Viewing the Organization as a Social Actor:
An Intentions-Based Model of Firm-Level Entrepreneurship

by

Matthew James Mazzei

A dissertation submitted to the Graduate Faculty of
Auburn University
in partial fulfillment of the
requirements for the Degree of
Doctor of Philosophy

Auburn, Alabama
December 14, 2013

Keywords: corporate entrepreneurship, entrepreneurial orientation,
intentions-based theory

Approved by

Christopher L. Shook, Chair, Russell Professor & Management Department Chair
Garry L. Adams, Associate Professor of Strategic Management
LaKami T. Baker, Assistant Professor
Brian L. Connelly, Associate Professor & McWane Family Professor
Stanley G. Harris, Associate Dean & Torchmark Professor of Management

Abstract

A large majority of entrepreneurship research has suffered from a lack of theoretical grounding, and research on corporate entrepreneurship (CE) has been no different. This dissertation posits a theoretically-grounded framework for firm-level entrepreneurial behavior by borrowing theory from the social psychology literature. Viewing the organization as an independent social actor offers clarity to CE-related phenomena by suggesting organizations are purposeful and intentional in their actions. By elevating Ajzen's theory of planned behavior (TPB) to the organizational level of analysis, this dissertation tests an intentions-based model of firm-level entrepreneurship, with entrepreneurial orientation (EO) as the central construct. The model builds on prior research by positioning EO as a dispositional element representing an organization's entrepreneurial intentionality, and explores a new classification of internal and external precursors that parallel the TPB. In concert with the causal chain inherent in the theory, this work separates an organization's intentions from its behavior; thus, a mediator (corporate entrepreneurial behavior) is introduced to better explain how EO positively influences firm financial performance. Mirroring the original conceptualization of the TPB, moderator effects are also hypothesized. Archival data for the years 2002-2011 was collected on a sample of 196 medium and large U.S. businesses to test the proposed model.

Although the overall model offers potential in explaining, understanding, and predicting firm-level entrepreneurial behavior, analyses using structural equations modeling tendered limited support of antecedent relationships. Of the hypothesized antecedents, only industry norms with CE were found to be a strong predictor of firm EO. This implies that executives are actively scanning their competitive environment as part of the process to develop their firm's entrepreneurial intentions. Regarding the consequences of EO, the analyses reveal a positive relationship with innovating behavior. These results suggest that firms develop intentions to behave entrepreneurially before carrying out subsequent entrepreneurial actions. Furthermore, innovation behavior mediates the relationship between EO and firm performance. While further development of the framework and its measurement is warranted, this work has successfully advanced the literature on EO and CE by introducing intentions-based theory as a framework for CE, presenting empirical evidence of EO as a dispositional construct that precedes firm-level entrepreneurial behavior, and offering greater insight into the EO-firm performance relationship.

Dedication

To R.H.M. – You have always served as a guiding light for me, and always will.

You are loved and missed.

Acknowledgments

There are many people for whom I wish to acknowledge for their efforts to support me in the completion of this project and this degree. I would first like to thank the committee that helped me navigate the dissertation process. Dr. Christopher Shook has been a thoughtful and accommodating mentor since my earliest days at Auburn. He has been invaluable to me for his advice, encouragement, assistance, and support. He has—in so many ways—helped me grow as a scholar and as a teacher, and I am eternally grateful. Dr. Garry Adams has also served as a wealth of knowledge and a calming influence throughout these last few years; his colloquium seminars were a tremendous resource in preparing me for an academic career. Dr. LaKami Baker, Dr. Brian Connelly, Dr. Stan Harris, and Dr. Joe Hanna have all been gracious with their time, effort, and encouragement throughout the dissertation process.

Furthermore, I would like to thank the entire faculty and staff in Auburn University's Management Department for their support. Dr. Achilles Armenakis, Dr. Junior Field, Dr. David Ketchen, Dr. Allison Jones-Farmer, Dr. Kevin Mossholder, and Dr. Alan Walker, among others, have all served in various ways to enhance and enrich my experience and education. Ms. Nancy Ray-Monroe and Ms. Barbara Hawkins were always there to help attend to time-consuming administrative matters; their time and efforts do not go unnoticed and are very much appreciated.

I would also like to acknowledge several other mentors and colleagues that have helped guide me through these early stages of my academic career. Dr. Scott Geiger, Dr. Daniel Marlin, and Dr. Cynthia Bean were instrumental to getting me started on this career path. Dr. Sharon Oswald has been a strong supporter since I first stepped on the Auburn campus; her encouraging words on numerous occasions have helped to grow my confidence. Dr. Matthew Rutherford has been an invaluable resource and mentor for me in recent years and I thank him for his friendship. Many other Auburn alums have gone out of their way to encourage, support, and propel me on this journey, and I only hope I can give back to other students as they have for me. My fellow doctoral students have also played a considerable role in my growth as a scholar, as we both challenged and championed one another's thoughts and ideas; I value each friendship immensely.

On a more personal note, I would like to give thanks and praise to God for leading me on this journey. My faith has grown as I have come to know His grace and mercy, and I pray I can better serve as His hands and feet here on earth as I welcomingly embrace my role as a teacher and mentor. I also thank the leadership and members of Cornerstone United Methodist Church for their fellowship and support of my family during our time in Auburn.

Furthermore, I could not express enough gratitude for the love, generosity, and unwavering support of my parents, Greg and Linda Mazzei, and in-laws, Gary and Micki Davis. Their love shows no bounds. I also extend thanks to my brothers, Adam and Kevin, for their heartfelt encouragement at all the right times, and my brother- and sister-in-law, Donald and Kelly Lamb, for the many ways they have supported my family during these years.

Last, I could not have accomplished this dream without the limitless love and encouragement of my immediate family. The love and support of my beautiful wife, Lacey, are a steady constant that help me through even the toughest of days. Her sacrifices to care for our children and support me in this endeavor have made it all possible. My boys, Jay and Bryce, serve as my joy each and every day; I am so proud of them. I hope I can help them follow their dreams, much as they have sacrificed to help me follow mine.

Table of Contents

List of Tables

List of Figures

List of Abbreviations

AL	Acquisitive Learning
BOD	Board of Directors
CE	Corporate Entrepreneurship
CEO	Chief Executive Officer
CFI	Comparative Fit Index
DV	Dependent Variable
EL	Experimental/Incremental Learning
EO	Entrepreneurial Orientation
EPS	Earnings Per Share
IB	Innovation Behavior
LO	Learning Orientation
MVA	Market-Value Added
PI	Pioneering and Innovative
R&D	Research and Development
RMSEA	Root Mean Square Error Approximation
ROA	Return on Assets
ROS	Return on Sales
SEC	United States Securities and Exchange Commission
SEE	Shapero's Model of the Entrepreneurial Event

SEM	Structural Equation Modeling
SIC	Standard Industrial Classification
SRMR	Standardized Root Mean Square Residual
TMT	Top Management Team
TPB	Theory of Planned Behavior
VB	Venturing Behavior
VIF	Variance Inflation Factor

I. INTRODUCTION

With the growing turbulence and complexity of a global economy, there is mounting evidence to suggest that firms must engender entrepreneurial attitudes and behaviors in order to prosper and flourish (Barringer & Bluedorn, 1999). To succeed financially, firms must navigate an environment filled with increased competition and rapidly changing consumer expectations by engaging in entrepreneurial activities (Hitt, Ireland, Camp, & Sexton, 2001; Ireland, Hitt, Camp, & Sexton, 2001; Pinchot, 1985). These actions are pursued with the hopes of exploiting new opportunities in the marketplace and gaining or retaining a competitive advantage over rival firms (Covin & Miles, 1999). Accordingly, long-term financial success may rely on an organization's ability to expand their corporate strategy beyond the exploitation of current market opportunities; firms must also pursue activities that promote innovation, entry into new markets, and/or the launch of new business ventures (Burgelman, 1983) that can serve as the market advantages and revenue generators of tomorrow.

By recognizing corporate entities as entrepreneurial in nature, the concept of entrepreneurship expands past an individual starting up their own new business venture and encompasses firms, large and small, already in existence. Generally, this firm-level entrepreneurship (also recognized as "corporate entrepreneurship" or simply "CE") refers to the development and implementation of new ideas in existing organizations (Hornsby,

Kuratko, & Zahra, 2002). More formally, CE is "the process whereby an individual or a group of individuals, in association with an existing organization, create a new organization or instigate renewal or innovation within that organization" (Sharma & Chrisman, 1999, p. 18). CE is apparent in organizations today through the actions of strategic entrepreneurship and corporate venturing (Morris, Kuratko, & Covin, 2008). Strategic entrepreneurship focuses on a broad array of entrepreneurial initiatives—occurring anywhere and everywhere in an organization (Kuratko & Audretsch, 2009)—that focus on highly consequential innovation and are taken up in the firm's pursuit of competitive advantage (Covin & Miles, 1999). These innovations characterize fundamental changes in a firm's strategies, products, markets, processes, or business models that alter the firm from its previous existence or differentiate it from industry rivals (Morris et al., 2008), leading to improved financial performance. Strategic entrepreneurship is often characterized by multiple innovations within a single firm to simultaneously exploit opportunities in current and new product/market spaces (Ireland, Hitt, & Sirmon, 2003).

Meanwhile, corporate venturing is defined as the creation and/or development of a new business from within an existing firm (Guth & Ginsberg, 1990). Firms pursue corporate venturing through the creation of new wholly-owned subsidiaries, spin-offs, and/or strategic equity investments in start-up ventures (Narayanan, Yang, & Zahra, 2009). Through venturing, existing organizations embark on activities new to the organization for the purpose of increasing sales, profit, productivity, or quality (Block & MacMillan, 1993). While linked closely with strategic entrepreneurship due to its reliance on innovation and renewal, venturing focuses more on the steps and processes associated with creating new businesses and integrating them into a firm's overall

business portfolio (Narayanan et al., 2009). Figure 1.1 depicts the relations between CE and its sub-elements, while Table 1.1 offers a definition for each.

Figure 1.1: The relations between corporate entrepreneurship and its sub-elements, strategic entrepreneurship and corporate venturing.

