivisional comparisons, the presence of rigid decision rules (e.g. Merton, 1968), the hierarchical dependence, partial detachment from market pressures and low-powered incentives (e.g. Kraatz and Zajac, 2001; Williamson, 1985) are likely to affect divisional managers' ability and diligence in carefully assessing the expected outcomes of risky choices. Thus, the relationship between risk taking and performance for corporate divisions is intertwined within a complex system of organizationally binding norms which suggests a significant deviation from the traditional risk-return association at single-unit firms. The existence of those contingencies is expected to affect the ability and motivation of divisional managers to identify and implement appropriate risk taking and as a result might impact the quality of divisional risk taking which ultimately reflects into their performance.

First, I briefly discuss why divisions might be able to undertake "good" risk taking. Drawing on research in the organizational learning tradition (e.g. Baum and Ingram, 1998; Beckman and Haunschild, 2002; Ingram and Baum, 1997a, 1997b; Darr, Argote, and Epple, 1995; Hansen, 1999), I argue that the existence of other divisions in the M-firm could have a beneficial effect on a focal division's association between risk taking and performance. The underlying argument is that a focal division's managers could utilize the experience of other divisional managers, learn from them and apply this knowledge successfully in their own division (e.g. Beckman and Haunschild, 2002). Observing other divisions, and more specifically the outcomes of their risk taking initiatives, provides a focal division with relevant information and clues about the causes for success or failure of other divisions' risky choices (Baum and

Dahlin, 2007; Chuang and Baum, 2003). As a result, this knowledge is incorporated in the focal division's risky initiatives and is likely to impact positively subsequent divisional performance. Thus, the availability of rich information inside the M-firm and the ability of divisions to learn from the experience of other divisions allow them to make higher-quality decisions (Beckman and Haunschild, 2002) – that is, they are more likely to undertake "good" risk taking which translates into improved divisional performance.

Second, while M-firms provide conditions for "good" risk taking, there are also structural contingencies that undermine the quality of divisional risk taking and might lead to "bad" risk taking. Divisional managers are subject to low-powered incentives (Williamson, 1985, 1996) and their motivation to serve in the corporation's best interests is significantly reduced. As a result, divisional managers might be less incentivized to search for optimal projects and instead might engage in inferior risky strategies (e.g. "bad" risk taking). In a similar vein, divisional managers might develop sense of security and complacency that the corporate office will compensate for their mistakes (Kraatz and Zajac, 2001) and thus show lower urgency and less diligence in searching for and implementing higher-quality risky choices. In other words, divisional managers might become more tolerant and insensitive to inefficient risk taking. Finally, the informational disadvantage of corporate officers vis-à-vis divisional managers (e.g. Hitt et al., 1990) reduces the formers' ability to control divisions (Hill and Hoskisson, 1987) and intervene when divisional risk taking is suboptimal and detrimental for divisional performance.

The above arguments suggest that corporate structure is unlikely to have a uniform effect on the quality of divisional risk taking. Thus, in order to better understand its role, a contingent perspective is needed. I argue that level of diversification as an important element of corporate structure is a critical contingency that provides an explanation for when and why divisions

engage in "good" and/or "bad" risk taking. More specifically, different levels of diversification are expected to make different structural contingencies more salient to divisional managers (e.g. Ocasio, 1997) which affects the risky choices of the latter. In particular, low to moderate diversification (e.g. when corporate divisions are related) allows a focal division to observe similar other divisions and thus to learn effectively from them (Baum and Ingram, 1998; Baum, Li, and Usher, 2000; Greve, 1998). In other words, the existence of large number of similar divisions is associated with more relevant learning and the more likely it is that a focal division will successfully apply that knowledge in its risk taking efforts. On the contrary, when diversification is high (e.g. divisions are unrelated and too diverse – Robins and Wiersema, 2003), the chances for successful learning diminish due to the dissimilarity and incomparability of divisions. That is, applying unrelated divisions' experience with risky choices to a focal division is unlikely to improve performance because of the inapplicability of this experience to different contexts (Baum and Ingram, 1998; Darr et al., 1995). Furthermore, as diversification increases, it becomes harder for corporate executives to effectively monitor and control corporate divisions (Hill and Hoskisson, 1987) and thus the impact of low-powered divisional incentives on risk taking quality exacerbates.

Below I describe in greater details the effect of diversification on divisional risk taking quality and subsequent performance.

Related diversification and "good" risk taking

One of the most important features of M-firms is the rich internal information they provide to divisions and the opportunity for the latter to utilize that knowledge in their strategic initiatives. This argument is particularly valid in moderately diversified M-firms because related divisions could share similar information which is relevant for and fits within their strategic

contexts. That is, since related divisions operate in close markets, pursue similar strategies and implement comparable investment initiatives (e.g. Miner, Kim, Holzinger, and Haunschild, 1999), their managers could observe each other, transfer operating expertise and knowledge (Parmigiani and Holloway, 2011) and learn from the actions other divisions have undertaken (e.g. Baum and Ingram, 1998; Ingram and Baum, 1997a, 1997b; Davis and Greve, 1997; Greve, 1998; Haunschild and Beckman, 1998).

Translating this logic to the relationship between divisional risk taking and performance, I argue that a focal division could utilize other related divisions' experience with risky initiatives and enhance the quality of its own risk taking leading to increased performance. On one hand, a focal division which observes the successful risky strategies of other related divisions is likely to internalize this knowledge and incorporate it in its own risky initiatives (Baum and Dahlin, 2007; Ingram and Baum, 1997a, 1997b). That is, vicarious learning from others' success enhances the ability of a focal division's managers to engage in value-enhancing risky efforts. On the other hand, a focal division could also learn from the mistakes of other related divisions and thus utilize this information in its own strategies. Others' failures provide salient and useful knowledge about the potential causes of unsuccessful risky initiatives and help a focal division to avoid repeating the same mistakes. In other words, finding out that a particular strategy does not work in a similar environment motivates the managers of the focal division to rely on different actions (Chuang and Baum, 2003; Madsen and Desai, 2010). The overall conclusion is that "observing others' successes may increase decision makers' confidence in the accuracy of knowledge held by their own organization and… observing the others' failures may lead decision makers to question their own knowledge" (Madsen and Desai, 2010: 455) and all this experience could be successfully implemented in the subsequent strategies of the focal division.

Furthermore, the knowledge obtained from divisions' risky initiatives could be embedded in the M-firm's routines and stored as a template for future use by other related divisions (e.g. Madsen and Desai, 2010; Parmigiani and Holloway, 2011). As a result, when a focal division is considering a risky initiative (e.g. undertaking a major capital investment project), it could easily access prior codified knowledge and use it appropriately when deciding whether and how to proceed with its strategic initiatives.

While relatedness of other divisions is a critical element of successful vicarious learning, the number of related divisions should be equally important. In other words, the bigger the number of relevant knowledge sources, the more likely the focal division will learn from them. Observing multiple related divisions and internalizing their experiences provides for a larger pool of alternatives and allows the focal divisional manager to select the most appropriate of them (e.g. Haleblian and Finkelstein, 1999). As a result, as the number of related divisions increases, the focal division will be more likely to implement "good" risk taking.

H1: Number of related divisions will moderate the relationship between divisional risk taking and divisional performance, such that the slope of the relationship will be more positive as the number of related divisions increases.

Unrelated diversification and "bad" risk taking

Under conditions of unrelated diversification divisional managers are faced with the inability to effectively learn from other divisions and thus to successfully utilize vicarious learning in their risk taking strategies. The main reason is the dissimilarity among unrelated divisions and the inapplicability of others' experiences to a focal division (e.g. Baum et al., 2000;

Greve, 1998). Utilizing the experience of other unrelated organizations is not only useless (Darr et al., 1995), but could even be harmful to the focal organization (e.g. Baum and Dahlin, 2007).

Nevertheless, a focal division could still try to apply and imitate others' knowledge because of: a) lack of sufficient own experience with risky initiatives (Baum and Dahlin, 2007; Baum and Ingram, 2002); b) inappropriate generalization that others' success will translate into success for the focal division (Kim et al., 2009); and c) internal corporate pressure to follow the actions of other divisional counterparts (e.g. Greve, 1996). More specifically, M-firms have rigid rules and established procedures (Dougherty and Hardy, 1996) regarding where, when and how much to invest in risky projects and usually those rules are based on divisions' prior successful experiences with risk taking. Because divisional managers perceive those rules as taken-for-granted and legitimate (Scott, 1995; Shimizu and Hitt, 2004), they are likely to follow them and thus "to restrict their search, ignore discrepant information, or be automatic in their processing" (Sutcliffe and McNamara, 2001: 497). In other words, managers could become myopic and lax in their risk taking (Sutcliffe and McNamara, 2001) which would negatively affect the quality of their risk taking and ultimately hurt performance[10]. Overall, unrelated diversification increases the likelihood of misfit between rigid organizational rules for investing in risky projects and divisional needs which reduces the usefulness and quality of those risky initiatives.

Furthermore, unrelated diversification is likely to reduce the quality of divisional risk taking in an additional way – due to the inability of the corporate office to effectively counter the low-powered incentives of divisional managers. While low-powered incentives exist across all corporate divisions, the magnitude of their impact on managerial decisions is different across related and unrelated divisions. Contrary to the former case where corporate executives are better

[10] See Haleblian and Finkelstein (1999) for a discussion on the negative consequences of inappropriate imitation.

equipped to control divisions (e.g. Hill and Hoskisson, 1987; Stein, 1997) and thus to alleviate problems associated with low-powered incentives, it is extremely difficult for the corporate office to properly monitor multiple unrelated divisions and correct their inappropriate risky initiatives (e.g. the so-called depth-for-breath tradeoff by Williamson, 1985). Because low-powered incentives reduce their motivation to serve in the corporation's best interests (Williamson, 1985), divisional managers might have lower incentives to search and implement optimal projects (e.g. projects that entail "good" risk and promise relatively certain and high performance outcomes). Alternatively, the "misalignment of incentives between central and divisional managers" (Berger and Ofek, 1995: 40) could lead to implementation of inferior risky strategies at the divisional level.

Overall, because unrelated diversification generates conditions for unsuccessful vicarious learning and inappropriate imitation, and exacerbates the negative effects of low-powered incentives, divisions are more likely to engage in "bad" risk taking which ultimately translates in suboptimal performance. Formally stated:

H2: Level of diversification will moderate the relationship between divisional risk taking and divisional performance, such that the slope of the relationship will be negative (or less positive) for high levels of diversification.

The moderating impacts of industry, corporate and divisional characteristics on the relationship between divisional risk taking and performance

While I argued that corporate diversification plays a focal role on the quality of divisional risk taking, there are additional factors that are expected to influence the ability of divisions to engage in 'good" or bad "risk" taking. In particular, prior research offers strong evidence that

managerial decision making is situated in a broad social context and managerial actions are driven by a complex set of hierarchical influences (Audia and Greve, 2006; Granovetter, 1985, 1992; McNamara and Bromiley, 1997; Sutcliffe and McNamara, 2001). Because divisions in the M-firm are structurally embedded and their decisions are hierarchically dependent on the corporate office, it is logical to expect that higher-order factors (e.g. corporate level) will influence the divisional decision making processes. Furthermore, theories examining the link between organizations and the environment provide evidence that the latter exhibits strong impact on decision making (Goll and Rasheed, 1997; Palmer and Wiseman, 1999). Thus, I argue that organizational decision making (and divisional risk taking in particular) is likely to vary across "multilevel relational contexts" (Langley 1989; O'Reilly and Chatman, 1996).

In a similar vein, organizational performance has been shown to be driven by the interaction of multilevel factors (Bowman and Helfat, 2001; Brush, Bromiley, and Hendrickx, 1999; McGahan and Porter, 1999; Misangyi et al., 2006; Rumelt, 1991). More specifically, Misangyi and colleagues (2006) argue that "the industries and corporate parents in which business segments are embedded serve as environments which affect business unit profitability" (p. 581).

Based on the above arguments, it is logical to investigate how the relationship between divisional risk taking and subsequent performance is influenced by factors at the divisional, corporate, and environmental level of analysis. The selection of the specific factors is theoretically driven and based on prior research outlining their impact on managerial behaviors and decision making.

First, to analyze the industry impact I utilize Dess and Beard's (1984) taxonomy of environmental categories (industry munificence, dynamism, and complexity). In addition, I draw

on a broad stream of research investigating the role of the environment on various outcomes of the managerial decision-making process (see Goll and Rasheed, 1997; Henderson et al., 2006; Hough and White, 1993; Li and Simerly, 1998; Simerly and Li, 2000; Wiersema and Bantel, 1993). Second, to discuss the influence of division and corporate factors I utilize the broad strategic management literature which outlines several organizational attributes that affect decision makers' actions. More specifically, I discuss the moderating role of structural and resource endowment characteristics (Barney, 1991; Chandler, 1962; Porter, 1980) on the relationship between risk taking and performance at the divisional level.

I. Industry factors affecting the relationship between divisional risk taking and performance

As already discussed, corporate divisions could utilize prior experience in their decision making processes with the hope that previously successful decisions could be effectively translated into current contexts. However, such an assumption is valid only when environmental conditions are relatively constant. In other words, "when environments are rapidly changing, experience-based learning may lock firms into previously successful strategies, lowering subsequent performance" (Desai, 2008: 596; Audia et al., 2000; Baum and Ingram, 1998) and negatively influencing the effectiveness of risky initiatives. Thus, whether divisional risk taking could be qualified as "good" or "bad" is partially dependent on the environment in which a division operates.

Industry munificence. Munificence is characterized by "the scarcity or abundance of critical resources" (Castrogiovanni, 1991: 542) and the ability of the environment to support growth (Aldrich, 1979; Dess and Beard, 1984; Starbuck, 1976). Highly munificent environments provide managers with discretion and more opportunities to undertake various experimentations

and different risky projects (e.g. Hambrick and Finkelstein, 1987). Alternatively, highly munificent environments are characterized as attractive and providing enabling conditions for managers to execute successful strategies. Undertaking risky projects, such as production expansion or entering new markets, in growth-supporting environments increases the chances of those projects being successful and generating positive returns.

In contrast, lack of or low environmental munificence leads to difficult and stressful conditions for managers (Wiersema and Bantel, 1993) and limits decision makers' ability to implement strategies that fit with the demands of the environment. Because scarcity leads to "decreased information processing, … more rigid problem-solving and adherence to traditional routines" (Wiersema and Bantel, 1993: 487) and reliance on outdated information, strategic decisions are more likely to be inefficient. As a result, divisional managers are less likely to diligently evaluate different risky alternatives which ultimately increases the likelihood of implementing strategies that do not fit with the environmental requirements. Simply stated, low munificence does not provide a buffer against environmental hostilities (Parks and Conlon, 1995) and further exacerbates suboptimal strategies. Overall, I propose that industry munificence will affect the quality of divisional risk taking and thus moderate its relationship with subsequent performance. Formally stated:

H3: Industry munificence will positively moderate the relationship between divisional risk taking and divisional performance.

Industry dynamism. Dynamism is associated with high degree of uncertainty and unpredictability in the environment which present many unclear situations to organizational decision makers (Duncan, 1972; Li and Simerly, 1997). Highly dynamic environments are

characterized by instability and consistent changes that place "tremendous cognitive demands" (Wiersema and Bantel, 1993: 488) on decision makers and limit their ability to conduct appropriate evaluation of the external conditions. In other words, very dynamic conditions reduce both the access to knowledge necessary for making strategic decisions (Milliken, 1987; Simerly and Li, 2000) and the usefulness of that information and might force "managers to perform limited search in their assessment of the environmental situation" (Li and Simerly, 1997: 171). Thus, there is an increased likelihood of misfit between managerial decisions and the environment. All these will result in low-quality decision making which might negatively affect performance outcomes.

Translating this logic to the quality of divisional risk taking suggests that high dynamism will have a negative impact on the association between risk taking and performance at the divisional level. Considering that risk taking is largely uncertain and its outcomes are unknown to divisional managers ex ante, additional dynamism and uncertainty from the environment will make it even harder for managers to accurately choose and implement appropriate risk taking initiatives (e.g. McNamara et al., 2008). That is, in a highly unstable and unpredictable environment the risk taking initiatives of divisional managers are less likely to fit with the external conditions and more likely to lead to adverse effects on performance. Finally, as discussed previously, divisional managers might rely heavily on existing corporate rules and guidelines for undertaking risky investment projects; however, in highly dynamic environments those rules are difficult to change. As a result, the latter become quickly obsolete (Henderson et al., 2006) which further exacerbates the misfit between divisions' risk taking strategies and subsequent performance.

While highly dynamic environments are expected to have a negative impact on the quality of divisional risk taking, very stable markets might not have a positive effect on the relationship between risk taking and performance, either. Because such environments entail minimum degree of change and are highly predictable (Palmer and Wiseman, 1999), it might be difficult for managers to identify beneficial opportunities which have not been discovered in the past. That is, since all available options have been identified and majority of managers have access to them, there is no new information with unique value to be utilized in divisional risk taking.

Thus, moderate degree of environmental dynamism offers the optimal conditions for effective risk taking because: a) new opportunities and information emerge which are not available to everyone, and b) managers could still recognize and take advantage of those opportunities.

H4: Dynamism will moderate the relationship between divisional risk taking and divisional performance, such that the slope of the relationship will be more positive at moderate levels of dynamism.