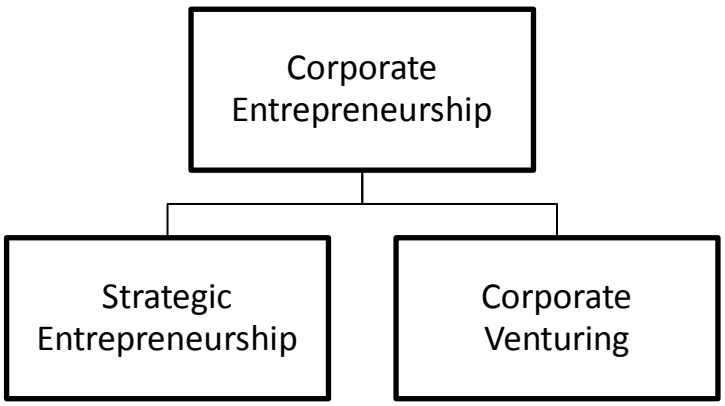


Table 1.1: A description of corporate entrepreneurship-related terms.

Corporate entrepreneurship = the process whereby individual(s), in association with an existing organization, create a new organization or instigate renewal or innovation within that organization (Sharma & Chrisman, 1999)
Strategic entrepreneurship = entrepreneurial initiatives focused on highly consequential innovation that are taken up in the firm's pursuit of competitive advantage (Covin & Miles, 1999)
Corporate venturing = the creation and/or development of a new business from within an existing firm (Guth & Ginsberg, 1990)

Prolonged success in today's complex and competitive environment goes beyond the execution of a single entrepreneurial action; for a lone entrepreneurial undertaking—whether through innovation or venturing—does not make an organization entrepreneurial (Covin & Lumpkin, 2011; Morris et al., 2008; Ucbasaran, Westhead, & Wright, 2001). In pursuing competitive advantage and improved financial performance, a firm should adopt a corporate entrepreneurial strategy that advocates and rewards innovative and

proactive behavior (Kuratko, Ireland, & Hornsby, 2001). To operate with an entrepreneurial strategy, a firm should embrace an entrepreneurial mindset (McGrath & MacMillan, 2000) and have the strategic intent to continuously and deliberately leverage entrepreneurial opportunities (Shane & Venkataraman, 2000). These intentions must permeate the organization, reaching from the chief executive officer (CEO) and other senior executives (Hornsby, Kuratko, Shepherd, & Bott, 2009), down through the middle managers (Hornsby et al., 2002; Kuratko, Ireland, Covin, & Hornsby, 2005), and to the organizational members (Stevenson & Jarillo, 1990). Led by executives with an entrepreneurial management style (Covin & Slevin, 1988), associates from all levels and across units should embrace the relentless pursuit of innovation and renewal as a gateway to challenge the status quo, whether seeking advantage through the efficiency of operations or in creating a new product/market opportunity (Ireland, Covin, & Kuratko, 2009).

Entrepreneurial Orientation and Firm-Level Entrepreneurship

In order to successfully implement an entrepreneurial strategy, firms must cultivate an organization-wide approach focused on the capitalization and exploitation of opportunities. In turn, a gestalt ensues that transcends levels of the organization (Covin & Slevin, 1988) and embodies a firm's behavioral orientation or posture toward entrepreneurial pursuits (Morris, Webb, & Franklin, 2011). Due to its expected ties to wealth creation, this entrepreneurial posture has been a topic of much scholarly attention in recent years, with over 100 studies devoted to the construct (Rauch, Wiklund, Lumpkin, & Frese, 2009). More importantly, it has played an integral and central role in the most commonly used models of firm-level entrepreneurship. Scholars have

frequently labeled this organizational disposition as an "entrepreneurial strategic orientation" or simply "entrepreneurial orientation" (subsequently referred to as "EO").

The original conceptualization of EO concentrates on the entrepreneurial nature of an organization (Miller, 1983; Miller & Friesen, 1982), suggesting that firms must be innovative, proactive, and risk taking in order to exploit opportunities in the marketplace (Covin & Slevin, 1991). Similar to arguments relating CE with improved financial performance, scholars have advocated that by employing a strong EO, firms set themselves on a course for survivorship and wealth creation (Covin & Slevin, 1991; Dess, Lumpkin, & Covin, 1997; Lumpkin & Dess, 1996). Empirical investigation frequently demonstrates a positive relationship between EO and firm performance (e.g., Rauch et al., 2009; Wiklund, 1999; Wiklund & Shepherd, 2005); however, as will be discussed in the next section, extant work suffers from several major limitations. Of primary concern are the following: 1) the lack of a fundamental theory explaining EO's role in firm-level entrepreneurship; 2) confusion regarding the very nature of the construct; and, 3) a dearth of studies that explain why and how EO influences firm performance.

Significant Knowledge Gaps in EO Research

First and foremost, a review of the EO literature reveals that research often has lacked strong theoretical grounding (Covin & Lumpkin, 2011). While this has been observed generally on research across the entire field of entrepreneurship (Aldrich, 1992), it has been especially troubling for research on EO. EO has been labeled an "annoying" construct and has, through some eyes of academe, struggled to gain scholarly legitimacy (Covin & Lumpkin, 2011). All too frequently, research on EO has relied on

assumptions and practical arguments, rather than elaborating on how established theory can offer explanatory reasoning to the phenomena surrounding CE. To be clear, theory has been applied to various dynamics or relationships within the domain. However, a single, overarching theoretical grounding would provide insight into the entire phenomenon of firm-level entrepreneurial behavior. Thus, tighter integration with established academic theory or theoretical perspectives, from management or other disciplines, would further legitimize EO research and connect it to other well-seasoned domains (Miller, 2011).

Second, the very essence of the EO construct has been a growing topic of interest and discussion. As a latent construct attracting a large amount of attention in the literature, a recurring question is whether EO is a dispositional or behavioral phenomenon (Covin & Lumpkin, 2011; Miller, 2011). Early conceptualization was undeniably weighted toward firm behavior (Covin & Slevin, 1989, 1991; Miller, 1983), as "an organization's behaviors make it entrepreneurial" (Covin & Slevin, 1991, p. 8). However, there is an increasing amount of scholars who argue for viewing EO as dispositional (Krueger & Brazeal, 1994; Zahra, 1993a; Zahra, Jennings, & Kuratko, 1999), such that it characterizes a firm's proclivity or willingness to pursue entrepreneurial behavior (Kuratko, 2010). From this stance, a particular "orientation does not always gauge action" (Zahra et al., 1999, p. 55). Therefore, future research offering clarity to EO as either dispositional or behavioral would be helpful to advancing the research stream.

A third major limitation of this research stream is that very few empirical studies have explored the critical connections linking EO to performance within the process of CE (Kuratko, Hornsby, Holt, & Rutherford, 2009; Shepherd & Krueger, 2002). A great

deal of time and effort have gone into investigating the contextual conditions under which CE is beneficial or detrimental to performance, with studies testing moderators making up a vast majority of research investigating the EO-performance relationship (Covin & Lumpkin, 2011; Rauch et al., 2009). However, far fewer studies have tried to unpack the factors that help to translate a corporate entrepreneurial strategy into firm performance. The literature fails to look at processes subsequent to EO that better explain the influence EO has on performance (Ireland & Webb, 2007), as scholars have simply focused on more distant outcomes of EO (Dess, Pinkham, & Yang, 2011; Miller & Le Breton-Miller, 2011). In essence, though the growing consensus is that EO affects performance, we don't know how or why. Accordingly, a research agenda built around the intervening mechanisms that convert EO into greater levels of wealth would serve the field by delivering insight into the causal sequence entrepreneurial firms employ to generate financial success.

In this dissertation, theory and supporting research is borrowed from the individual level of analysis. Theory borrowing is prevalent in the study of organizations (Molloy, Ployhart, & Wright, 2011); it offers linkages to other disciplines that help explain organizational phenomena and adds to the credibility and richness of organizational scholarship (Whetten, Felin, & King, 2009). To support this inquiry, it is suggested that theory and empirical research on individuals' entrepreneurial behavior (e.g., Bird, 1988, 1992; Shapero & Sokol, 1982) may inform scholars of CE and address these gaps in the EO literature. Much like individuals, organizations can "behave" entrepreneurially (Covin & Slevin, 1991; Jennings & Lumpkin, 1989). Accordingly then, they can (and have) been treated as unique and sovereign social actors—theoretically disparate from social aggregates (Whetten & Mackey, 2002)—that demonstrate

purposeful, intentional action (King, Felin, & Whetten, 2010). By viewing the organization as an independent social actor, the entrepreneurial intentions and subsequent behaviors of individual entrepreneurs parallel the phenomena occurring at the organizational level of analysis, suggesting implications for the nature of EO. Furthermore, borrowing from research on individual entrepreneurs offers theoretical grounding for the causal chain of antecedents and outcomes relevant to EO and provides the bases for a new intentions-based model of firm-level entrepreneurship. Such a model parallels the phenomena observed at the individual level of analysis, offering both function and structure to understand the causal sequencing applicable for carrying out firm-level entrepreneurial strategies.

Research Questions

Reviewing the three limitations specified above, two prevailing research questions guide this study. The first research question is: *What influences lead firms to behave entrepreneurially?* Indisputably, there are motivations or characteristics that drive firms to focus their attention on entrepreneurial opportunities and initiatives (Schindehutte, Morris, & Kuratko, 2000). What are these entrepreneurial triggers? Research has been active in looking at internal and external antecedents to CE. This work will build on many of these investigations to formulate a new framework, grounded in theory on individual behavior, from which to view precursors to firm-level entrepreneurship. Intentions-based theory has been highly regarded and accepted in explaining, understanding, and predicting individuals' behavior for decades. Borrowing theory from the individual level of analysis allows for the classification of similar organizational and social determinants of firm-level behavior. More importantly, applying the functional

and structural characteristics of intentions-based theory suggests a distinct separation between intentions and behavior, and highlights the necessitation of integrating firm-level intentionality into any model of firm-level entrepreneurial behavior. From this vantage, EO takes on a dispositional conceptualization, representing a firm's willingness and propensity to embrace new opportunities and take responsibility for effecting creative change (Morris & Kuratko, 2002) and embodying a firm's entrepreneurial intentions.

The theoretical implications of viewing EO in this manner suggest that EO precedes the actual entrepreneurial behavior observed by firms, and in doing so raises the second research question guiding this study: *What transpires in the underlying relationship between EO and firm performance?* Empirical research has largely neglected mediating relationships involving EO (Rosenbusch, Rauch, & Bausch, 2013), so much is unresolved on what forces or actions intervene in the relationship between EO and performance. Mediation studies are necessary to explain the mechanisms connecting the two constructs—absent these mechanisms, there is no way to explain *how* and *why* EO should impact performance (Zhao, Li, Lee, & Chen, 2010). Conceptualizing EO as a dispositional construct conforms with recent views and suggests that EO leads to, but does not include, entrepreneurial behavior (Morris et al., 2008). Accordingly, this dissertation introduces corporate entrepreneurial behavior as a mediating variable in the EO-performance relationship. In this way, corporate entrepreneurial behavior represents a set of entrepreneurial actions, conducted by firms under conditions of uncertainty, seeking to exploit entrepreneurial opportunities that rivals have not yet noticed or exploited (Kuratko, 2010). Corporate entrepreneurial behavior is most often recognized as the innovating and venturing activities of existing firms. Prior research has shown

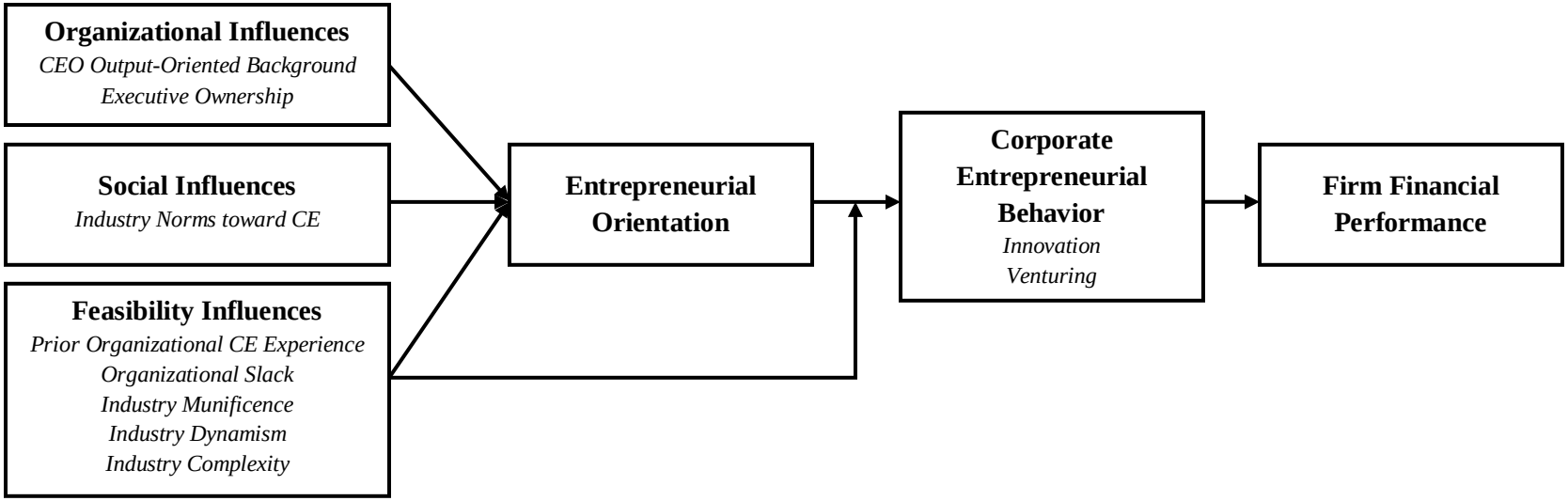
positive associations between these variables and performance, and these behaviors offer to extend, reinforce, and realize firms' entrepreneurial posture.

As some studies have failed to find a significant correlation between EO and performance (Covin, Slevin, & Schultz, 1994; George, Wood, & Khan, 2001), this research also seeks additional evidence as to what influences might be responsible for these contrasting results. Therefore, consistent with the original structural conceptualization of intentions-based theory, several moderating effects are interjected into the model to better explain the contingent nature of the EO-performance relationship. As such, both internal and external factors that address the availability of resources and opportunities are included, subsequently influencing the level to which firms carry out their entrepreneurial intentions. Figure 1.2 provides a visual representation of the proposed intentions-based model of firm-level entrepreneurship.

Contributions to the Literature

Overall, the proposed research offers significant contributions on several fronts. To date, a unifying theoretical framework has evaded CE research, leaving some outside the domain to question the authenticity and legitimacy of its merit (Miller, 2011). As such, the first key contribution of this dissertation is the development and empirical testing of an overarching, theory-driven framework, borrowed from the social and cognitive psychology literatures, from which to understand and explain firm-level entrepreneurship. Based largely on Ajzen's (1985, 1987, 1991) theory of planned behavior (TPB), the framework offers theoretical grounding for the causal chain of firm-level entrepreneurship as it parallels the characteristics and circumstances leading to individuals' entrepreneurial behaviors. Not only does this proposed framework provide

Figure 1.2: An intentions-based model of firm-level entrepreneurship.



structure for future work by CE scholars, it also integrates insights from organizational behavior, strategic management, and entrepreneurship. Therefore, this work helps to bridge the micro-macro divide so prevalent in management scholarship today (Aguinis, Boyd, Pierce, & Short, 2011).

Second, the proposed model offers clarity to the nature of the EO construct. By viewing the organization as a social actor, entrepreneurial firms are recognized as purposeful, sovereign, and distinct social entities that have some form of intentionality that underlies their decision making and behavior. In paralleling the TPB, the framework developed and tested in this dissertation integrates EO as a central construct in the causal chain of firm-level entrepreneurship, advocating that a dispositional conceptualization of EO equates to the entrepreneurial intentionality of firms. Moreover, the model classifies internal and external firm-level precursors of EO, while also describing consequences relevant to a dispositional EO.

A final principal contribution of this study addresses the outcomes of EO by including intervening and contingent relationships inherent to the EO-performance model. The EO-performance relationship remains simultaneously causally ambiguous and "an important empirical question" (Zahra et al., 1999, p. 56) that remains a fruitful area of future research (Rauch et al., 2009). Therefore, by introducing a mediating variable (corporate entrepreneurial behavior) that helps to distinguish EO as a dispositional construct and employing a lagged design to analyze the relationship between these construct across time, the proposed study contributes to the EO literature by more clearly specifying the nature of the relationship between EO and firm performance. To fully enact a corporate entrepreneurship strategy, firms must institute an

organization-wide EO, as well as employ the entrepreneurial behaviors and actions to support this strategic orientation (Ireland et al., 2009). Exhibiting only the entrepreneurial intentions suggested by EO fails to provide a complete understanding of why there would be a relationship with firm performance, as external factors or circumstances can often impede or prevent subsequent action. Separating EO from firms' entrepreneurial behavior allows for a clearer picture of the strategic implementation of an organization's entrepreneurial posture. Furthermore, the model parallels the TPB by including internal and external moderating variables, suggesting contingent elements that influence the EO-performance relationship.

Practically speaking, this research offers a new categorization of internal and external antecedents that activate an organization's entrepreneurial posture. The work also stands to confirm specific corporate entrepreneurial behaviors that transform a firm's EO and translate an entrepreneurial disposition into better financial performance, suggesting further that this relationship is intensified for firms with prior CE experience, with high levels of organizational slack, and those operating in a diverse, turbulent, and resource-rich environment.

Summary of Remaining Chapters

Chapter 2 of this dissertation is comprised of three sections. The first section is a review of the literature on firm-level entrepreneurship, with specific attention paid to the EO construct. This section begins with a background on research looking at entrepreneurial firms and how EO grew into a significant construct in this literature stream. Confusion regarding the underlying nature (i.e., dispositional or behavioral) of EO is highlighted. Prior models of firm-level entrepreneurship that specifically address

EO are also shared and assessed. The second section of Chapter 2 provides an overview of the theoretical foundation for the proposed model seen in Figure 1.2. The second section begins with a justification for borrowing theory from other levels of analysis and explains the benefits doing so offers. Within this explanation, the concept of the organization-as-a-social-actor is introduced. The assumptions brought forth in viewing the organization as a social actor help link this perspective with intentions-based theory, which has been used previously in the literature on entrepreneurial individuals. The application of intentions-based theory to organizations viewed as independent social actors suggests a revised framework for interpreting organizational intentionality and firm-level entrepreneurship. The second section concludes by discussing the specific implications viewing the organization as a social actor has on the EO construct. The chapter then transitions into a third and final section: the presentation of the study's hypotheses. This section integrates and augments the information shared in the literature review and theoretical foundation into a series of arguments to support five hypotheses inherent to an intentions-based model of firm-level entrepreneurship.

Chapter 3 outlines the methodology for testing the proposed model. It defines the population of the study to be large, publicly-traded companies from a broad range of industries. Furthermore, it details the data collection and data screening efforts from the original random sample of 220 publicly-traded companies drawn from the 2007 *Fortune* 1000 list. The chapter concludes with a thorough overview of the operationalization of each construct identified in the model.

Chapter 4 of this dissertation describes the statistical analyses used for testing the proposed model of firm-level entrepreneurship and presents the study's empirical results.

Structural equation modeling (SEM) techniques were used to analyze the longitudinal data post-collection, allowing for the assessment of the overall fit of the hypothesized model and also the examination of each hypothesis. A comparison of several alternative models is also included in this chapter.

Chapter 5 summarizes and discusses the study's findings. It highlights the contributions to the scholarly literature on EO and, more broadly, CE. It also addresses the potential implications for practitioners, as well as the study's limitations. Chapter 5 concludes with some suggestions for how future research can build from the findings of this study, and offers a few final remarks.

II. MODEL DEVELOPMENT

Firm-level entrepreneurship requires the integration of strategic management and entrepreneurship (Ireland et al., 2001; Meyer & Heppard, 2000a). In order to act entrepreneurially, existing firms establish a strategic direction based upon extending their competencies and opportunities through new resource combinations (Burgelman, 1984). More simply stated, in adopting an entrepreneurial strategy firms continuously seek ways to revitalize their organization and make them more innovative (Cooper, Markman, & Niss, 2000). For this reason, embracing an entrepreneurial strategy can be used to advance a firm's competitive positioning, transform the firm and its market(s), and drive improved financial performance (Covin & Miles, 1999).

It is this link between firm-level entrepreneurship and financial performance that has garnered attention from both practitioners and scholars alike. Popular press aimed at corporate executives, such as *The Innovator's Dilemma* (Christensen, 1997) and *Blue Ocean Strategy* (Kim & Mauborgne, 2005), suggest that successful organizations in today's competitive environments must relentlessly pursue innovation and new market entry. Correspondingly, academics have put forth conceptual arguments and empirical investigations to better understand the relationship between firm-level entrepreneurship and firm performance. It is this scholarly attention that serves as a foundation for this dissertation.