Industry complexity. Complexity refers to the heterogeneity of the environment and the multitude of factors that need to be attended to in strategic decision making (Child, 1972; Duncan, 1972; Wiersema and Bantel, 1993). To cope with increased complexity, divisional managers need to possess large information processing capabilities (Dess and Beard, 1984); however, due to cognitive limitations and bounded rationality managers experience difficulties in properly monitoring the whole range of environmental factors and events. This is echoed by Wiersema and Bantel (1993: 489) who argue that "a wider range and greater quantity of

information need to be processed for effective decision making, creating strains on the organization to achieve high quality decision making outcomes". Hence, high environmental complexity makes it more challenging for divisional managers to maintain necessary levels of information processing resources which will affect the outcomes of their risk taking.

Complex environments are expected to exacerbate the ability of divisional managers to undertake appropriate risk taking (e.g. "good" risk taking). In particular, divisional managers are not able to properly evaluate all means-ends linkages in complex environments (e.g. Hambrick and Finkelstein, 1987) and thus, their risk taking initiatives are less likely to fit with the environment and more likely to result in poor performance.

However, non-complex environments might not be beneficial to divisional risk taking, either. In particular, in markets with no complexity all available alternatives are known and accessible by majority of managers which decreases their value and limits subsequent search efforts in finding new beneficial opportunities. Thus, only at moderate levels of complexity where managers are able to overcome cognitive limitations and take advantage of opportunities not available to and understood by all firms, will divisional risk taking result in satisfactory performance.

H5: Complexity will moderate the relationship between divisional risk taking and divisional performance, such that the slope of the relationship will be more positive at moderate levels of complexity.

II. Corporate governance factors affecting the relationship between risk taking and performance

The M-firm provides two distinct levels at which governance factors are expected to affect the relationship between divisional risk taking and performance. In particular, CEO

incentive alignment and the presence of institutional investors and blockholders operate at the corporate level, while divisional managers' incentive alignment plays a key role at the divisional level. This unique governance structure in M-firms is determined by the existence of double agency where one set of hired agents (the corporate CEO) is responsible for overseeing another set of agents at a lower hierarchical level (the divisional managers) (e.g. Child and Rodriguez, 2003). Thus, the M-firm and its shareholders are likely to incur two sources of agency costs – one source is related to divisional managers undertaking "bad" risks leading to poor performance; the other sources is associated with the corporate CEO who might protect his personal interests rather than control the suboptimal investment decisions of his subordinate divisional managers. However, when appropriate governance mechanisms are implemented at both the corporate and divisional levels, shareholder interests are expected to be protected more strongly. That is, "good" risk taking is likely to be undertaken at the divisional level which leads to increased performance.

Below I discuss first the separate moderating effects of corporate-level and divisional-level governance mechanisms on the relationship between risk taking and performance.

CEO incentive alignment. A broad stream of research has investigated how managerial incentives and ownership variables influence both firm risk taking and firm performance. For example, evidence exists that executive option holdings are positively related to strategic risk taking (Devers et al., 2008; Sanders and Hambrick, 2007) and strategic risky choices (Sanders, 2001). Furthermore, research shows that equity holdings by firm executives are related positively to firm performance (Dalton et al., 2003). However, little research has been done on the moderating effect of incentive alignment on the relationship between risk taking and performance. In this chapter I argue that CEO contingent pay is an important factor that has a

positive impact on the quality of divisional risk taking. Because incentive alignment makes CEOs better monitors of corporate value, it is more likely that they will intervene and discourage ineffective divisional risk taking. That is, when CEOs have a portion of their income linked to corporate performance they will be motivated to promote high-quality risky strategies (Wright, Kroll, Lado, and van Ness, 2002).

On the contrary, low or lack of incentive alignment reduces the motivation of CEOs to act as diligent monitors and instead encourages them to prioritize personal interests. For example, opportunistic corporate CEOs might be more concerned for protecting own perks and income and disregard inefficiencies across divisions (e.g. Scharfstein, 1998). Similarly, in order to maintain political balance and friendship relationships with divisional managers, CEOs might overlook suboptimal divisional decisions (e.g. Hill, Hitt, and Hoskisson, 1992), such as "bad" risk taking that reduces subsequent performance.

Overall, a CEO's contingent compensation increases his opportunity costs of not maximizing firm wealth by allowing suboptimal divisional decisions. Alternatively, such compensation makes CEOs more likely to intervene and correct inappropriate risky strategies by divisional managers. This leads to the following hypothesis:

H6: CEO incentive pay will positively moderate the relationship between divisional risk taking and divisional performance.

External monitoring. Institutional investors and large blockholders have been suggested as an additional monitoring device to managerial actions (Hansen and Hill, 1991; Jensen and Meckling, 1976; Schleifer and Vishny, 1986). Because of the consistent pressure they exercise over firm managers to undertake only value-enhancing strategies, it is argued that they have a

positive impact on performance. This is in accordance with Pound's (1988) efficient monitoring hypothesis that large shareholders encourage value-enhancing decisions and oppose value-decreasing ones. Using this logic within the context of divisional risk taking, I argue that the presence of external monitors, such as institutional investors and blockholders, would reduce the likelihood of "bad" risk taking by divisional managers. Since those external investors possess sizeable portions of firm shares, they would be very sensitive to particular risky strategies by divisions that result in suboptimal performance (e.g. Brickley et al., 1988). Institutional owners and blockholders hold corporate CEOs directly accountable for organizational outcomes and this constant monitoring keeps CEOs attentive to low-quality and inappropriate divisional risky initiatives (e.g. Mikkelson and Ruback, 1991). In other words, in the presence of external monitors CEOs are less likely to tolerate "bad" and value-decreasing divisional risk taking. Furthermore, knowing that the CEO is under strong external monitoring and might not protect their suboptimal risky strategies, divisional managers will exercise greater care in their selection of risky choices. Thus, institutional ownership and blockholders will have a beneficial moderating impact on the relationship between divisional risk taking and divisional performance.

H7a: Institutional ownership will positively moderate the relationship between divisional risk taking and divisional performance.

H7b: Blockholders will positively moderate the relationship between divisional risk taking and divisional performance.

Divisional managers' contingent pay. The arguments for the role of CEO contingent pay on the relationship between divisional risk taking and divisional performance are easily applicable to divisional managers' incentive alignment or what I call a "first-order" corporate

governance mechanism. Divisional managers are inherently risk-averse (Williamson, 1985) and pursue personal objectives even at the detriment of the multidivisional firm. For example, they could engage in risky initiatives which generate personal benefits at the detriment of divisional performance (e.g. Hill et al., 1992). Hence, those divisional actions could be viewed as an additional agency cost levied on the corporation and the wealth of its shareholders. An efficient mechanism that could alleviate such costs, reduce the negative consequences of "bad" risk taking, and encourage divisional managers to undertake appropriate and value-enhancing risky strategies is contingent pay or linking their compensation to organizational outcomes (e.g. Dalton et al., 2003; Hill et al., 1992). Seeing themselves as partial owners in the corporation, divisional managers will have an increased motivation to carefully analyze risky choices and adopt only those that are expected to benefit their divisions and subsequently the corporation. Alternatively, any suboptimal decision would directly translate into reduced performance and decreased divisional managers' compensation. Thus, I expect contingent pay of divisional managers to make them better monitors of corporate wealth and thus to have a positive effect on the relationship between divisional risk taking and divisional performance.

H8: Divisional managers' incentive pay will positively moderate the relationship between divisional risk taking and divisional performance.

In addition to the level of incentive pay, the difference in pay (e.g. pay gap) between divisional managers and the corporate CEO is also expected to affect the formers' actions with regard to the quality of risk taking. According to tournament theory wider pay gaps create incentives for lower-level managers to be more diligent in their strategic choices and engage in actions which protect the interests of shareholders (Henderson and Fredrickson, 2001; Lazear

and Rosen, 1981; Rosen, 1986). Within the context of divisional risk taking, tournament theory arguments suggest that divisional managers will be more careful and vigilant in selecting appropriate risky choices which have a positive effect on performance. In other words, under conditions of high pay gaps divisional managers will have higher incentives to undertake "good" risks which have a beneficial effect on subsequent performance.

H9: The gap between CEO pay and divisional managers' pay will positively moderate the relationship between divisional risk taking and divisional performance.

III. Divisional factors affecting the relationship between risk taking and performance

Divisional size. Divisional size is associated with two main characteristics: structural constraints and bargaining power. Because of their size, bigger divisions are faced with more bureaucracy, inertia, and reliance on established routines (Haleblian et al., 2012; Hannan and Freeman, 1984; Mintzberg, 1979). As a result, they are more likely to utilize prior investment strategies and less likely to carefully evaluate among alternative risky initiatives (e.g. Shimizu and Hitt, 2004). In other words, a big division faces a lower probability of selecting "good" risk taking that fits within the strategic context of the division.

Size also gives divisions a bargaining advantage over the corporate office – as the size of a division increases, it becomes more important for the corporation and divisional managers gain more influence and power vis-à-vis corporate executives (e.g. Kim et al., 2004). Thus, divisional managers could leverage this power to bargain for and receive more resources. While a larger resource base allows divisions to invest in projects and undertake various initiatives, it does not automatically translate into successful projects and higher returns. Quite the opposite, because large divisions could develop the perception that they are entitled to larger capital funds, they

might exhibit less care in how they invest those funds. Simply stated, large divisions could engage in suboptimal risky initiatives knowing that this will not affect significantly the future capital allocations they receive from the corporate office. Furthermore, large divisions have the power to oppose the monitoring attempts of the corporate office regarding their suboptimal risky choices. For example, Kim and colleagues show that within keiretsu organizations (which are similar to M-firms) large member firms leverage their power to block attempts by corporate authorities to emphasize efficiency and profitability (Kim et al., 2004).

On the contrary, smaller divisions are expected to exhibit a stronger relationship between risk taking and performance. Since those divisions have less power and are relatively less important within the M-firm, they receive smaller amount of corporate funds and try to utilize them in the best way possible. Moreover, if small divisions make suboptimal investment decisions which reduce their performance, the corporate office will monitor them closely and is highly likely to divest them (Kim et al., 2004). Thus, small divisions will be very careful and diligent in their risky choices and are more likely to "place greater emphasis on profitability" (Kim et al., 2004: 619) by undertaking "good" risks. Formally stated:

H10: Divisional size will moderate the relationship between divisional risk taking and divisional performance, such that larger divisions are more likely to engage in "bad" risk taking.

METHODS

For Chapter Two I utilize two separate samples which allows me to test the proposed relationships in a more robust manner and reach conclusions with higher external validity. More specifically, Sample 1 includes a wider range of firms and focuses on a broader construct of risk taking – e.g. divisional capital expenditures. Also, I am able to obtain all variables necessary for

testing the proposed hypotheses. Sample 2 focuses on the banking industry and offers a more fine-grained examination of banking divisions' risk taking. In particular, I analyze banking managers' decisions to alter the structure of their risk portfolios by changing the relative weights of various risk-laden categories comprising the portfolio. Due to data limitations, the banking sample allows me to test only some of the proposed relationships.

Sample 1

Data was drawn from several sources: corporate and segment financial data comes from Compustat, executive compensation and governance measures are accessed through Execucomp, and divisional managers' compensation data is obtained through manual search of corporate annual reports. The sample includes all US-based firms from 1998 to 2009. The sample is subject to the following screening criteria. First, units with less than $10 million in sales or assets are excluded (McGahan and Porter, 2003; McNamara, Vaaler, and Aime, 2005). Second, I drop units which are classified as "corporate" or "other" because they are not active units. Third, if the unit's four-digit SIC category is defined as "not elsewhere classified" or "nonclassifiable establishment", this unit is not included in the sample.

Hypothesis 8 is tested on a subsample of Compustat firms. During the period of the study (1998-2009) I identified all diversified S&P 500 corporations and matched them to the initial sample. For all corporations that had no missing values on all variables in the model I executed a manual search of their DEF 14A statements which provide information on the compensation of the top five highest paid executives. After identifying the compensation of a divisional executive, I matched it back to the initial sample. One caveat should be recognized – because not all divisional executives are among the top five highest paid executives during a year, there is a large underrepresentation in this subsample and it is likely that it is biased and not generalizable

to the entire population of multidivisional firms. Thus, the results should be interpreted with caution (see Appendix 2).

Dependent variable

The dependent variable is *divisional performance*, operationalized as operating profits (OPS) at period *t*.

Independent variables

Risk taking is measured as capital expenditures. Capital expenditures are an appropriate measure of managerial risk taking because: a) they represent difficult-to-reverse, long-term investments (Audia and Greve, 2006); and b) "their consequences are uncertain and depend partly on difficult to predict environmental factors" (Desai, 2008: 598). Thus, capital expenditures represent an ex-ante decision of allocating financial resources to projects with uncertain outcomes. In addition, research by Miller and Bromiley (1990) identifies capital expenditures as one of the key dimensions of strategic risk. Finally, capital expenditures have received solid support as a good operationalization of risk taking (Audia and Greve, 2006; Desai, 2008; Sanders and Hambrick, 2007).

Diversification in this chapter is argued to impact the ability of divisions to learn from each other and the quality of their risk taking. Thus, both degree of (dis)similarity and number of similar divisions are expected to moderate the relationship between divisional risk taking and performance. To test Hypothesis 1, I measure diversification as the count of same-corporation divisions (excluding the focal division) that have the same 2-digit SIC code with the focal division. This variable is expected to positively moderate the relationship between risk taking and performance. To test Hypothesis 2, I measure diversification as the unrelated component

(DU) of the entropy measure (Jacquemin and Berry, 1979). This variable is expected to have a negative moderating effect on the relationship between divisional risk taking and performance.

Institutional ownership is calculated as the total number of shares owned by institutional investors, such as pension funds, mutual funds, and hedge funds, divided by the total number of outstanding firm shares (Brickley et., 1988).

Blockholders is the number of stock owners with at least 5% stake in the company (Hoskisson et al., 1994).

CEO contingent pay is measured in two ways – CEO option pay and CEO stock ownership. CEO option pay is measured as the value of options granted during a year using Black and Scholes method. CEO stock ownership is measured as the value of shares owned by the CEO (Sanders, 2001; Wright et al., 2002).

Industry munificence is calculated by following prescriptions of prior research (Dess and Beard, 1984; McNamara, Haleblian, and Dykes, 2008). More specifically, for each 4-digit SIC industry I calculate the total value of sales and regress it on a year-counter variable. I use 5-year time windows. The regression coefficients for each industry are divided by mean industry sales.

Industry dynamism is calculated by dividing the standard errors of the same regression coefficients by mean industry sales. After standardizing the variable, I calculated the absolute value and multiplied by -1. Thus, higher values indicate moderate levels of dynamism and low values indicate the two extremes (e.g. low and high dynamism).

Industry complexity is usually represented as a concentration ratio (Boyd, 1995; Palmer and Wiseman, 1999). Thus, I divide the sales of the four largest firms for each 4-digit SIC industry by the total sales in that industry. I use the inverse of this ratio, so that lower concentration translates into higher complexity. After standardizing the variable, I calculated the

absolute value and multiplied by -1. Thus, higher values indicate moderate levels of complexity and low values indicate the two extremes (e.g. low and high complexity).

Divisional relative size is calculated as the ratio of divisional to corporate assets.

Divisional managers' ownership is measured as the value of corporate shares listed in the annual corporate report.

Divisional managers' stock options reflect the annual award of options.

Pay gap is calculated as the difference in total compensation between the corporate CEO and the next highest paid executive (Henderson and Fredrickson, 2001).

Control variables

Divisional size is measured as the log of divisional assets. *Corporate slack* is operationalized as potential slack (inverse ratio of debt to equity) and free cash flow (Bourgeois, 1981; Haleblian et al., 2012; Iyer and Miller, 2008). *Prior divisional performance* is based on divisional OPS at period *t-2*. *Divisional sales growth* is measured as the annual change in sales (Haleblian et al., 2012).

All independent and control variables are measured in period *t-1*.

Sample 2

In this sample I utilize data on the banking industry and more specifically, I collect variables for parent and divisional banking establishments. The data is obtained from Federal Reserve Bank Regulatory (Call Reports) databases. In these databases parent banks are represented as bank holding companies that are comprised of several commercial banks which operate like divisional units. For example, Citicorp Holdings is the corporate parent of several nationally represented commercial banks, including Citibank NV NA, Citibank NY NA, Citibank South Dakota NA, Citibank Delaware.

The cut-off criterion for inclusion of banks in the sample was $80 million in line with recommendations from prior research (McNamara et al., 2002).

Hypothesis 8 (moderating role of divisional managers' incentive pay) will not be tested in the Banking sample due to data unavailability. Hypotheses 6, 7a, 7b, and 9 will be tested on a subsample of banks. After estimating the models with the initial available data from the Call Reports, I identified all bank holding corporations with no missing data on all variables. Then, I manually searched the ticker symbols of those corporations and used those tickers to obtain data for CEO compensation and external governance factors from Compustat. After adding those supplementary variables to the rest of the sample, I reestimated my models. It should be noted that this subsample is much smaller (about 11% of the initial sample), it is likely to be biased and not representative of the entire banking population. Thus, the results from this subsample, presented in Appendix 2, should be interpreted with caution.

Dependent variable

Bank divisional performance is measured as return on assets (ROA) – it is the most commonly used measure of performance in the banking industry research (Haveman, 1993; McNamara et al., 2002).