This chapter follows in three sections. The first section offers a general review of the literature on firm-level entrepreneurship. Within this section, considerable attention is paid to the concept of entrepreneurial orientation (EO), as it has emerged as the dominant topic within the domain of corporate entrepreneurship (CE; Covin & Lumpkin, 2011). Beyond exploring the EO construct, several earlier models of firm-level entrepreneurship (in which EO serves as a central figure) are reviewed, benefits of these models are extolled, and limitations in the extant research are outlined. The second section of this chapter provides the theoretical framework that serves as the foundation for the current research initiative. Within this section, popular theory from social and cognitive psychology is drawn upon to establish a theoretical framework to better understand and predict entrepreneurial behavior at the organizational level of analysis. To help tie in the functional elements inherent in borrowing theory from lower levels of analysis, recent meta-theory that conceptualizes the organization as an independent social actor is drawn upon to make implications for an intentions-based model of firm-level entrepreneurship. The final section of this chapter develops the empirical model and presents the study's five hypotheses.

Literature Review on Firm-Level Entrepreneurship

In their review of the domain of firm-level entrepreneurship, Zahra et al. (1999) recognize Peterson and Berger (1971) for having the seminal article outlining this phenomenon. In this piece, Peterson and Berger build upon observations in the music industry to suggest that organizations adapt to turbulent market environments by assuming entrepreneurial strategies. These authors imply that an entrepreneurial leadership style helps larger organizations adapt to turbulent markets via an increased

focus on innovation and a modified organizational structure. As predicted by Lawrence and Lorsch (1967), firms in the increasingly turbulent music industry adapted with a more informal structure and increased autonomy for certain associates to seek out novel sounds that might lead to the next wave in popular music. Further adaptation led to more cooperative relations with independent groups in order to stay on the cutting edge of industry trends.

Around the same time, Mintzberg (1973) was developing a typology of decision making within organizations, one of which he labeled as "entrepreneurial." Citing Schumpeter (1934) and Drucker (1970) as major influences, the "entrepreneurial mode" of strategic decision making put forth by Mintzberg was characterized by a focus on an active search for new opportunities; centralized, entrepreneurial leadership; a willingness to proceed despite uncertainty; and a prevailing quest for growth. Khandwalla (1976) also wrote of proactive characteristics that separate entrepreneurial firms from more conservative ones, and began looking into how the design of entrepreneurial firms impacts firm performance (Khandwalla, 1977). Other categorizations that included entrepreneurial firms followed. Miller and Friesen (1978) developed ten different archetypes of strategy formulation, several of which had entrepreneurial characteristics, by scoring firms on a variety environmental, organizational, and strategy making categories. In examining organization adaptation, Miles and Snow (1978) presented a typology for how firms relate to their chosen market(s) that included "prospector" firms. Prospectors are entrepreneurial firms characterized by high levels of research and development (R&D), flexible technologies, and constant environmental scanning for new opportunities. These authors also shed light on the "entrepreneurial problem" that was a

largely contributing factor in an organization's cycle of adaptation. The entrepreneurial problem describes how to develop an entrepreneurial insight into a specific product or service and a target market or market segment. Each of these studies, in their own way, connect with the domain of firm-level entrepreneurship and address the capability for firms to choose an entrepreneurial strategy in search of greater wealth creation (Hitt et al., 2001; Ireland et al., 2001).

As seen through the various categorizations employed in organizational research during the 1970s, the topic of firm-level entrepreneurship was gradually receiving more scholarly attention (Zahra et al., 1999). Researchers became more active in studying how firms create competitive advantage and greater profit through entrepreneurial behavior (Schollhammer, 1982). Following Khandwalla (1976, 1977), a common categorization used by researchers around this time was to designate firms as conservative or entrepreneurial in order to offer comparison between the two. This categorization was most frequently determined by the entrepreneurial nature of a firm, as measured by their levels of innovation, proactiveness, and risk taking (Miller, 1983). Miller and Friesen (1982) distinguished how conservative and entrepreneurial firms view and perform innovation differently, with the former taking a reluctant approach and the latter an aggressive one. Covin (1991) found different patterns of behavior between these two types of firms, noting that entrepreneurial firms exhibit higher levels of external financing, customer credit, and customer service. Covin and Slevin (1989) investigated the strategic response to environmental hostility, finding that organic, entrepreneurial firms perform better in hostile environments while conservative, mechanistic firms did well in benign environments. These authors also found support for the alignment of an

organic structure and entrepreneurial management style to positively influence firm performance (Covin & Slevin, 1988).

Mention of these studies demonstrates increased academic attention toward CE over several decades, which, in turn, necessitated clarification on the definition and boundaries of the organizational phenomenon (Jennings & Lumpkin, 1989). The domain took a large step forward with a manuscript by Guth and Ginsberg (1990) that offered a formal model and definition of CE. Within this work, the authors define CE through the inclusion of two distinct types of organizational phenomena: the birth of new businesses (by means of innovation and/or venturing) and strategic renewal. From this view, venturing is the development of new businesses, while strategic renewal evokes prior linkages with strategy making through the reshaping of operational goals and direction. Their proposed model suggested CE was influenced by an organization's external environment, strategic leaders, conduct, and structure. Additionally, the authors posed a reciprocal relationship with organizational performance, suggesting not only that a firm embracing CE would subsequently improve performance, but also that prior performance influences CE. They note that both declining performance and success can influence CE; downturns may stimulate innovation and renewal, while excess resources from past profits would allow greater flexibility for new entrepreneurial pursuits.

Further clarification was offered by Sharma and Chrisman (1999, p. 18), who, after a comprehensive assessment of past definitions, referred to CE as "the process whereby an individual or a group of individuals, in association with an existing organization, create a new organization or instigate renewal or innovation within that organization." This definition stands as a hallmark of the field and is the most widely

accepted. Recent refinement of the domain has conceptualized CE as consisting of both strategic entrepreneurship and venturing (Morris et al., 2008). In this light, strategic entrepreneurship encompasses all facets of innovation, including renewal, as it addresses fundamental changes in a firm's strategies, products, markets, processes, or business models (Covin & Miles, 1999; Kuratko & Audretsch, 2009). Venturing, meanwhile, focuses more on the steps and processes associated with the creation of new businesses and the integration of these new ventures into a firm's overall business portfolio (Narayanan et al., 2009)

Following Guth and Ginsberg (1990), another prominent model of CE was proposed by Covin and Slevin (1991), recognizing "entrepreneurial posture" as the central factor relevant to entrepreneurial behavior at the organizational level. From their perspective, an entrepreneurial posture represents a firm's pattern of risk taking, innovative, and proactive behavior and reflects management's overall strategic philosophy (Covin & Slevin, 1991). In this conceptual model, an entrepreneurial posture, commonly referred to as entrepreneurial orientation (EO) in more current research, was put forth as the linking mechanism between external, internal, and strategic variables and firm performance. The notion of using entrepreneurial posture to assess the entrepreneurial nature of firms drastically shifted the landscape of CE-related research, so much that research on EO has actually eclipsed research on the larger domain of CE (based on total number of articles referencing these subjects; Covin & Lumpkin, 2011). EO has become a construct subsumed within the greater domain of a CE strategy (Kreiser, Kuratko, Covin, & House, 2011; Kuratko et al., 2009) and is a core element in most research on firm-level entrepreneurship. For that reason, the EO construct requires

additional attention for this review (please see Appendix A for a description of the detailed literature search procedures) and plays a prominent role in subsequent model development for this study.

Entrepreneurial Orientation. Entrepreneurial orientation refers to a firm's behavioral posture, guided by the strategic intent to exploit the dynamics of their macro-environment and task environments (Miles & Arnold, 1991). It is reflected by the strategy-making policies and practices that serve as a basis for an organization's entrepreneurial decisions and actions (e.g., Lumpkin & Dess, 1996; Rauch et al., 2009; Wiklund & Shepherd, 2003). More plainly, having a high EO suggests that an organization is constantly seeking to identify and exploit current and future opportunities that create value and subsequent wealth (Ireland et al., 2003).

Most scholars attribute the concept of EO to Miller's (1983) work, though he acknowledges neither using the term "entrepreneurial orientation" nor intending to develop an EO factor in that manuscript (Miller, 2011). Miller's intent, rather, was to show that "entrepreneurship and its drivers were different in different kinds of organizational configurations" (Miller, 2011, p. 874). Nevertheless, within his review of the strategy making literature, he identified a subset of three components that have become widely synonymous with EO: innovation, proactiveness, and risk taking. Within his arguments, he suggests that to be entrepreneurial, firms must exhibit each of these three elements, and if any of the elements were missing entirely, the firm and its processes would be considered more conservative (Miller, 1983).

Covin and Slevin (1989) often receive recognition for formalizing a scale of EO based on Miller's (1983) work. They suggest that an EO "is demonstrated by the extent

to which the top managers are inclined to take business-related risks, to favor change and innovation in order to obtain a competitive advantage for their firm, and to compete aggressively with other firms" (Covin & Slevin, 1989, p. 77). Led by the efforts of Miller (1983) and Covin and Slevin (1989, 1991) and the conceptualizations they offered, EO has been widely viewed as a uni-dimensional construct consisting of the three core elements: innovation, proactiveness, and risk taking. For clarity, a brief description of each is offered.

Innovation has been labeled the "heart of entrepreneurship" (Stevenson & Gumpert, 1985), as a majority of scholars "accept that all types of entrepreneurship are based on innovations" (Stopford & Baden-Fuller, 1994, p. 522). Within the context of CE, corporate innovation is a broad concept that includes "the generation, development, and implementation of new ideas or actions" (Damanpour, 1991, p. 556). Innovation is often seen as either radical or incremental, and helps to re-energize and enhance the firm's ability to develop new skills (Kuratko et al., 2009). It represents a departure from what is available currently, and can exist in many forms (Covin & Miles, 1999; Lumpkin & Dess, 1996). From this perspective, an innovation can be a new product or service, a more efficient process, a new administrative system, or a new plan or program pertaining to organizational members (Morris et al., 2008). Being innovative represents the willingness of an organization to support new ideas and experimentation in seeking creative solutions to problems or needs (Pearce, Fritz, & Davis, 2010).