Independent variables

Bank divisional risk taking. Following recommendation by Miller and Bromiley (1990) and Wiseman and Catanach (1997) regarding the multidimensional character of risk taking, I use three types of risk taking – bank, loan, and bank liquidity risk – which have been empirically validated in prior research (Shrieves and Dahl, 1992; Wiseman and Catanach, 1997). Bank risk is an indicator of capital adequacy and solvency (Marcus, 1983) and reflects the risk position of the

banking institution. It is measured as the ratio of risk weighted assets to total assets (Shrieves and Dahl, 1992). Loan risk represents an operational risk stemming from accepting loans with high probability of borrower default. It is calculated as sum of non-accrual loans and one half of loans past due 90 days to total loans (Meeker and Gray, 1987; Shrieves and Dahl, 1992). Liquidity risk indicates the ability of a bank to stay solvent and pay its obligations (c.f. Hambrick and D'Aveni, 1988; Wiseman and Catanach, 1997). It is measured as the inverse ratio of liquid assets to total assets (Hambrick and D'Aveni, 1988).

Level of diversification is measured in two ways. For Hypothesis 1, I use the count of bank divisions in a bank holding corporation (excluding the focal bank division) that operate in the same Metropolitan Statistical Area (MSA). For Hypothesis 2, I use the count of banking divisions within the same bank holding corporation that operate in a different MSA. To account for the impact of geographic distance between banking divisions, I devise a supplementary measure which consists of the weighted sum of the above two measures. I expect higher values of this measure to have a negative moderating effect.

Institutional ownership is calculated as the total number of shares owned by institutional investors, such as pension funds, mutual funds, and hedge funds, divided by the total number of outstanding firm shares (Brickley et., 1988).

Blockholders is the number of shareholders with at least 5% stake in the company (Hoskisson et al., 1994).

CEO contingent pay is measured in two ways – CEO option pay and CEO stock ownership. CEO option pay is measured as the value of options granted during a year using Black and Scholes method. CEO stock ownership is measured as the value of shares owned by the CEO (Sanders, 2001; Wright et al., 2002).

Pay gap is calculated as the difference in total compensation between the corporate CEO and the next highest paid executive (Henderson and Fredrickson, 2001).

Bank divisional relative size is calculated as the ratio of divisional assets to bank holding corporation assets.

Industry munificence is calculated by following prescriptions of prior research (Dess and Beard, 1984; McNamara, Haleblian, and Dykes, 2008). More specifically, for each MSA I calculate the total value of deposits and regress it on a year-counter variable. I use 5-year time windows. The regression coefficients for each MSA are divided by mean MSA deposits.

Industry dynamism is calculated by dividing the standard errors of the same regression coefficients by mean MSA deposits. After standardizing the variable, I calculated the absolute value and multiplied by -1. Thus, higher values indicate moderate levels of dynamism and low values indicate the two extremes (e.g. low and high dynamism).

Industry complexity is usually represented as a concentration ratio (Boyd, 1995; Palmer and Wiseman, 1999). Thus, I divide the deposits of the four largest banks for each MSA by the total deposits in that MSA. I use the inverse of this ratio, so that lower concentration translates into higher complexity. After standardizing the variable, I calculated the absolute value and multiplied by -1. Thus, higher values indicate moderate levels of complexity and low values indicate the two extremes (e.g. low and high complexity).

Control variables

I use several control variables. *Bank divisional size* is measured as log of assets of the banking division. *Bank divisional slack* is operationalized as potential slack and free cash flow

(Bourgeois, 1981; Haleblian et al., 2012)[11]. *Bank divisional age* is measured as the time in years since incorporation. *Bank divisional growth* is represented as the annual change in deposits. *Prior divisional performance* is based on divisional ROA and is measured in period *t-2*. All independent and control variables are measured in period *t-1*.

Analysis

The data for my dissertation has a panel structure where repeated observations over time (e.g. divisional risk taking) are nested within divisions, which are nested within corporations and industries. That is, I have variables (divisional size, divisional managers' contingent pay, and sales growth) which exist at the divisional level, variables (level of diversification, corporate slack, institutional ownership, blockholder ownership, CEO contingent pay, and corporate size) which exist at the corporate level, and variables (munificence, dynamism, and complexity) which should be modeled at the industry level of analysis. The nesting of lower levels within higher levels leads to lack of independence between observations and might result in incorrect estimates of the regression coefficients (Raudenbush and Bryk, 2002) if standard OLS regression is used. Thus, I use multilevel linear modeling (MLM) to account for the interdependence between lower levels. MLM allows for the appropriate modeling across time of the relationship between the variables in my model while simultaneously considering the nesting structure of the data (Bryk and Raudenbush, 1989). Overall, by using MLM I could obtain "unbiased and efficient estimates of the regression coefficients and their standard errors despite the dependence among observations" (Fong et al., 2010: 637; Bryk and Raudenbush, 1989). An additional benefit of

[11] In the Banking sample I measure slack at the divisional level rather than at the corporate level. First, the availability of data allows me to do this. Second, calculating slack for the bank holding corporation reduces largely my sample due to underrepresentation of bank holding corporations' identification variables (RSSD 9348). Third, I do not see any theoretical rationale for a different impact of divisional versus corporate slack on risk taking.

MLM is that by partitioning the variance across levels it "effectively controls for industry effects" (Fong et al., 2010: 638; Bloom and Milkovich, 1998).

I rely on the statistical software STATA XT MIXED to conduct the panel data estimation where level-1 equation represents the within-division variance in risk taking and higher-level equations model the cross-sectional (e.g. between divisions) variance in divisional risk taking. Below are the respective level equations.

(1) $\text{Divisional performance}_{tij} = \pi_{0ij} + \pi_{1ij}\,(\text{Risk Taking})_{t-1ij} + \pi_{2ij}\,(\text{Divisional relative size})_{t-1ij} +$

$\pi_{3ij}\,(\text{Divisional contingent pay})_{t-1ij} + \pi_{4ij}\,(\text{Risk taking* Divisional relative size})_{t-1ij} +$

$\pi_{5ij}\,(\text{Risk taking* Divisional contingent pay})_{t-1ij} + \pi_{6ij}\,(\text{Divisional sales growth})_{t-1ij} +$

$\pi_{7ij}\,(\text{Prior divisional performance})_{t-2ij} + \pi_{8ij}\,(\text{Divisional size})_{t-1ij} + e_{tij}$

(2a) $\pi_{0ij} = \beta_{00j} + \beta_{01j}\,(\text{Level of diversification})_{ij} + \beta_{02j}\,(\text{Institutional ownership})_{ij} +$

$\beta_{03j}\,(\text{Blockholder ownership})_{ij} + \beta_{04j}\,(\text{CEO contingent pay})_{ij} + \beta_{05j}\,(\text{Corporate slack})_{ij} +$

u_{0ij}

(2b) $\pi_{1ij} = \beta_{10j} + \beta_{11j}\,(\text{Level of diversification})_{ij} + \beta_{12j}\,(\text{Institutional ownership})_{ij} +$

$\beta_{13j}\,(\text{Blockholder ownership})_{ij} + \beta_{14j}\,(\text{CEO contingent pay})_{ij} + u_{1ij}$

(3a) $\beta_{00j} = \gamma_{000} + \gamma_{001}\,(\text{Industry munificence})_{j} + \gamma_{002}\,(\text{Industry dynamism})_{j} +$

$\gamma_{003}\,(\text{Industry complexity})_{j} + \mu_{j}$

(3b) $\beta_{10j} = \gamma_{100} + \gamma_{101}\,(\text{Industry munificence})_{j} + \gamma_{102}\,(\text{Industry dynamism})_{j} +$

$\gamma_{103}\,(\text{Industry complexity})_{j} + \mu_{j}$

(4a) $\pi_{2ij} = \beta_{20j}$; (4b) $\pi_{3ij} = \beta_{30j}$; (4c) $\pi_{4ij} = \beta_{40j}$; (4d) $\pi_{5ij} = \beta_{50j}$; (4e) $\pi_{6ij} = \beta_{60j}$; (4f) $\pi_{7ij} = \beta_{70j}$;

(4g) $\pi_{8ij} = \beta_{80j}$

(5a) $\beta_{01j} = \gamma_{010}$; (5b) $\beta_{02j} = \gamma_{020}$; (5c) $\beta_{03j} = \gamma_{030}$; (5d) $\beta_{04j} = \gamma_{040}$; (5e) $\beta_{05j} = \gamma_{050}$;

(6a) $\beta_{20j} = \gamma_{200}$; (6b) $\beta_{30j} = \gamma_{300}$; (6c) $\beta_{40j} = \gamma_{400}$; (6d) $\beta_{50j} = \gamma_{500}$; (6e) $\beta_{60j} = \gamma_{600}$;

(6f) $\beta_{70j} = \gamma_{700}$; (6g) $\beta_{80j} = \gamma_{800}$

(7a) $\beta_{11j} = \gamma_{110}$; (7b) $\beta_{12j} = \gamma_{120}$; (7c) $\beta_{13j} = \gamma_{130}$; (7d) $\beta_{14j} = \gamma_{140}$

Equation (1) represents the time level where performance in year *t* by division *i* in industry *j* is regressed on risk taking (year *t-1*), divisional relative size (year *t-1*), divisional size (year *t-1*), divisional contingent pay (year *t-1*), sales growth (year *t-1*), the interaction term of risk taking and divisional relative size, and the interaction term of risk taking and divisional contingent pay. Thus, π_{0ij} is the mean divisional performance over time for division *i* in industry *j*, accounting for the impact of the independent variables.

In Equation (2a) I use the intercept of Equation (1), π_{0ij}, as the dependent variable and regress it on level of diversification, corporate slack, institutional and blockholder ownership, and CEO contingent pay. Thus, I am able to account for the direct effect of these explanatory variables on between-division variance in performance.

Equation (2b) models the slope coefficient, π_{1ij}, as a dependent variable regressed on the variables (level of diversification, institutional and blockholder ownership, and CEO contingent pay) predicted to moderate the relationship between divisional attainment discrepancy and divisional risk taking. Thus, Equation (2b) allows for testing of cross-level interactions.

Equations (3a) and (3b) represent the cross-level impact of environmental factors – munificence, dynamism and complexity – on the relationship between divisional risk taking and performance.

Finally, Equations 4a-4g, 5a-5e, 6a-6g, and 7a-7d represent the coefficients from equations (1), (2a), and (2b) as dependent variables at a higher level of analysis.

All coefficients are modeled as fixed effects.

Equations (1), (2), and (3) have separate error terms – e_{tij} is the across-time residuals, and u_{ij} is the between-unit residual.

RESULTS

Tables C1 and D1 present descriptive statistics and correlations for the variables in the study[12]. I calculated VIFs and all of them are below 3 which is an indication that multicollinearity is not a concern.

The results of the MLM regressions are presented in Tables C2 and D2. To control for the effect of unobserved factors I have included year dummies in the analyses[13]. To conserve space, those variables are not included in the tables. All variables are standardized with a mean of 0 and standard deviation of 1.

Hypothesis 1 argues that number of related divisions would have a beneficial moderating role on the relationship between risk taking and performance. However, in the Compustat sample I find contrary results which are graphed in Figure A9 ($p<0.05$). Results are somewhat similar for

[12] I have winsorized the variables in the study at 99% to eliminate the possibility that the results are driven by extreme outliers.

[13] For the Banking sample, in a supplementary analysis I created a dummy variable to distinguish between bank holding corporations consisting of only bank-type divisions and bank holding corporations consisting of multi-purpose divisions (e.g. credit card, services, etc.). The results remained consistent across these two estimations.

liquidity risk in the Banking sample – Figure B6 ($p<0.01$). Results are insignificant for bank and loan risks. Thus, there is no support for Hypothesis 1.

In Hypothesis 2 I stipulated that as diversification increases, it will negatively moderate the relationship between risk taking and performance. The graphs in Figures A10 and B7 show that when risk taking is measured as capital expenditures ($p<0.001$) and bank risk ($p<0.01$) the results are opposite to H2. However, when loan risk is used to represent risk taking I find support for H2 ($p<0.001$) – see Figure B8.

Hypothesis 3 proposes a positive moderation of munificence on the risk-performance relationship. However, munificence negatively moderates the main relationships between capital expenditures and performance ($p<0.001$), loan risk and performance ($p<0.001$), and liquidity risk and performance ($p<0.05$). Results in the model with bank risk are insignificant. Thus, there is no support for Hypothesis 3 (see Figures A11 and B9).

In Hypothesis 4 I argued that dynamism will moderate the risk-performance relationship but only moderate levels of dynamism will have a positive moderating impact. In the Compustat sample results are significant and in the expected direction ($p<0.05$). In the Banking sample I found no significant results for any type of risk. Overall, I find very weak support for H4 (see Figure A12).

Hypothesis 5 tested the moderating effect of complexity on the relationship between risk taking and performance. In the Compustat sample, I found opposite results where moderate levels of complexity negatively moderate the main relationship between risk taking and performance ($p<0.05$). In the Banking sample, I found support for H5 in the model with bank risk ($p<0.05$) and the model with loan risk ($p<0.001$). Results were insignificant when liquidity risk was used. Overall, support for H5 is mixed (see Figures A13, B10-11).

Hypotheses 6, 7, and 9 tested the moderating role of internal and external corporate governance mechanisms. Hypothesis 6 argued that CEO contingent pay will strengthen the risk-performance relationship. When I used CEO shares as a moderator, I found strong support ($p<0.001$) for this argument in the Compustat sample. Results were insignificant in the Banking sample. However, when using CEO options as a moderator, I found the opposite results when capital expenditures ($p<0.001$) and bank risk ($p<0.01$) are used as measures of risk taking. Results in models with loan risk and liquidity risk were insignificant. Thus, Hypothesis 6 receives only partial support. Hypothesis 9 argued that pay gap between the CEO and the divisional managers will positively moderate the relationship between risk taking and performance. Results for capital expenditures ($p<0.001$), bank risk ($p<0.001$), and loan risk ($p<0.001$) are strongly significant. The result for liquidity risk is insignificant. Overall, there is strong support for H9 (see Table AP8 and Figures A14-16).

Hypotheses 7a and 7b stipulated that the relationship between risk taking and performance will be strengthened when external monitoring, such as institutional ownership and blockholders, is higher. However, for H7a I find statistically insignificant results. For H7b results are opposite to predictions when using capital expenditures ($p<0.001$) and liquidity risk ($p<0.01$). Results are insignificant for bank and loan risks – see Figure A17.

In Hypothesis 8 I argued that divisional managers' contingent pay will positively moderate the relationship between risk taking and performance. In a supplementary analysis on a subsample of S&P 500 corporations I tested this hypothesis. Results in Table AP7 show that divisional shares positively moderate the main relationship ($p<0.01$), while divisional options are insignificant. Thus, I find some support for H8. However, results from this subsample should be interpreted

with caution due to the smaller sample size (around 6% of the original sample) and the likelihood of this sample being biased towards larger corporations (see Figure A18).

Finally, in Hypothesis 10 I argued that size would negatively moderate the relationship between risk taking and performance. Results from the Compustat sample are insignificant. In the Banking sample, Figure B13 shows that as the relative size of banking divisions increases, they take more "bad" loan risks which hurt performance ($p<0.01$). Thus, across the two samples I find at best marginal support for H10.

DISCUSSION

The results of this chapter extend prior research on the risk-return relationship by developing a multi-level model where factors from multiple levels of analysis in the organization play a critical moderating role on the impact of risk taking on performance. The findings support prior calls for developing a contingency perspective on organizational risk taking (Deephouse and Wiseman, 2000) and serve as evidence that this relationship is more nuanced than previously argued. Summary of hypotheses and results are presented in Table S1. In particular, there are several key conclusions from this chapter.

First, across the Compustat and Banking samples I found that various types of risk exhibit different associations with performance. Strategic risk represented by capital expenditures was positively related to performance. Considering that capital expenditures are major strategic investments and involve large commitment of resources, it is expected that divisional managers will be extremely careful in ex-ante evaluation of those projects and will be willing to undertake them only when the expected returns are satisfactorily high. On the contrary, bank risk, loan risk, and liquidity risk exhibited a consistently negative relationship with

performance. Those findings are consistent with prior research on the risk-return relationship in the banking industry and suggest that banking managers "may systematically misestimate the risk and return of the decisions they face" (McNamara and Bromiley, 1999: 332) and require a risk premium that is insufficient for the risky choices they made (Wiseman and Catanach, 1997). Bank risk corresponds to the exposure of the bank to a portfolio of assets with various degree of risk, including loans and letters of credit (e.g. Shrieves and Dahl, 1992). Thus, bank risk reflects the investment decisions of banking managers. Loan risk represents non-accrual loans and loan overdue 90 days and also reflects prior lending decisions. Considering that banking managers often underestimate the riskiness of borrowers (McNamara and Bromiley, 1997) and fail to require appropriate risk compensation (McNamara and Bromiley, 1999), it could be expected that bank and loan risks represent failing prior decisions that materialize in performance losses. Liquidity risk exists when the bank does not have enough liquid assets to cover short-term obligations and in order to satisfy those obligations its managers have to convert less liquid assets into cash at a cost (Wiseman and Catanach, 1997).

Nevertheless, those inconsistent findings across the two samples raise important implications for future research. First, it is advisable for scholars to avoid treating risk taking as a uniform construct and instead focus on its various dimensions. Using a single operationalization of risk could lead to misleading results and draw inappropriate conclusions regarding the true relationship between risk and return. Second, considering that some risks are detrimental to performance, the question that stands out is why managers do not limit those risks and emphasize those that have a beneficial effect on performance? It might be that managers unintentionally follow established organizational rules and routines and myopically take risks with inadequate returns (e.g. McNamara and Bromiley, 1999). Understanding why such a suboptimal selection of

risks exists in organizations is critical not only to theory but also to practitioners for devising recommendations about how to prevent such managerial inefficiencies.

Second, diversification plays an important role on the ability of divisions to implement successful and high quality risky strategies. Contrary to hypothesized, I found that higher number of related divisions negatively moderates the relationship between risk taking and performance. There are several viable explanations for those results. First, the opportunities for learning and knowledge transfer across divisions might be more limited than hypothesized. For example, Barnett and colleagues (1994) argue that transferring lessons and experience across divisions might be a challenge in multiunit organizations. In addition, as the number of related divisions increases, the corporate office would face additional constraints and cognitive limitations (March and Simon, 1958) in providing appropriate advising and counseling to banking divisions. This idea is in line with Hill and Hoskisson (1987) who argue that increasing number of divisions put a strain on information processing capabilities and might prevent the corporate office from executing optimally its advising role. Second, as the number of related divisions increases, the competition for internal resources might also rise (Liebeskind, 2000). Thus, two or more related divisions in the same market or industry might see each other as competitors and ultimately decide not to share information and successful past experiences regarding risky choices. Finally, the corporate office of a corporation might intentionally saturate a given market with several related divisions in order for them to share physical assets and thus to obtain economies of scope. As a result, the corporate office would allocate resources collectively (rather than individually to each division) to those related divisions and would encourage shared decision making in order to achieve synergies (Palich et al., 2000). However, such an approach necessitates compromises among related divisions and often divisions make

individual sacrifices for the common objective. In other words, divisions might undertake strategic investments which while improving the collective performance do not improve their individual divisional performance.

The findings for Hypothesis 2 are to a large degree in line with the findings for Hypothesis 1. While I argued that level of diversification would have a negative moderating role on the relationship between risk taking and performance, I find opposite results. Higher levels of diversification usually translate into more different divisions operating in separate markets. As a result, those divisions have the ability to tailor their risky strategies to the requirements of the market (Barnett et al., 1994) and execute them successfully without major intervention from the corporate office.

The one distinction is the opposite findings for loan risk – this result should be interpreted with caution considering the nature of loan risk and the fact that it represents already-made inappropriate loan decisions.

Third, I find that market conditions have a strong influence on the relationship between risk taking and performance. I proposed that munificence would create beneficial conditions for banking divisions to undertake effective risky choices. In other words, such an environment would be more receptive to various risky strategies (e.g. Hambrick and Finkelstein, 1987). However, high munificence could also reduce the diligence of divisional managers to identify optimum risky strategies. Knowing that the market would allow a larger margin for error, managers might be less careful in which risky choices they select (Goll and Rasheed, 1997).

In terms of the moderating role of dynamism, I found in the Compustat sample that medium levels of dynamism had a beneficial moderating impact on the risk-return relationship. Alternatively, moderate degree of environmental dynamism offers the optimal conditions for

effective risk taking because: a) new opportunities and information emerge which are not available to everyone, and b) managers could still recognize and take advantage of those opportunities (Milliken, 1987; Simerly and Li, 2000).

Regarding the role of complexity, I found that it has a positive moderating role in the Banking industry and a negative moderating role in the Compustat sample. These findings indicate that the moderating impact of complexity across different empirical settings is not universal and ponders further work in the future.

Fourth, I argued and found evidence that corporate governance factors provide important contingencies for the risk-return relationship. In particular, I looked at how internal and external corporate mechanisms enhance or reduce the ability of divisional managers to engage in high-quality risk taking. The findings indicate that contrary to classical arguments of agency theory (Jensen and Meckling, 1976), not all governance mechanisms uniformly contribute to managers' successful risky initiatives. In terms of the internal factors, I examined the impact of CEO shares, CEO options and pay gap. As prescribed by agency theorists, I found that CEO shares successfully align the interests of managers and shareholders in that when CEOs possess more shares they are more likely to oversee the strategic initiatives of divisional managers and encourage them to undertake performance-beneficial risks. However, I found that CEO options, due to their asymmetric risk properties, have an opposite moderating role of the relationship between risk taking and performance. Because options provide an upside potential for gains but limit the downside losses of corporate executives (Sanders, 2001), the latter are likely to encourage sub-optimal risk taking at the divisional level – corporate managers have nothing to lose if those divisional strategies are unsuccessful; however, if somehow the investment initiatives turn beneficial, corporate executives gain positive outcomes. In a similar vein,

corporate executives might be less diligent in overseeing divisions' risky choices due to the protection from downside losses if those risky choices do not pan out in the future. Overall, CEO options might encourage some "good" risk taking at the divisional level but on average those risks prove to be unsuccessful and hurting divisional and overall corporate performance (e.g. Sanders and Hambrick, 2007). As predicted, pay gap motivates divisional managers to be more diligent (Henderson and Fredrickson, 2001; Lazear and Rosen, 1981) and undertake risks that have a beneficial influence on performance.

From the external governance mechanisms, blockholders do not appear to have a beneficial role on the risk-return relationship. More specifically, I found that they exhibit a negative moderating role on the risk-return relationship. Prior research provides findings that large equity holders are represented by families that have a sizable stake and control of corporations (Faccio, Lang, and Young, 2001; LaPorta, Lopez-de-Silanes, and Shleifer, 1999). Evidence also exists that those family owners may not necessarily pursue financial performance but instead could prioritize other objectives. For example, Gomez-Mejia and colleagues (2007) develop arguments and provide support that family owners focus on strategic decisions that trade off lower profitability for non-financial benefits. More specifically, the strong identification with and the emotional attachment to the corporation could encourage family stakeholders to overlook financial benefits in order to preserve the family dynasty, maintain control (Gomez-Mejia et al., 2007) and/or enhance the reputation of the corporation. With regard to H7b in this chapter, it could be argued that blockholders may be willing to undertake low-performing capital investments if those initiatives increase the size and visibility of the corporation or enhance their legacy as owners.

Another plausible explanation for the results presented here is that large shareholders are diligent monitors of managerial investment strategies (e.g. Mikkelson and Ruback, 1991) but those investment strategies, such as capital expenditures, need more time to materialize into performance improvements. If that is the case, the one-year lagged structure of my data would not allow me to capture those effects. In a post-hoc analysis I tested the regression models with performance measured two, three and four years after the capital expenditures were made. The results for the interaction term between capital expenditures and blockholders did not change significantly which is further evidence that blockholders may prioritize non-financial over financial objectives. However, at year t+4 the interaction term between capital expenditures and institutional ownership became positive and statistically significant (the term was marginally significant at t+3). This finding could partially explain why in my main model I did not find support for H7a and serves as tentative evidence that the temporal element in the risk-return relationship should not be overlooked in future research. Alternatively, some of the inconsistent findings in prior research could be attributed to the use of risk measures with different time horizons.

Another implication of this post-hoc analysis is the likely distinction between the roles of institutional shareholders and blockholders. Contrary to prior theorizing about their similarly beneficial roles, my findings indicate that institutional owners and blockholders may pursue different objectives and thus impact the strategic risk taking of corporations in a differentiated way. A further theoretical and empirical analysis of those two groups of external monitors is warranted.

Finally, divisional size exhibited a negative moderating role on the main relationship. While those findings should be interpreted with caution (the only significant interaction was in

the model with loan risk), they indicate that smaller divisions might have more urgency and exercise greater diligence in their risky strategies (e.g. Kim at al., 2004).

This chapter has its own limitations. The reliance on secondary data precludes from understanding the real motives and perceptions of managers regarding their risky choices. Although secondary data provides me access to a larger number of companies and banks, a trade-off is made between external validity and deeper understanding of managerial decision processes. The choice of the banking sample and its risk measures could be questioned due to the timing of the study. Some could argue that during this period the banking industry was expanding and bank managers might have perceived their investments and risky choice as less uncertain. However, this should create a common bias among all managers and thus should not influence the variability in amount of risk taken and the quality of risk across multiple banks. In addition, if such a bias exists, it would make it more difficult to find statistically significant results; the fact that I find significant results indicates that this is a conservative estimation of the proposed relationships. The selection of capital expenses could also be put under question. Although it could be argued that capital expenditures reflect risky choices because they are major capital outlays with uncertain outcomes (Desai, 2008), capital expenditures represent only one dimension of risk taking (e.g. Miller and Bromiley, 1990). In addition, the banking measures of risk could be viewed as realized risks rather than ex ante evaluation of the riskiness of different investments. Utilizing ex ante versus ex post measures of risk could generate different empirical results and thus lead to different conclusions.

CONCLUSIONS AND FUTURE DIRECTIONS

This chapter contributes to research on the risk-return relationship in several ways. It develops a contingency perspective and shows that the sign and strength of this relationship is dependent on various factors residing at different levels of analysis. This is one of the first studies to introduce a multi-level perspective on organizational risk taking and build theoretical arguments that the embeddedness of risk taking in a larger organizational context impacts its performance consequences. Ignoring the existence of multi-level influence on risk taking could lead to incomplete theorizing and mask the complex multidimensional nature or organizational risk taking. Additionally, by utilizing a multi-level framework towards risk taking I could identify the relative impact of those moderating factors. In other words, are some of those factors more important than others to either enhance or reduce the intensity and quality of risk taking? Results indicate that the interaction terms for pay gap and CEO options exhibit the largest associations with risk taking and performance. This serves as tentative evidence that governance mechanisms might have the largest impact on risk taking in organizations; from a managerial and practitioner standpoint this finding might have significant implications for organizational design and subsequently for organizational efficiencies. Considering that compensation of top and middle executives could be changed relatively easily, then appropriate adjustments to executive pay might lead to critical improvements in the quality of managerial decisions and firm performance. An under-explored area is the potential interaction of those cross-level factors and the possibility of them being complements and/or substitutes. Future research should focus on those interactions and try to identify whether there is an optimal configuration of those factors that provides the most beneficial influence to managerial decisions.

This chhapter also shows that depending on what measures of risk are used, the relationship could be either positive or negative. This could help in the long-standing and

inconclusive debate whether more risk is good or bad for corporate returns. The evidence presented here turns this debate not into a "good/bad risk" dichotomy but suggests a contingency view depending on what type of risk is undertaken. In addition, this dissertation confirms prior theorizing that risk is a multidimensional construct and it should be treated as such (Miller and Bromiley, 1990).

Overall, this chapter tries to extend our understanding of the risk-return relationship by emphasizing the role of various multi-level factors and focusing the attention on the multidimensional nature of risk taking. As a result, it provides ample opportunities for future research in the area of strategic decision making and risk taking.

Table S1: Summary of hypotheses and results

Hypothesis	Compustat findings	Banking findings
H1: Number of related divisions will moderate the relationship between divisional risk taking and divisional performance, such that the slope of the relationship will be more positive as the number of related divisions increases.	No support – opposite results	Opposite results (liquidity risk) NS – bank and loan risks
H2: Level of diversification will moderate the relationship between divisional risk taking and divisional performance, such that the slope of the relationship will be negative (or less positive) for high levels of diversification.	No support – opposite results	Opposite results (bank risk) Support (loan risk) NS – liquidity
H3: Industry munificence will positively moderate the relationship between divisional risk taking and divisional performance.	No support – opposite results	Opposite results (loan and liquidity risk) NS – bank risk
H4: Dynamism will moderate the relationship between divisional risk taking and divisional performance, such that the slope of the relationship will be more positive at moderate levels of dynamism.	Support	NS
H5: Complexity will moderate the relationship between divisional risk taking and divisional performance, such that the slope of the relationship will be more positive at moderate levels of complexity.	No support – opposite results	Support (bank and loan risks) NS - liquidity
H6: CEO incentive pay will positively moderate the relationship between divisional risk taking and divisional performance.	Support for CEO shares Opposite results for CEO options	* NS for CEO shares Opposite results for CEO options (only with bank risk)
H7a: Institutional ownership will positively moderate the relationship between divisional risk taking and divisional performance.	NS	* NS
H7b: Blockholders will positively moderate the relationship between divisional risk taking and divisional performance.	Opposite results	* Opposite results for liquidity risk NS for bank and loan risk
H8: Divisional managers' incentive pay will positively moderate the relationship between divisional risk taking and divisional performance.	** Support for divisional shares NS for divisional options	NA (not tested)

TABLE S1 (cont'd)

H9: The gap between CEO pay and divisional managers' pay will positively moderate the relationship between divisional risk taking and divisional performance.	Supported	Support for bank and loan risk NS for liquidity risk
H10: Divisional size will moderate the relationship between divisional risk taking and divisional performance, such that larger divisions are more likely to engage in "bad" risk taking.	NS	Support (loan risk) NS – bank and liquidity risk

* tested on a smaller sample. ** Results are based on a sample of manually collected data for S&P 500 corporations.

FIGURE 1: Main and moderated relationships between attainment discrepancy and divisional risk taking

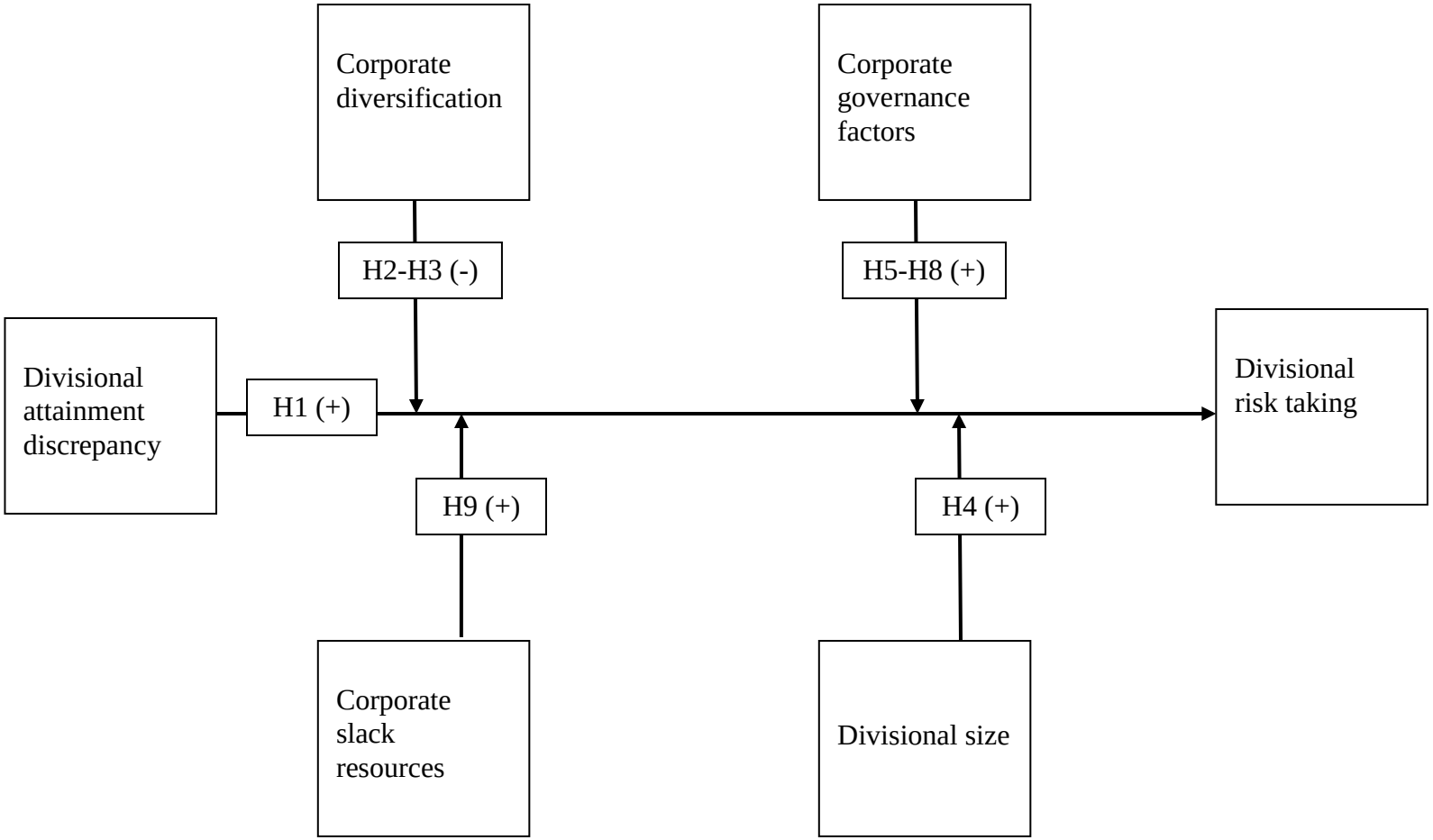


FIGURE 2: Moderated relationships between divisional risk taking and divisional performance