The second widely accepted component of EO is proactiveness. Proactiveness is taking initiative to anticipate and pursue new opportunities (Lumpkin & Dess, 1996). It implies that entrepreneurial firms act on their environments rather than reacting to them

(Miller, 1987). Therefore, proactiveness represents an assumption of responsibility to get things done, and includes concepts such as perseverance, adaptability, and a willingness to assume responsibility for failure (Morris et al., 2008). Proactiveness describes an action orientation, and involves doing what is necessary to bring pursuit of an entrepreneurial opportunity to completion (Morris et al., 2008). As entrepreneurial opportunities often have short windows before rivals move in, a firm must move quickly to pursue a desired opportunity once it has been identified (Eisenhardt & Sull, 2001). Thus, proactive firms are leaders rather than followers (Lumpkin & Dess, 1996).

Risk taking is the third component of EO. This element represents the willingness to commit significant levels of resources to pursue entrepreneurial opportunities with a reasonable chance of failure (Miller & Friesen, 1978). It implies the notion of incurring heavy debt or making large resource commitments in order to obtain high returns by capitalizing on opportunities in the marketplace (Lumpkin & Dess, 1996). Seemingly anything new involves risk, as there is uncertainty that results will meet expectations, but the concept of entrepreneurial risk does not suggest reckless decision making. Rather, it involves an awareness of the financial, technical, market, and personal risks involved with a pursuit and includes the attempt to manage these risks (Morris et al., 2008). Within the corporate context then, the risk taking dimension of EO represents the firm's proclivity to engage in risky projects and pursue bold (rather than cautious) acts in order to achieve firm objectives.

While the most accepted scholarly conceptualization of EO is as an organization-wide predisposition to act in a way that reflects these three specific elements (e.g., Covin & Slevin, 1991; Li, Wei, & Liu, 2010), some have suggested alternative compositions.

Several scholars have focused on EO as a two-dimensional construct, excluding the element of risk taking (Knight, 1997; Merz & Sauber, 1995). Others have pushed for the inclusion of several additional components, namely competitive aggression and autonomy (Lumpkin & Dess, 1996). As the conceptualization by Lumpkin and Dess (1996) has received the most attention in the literature, I'll briefly address each of these additional components as well.

Competitive aggression is a firm's propensity to challenge its competitors to achieve entry or outperform industry rivals in the marketplace (Lumpkin & Dess, 1996). It captures the idea of "beating competitors to the punch," as described by Miller (1983). It also coincides with arguments that an aggressive stance and competitive will are necessary to survive and succeed (Porter, 1985). The authors do concede a similarity with proactiveness, but argue that a firm could be proactive without trying to drown out its competitors (Basso, Fayolle, & Bouchard, 2009). Thus, competitive aggression reflects the intensity necessary for firms to actively compete with existing rivals (Lumpkin & Dess, 2001).

Lumpkin and Dess (1996) also suggest adding an autonomy element to EO. Autonomy is the ability to be self-directed in pursuing an action. In an organizational context, it refers to action taken without cumbersome and stifling organizational constraints (Lumpkin & Dess, 1996). Independent action is important in entrepreneurial organizations because it provides the impetus necessary to explore business opportunities, bring forth business concepts, and carry them through to completion (Bird, 1988; McMullen & Shepherd, 2006). Thus, in firms with high autonomy, organizational members are provided the freedom and flexibility to develop and enact entrepreneurial

initiatives uninhibited by mechanistic organizational bureaucracy (Lumpkin, Cogliser, & Schneider, 2009).

Within their reconceptualization of the EO construct, Lumpkin and Dess (1996) challenged previous arguments regarding the dimensionality of the EO construct and, more specifically, the interdependence among the components. While the original definitions and conceptualizations as put forth by Miller (1983) and Covin and Slevin (1991) suggested that the sub-dimensions of EO must covary in order for firms to be considered entrepreneurial, Lumpkin and Dess (1996) argue that the sub-dimensions may, in fact, vary independently depending on the environmental and organizational context. Confirmatory factor analysis- and correlational analysis-based results (Hansen, Deitz, Tokman, Marino, & Weaver, 2009; Kreiser, Marino, & Weaver, 2002) seem to provide evidence for independence among the sub-dimensions, as does research investigating independent relations between the sub-dimensions and performance outcomes (e.g., Lumpkin & Dess, 2001). However, as pointed out by Covin, Green, and Slevin (2006), this debate really revolves around definitional issues with the construct. Certainly Miller (1983) recognized that the sub-dimensions of innovation, proactiveness, and risk taking could vary independently in firms, but rather chose to label firms as entrepreneurial only if they scored high on each of the sub-dimensions. Conversely, Lumpkin and Dess (1996) labeled firms "entrepreneurial" if any of the sub-dimensions were scored high. While dimensionality and the measurement of EO remains a topic of recent interest (e.g., Anderson, Kreiser, Kuratko, & Hornsby, 2012; George, 2011; George & Marino, 2011; Holt, Hornsby, & Kuratko, 2010), there seems to be growing consensus for treating these conceptualizations of EO (i.e., Miller/Covin and Slevin

versus Lumpkin and Dess) as separate, albeit similar, constructs that can each offer contributions to the EO knowledge base (Covin et al., 2006; Covin & Lumpkin, 2011; Covin & Wales, 2012). The conceptualization used in this study follows the Miller/Covin and Slevin views that suggest and identify an "entrepreneurial factor" comprised of the aforementioned three core dimensions (Miller, 2011, p. 875), as it is this collective behavioral tendency that is of interest in building the hypothesized model.

Confusion regarding the definition and measurement of EO hasn't solely revolved around issues surrounding the independence of the sub-dimensions, however. Of equal or greater debate is the inherent nature of the construct (Lyon, Lumpkin, & Dess, 2000), as ambiguity continues to exist as to whether EO is dispositional or behavioral (Covin & Lumpkin, 2011; Miller, 2011). Similar to the larger domain of CE prior to the work by Sharma and Chrisman (1999), the scholarly community has yet to reach a general consensus on a particular conceptualization of EO (Basso et al., 2009; Cogliser, Brigham, & Lumpkin, 2008). Much of the ambiguity results from early definitions that don't clearly distinguish between the two. For example, Covin and Slevin (1991) suggest firms with an entrepreneurial posture are those with recurring patterns of entrepreneurial behavior because "behavior is the central and essential element in the entrepreneurial process" (p. 8), yet also note that they are using behaviors to "reflect the top managers' overall strategic philosophy on effective management practice" (p. 7). Measurement issues help to confound the issue as well, as scales often reflect both dispositions and behavior. For instance, in the original Covin and Slevin (1989) instrument—the most commonly used scale in EO research (Rauch et al., 2009)—items ask participants about managers' "proclivity" toward risk and general "emphasis" toward particular functional

areas of the firm, but also ask about specific firm behavior over the previous five years. Under such measurement, the matter is further complicated when a "principal expresses entrepreneurial attitudes that are in no way matched by the behavior of his or her organization" (Miller, 2011, p. 878).

As he plainly concedes in recent years, the original conceptualization by Miller was behavioral in nature, as the original manuscript looked at how firms demonstrated their entrepreneurial nature through their behavior (Miller, 2011). Similarly, Covin and Lumpkin (2011) argue that EO is behavioral because of the reliance on a pattern of entrepreneurial behavior to recognize the existence of EO. From this perspective, EO is defined as "a set of distinct but related behaviors that have the qualities of innovativeness, proactiveness, competitive aggressiveness, risk taking, and autonomy" (Pearce et al., 2010, p. 219). In further support, Covin and Slevin (1991, p. 8) add that "non-behavioral organizational-level attributes…do not make a firm entrepreneurial."

Conversely, some scholars have conceptualized EO as more dispositional in nature, placing greater emphasis on a true definition of "orientation." As an orientation is defined as "a usually general or lasting direction of thought, inclination, or interest" (M-W.com), a firm's strategic or business orientation is made up of the underlying philosophies that determine the nature and scope of its activities and plans (Peterson, 1989) and represents the overall decision-making framework of its management (Miles & Arnold, 1991). It encapsulates the perceptions of organizational priorities and how the firm implicitly defines its business. Therefore, a dispositional definition of EO suggests an organization characterizes itself through a philosophy of innovation, proactivity, and risk taking (Krueger & Brazeal, 1994) and an entrepreneurial decision-making

framework (Meyer & Heppard, 2000b). Lumpkin and Dess (1996, p. 136) moved closer to a true dispositional definition for EO when they purposefully distinguished the construct from the act of entrepreneurship (which they explicitly refer to as entry into new or established markets with new or existing goods or services). Further refinement in the dispositional conceptualization suggests EO as "a firm-level disposition to engage in behaviors that lead to change in the organization or marketplace" (Voss, Voss, & Moorman, 2005, p. 1134). In all, use of a dispositional definition affirms EO as an inclination or tendency to respond to situations in a particular or predetermined manner (House, Shane, & Herold, 1996), and positions EO as the "philosophical justification" and stimulus for entrepreneurial organizational behavior (Ireland et al., 2009, p. 25), rather than the behaviors themselves.

While ambiguity as to the nature of the construct still exists, it has not stopped scholars from investigating EO with vigor. As alluded to previously, much of the interest on the EO construct was spurred on by several of the more prominent models of firm-level entrepreneurship (e.g., Covin & Slevin, 1991; Lumpkin & Dess, 1996). While a number of models have been offered in the literature, only three depict the organizational-level phenomenon of EO as central to the model. These three models have been critical to the field, as they have largely shaped subsequent research through their identification of suggested antecedent and outcome variables of EO, and their inclusion of possible moderating and/or mediating factors. Thus, a brief summary of each of these models offers sufficient grounding for the prominent empirical research dealing with EO and, largely, with CE. Furthermore, knowledge of these models provides adequate structure to organize a review of the supporting empirical research:

antecedents to EO, outcomes of EO, and moderation in the EO-performance relationship. Following this review, limitations of the extant research in the domain of firm-level entrepreneurship are presented.

Previous (EO-centered) Models of Firm-level Entrepreneurship. A recent review of nine representative models of CE specifically highlights three for their integration of EO as the focal entrepreneurial phenomenon (Ireland et al., 2009). Including their own model of a corporate entrepreneurial strategy, Ireland and colleagues distinguish models by Covin and Slevin (1991) and Lumpkin and Dess (1996) for the prominent role they assign EO. A focus on these models seems warranted based on the amount of attention afforded EO in the literature, the ample citations of these (earlier) two models[1], and the abundance of subsequent empirical tests derived from these models. The three models are summarized in the order that they appeared in the literature.