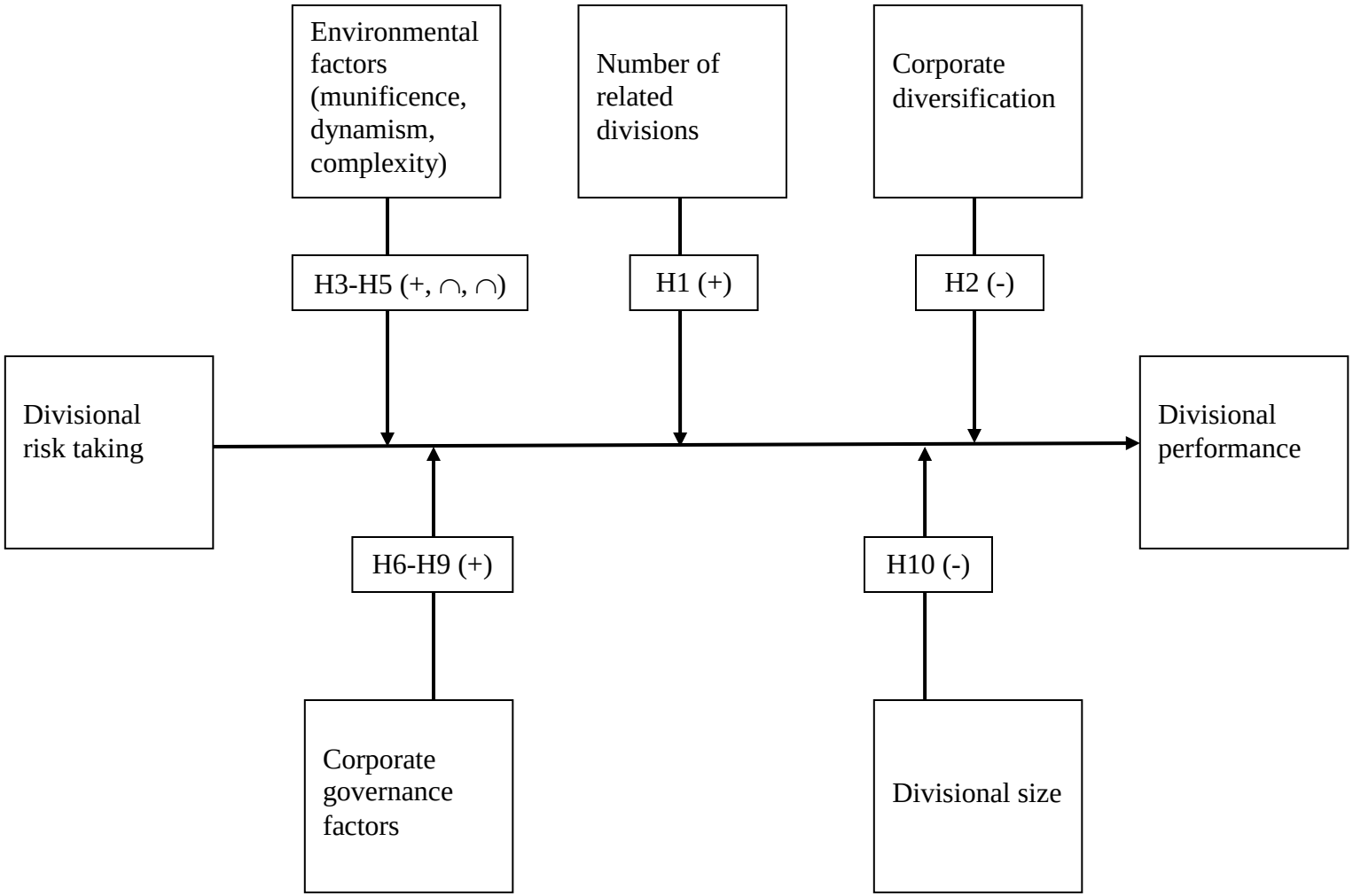


TABLE C1: Descriptive statistics and correlation coefficients for the study risk taking – performance (Compustat sample)

	M	SD	1	2	3	4	5	6	7	8
1. Performance	203.8	569.1	1.00							
2. Sales growth	0.07	0.25	0.07	1.00						
3. Div. size	6.1	1.85	0.58	0.07	1.00					
4. Potential slack	1.1	1.35	-0.09	0.02	-0.31	1.00				
5. Free cash flow	0.05	0.4	0.06	0.09	0.03	0.03	1.00			
6. Risk	143.7	355.4	0.62	0.05	0.54	-0.09	0.01	1.00		
7. Relative size	0.35	0.26	0.18	0.06	0.34	0.08	-0.01	0.23	1.00	
8. Related divisions	1.2	1.14	-0.08	0.02	-0.01	0.02	-0.01	-0.01	-0.14	1.00
9. DU	0.33	0.34	0.14	-0.04	0.13	-0.14	0.03	0.03	-0.19	-0.52
10. CEO shares	1838.1	6256.6	0.13	0.02	0.16	0.03	-0.01	0.19	0.00	0.02
11. CEO options	2197.4	4120.4	0.30	0.01	0.32	-0.04	0.04	0.20	-0.06	-0.05
12. Pay gap	7.6	1.3	0.36	0.04	0.47	-0.20	0.10	0.24	-0.10	-0.01
13. Inst. ownership	0.55	0.31	-0.02	0.09	0.01	-0.01	0.08	-0.05	0.03	-0.01
14. Blockholders	1.7	1.58	-0.18	-0.02	-0.20	0.05	-0.08	-0.12	0.04	0.03
15. Munificence	5.84	16.1	0.03	0.03	0.05	0.01	-0.02	0.10	-0.04	0.03
16. Dynamism	0.22	0.23	0.00	0.02	0.05	-0.06	-0.01	-0.03	-0.02	0.01
17. Complexity	0.39	0.25	-0.02	0.01	-0.05	0.04	0.05	-0.10	-0.03	0.02

TABLE C1 (cont'd)

	9	10	11	12	13	14	15	16
1. Performance								
2. Sales growth								
3. Div. size								
4. Potential slack								
5. Free cash flow								
6. Risk								
7. Relative size								
8. Related divisions								
9. DU	1.00							
10. CEO shares	0.05	1.00						
11. CEO options	0.15	0.14	1.00					
12. Pay gap	0.18	0.10	0.56	1.00				
13. Inst. ownership	-0.04	-0.09	0.02	0.19	1.00			
14. Blockholders	-0.11	-0.08	-0.16	-0.09	0.58	1.00		
15. Munificence	-0.06	-0.01	0.04	0.00	-0.03	-0.07	1.00	
16. Dynamism	0.04	-0.02	-0.02	0.03	0.01	-0.02	0.01	1.00
17. Complexity	0.00	0.03	0.04	0.03	0.10	0.05	-0.09	0.06

N=5329 Correlations larger than 0.02 and smaller than -0.03 are significant at $p<0.05$

TABLE D1: Descriptive statistics and correlations for the study risk taking – performance (Banking sample)

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. ROA	0.7	0.67													
2. Sales growth	0.08	0.15	-0.01	1.00											
3. Divisional size	12.97	1.6	0.01	0.14	1.00										
4. Divisional age	63.8	44.6	0.08	-0.11	0.22	1.00									
5. Slack	-0.01	0.09	0.11	0.15	-0.04	-0.10	1.00								
6. Bank risk	0.7	0.14	-0.10	0.05	0.15	-0.04	0.01	1.00							
7. Loan risk	0.01	0.01	-0.40	-0.06	0.05	-0.02	-0.24	0.10	1.00						
8. Liquidity risk	0.92	0.10	-0.08	0.02	-0.05	-0.02	0.01	0.35	0.01	1.00					
9. Relative size	0.29	0.27	-0.04	0.10	0.36	0.24	0.04	0.10	0.05	-0.01	1.00				
10. Related diversification	1.4	3.9	0.02	-0.02	-0.08	-0.07	0.03	-0.12	-0.07	-0.07	-0.25	1.00			
11. Unrelated diversification	5.5	8.2	0.02	-0.02	0.07	-0.02	-0.08	0.08	-0.02	0.02	-0.46	0.00	1.00		
12. Munificence	1.3	9.7	0.01	0.02	-0.01	0.02	0.01	0.05	-0.03	0.03	-0.03	0.19	-0.02	1.00	
13. Dynamism	0.17	0.29	-0.02	0.03	0.10	-0.11	-0.01	0.02	0.03	-0.02	-0.03	0.00	0.03	-0.54	1.00
14. Complexity	0.3	0.21	-0.02	0.00	-0.12	-0.09	0.03	-0.08	0.01	-0.11	-0.07	0.38	-0.12	-0.04	0.22

N= 7742 Correlations larger than 0.02 and smaller than -0.02 are significant at $p<0.05$.

TABLE C2: Relationship between risk taking and performance

	Model 1		Model 2	
Variables	Coeff	SE	Coeff	SE
Constant	204.6***	(22.8)	168.8***	(22)
Sales growth	33.6***	(4.1)	30.8***	(3.9)
Divisional size	92.8***	(9.7)	98.2***	(9.8)
Potential slack	7.3	(7.8)	1.2	(7.7)
Free cash flow	6.8	(6.4)	8	(6)
$Performance_{t-2}$	315.98***	(8.5)	288.1***	(8.5)
Risk taking	92.8***	(9.4)	22.6	(20.6)
Relative divisional size	5.9	(6.4)	15.9*	(6.6)
Related divisions (DR)	-11.2	(7.6)	-11	(7.7)
Unrelated diversification (DU)	20.4**	(7)	28.9***	(7.1)
CEO shares	8.4	(7.5)	0.7	(7.5)
CEO options	-3.5	(5.9)	8.9	(5.8)
Pay gap	27.8***	(6.1)	38.7***	(5.96)
Institutional ownership	-12.4	(8.9)	-15.7†	(9.2)
Blockholders	-10.1†	(6.1)	-19.6**	(5.98)
Munificence	-1.97	(7.5)	-9.5	(7.3)
Dynamism	-6.7	(6.6)	-2.5	(6.4)
Complexity	6.7	(11.5)	-0.7	(11.3)
Risk taking x Relative size			7.9	(8.5)
Risk taking x DR			-23.1*	(11.2)
Risk taking x DU			43.9***	(9.4)
Risk taking x CEO shares			15.6***	(4.3)
Risk taking x CEO options			-100.4***	(5.1)
Risk taking x Pay gap			103.58***	(7.7)
Risk taking x Inst. ownership			-9.91	(15.7)
Risk taking x Blockholders			-44***	(8.7)
Risk taking x Munificence			-51.5***	(9.9)
Risk taking x Dynamism			16.2*	(6.95)
Risk taking x Complexity			-28.64*	(14.1)
N	5132		5132	
Wald χ^2	4864		5252	
Prob > χ^2	0.000		0.000	
Variance within divisions	0.59		0.54	
Variance between divisions	0.07		0.11	
Variance between firms	0.3		0.32	
Variance between industries	0.03		0.03	

Standardized coefficients are reported. Standard errors are in parentheses.
† $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

TABLE D2: Relationship between risk taking and performance

	Model 1 – using Bank risk		Model 2 – using Bank risk		Model 3 – using Loan risk		Model 4 – using Loan risk		Model 5 – using Liquidity risk		Model 6 – using Liquidity risk	
Variables	Coeff	SE	Coeff	SE	Coeff	SE	Coeff	SE	Coeff	SE	Coeff	SE
Constant	0.83***	(0.03)	0.83***	(0.03)	0.80***	(0.03)	0.79***	(0.03)	0.84***	(0.03)	0.84***	(0.03)
Sales growth	-0.004	(0.01)	-0.004	(0.01)	-0.01	(0.01)	-0.01	(0.01)	-0.003	(0.01)	-0.003	(0.01)
Divisional size	0.01	(0.01)	0.02	(0.01)	0.01	(0.01)	0.02	(0.01)	0.01	(0.01)	0.01	(0.01)
Divisional age	0.04***	(0.01)	0.04***	(0.01)	0.04***	(0.01)	0.04***	(0.01)	0.04***	(0.01)	0.04***	(0.01)
Slack	0.06***	(0.01)	0.05***	(0.01)	0.02*	(0.01)	0.02*	(0.01)	0.05***	(0.01)	0.05***	(0.01)
$Performance_{t-2}$	0.13***	(0.01)	0.12***	(0.01)	0.10***	(0.01)	0.10***	(0.01)	0.12***	(0.01)	0.12***	(0.01)
Risk taking	-0.03**	(0.01)	0.005	(0.02)	-0.18***	(0.01)	-0.14***	(0.01)	-0.005	(0.01)	0.01	(0.01)
Relative divisional size	-0.03*	(0.01)	-0.03*	(0.01)	-0.02†	(0.01)	-0.02†	(0.01)	-0.03**	(0.01)	-0.03**	(0.01)
# Related divisions	0.01	(0.02)	0.01	(0.02)	0.01	(0.02)	0.00	(0.02)	0.01	(0.02)	0.02	(0.02)
Unrelated diversification	-0.01	(0.01)	-0.03*	(0.01)	-0.01	(0.01)	-0.01	(0.01)	-0.02	(0.01)	-0.02†	(0.01)
Munificence	0.001	(0.01)	0.002	(0.01)	0.01	(0.01)	0.01	(0.01)	0.001	(0.01)	-0.001	(0.01)
Dynamism	0.02	(0.01)	0.02	(0.01)	0.01	(0.01)	0.01	(0.01)	0.02	(0.01)	0.02	(0.01)
Complexity	-0.01	(0.02)	-0.01	(0.02)	-0.01	(0.01)	-0.01	(0.02)	-0.01	(0.01)	-0.01	(0.01)
Risk taking * relative size			0.01	(0.01)			-0.02**	(0.01)			-0.01	(0.01)
Risk taking * related divisions			0.002	(0.01)			0.01	(0.01)			-0.04**	(0.01)
Risk taking * unrelated diversification			0.03**	(0.01)			-0.06***	(0.01)			0.02†	(0.01)
Risk taking * Munificence			-0.01	(0.01)			-0.02***	(0.01)			-0.02*	(0.01)
Risk taking * Dynamism			0.00	(0.01)			0.01	(0.01)			0.02	(0.01)

TABLE D2 (cont'd)

Risk taking * Complexity			0.04*	(0.02)			0.05***	(0.01)			0.01	(0.02)
N	7766		7766		7736		7736		7766		7766	
Wald χ^2	1643		1657		2326		2443		1626		1648	
Prob > χ^2	0.000		0.000		0.000		0.000		0.000		0.000	
Within division variance	0.8		0.8		0.8		0.81		0.79		0.79	
Among division variance	0.04		0.04		0.06		0.05		0.04		0.04	
Among firm variance	0.14		0.14		0.12		0.12		0.14		0.15	
Among industry variance	0.02		0.02		0.01		0.01		0.02		0.02	

Standardized coefficients are reported. Standard errors are in parentheses.
† $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

FIGURE A9: Interaction between risk taking and # related divisions (Compustat sample)

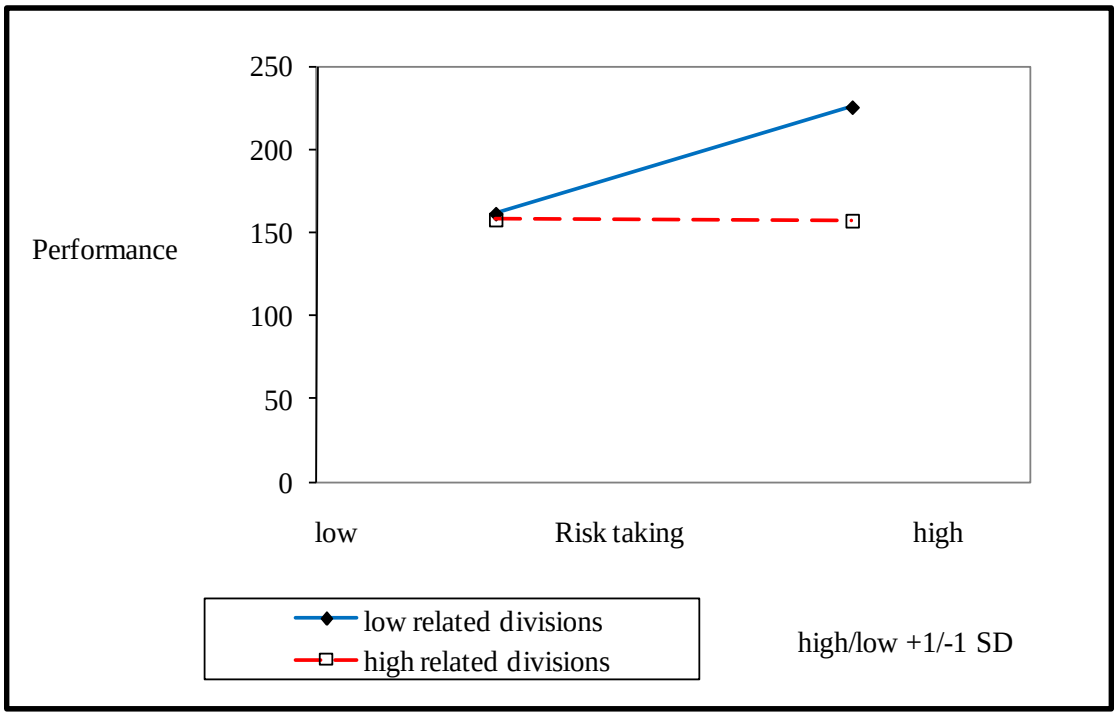


FIGURE B6: Interaction between risk taking and # of related divisions (Banking sample using liquidity risk)

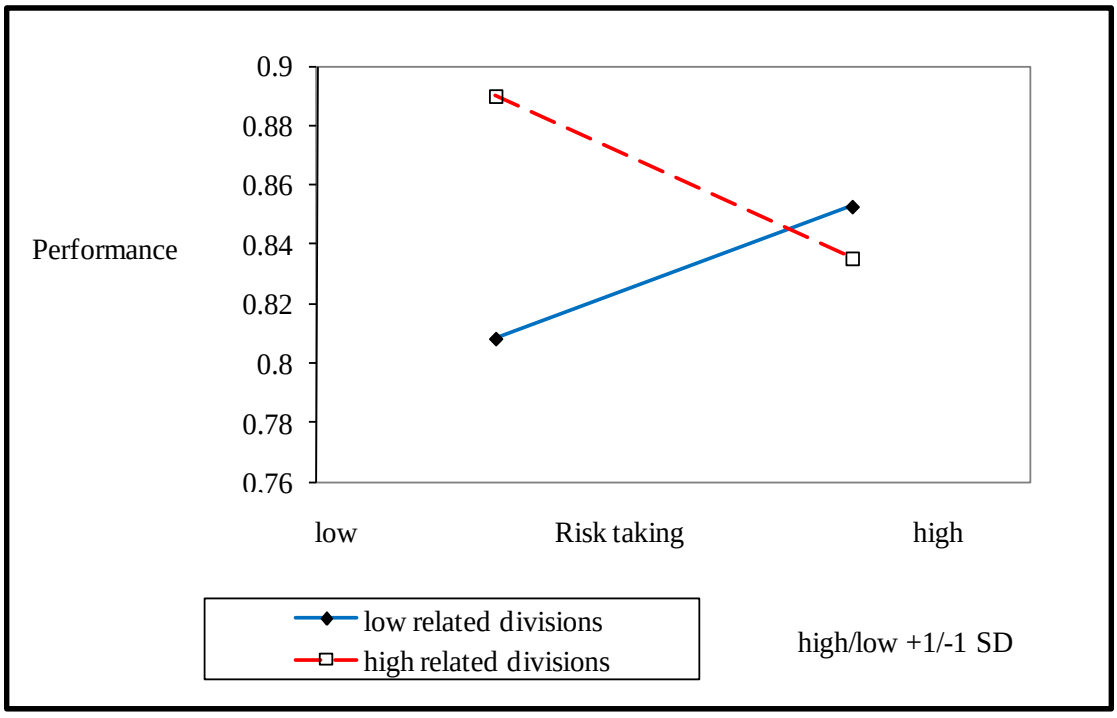


FIGURE A10: Interaction between risk taking and unrelated diversification (Compustat sample)

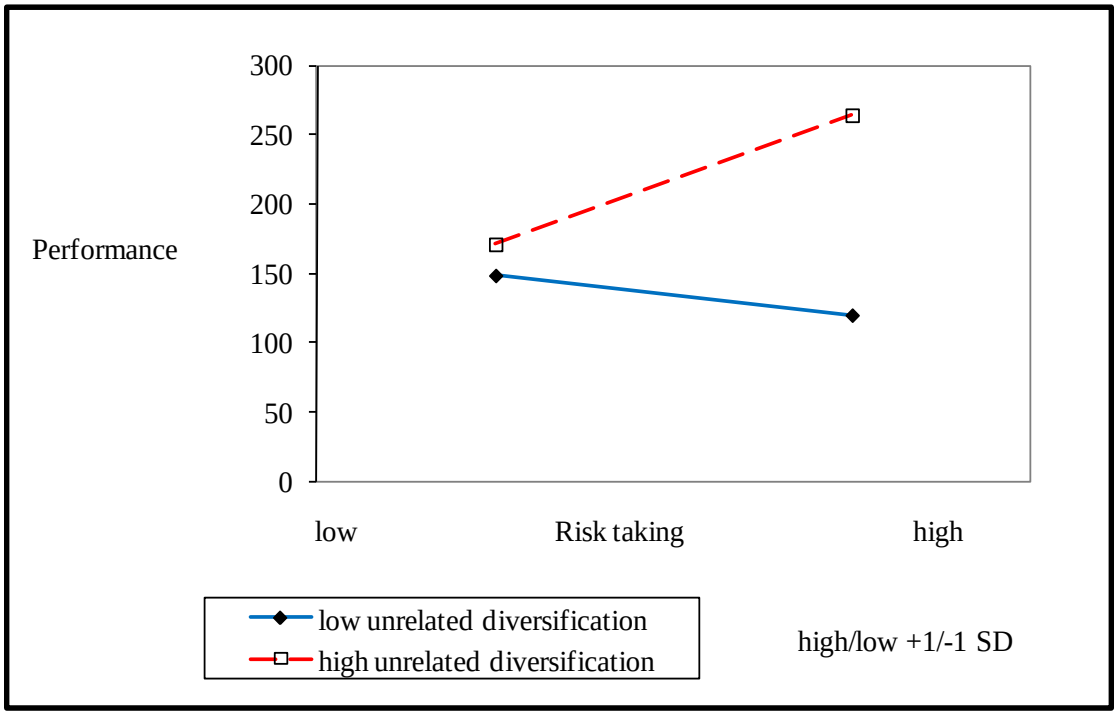


FIGURE B7: Interaction between risk taking and unrelated diversification (Banking sample using bank risk)

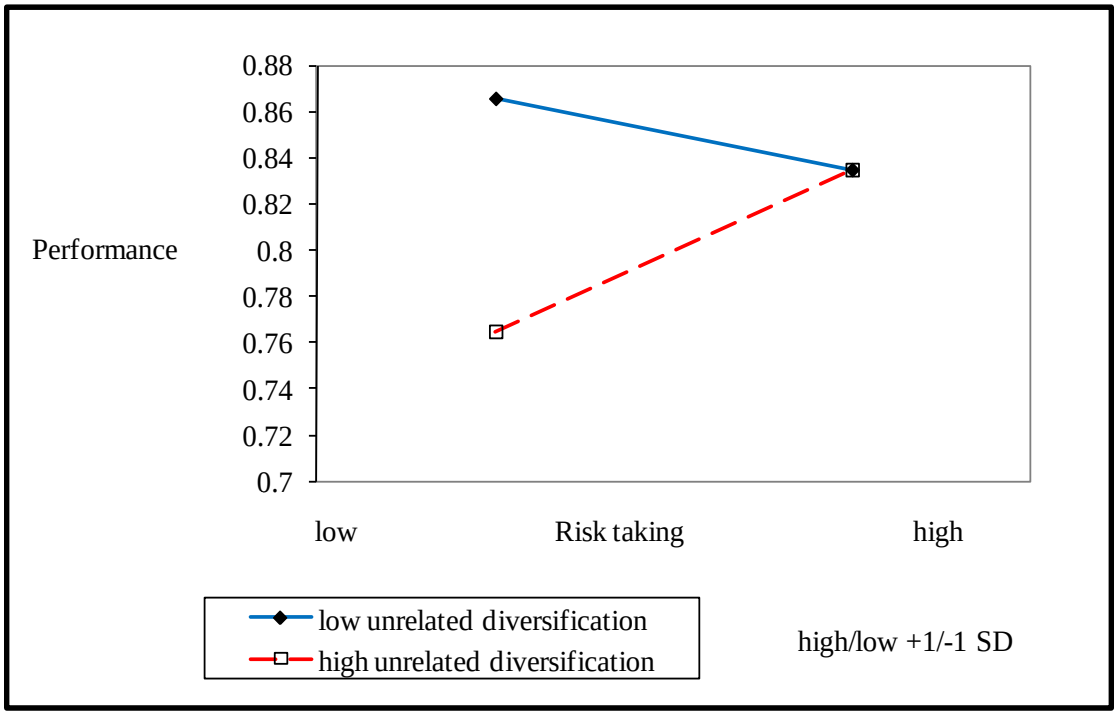


FIGURE B8: Interaction between risk taking and unrelated diversification (Banking sample using loan risk)

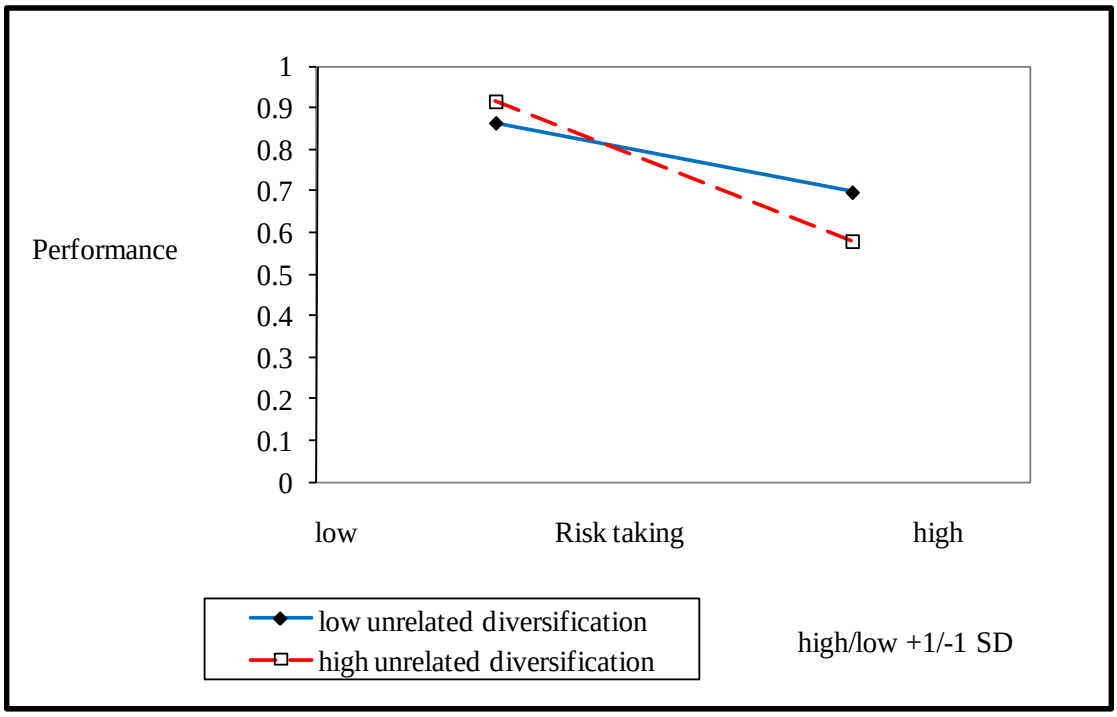


FIGURE A11: Interaction between risk taking and munificence (Compustat sample)

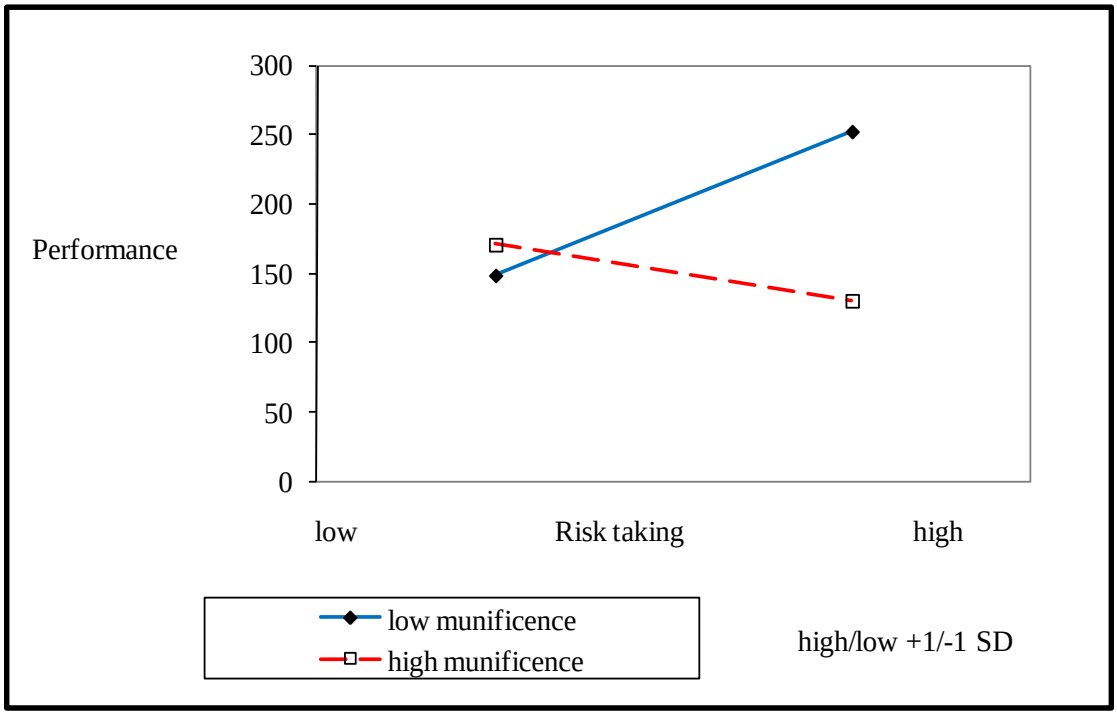


FIGURE B9: Interaction between risk taking and munificence (Banking sample)

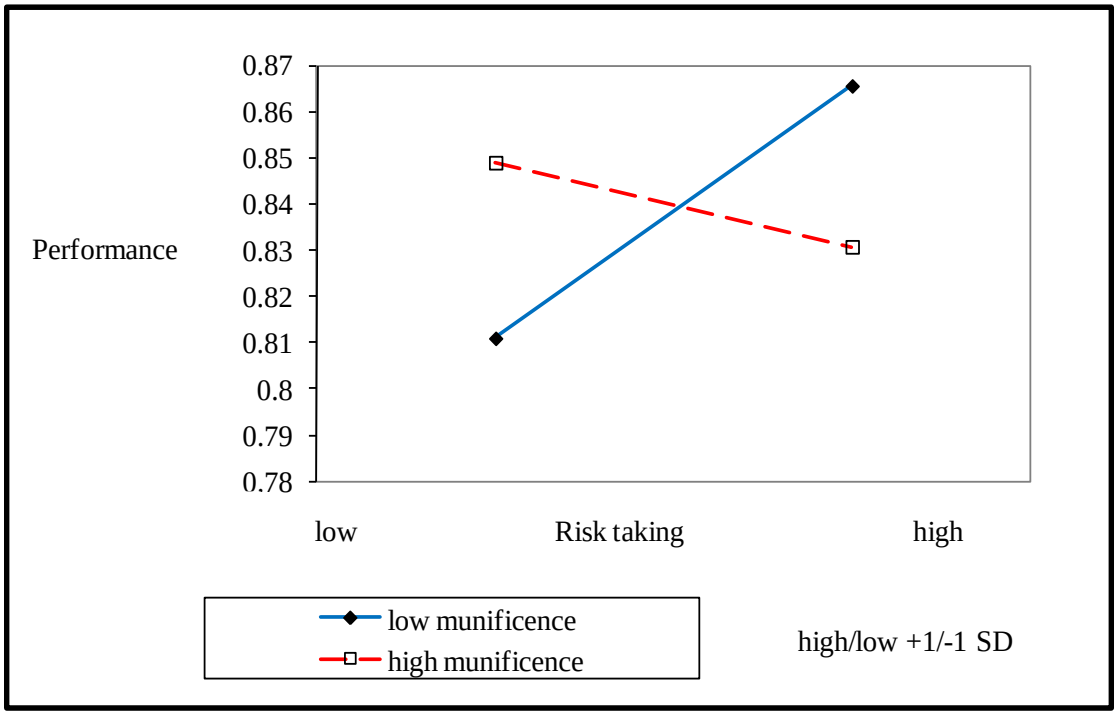


FIGURE A12: Interaction between risk taking and dynamism (Compustat sample)

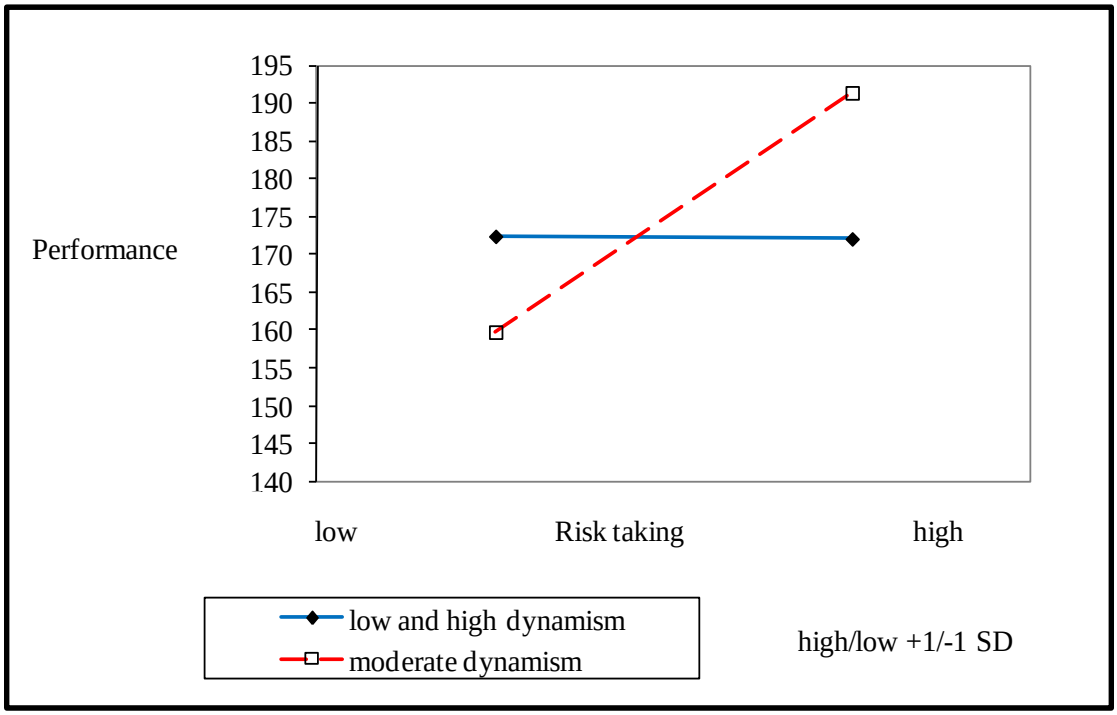


FIGURE A13: Interaction between risk taking and complexity (Compustat sample)