As previously mentioned, the first conceptual model of firm-level entrepreneurship that centered on EO was Covin and Slevin's (1991) model. EO was the central linking mechanism within this model, having reciprocal relationships with internal, external, and strategic variables. This model also introduced firm performance as the primary outcome variable in the model (though the authors do make the point that performance may also have a reciprocal relationship with EO). Beyond having direct main effects on EO, the internal, external, and strategic variables were also posited to have moderating effects on the EO-performance relationship. Internal variables identified in the model include top management values and philosophies, organizational resources and competencies, organizational culture, and organizational structure.

[1] As of May 14th, 2013, the Covin and Slevin (1991) model had been cited 1,729 times and the Lumpkin and Dess (1996) article had received 3,435 citations, per Google Scholar.

Strategic variables included the organization's mission and the business practices and competitive practices. External variables included environmental dynamism, hostility, and technological sophistication, as well as industry life cycle stage.

The second model, offered by Lumpkin and Dess (1996), directly addresses the relationship between EO and firm performance. Most importantly, these authors propose a contingency framework for this relationship, offering specific environmental and organizational factors as moderating variables. Specifically mentioned environmental factors include dynamism, munificence, complexity, and industry characteristics. Organizational factors include size, structure, strategy, strategy-making processes, firm resources, organizational culture, and top management team characteristics. Within this framework, the authors also expand the conceptualization of EO beyond the original three sub-dimensions, adding competitive aggression and autonomy, and make arguments for independence across each of the five sub-dimensions of the construct. In addition, Lumpkin and Dess make greater specification of performance measures applicable to entrepreneurial firms, identifying sales growth, market share, profitability, overall performance, and stakeholder satisfaction as appropriate measures. In support of their contingency framework, they suggest that each of the sub-dimensions may vary independently from one another in a given context or with a particular outcome. They also propose that factors or activities (or some combination of them) could serve as mediating variables.

Beyond the model, an additional objective of the article was to establish a clear distinction between the concepts of EO and the act of entrepreneurship. In this way, they

make a distinction between entrepreneurship and the processes that lead to it (i.e., the different sub-dimensions of EO; Basso et al., 2009). As observed by Basso et al. (2009):

> The authors [Lumpkin and Dess] also switch the context of observable behavior with that of psychological traits. The register used is that of intention, tendency; the words *propensity*, *willingness*, and *tendency* [italics in original], occasionally mentioned in previous works, are here systematically used and turn the construct into an abstraction by referring to a background that is inaccessible because it is not visible. (p. 318)

Hence, these authors seemingly redefine EO for the field, formalizing the use of the term "entrepreneurial orientation" in place of sometimes-used options such as "entrepreneurial posture" and "entrepreneurial style" and positioning it as a construct that precedes specific entrepreneurial action.

The third model for consideration is a recent conceptualization by Ireland et al. (2009). Ireland and colleagues chose to systematically distinguish CE as a unique and identifiable strategy by developing a cohesive, multi-level framework depicting a corporate entrepreneurial strategy. Within this framework, the authors define a corporate entrepreneurial strategy as "a vision-directed, organization-side reliance on entrepreneurial behavior that purposefully and continuously rejuvenates the organization and shapes the scope of its operations through the recognition and exploitation of entrepreneurial opportunity" (Ireland et al., 2009, p. 21). Their model begins with top management's entrepreneurial cognitions and entrepreneurial strategic vision. The vision is coupled with a pro-entrepreneurship organizational architecture and entrepreneurial behavior to form the three core elements of the strategy. Antecedents identified in the

model include external environmental conditions that help to influence the firm's entrepreneurial strategic vision. The orchestration of a corporate entrepreneurial strategy that continuously and deliberately leverages entrepreneurial opportunities (Shane & Venkataraman, 2000) leads to either a strategic repositioning for the firm or increased competitive capability among industry counterparts. Both of these outcomes enable the firm to grow and create wealth.

Within the context of a corporate entrepreneurial strategy, the authors make definitive statements of how their model relates to EO. In particular, their conceptualization "specifies not what the behavioral dimensions of EO are, but how the organizational state or quality that is EO is manifested across the organization" (Ireland et al., 2009, p. 24). While Ireland and colleagues broadly view that EO is subsumed within their model as something that is evident across the organization, they more explicitly declare that entrepreneurial behavior and processes emerge from EO, suggesting that EO is the "philosophical component" of a corporate entrepreneurial strategy (p. 25), moving further in the direction of a dispositional nature for the construct.

As noted in this brief overview of three well-received models, a variety of factors are expected to influence a firm's EO. Likewise, a host of factors may play a role in influencing the impact EO has on an organization's performance. A number of these empirical works exploring the antecedent and outcomes of EO are now highlighted, and contextual factors consequential to the EO-performance relationship are discussed.

The antecedents of EO. Each of the models suggests that environmental factors influence the entrepreneurial nature of firms, and a number of supportive empirical manuscripts have addressed these relationships. A recent meta-analysis confirmed

environmental munificence, dynamism, and complexity as predictors of EO, yet found the relationship with environmental hostility to be non-significant (Rosenbusch et al., 2013). Some research investigating precursors to EO has looked more specifically at the relationships with individual sub-dimensions. Examples of this research includes Zahra's (1993c) investigation of industry characteristics (e.g., industry growth, non-price rivalry) with innovating behavior and research by Kreiser, Marino, Dickson, and Weaver (2010) exploring cultural influences (i.e., uncertainty avoidance, individualism, and power distance) on the risk taking and proactiveness dimensions of EO.

Research on organizational determinants of EO has also been common. For example, Covin (1991) found a positive association between entrepreneurial firms and a number of financial (external financing, customer credit), operating (customer service, high quality), and marketing related (superior warranties, high prices, prediction of customer and industry trends) variables. Zahra's (1991) study found positive relations with organizational characteristics including clearly defined organizational values, environmental scanning, formal communication, and formal integration (and negative relations with increasing levels of differentiation and extensive controls). Becherer and Maurer (1997) found marketing orientation to positively relate to EO, as did Morris and Paul (1987). Kuratko et al. (2009) found top management support, work discretion, rewards, and time availability positively relate to EO. Zahra and colleagues found positive relations between various aspects of ownership and corporate governance (Zahra, 1996; Zahra, Neubaum, & Huse, 2000). Strategic variables, including growth-oriented strategies (Covin, Slevin, & Covin, 1990; Zahra, 1991), have been associated with increased levels of EO. Green, Covin, and Slevin (2008) found the combination of

strategic reactiveness and structure-style fit had a positive association with EO. Scholars have also explored the relations between EO and executive personality, including an internal locus of control (Miller, Kets de Vries, & Toulouse, 1982) and core self evaluation (Simsek, Heavey, & Veiga, 2010), as well as the social identities of CEOs (Miller & Le Breton-Miller, 2011).

While scholars have investigated many of the preceding factors outlined in the conceptual models of EO, there is still much we don't know about the antecedents of EO (Rosenbusch et al., 2013). Research has been much more prevalent in researching the consequences of having a high EO, with a concentrated interest on the impact on firm performance.

The outcomes of EO. One of the most important strategic challenges facing entrepreneurial firms is how to maximize benefits derived from their EO (Hughes, Hughes, & Morgan, 2007). Prior conceptual and empirical research has suggested a positive EO-firm performance relationship, and most research investigating the outcomes of EO looks at financial performance. Numerous studies have found a positive relationship between EO and financial performance (e.g., Covin & Slevin, 1988, 1989, 1990; Wiklund, 1999; Wiklund & Shepherd, 2003), including two recent meta-analyses (Rauch et al., 2009; Rosenbusch et al., 2013). Similar results were found for both objective (e.g., return on assets, return on investment) and perceptual indicators of performance (Rauch et al., 2009). Several studies have looked at other performance measures, such as growth rate (Covin, 1991; Covin et al., 2006) and failure (Wiklund & Shepherd, 2011). Other research has investigated the differential relationship between sub-dimensions of EO and performance. For example, Lumpkin and Dess (2001) found a

strong, positive relationship between proactiveness and performance, but found that the competitive advantage sub-dimension had no significant relationship.

Beyond firm performance, EO has been often linked to outcomes involving organizational learning (Dess et al., 2003). Findings include a link with knowledge acquisition (Li et al., 2010), a learning orientation (Wang, 2008), experimental and acquisitive learning (Zhao et al., 2010), and a culture that promotes learning effort in international and domestic markets (Sapienza, De Clercq, & Sandberg, 2005). EO has also been positively related to strategic alliance intentions (Marino, Lohrke, Hill, Weaver, & Tambunan, 2008) and the utilization of information regarding marketing mix decisions (Keh, Nguyen, & Ng, 2007). Investigating relationships with individual sub-dimensions, Perez-Luno, Wiklund, and Cabrera (2011) found that proactivity and risk taking influence the number of innovations generated and the extent to which firms favor generation over adoption. Recently, scholars have begun to look at individual-level outcomes from a firm's EO. Contrary to hypotheses, EO was found to be generally associated with less role ambiguity and intention to quit (Monsen & Boss, 2009).

Recent work has also begun to look at performance outcomes in non-traditional contexts. For example, Pearce et al. (2010) looked at the relationship between EO and performance in religious congregations. Coombes, Morris, Allen, and Webb (2011) found no relationship between EO and financial performance in a sample of non-profit firms, but did find a positive relationship with social performance. In studying the relationship with performance within the context of an emerging economy (China), Tang, Tang, Marino, Zhang, and Li (2008) found an inverted U-shaped relationship.

Moderation in the EO-performance relationship. As clearly indicated in the three models described previously, the relationship between EO and firm performance is contingent on a variety of contextual factors. The meta-analysis by Rauch et al. (2009) empirically confirms this by finding a relatively low percentage of variance attributable to sampling variance (22.38%), indicating a lack of homogeneity in the relationship (Hunter & Schmidt, 1990). Environmental variables (e.g., munificence, dynamism, hostility) have been found to significantly moderate the EO-performance relationship (e.g., Rauch et al., 2009; Tan & Tan, 2005; Wiklund & Shepherd, 2005; Zahra & Covin, 1995; Zahra & Garvis, 2000), though occasional studies have found no support (Becherer & Maurer, 1997; Dess et al., 1997). Organizational characteristics such as firm size (Rauch et al., 2009), knowledge-based resources (Wiklund & Shepherd, 2003), and access to financial resources (Wiklund & Shepherd, 2005) have been found to positively influence the relationship. Aspects of firms' social network have also been used as moderators, including network capability (Walter, Auer, & Ritter, 2006) and the combination of high network centrality and extensive bridging ties (Stam & Elfring, 2008). Studies have also investigated the moderating influence of strategic variables, such as build-oriented strategic missions (Covin et al., 1994) and strategic processes (Covin et al., 2006). Individual characteristics have been studied: Richard, Barnett, Dwyer, and Chadwick (2004) included racial and gender diversity in the management team as a moderator, while De Clercq, Dimov, and Thongpapanl (2010) looked at the positive influence of employee's perception of procedural justice, trust, and organizational commitment on the EO-performance relationship. While this review shows a good number of studies have investigated moderating influences on the

relationship between EO and firm performance, there remains considerable room for theoretical and empirical contribution in this area (Rauch et al., 2009).