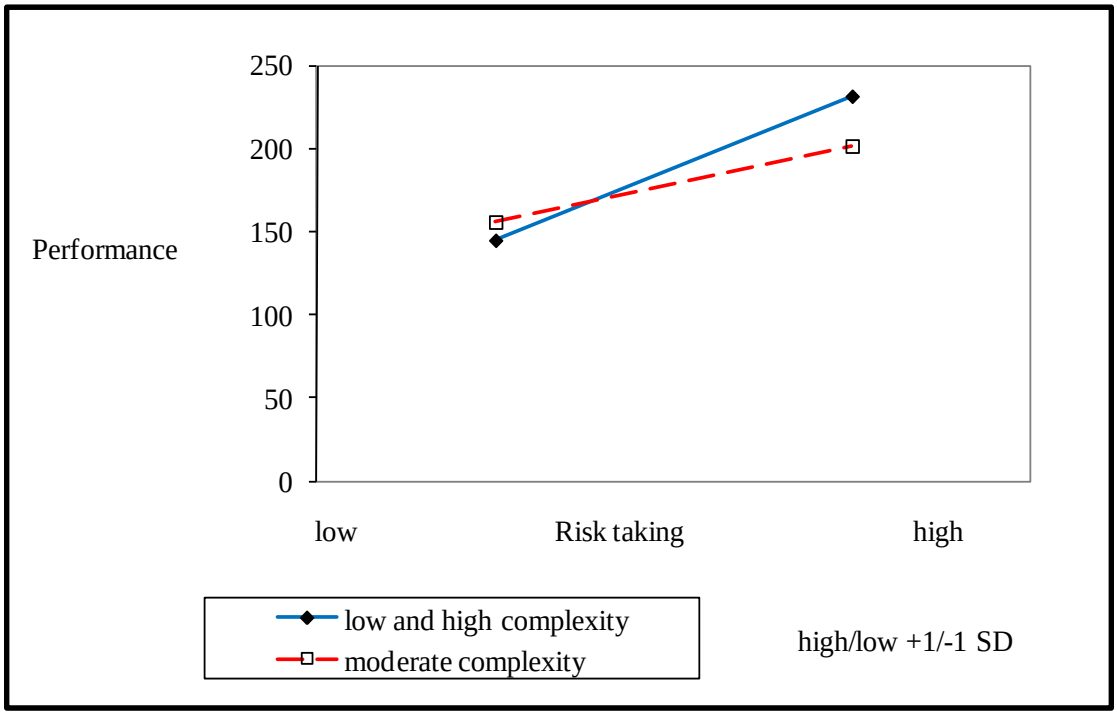


FIGURE B10: Interaction between risk taking and complexity (Banking sample using bank risk)

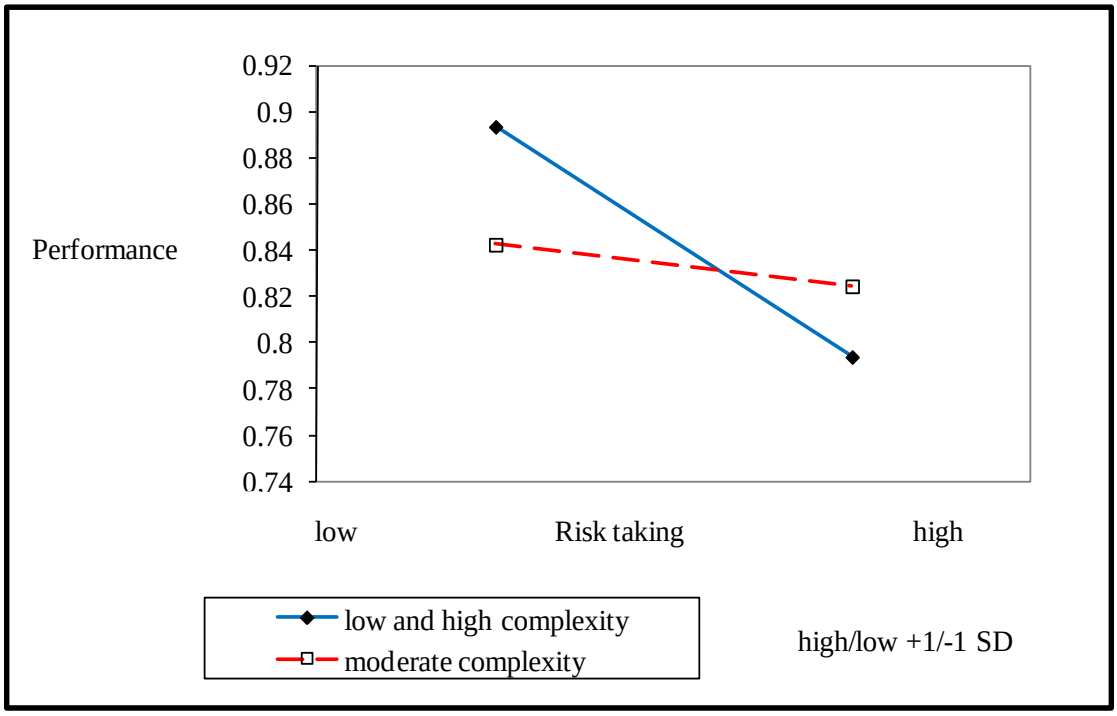


FIGURE B11: Interaction between risk taking and complexity (Banking sample using loan risk)

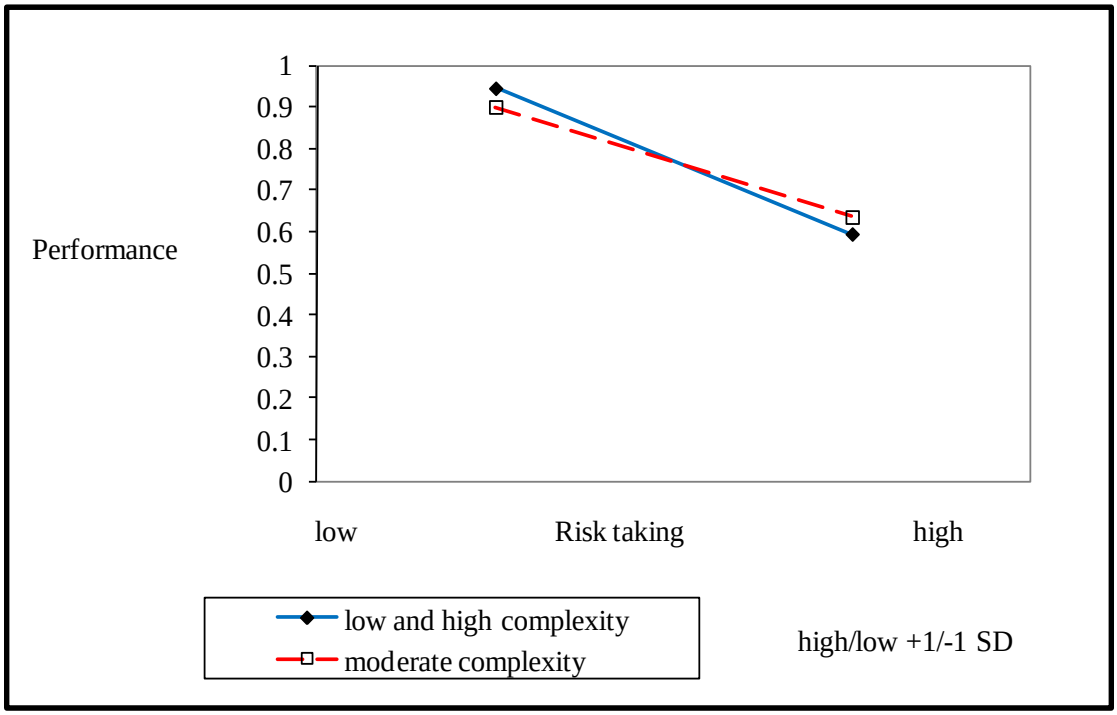


FIGURE A14: Interaction between risk taking and CEO shares (Compustat sample)

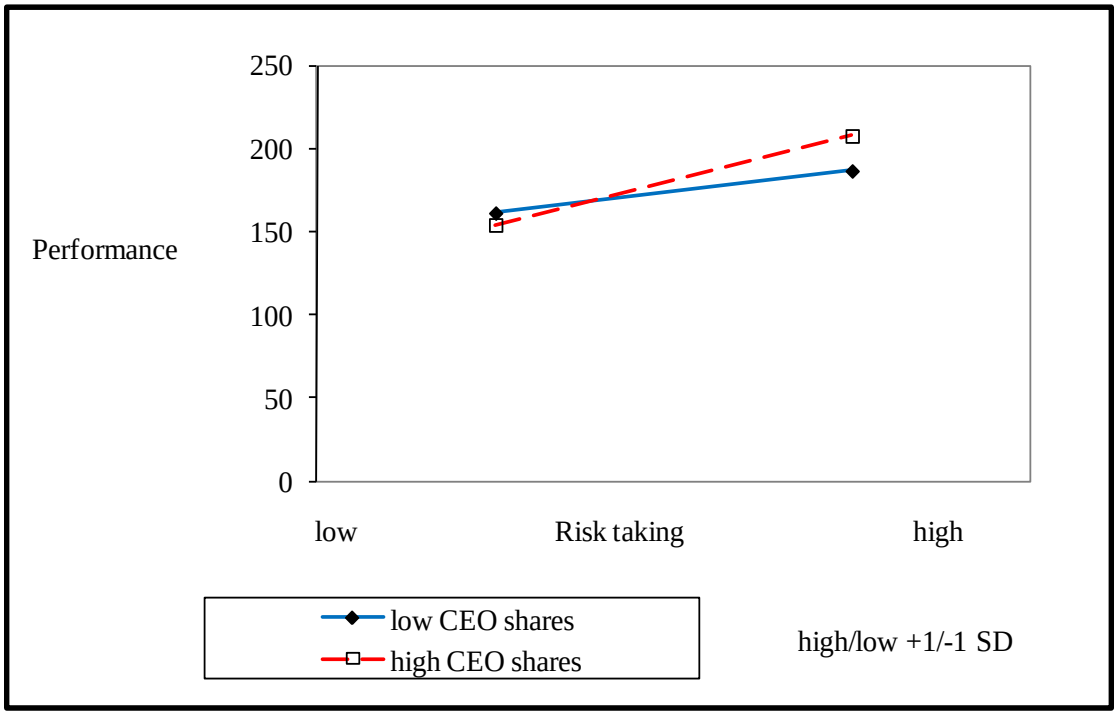


FIGURE A15: Interaction between risk taking and CEO options (Compustat sample)

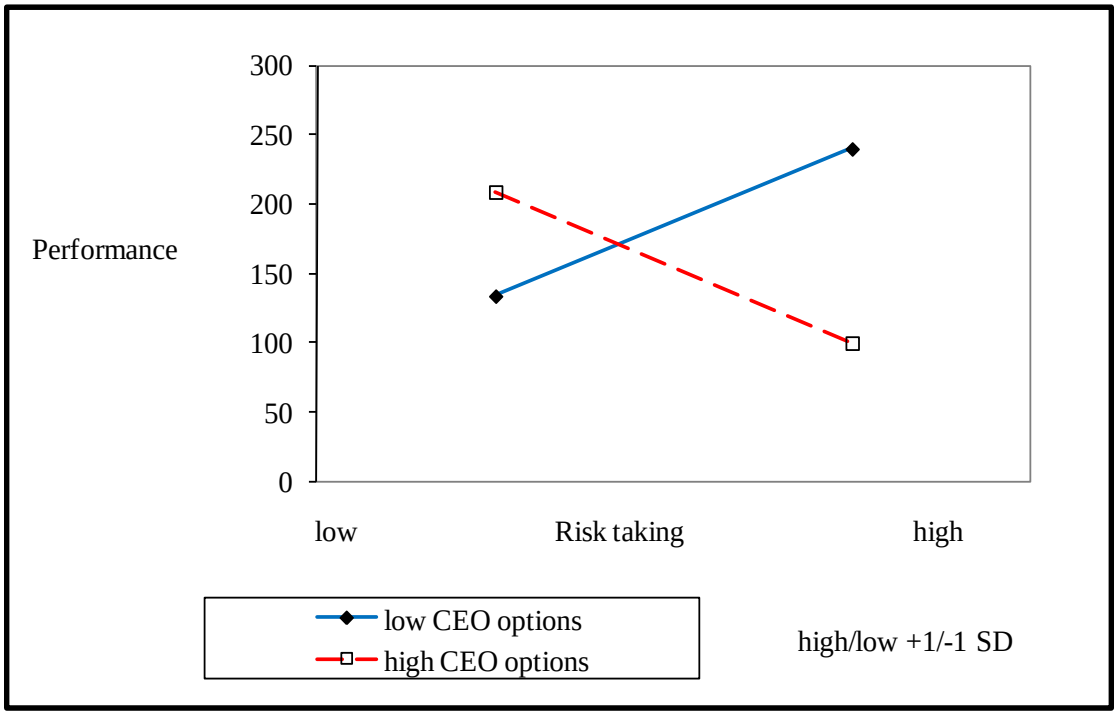


FIGURE A16: Interaction between risk taking and Pay gap (Compustat sample)

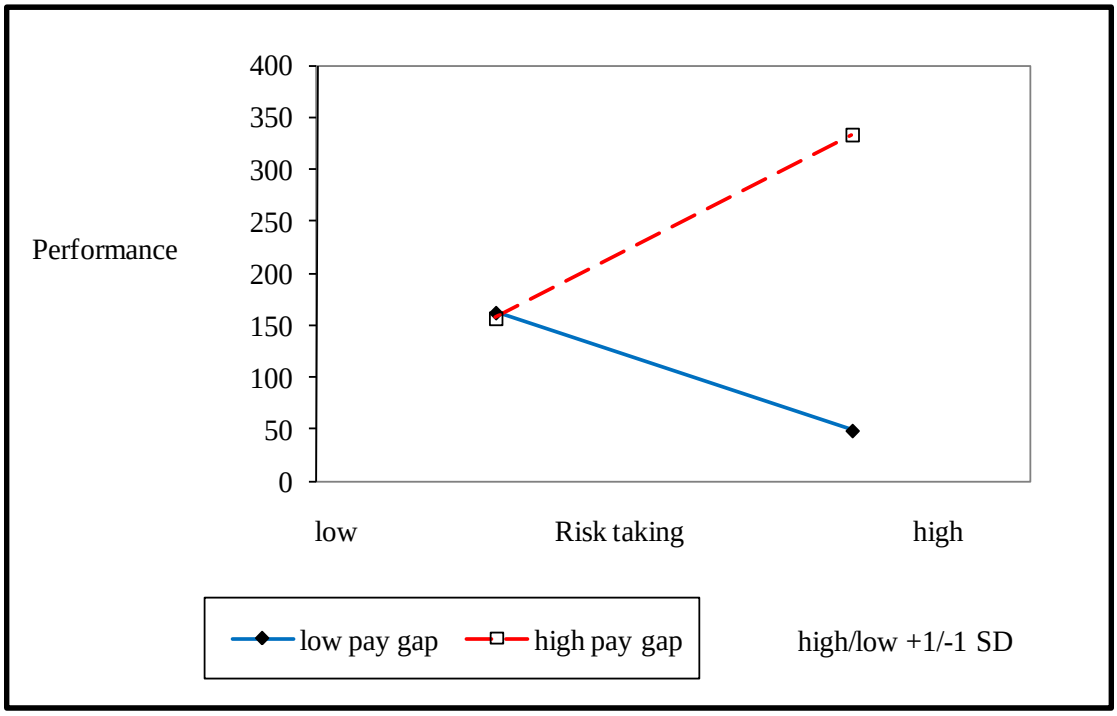


FIGURE A17: Interaction between risk taking and Blockholders (Compustat sample)

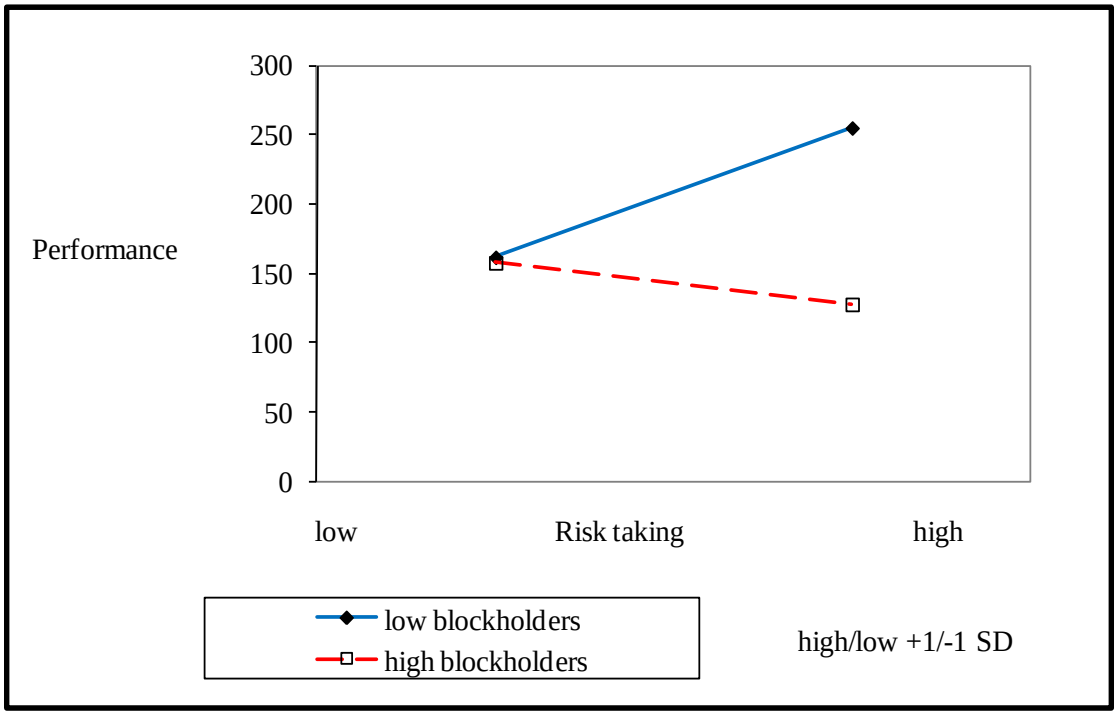
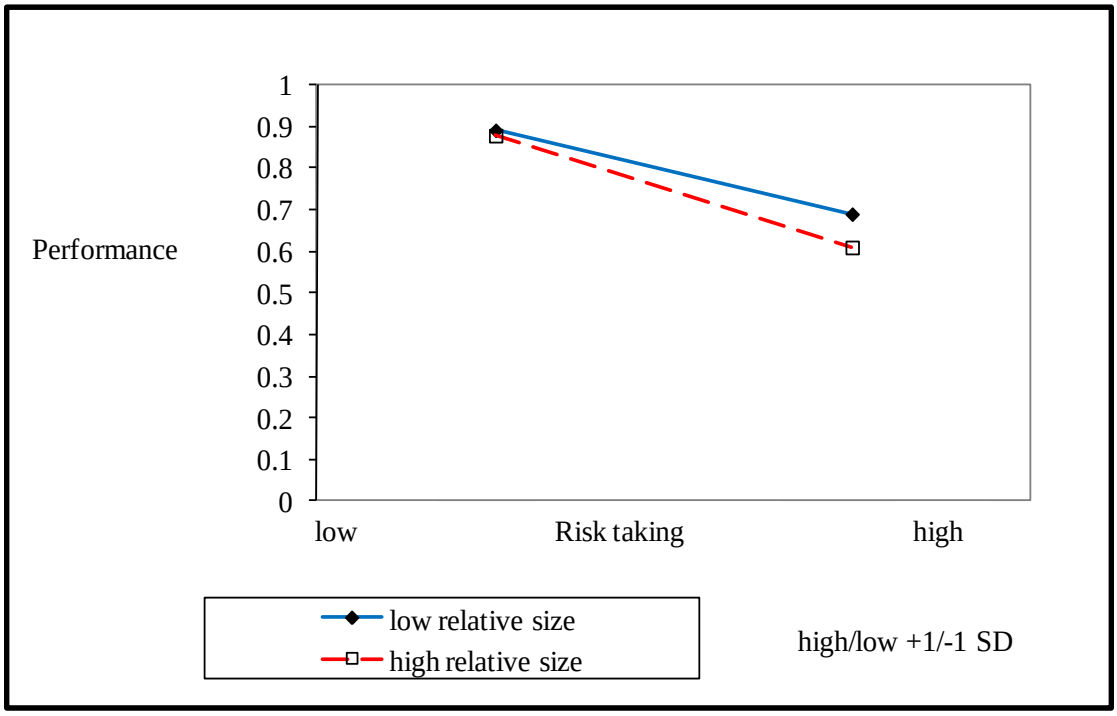


FIGURE B12: Interaction between risk taking and divisional relative size (Banking sample)



APPENDICES

APPENDIX 2

In this appendix I present supplementary analyses using hand-collected divisional managers' compensation data (for the Compustat sample) and internal and external governance data (for the Banking sample).

TABLE AP6: Correlation table for the reduced sample testing H8

	M	SD	1	2	3	4	5	6	7	8	9	10
1. Performance	203.8	569.1	1.00									
2. Sales growth	0.07	0.25	0.10	1.00								
3. Div. size	6.1	1.85	0.69	0.10	1.00							
4. Potential slack	1.1	1.35	0.11	-0.01	-0.05	1.00						
5. Free cash flow	0.05	0.4	0.12	0.11	0.04	-0.01	1.00					
6. Risk taking	143.7	355.4	0.65	0.11	0.66	0.17	0.00	1.00				
7. Relative size	0.35	0.26	0.47	0.11	0.55	0.26	0.11	0.51	1.00			
8. Divisional shares	623.6	1131.3	0.51	0.08	0.42	0.00	0.01	0.34	0.10	1.00		
9. Divisional options	1180.2	1683.6	0.17	0.06	0.20	0.00	-0.02	0.06	0.09	0.32	1.00	
10. Related divisions	1.2	1.14	-0.27	-0.02	-0.19	-0.17	-0.10	-0.19	-0.32	-0.13	-0.10	1.00
11. DU	0.33	0.34	0.11	-0.04	-0.04	-0.05	0.07	-0.08	-0.09	0.06	0.13	-0.53
12. CEO shares	1838.1	6256.6	0.23	0.08	0.26	0.29	-0.02	0.50	0.37	0.17	0.12	-0.20
13. CEO options	2197.4	4120.4	0.15	-0.03	0.14	0.29	-0.09	0.03	0.06	0.19	0.48	-0.18
14. Pay gap	7.6	1.3	0.27	-0.06	0.33	0.13	-0.11	0.15	0.05	0.26	0.38	-0.12
15. Inst. ownership	0.55	0.31	-0.15	0.14	-0.17	0.02	0.19	-0.17	0.05	-0.22	0.00	0.10
16. Blockholders	1.7	1.58	-0.27	-0.01	-0.26	-0.07	0.07	-0.13	-0.12	-0.19	-0.09	0.31
17. Munificence	5.84	16.1	0.08	0.00	0.10	0.07	-0.03	0.02	-0.12	-0.01	-0.12	-0.09
18. Dynamism	0.22	0.23	-0.03	0.10	0.05	-0.29	0.06	-0.03	-0.12	0.09	0.04	0.05
19. Complexity	0.39	0.25	-0.05	-0.06	-0.12	0.13	0.05	-0.22	-0.13	-0.09	0.00	0.17

TABLE AP6 (cont'd)

	11	12	13	14	15	16	17	18
1. Performance								
2. Sales growth								
3. Div. size								
4. Potential slack								
5. Free cash flow								
6. Risk taking								
7. Relative size								
8. Divisional shares								
9. Divisional options								
10. Related divisions								
11. DU	1.00							
12. CEO shares	-0.04	1.00						
13. CEO options	0.14	0.05	1.00					
14. Pay gap	0.13	-0.05	0.63	1.00				
15. Inst. ownership	-0.16	-0.29	-0.10	0.04	1.00			
16. Blockholders	-0.21	-0.05	-0.25	-0.13	0.45	1.00		
17. Munificence	-0.03	-0.09	0.15	0.14	-0.17	-0.14	1.00	
18. Dynamism	0.01	-0.03	-0.12	-0.07	0.01	0.04	-0.33	1.00
19. Complexity	-0.02	-0.31	-0.01	-0.05	0.04	0.08	-0.10	-0.10

N=302 Correlation smaller than -0.12 and larger than 0.12 are significant at $p<0.05$.

TABLE AP7: Relationship between risk taking and performance testing H8

	Model 1		Model 2	
Variables	Coeff	SE	Coeff	SE
Constant	-138.3	(235.1)	-135.1	(219.1)
Sales growth	62*	(31.3)	60.6*	(28.8)
Divisional size	141.9	(95.6)	183.4†	(98.4)
Potential slack	38.2	(125.5)	-85.4	(116.1)
Free cash flow	57.4	(44.7)	87.6*	(41.2)
$Performance_{t-2}$	159.9***	(35.6)	196.6***	(34.3)
Risk taking	204.9***	(42.2)	124.0	(126.9)
Relative divisional size	82.1	(59.0)	105.8†	(60.6)
Divisional managers' shares	154.8***	(32.5)	58.1	(40.5)
Divisional managers' options	-3.1	(56.3)	-7.6	(61.9)
Related divisions (DR)	-6.9	(53.4)	-15.8	(49.1)
Unrelated diversification (DU)	116.8†	(61.1)	79.9	(57.3)
CEO shares	-8.9	(53.3)	11.5	(62.9)
CEO options	-42.2	(63.2)	25.3	(61.5)
Pay gap	25.4	(70.3)	14.2	(67.7)
Institutional ownership	214.0†	(127.6)	39.0	(127.1)
Blockholders	-161.0*	(62.1)	-73.9	(59.3)
Munificence	-25.0	(72.6)	1.6	(68.8)
Dynamism	-63.0	(76.0)	15.1	(71.3)
Complexity	14.5	(97.3)	-76.8	(92.9)
Risk taking x Relative size			51.8	(51.4)
Risk taking x Divisional shares			46.9**	(13.9)
Risk taking x Divisional options			44.1	(33.9)
Risk taking x DR			-140.2†	(72.4)
Risk taking x DU			48.5	(45.7)
Risk taking x CEO shares			7.3	(21.7)
Risk taking x CEO options			-106.3*	(44.1)
Risk taking x Pay gap			56.9	(53.4)
Risk taking x Inst. ownership			266.1**	(85.7)
Risk taking x Blockholders			-21.1	(46.3)
Risk taking x Munificence			9.3	(71.3)
Risk taking x Dynamism			466.4**	(136.7)
Risk taking x Complexity			31.8	(97.2)

TABLE AP7 (cont'd)

N	294	294
Wald χ^2	369	522
Prob > χ^2	0.000	0.000
Variance within divisions	0.56	0.53
Variance between divisions	0.13	0.24
Variance between firms	0.25	0.08
Variance between industries	0.06	0.13

Standardized coefficients are reported. Standard errors are in parentheses.
† $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

FIGURE A18: Interaction between risk taking and divisional shares

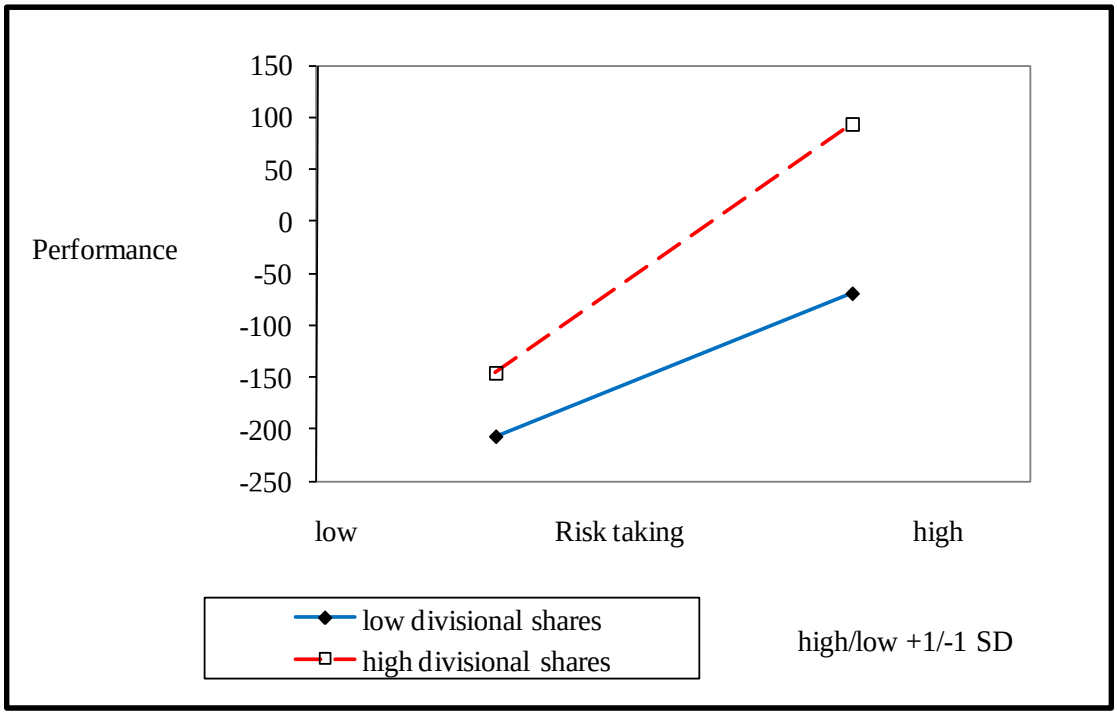


TABLE AP8: Relationship between risk taking and performance (Banking sample)

	Model 1 – using Bank risk		Model 2 – using Bank risk		Model 3 – using Loan risk		Model 4 – using Loan risk		Model 5 – using Liquidity risk		Model 6 – using Liquidity risk	
Variables	Coeff	SE	Coeff	SE	Coeff	SE	Coeff	SE	Coeff	SE	Coeff	SE
Constant	1.12***	(0.07)	1.05***	(0.1)	0.97***	(0.1)	0.99***	(0.1)	0.99***	(0.11)	1***	(0.11)
Sales growth	-0.05*	(0.02)	-0.05*	(0.02)	-0.02	(0.02)	-0.03	(0.02)	-0.05*	(0.02)	-0.06*	(0.02)
Divisional size	-0.04	(0.04)	-0.01	(0.04)	-0.02	(0.04)	-0.01	(0.04)	-0.02	(0.04)	0.01	(0.05)
Divisional age	0.01	(0.03)	0.02	(0.03)	-0.01	(0.03)	-0.03	(0.03)	0.00	(0.03)	0.01	(0.03)
Slack	0.02	(0.02)	0.00	(0.02)	0.00	(0.02)	-0.01	(0.02)	(0.03	(0.02)	0.01	(0.02)
$Performance_{t-2}$	0.11***	(0.02)	0.08**	(0.02)	0.12***	(0.02)	0.11***	(0.02)	0.12***	(0.02)	0.09***	(0.02)
Risk taking	0.10***	(0.03)	-0.07	(0.07)	-0.10***	(0.02)	-0.10	(0.07)	0.04†	(0.02)	-0.08	(0.10)
Relative divisional size	-0.06	(0.04)	-0.05	(0.04)	-0.04	(0.04)	-0.03	(0.04)	-0.05	(0.04)	-0.08†	(0.04)
# Related divisions	-0.18***	(0.05)	-0.18**	(0.06)	-0.17**	(0.06)	-0.14*	(0.06)	-0.18***	(0.05)	-0.13*	(0.07)
Unrelated diversification	-0.11**	(0.03)	-0.13***	(0.04)	-0.08*	(0.03)	-0.08*	(0.03)	-0.10**	(0.03)	-0.10**	(0.04)
CEO shares	0.13***	(0.03)	0.13***	(0.03)	0.12***	(0.03)	0.16***	(0.04)	0.12***	(0.03)	0.12***	(0.03)
CEO options	-0.12***	(0.03)	-0.11***	0.03)	-0.11***	(0.03)	-0.11**	(0.03)	-0.12***	(0.03)	-0.11***	(0.03)
Pay gap	0.17***	(0.03)	0.17***	(0.03)	0.15***	(0.03)	0.12***	(0.03)	0.16***	(0.03)	0.18***	0.03)
Institutional ownership	0.06	(0.04)	0.08*	(0.04)	0.07*	(0.04)	0.04	(0.04)	0.05	(0.04)	0.03	(0.04)
Blockholders	-0.04	(0.03)	-0.05	(0.03)	-0.04	(0.03)	-0.04	(0.03)	-0.03	(0.03)	0.00	(0.04)
Munificence	0.01	(0.04)	0.00	(0.04)	0.02	(0.03)	0.04	(0.03)	0.01	(0.04)	0.02	(0.04)
Dynamism	0.02	(0.04)	0.03	(0.04)	-0.01	(0.04)	-0.01	(0.04)	0.01	(0.04	0.00	(0.04)
Complexity	-0.14†	(0.07)	-0.10	(0.07)	-0.13†	(0.07)	-0.08	(0.07)	-0.13†	0.07)	-0.14†	(0.08)
Risk taking * relative size			-0.03	(0.04)			-0.06†	(0.03)			-0.01	(0.03)
Risk taking * related divisions			-0.05	(0.04)			-0.07	(0.06)			-0.07	(0.11)

TABLE AP8 (cont'd)

Risk taking * unrel. diversification			0.13***	(0.03)			-0.12**	(0.05)			0.15**	(0.05)
Risk taking * CEO shares			0.02	(0.02)			-0.07†	(0.04)			0.01	(0.05)
Risk taking * CEO options			-0.05**	(0.02)			-0.03	(0.04)			-0.06	(0.04)
Risk taking * Pay gap			0.06***	(0.02)			0.07***	(0.02)			-0.04	(0.03)
Risk taking * Inst. ownership			0.01	(0.04)			0.02	(0.05)			0.08†	(0.05)
Risk taking * Blockholders			-0.03	(0.03)			-0.02	(0.02)			-0.17**	(0.06)
Risk taking * Munificence			0.02	(0.03)			-0.02	(0.02)			0.04	(0.03)
Risk taking * Dynamism			-0.03	(0.03)			0.01	(0.02			0.03	(0.03)
Risk taking * Complexity			-0.18**	(0.06)			-0.03	(0.05)			-0.14†	(0.08)
N	869		869		860		860		869		869	
Wald χ^2	392		455		395		477		372		413	
Prob > χ^2	0.000		0.000		0.000		0.000		0.000		0.000	
Within division variance	0.88		0.85		0.83		0.82		0.85		0.83	
Among division variance	0.00		0.03		0.00		0.00		0.00		0.00	
Among firm variance	0.00		0.01		0.02		0.04		0.00		0.03	
Among industry variance	0.12		0.1		0.16		0.14		0.14		0.14	

Standardized coefficients are reported. Standard errors are in parentheses. † $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

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