Limitations in Firm-level Entrepreneurship Research. Each of the three models discussed in the preceding paragraphs has had significant impact on the domain of CE. As evidenced by the empirical research on the antecedents and outcomes of EO, the models offered direction and structure to scholars investigating the field. However, based on this review, some research gaps have emerged. The current literature fails to address several critical issues that remain conceptually and theoretically important for the advancement of CE research and the concept of EO. These issues include the following: 1) the lack of a strong theoretical grounding for the phenomenon of firm-level entrepreneurship; 2) ambiguity on the dispositional or behavioral nature of the EO construct; and, 3) a deficiency in research investigating the intervening mechanisms in the EO-performance relationship.

As with the larger field of entrepreneurship (Aldrich, 1992), a primary concern is the lack of a strong theoretical grounding (Covin & Lumpkin, 2011) in previous models of firm-level entrepreneurship. The lack of a consistent and coherent theoretical foundation has led some scholars to question the legitimacy of CE-related research (Covin & Lumpkin, 2011). Much of the research on CE relies on assumptions and practical arguments, rather than theoretical descriptives that explain firm-level entrepreneurial behavior. There are exceptions. Jones and Butler (1992) offered views of CE through the lens of agency theory, while Dess et al. (2003) explored organizational learning theory as a potential lens for EO. Bruno and Tyebjee (1982) relied on resource dependence theory in their discussion of how environmental conditions stimulate or

impede entrepreneurial activity. The resource-based view (Dess et al., 1997) and knowledge-based view (Wiklund & Shepherd, 2003) have also been applied within EO research. However, while these attempts offer support for relationships within the greater domain of CE, none of them have been applied as a fundamental framework for the phenomenon in its entirety. Introducing an established academic theory—whether from management or borrowed from other disciplines—would ground research on firm-level entrepreneurship and further legitimize this work in the eyes of many scholars (Miller, 2011).

A second glaring issue of the previous models, and within the domain of CE research as a whole, is the ambiguity still evident with the EO construct. While recent work has come to terms with how to theoretically assess the dimensionality of the construct, scholars have yet to reach a general consensus on how to conceptualize the nature of EO. Is it behavioral or dispositional? While early conceptualizations leaned towards EO as a behavioral phenomenon (Covin & Slevin, 1989, 1991; Miller, 1983), definitions were unclear and have led many to construe EO as dispositional (Krueger & Brazeal, 1994; Zahra, 1993a; Zahra et al., 1999). Offering a model of firm-level entrepreneurship that brings clarity to the EO construct would serve as a springboard for future research, potentially settling the debate over the nature of EO.

The third major limitation of this literature is that very few empirical studies have explored the critical connections linking EO to performance within the process of CE (Kuratko et al., 2009; Shepherd & Krueger, 2002). Based largely on the models by Covin and Slevin (1991) and Lumpkin and Dess (1996), considerable efforts have been made to investigate the contextual conditions under which EO influences performance.

In fact, these studies of moderation make up a large percentage of the empirical work investigating the EO-performance relationship (Covin & Lumpkin, 2011; Rauch et al., 2009). However, far fewer studies have tested mediating influences that help to transform EO into increased firm performance. The Covin and Slevin (1991) model offers no insight into this relationship. Lumpkin and Dess (1996) do suggest potential mediation in the EO-performance relationship, yet fail to deliver explicit mechanisms, optioning for a more general mention of "effective integrating activities" as a potential mediator. The model of CE strategy (Ireland et al., 2009) alludes to mediation within the EO-performance relationship, but does not directly demonstrate such relations due to their application of EO within the model. New conceptualizations of the linkage between firm-level entrepreneurship and performance are necessary (Ucbasaran et al., 2001). Greater attention should focus on the integrating activities and/or entrepreneurial behaviors suggested within these models to better develop and understand how and why EO translates into better firm performance. A model that clearly defines mediating variables, grounded in theory, would offer insight into the causal sequence entrepreneurial firms use to increase wealth.

In this section, an overview of the literature on firm-level entrepreneurship, with a specific focus on the EO concept, has been provided. Several prominent models—each of which features EO in a central role—were reviewed. These models were praised for their role in stimulating an abundance of empirical investigation. However, there is still evidence of several limitations in the current literature. In the next two sections of this chapter, these limitations are addressed by drawing from psychological theory on the behavior of individuals to develop a revised conceptualization of EO and its linkage with

performance. The next section focuses on the theoretical bases for a new model of firm-level entrepreneurship and the assumptions that serve to link and ground the model in a borrowed theoretical framework.

Theoretical Foundation

As mentioned by Hitt, Beamish, Jackson, and Mathieu (2007), it is rare that scholars integrate theory across levels of analysis. All too frequently, academicians in the realm of management get too caught up in labeling themselves and/or their research as macro or micro in nature. Limiting one's scope to a single level of analysis fails to provide a complete understanding of behaviors at either level (Porter, 1996). Moreover, the micro/macro distinction curtails fruitful insight into organizational phenomenon by limiting the incentive or inspiration to share concepts across this divide. This section of the chapter first addresses the borrowing of theories from other levels of analysis. This "vertical theory borrowing" allows for new approaches to looking at organizational problems and issues, enhancing the richness of organizational scholarship and developing credibility with other disciplines (Whetten et al., 2009). Furthermore, it is explained how viewing an organization as an independent social actor can assist in applying psychological theories to the organizational level of analysis. This perspective is then used to apply theoretical principles generally developed at the individual level of analysis to shed light on the nature of a firm's EO and address some shortcomings in prior understanding of the EO-performance linkage.

Vertical theory borrowing. Prior research has advocated the use of vertical theory borrowing, where concepts or relationships formulated at one level of analysis are

borrowed to explain phenomena at another (Whetten et al., 2009). Theory borrowing is usually done by elevating psychological theories of individuals to explain organizational action (Staw, 1991), but can include other levels of analysis or the subordination of theories to lower levels of analysis. In theory borrowing, a central tenet is that the theory functions similarly in the old and new settings, but does not necessarily require identical structure (Morgeson & Hofmann, 1999). More specifically, "organizational constructs borrowed from the individual level of analysis need not exhibit the same structural properties, only the same functions (i.e., comparable effects or consequences on other concepts or phenomena)" (Whetten et al., 2009, p. 550). Thus, the concept or relationship being explored must maintain its predictive or explanatory utility, but need not display a fundamentally similar structural framework.

Staw (1991) makes several arguments in support of vertical theory borrowing and, more specifically, the use of psychological theory at the organizational level of analysis. First, he suggests that micro theory can serve as a useful metaphor for organization-level theory. In this argument, metaphors serve as linguistic tools to help us more clearly visualize a particular feature of organizations by comparing it with an analogous feature commonly observed in individuals (Whetten et al., 2009). The use of metaphors often paves the way for more precise predictions of the phenomena of interest, after empirical attention can gauge the consistency in the magnitude and pattern of relationships manifesting the phenomena (Sutton & Staw, 1995). Another of Staw's arguments is that individuals may not simply be agents of organizations, but instead exert control over them. This suggests that organizational members play an influential role in directing the actions of organizations (Child, 1997). Moreover, many of the values and beliefs of key

organizational members, especially founding members, are likely to be adopted across the organization (Whetten & Mackey, 2002). A final argument from Staw (1991) applicable for this investigation is the implication that individuals are "disguised" as organizations. Prior research has utilized this attribution by investigating specific key organizational members to predict firm behavior (Hambrick & Mason, 1984). Indeed, many a macro study in organizational research has attributed organizational behavior to that of a single individual or small group of key decision makers (cf. Finkelstein, Hambrick, & Cannella, 2009).

Threat-rigidity theory (Staw, Sandelands, & Dutton, 1981) represents an example of vertical theory borrowing. Here, Staw and colleagues apply comparable concepts in elevating the response to a threat (seen as an external event that has impending negative or harmful consequence) from the individual up to the group and organizational levels of analysis. While the structure of the model was altered at different levels, the function of the relationship was evident across all three levels: threats tend to result in a restriction of information processing and a constriction of control. Another example of vertical theory borrowing is research on organizational identity, in which scholars apply individual identity theory at the organizational level of analysis (Albert & Whetten, 1985; Ashforth & Mael, 1989). Within this literature, authors have viewed the organization as a social actor to apply similar functional relationships in an effort to clarify the concepts of organizational identity, image, and reputation (Whetten et al., 2009; Whetten & Mackey, 2002).

Treating organizations as social actors is a key element for level-sensitive theory and concept borrowing in organizational studies (Whetten et al., 2009); it offers support

for vertical theory borrowing, specifically the elevation of theoretical perspectives from the individual to organizational level of analysis. Treating the organization as an independent social actor rather than a social aggregate designates some degree of sovereignty to the organization, much like that assigned to an individual. Thus, viewing the organization as a social actor implies it is "capable of behaving in a purposeful, intentional manner" (King et al., 2010, p. 291).

Two theoretical assumptions are critical when viewing the organization as a social actor. First, there must be an element of external attribution; that is, organizations must be attributed as capable of acting by other actors, especially by their primary stakeholders and audience. This assumptions infers that organizations are entities that take action, utilize resources, enter into contracts, and own property (Scott, 2003). The second assumption of viewing the organization as a social actor is one of intentionality. The assumption of intentionality suggests that actors are capable of deliberation, self-reflection, and goal-directed action. Thus, these organizational actors have some form of intentionality that underlies their decision making and behavior. Imperative to such intentionality, organizations inherently develop a motivating self-view that drives or justifies action, guiding the choices and directing the behavior of the organization's member-agents.

The next subsection overlays this view of the organization as a social actor with complementary theoretical views that center on behavioral intentions. While intentions-based theory has been primarily used at the individual level of analysis, prior work has applied some of the concepts at the group (or team) level (Shepherd & Krueger, 2002); these concepts are further elevated to the organizational level of analysis.

The organization as a social actor: The link to intentions-based theory. The assumptions of treating the organization as a social actor suggests that organizational actors, like individual actors, possess an associated capacity for intentional behavior (Whetten et al., 2009). Organizations are intentional because they are specifically designed to carry out a particular point of view (Tollefsen, 2002). This permits organizational member-agents to make decisions in a somewhat predictable fashion that are not completely motivated by their own individual self-interest (King et al., 2010). Thus, building on the prior arguments of Staw (1991), not only do individuals have some control over organizations, but over time organizations will also influence its member-agents. An organization's influence is the result of a historical pattern and philosophy of decision-making. It is the organization's history, i.e., an accrual of strategic and other related decisions, which serves as the basis for organizational decision making and self-governance by member-agents.

From an organization's history, two elements drive member-agents' realization of an organization's point of view: identity and goals (King et al., 2010). Identity directs the attention of the organization and supplies a dominant logic from which to guide decision making (Bettis & Prahalad, 1995). A dominant logic refers to how firms "conceptualize and make critical resource allocation decisions—be it in technologies, product development, distribution, advertising, or in human resource management" (Prahalad & Bettis, 1986, p. 490). The dominant logic serves as an information filter that directs and focuses organizational decision makers in formulating strategy, developing structure, establishing culture, and reinforcing behavior within the firm.

The second element driving member-agents' realization of an organization's point of view are organizational goals. Goals easily align the actions of member-agents with the intentions of the organization. Simply put, goals provide a justification for behavior. Thus, member-agents' interpretation and realization of the organization's point of view is attained through their understanding of the organization's identity and its goals. These elements allow member-agents to explain and make sense of the organization's intentionality and be forward-thinking to act in a way that they perceive benefits the purposes of the collective actor (King et al., 2010).

As such, the organization is acknowledged and recognized as its own social entity that influences its member-agents through its organizational identity and goals, allowing for member-agents to recognize a distinct organizational point of view. When faced with weighty decisions, member-agents can reflect on organizational preferences and commitments, essentially relying on "who we are as an organization" to direct the firm in ways that avoid acting out of character (Whetten, 2006). Because of this self-realization by the member-agents, the organizational entity has intentionality, in that there are acknowledged, collective attitudes and motivations for the entity to behave in a certain manner. It is this intentionality that highlights the opportunity to borrow psychological theory from the individual level of analysis.

The theory of planned behavior. A focus on behavioral intentions has been an integral part of various research streams throughout the social sciences in recent decades. The essence of these initiatives is to understand, predict, and explain the behaviors of individuals. Through this work, scholars have sought to understand the motivations and decision-making processes used by individuals, leading to the acknowledgement of the

influential role played by behavioral intentions. Intentions-based models, therefore, suggest that the perception and action upon opportunities is based, at least in part, on intentional behavior (Dutton, 1993).

Ajzen's (1985, 1987, 1991) theory of planned behavior (TPB) is one of the more prominent theoretical perspectives focused on behavioral intentions. The TPB posits that intentions toward a given target behavior capture the motivational factors that influence that behavior. These intentions provide indication of the level of effort that will be extended to perform the target behavior. Moreover, those intentions will depend on the perception that the course of action is feasible and desirable. In all, Ajzen proposes that attitudes toward the behavior, subjective norms, and perceived behavioral control can accurately predict intentions to perform behaviors of different kinds. Furthermore, these behavioral intentions account for considerable variance in actual behavior. In general, the stronger the intention to engage in a behavior, the more likely it is performed. (Ajzen, 1991).

The TPB is an extension of the theory of reasoned action (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). In fact, the first two antecedents to behavioral intention are consistent in both the theory of reasoned action and TPB. The first antecedent is attitude toward a particular behavior. Attitude is defined as the predisposition to respond in a generally favorable or unfavorable manner with respect to the object of attitude (Ajzen, 1982). Attitudes develop from the beliefs people hold about the object of the attitude (Fishbein & Ajzen, 1975). Attitude is considered to be dynamic, in that it can change across time and from situation to situation, with the rate of change varying based upon how deep-seated or fundamental the attitude is to the identity of the focal character

and on the intensity of experiences that influence the attitude (Robinson, Stimpson, Huefner, & Hunt, 1991). The second antecedent of the theory of reasoned action and TPB is subjective norms. This factor refers to the perceived social pressure to perform or not to perform the behavior. These norms are based on the beliefs that important referent individuals or groups approve or disapprove of performing a given behavior (Ajzen, 1991).

What sets the TPB apart from the theory of reasoned action is perceived behavioral control. Perceived behavioral control is the perceived ease or difficulty of performing the behavior. According to Ajzen (1991), this factor incorporates past experience as well as anticipated impediments and obstacles, incorporating the presence or absence of necessary resources and opportunities. The more resources and opportunities perceived to be available and the fewer obstacles or impediments viewed or anticipated, the greater the perceived control over a given behavior. In the full TPB, perceived behavioral control is posited to have both a direct and indirect influence on behavioral intention (though in earlier theoretical conceptualizations, it was posited to moderate the relationship between intentions and behavior; Ajzen, 1991). In sum, the general expectations put forth by the TPB suggest that the more favorable the attitude and subjective norms with respect to behavior, and the greater the perceived behavioral control, the stronger an intention to perform the behavior under consideration.

Viewing the organization as a social actor allows for the elevation of the TPB from a focus on individuals to the organizational level of analysis. Just as individuals develop behavioral intentions through attitudes toward the behavior, subjective norms, and perceived behavioral control, organizations can also develop these intentions. The

collective attitudes, norms, and perceived behavioral control that drive these behavioral intentions are characterized in the organizational identity and goals that foster the conceptualization of the organization's point of view by the member-agent and serve as a guide to their behavior on behalf of organization. The functional background of key decision-making executives influences the identity and goals of an organization and subsequently its predisposition to behave in a given manner. Structural characteristics of the organization may have a similar influence. Subjective norms are determined by the activity of competitors within the industry. Previous behavior by the organization may also create some internal norms that dynamically influence organizational identity and goals. In addition, the discretion afforded an organization by its internal resources and external environment play a role in subsequent organizational behavior.

While the antecedents to behavioral intentions may appear structurally different from the individual level of analysis, this conceptualization of the TPB at an organizational level of analysis remains functionally similar (Morgeson & Hofmann, 1999), allowing for its elevation. Moreover, the primary focus of this research stays true to the "central factor" of the TPB: the link between behavioral intentions and actual behavior (Ajzen, 1991, p. 181). Through the efforts of the subsequent empirical analysis, this dissertation seeks to offer support for the development of an organization's behavioral intentions (i.e., its structure at the organizational level) in addition to furthering the understanding of the implications of firm-level intentionality, with an aim to predict (firm-level) behaviors with great accuracy (Ajzen, 1988).

Intentions-based theory in the entrepreneurial context. The importance of behavioral intention has been applied with increasing acclaim in the entrepreneurial

context (e.g., Krueger & Carsrud, 1993; Krueger, Reilly, & Carsrud, 2000; Thompson, 2009), though most often associated with the individual level of analysis. Bird (1988) makes a case for the essential role of entrepreneurial intent, as has Shapero and Sokol (1982). After interviewing 20 entrepreneurs across several industries, Bird identifies the importance of entrepreneurial intention when implementing ideas, referring to these intentions as "entrepreneurs' states of mind that direct attention, experience and action toward a business concept" (Bird, 1988, p. 442). The implications of her research are that subsequent organizational outcomes, including growth, success, and change, are based on these entrepreneurial intentions.

Shapero and Sokol (1982) propose a model of the entrepreneurial event (often referred to as the "SEE" model), based on prior research on the role of entrepreneurship in economic development. This intentions-based model focuses on a particular event, assuming that inertia guides human behavior until something interrupts or displaces that inertia (Krueger & Brazeal, 1994). This disruption then leads to a change in behavior. The SEE model overlaps with the TPB, with similar assessments of the role of perceived desirability and feasibility influencing behavioral intentions. However, whereas the SEE focuses more on the individual by including a precursor measure of the individual's proactiveness, the TPB focuses more on the environmental context by including the social support for the behavior (Shook & Bratianu, 2010). The SEE has received empirical support, with Krueger (1993) finding feasibility and desirability perceptions and the propensity to act to be significant positive antecedents to entrepreneurial intentions. Krueger et al. (2000) followed with a comparison of the TPB and SEE models, finding strong statistical support for both models.

Intentions-based models have also been conceptually linked to a corporate setting and intrapreneurs, i.e., entrepreneurial individuals residing within existing organizations (Pinchot, 1985), with subtle suggestions about maintaining a supportive corporate culture to help break down bureaucratic structures and processes (Krueger & Brazeal, 1994). Beyond simple contextual implications, more recent research has looked at corporate entrepreneurial intentions at the group level of analysis. Shepherd and Krueger (2002) use core tenets of the TPB and SEE to bring entrepreneurial thinking into the context of the corporate environment, proposing an intentions-based model of entrepreneurial thinking from the domain of individual entrepreneurship to the domain of corporate entrepreneurship, with a focus on entrepreneurial teams. The authors define a team's entrepreneurial intention as "the motivational attitudes to bring into existence future goods and services" (Shepherd & Krueger, 2002, p. 170), suggesting that teams are social artifacts with shared cognitive maps or enactments of a collective mind, rather than a simple combination of the cognition of individual members. They further suggest that a team's entrepreneurial intentions increase when they perceive higher levels of feasibility and desirability in entrepreneurial behavior. This theory of corporate entrepreneurial intentions makes strides into gaining an understanding of why antecedents enhance an organization's entrepreneurship, but fails to move beyond the entrepreneurial intentions within the study of the entrepreneurial process or explore further influences. In viewing the organization as a social actor, this study seeks to further elevate the core functions apparent in intentions-based theory to the organizational level of analysis, with a focus on the impact of this intentionality on firm-level behavior and subsequent performance.

The next subsection lays out how viewing the organization as social actor and escalating individual-level theory helps to clarify the nature of EO. More specifically, by viewing the organization as a social actor, this dissertation aims to extend the function of intentions-based theory, predominantly the behavioral intentions-behavior linkage, to the organizational level of analysis by focusing on the entrepreneurial intentions and behaviors of firms.

The organization as a social actor: The implication for EO. While not explicitly mentioning EO, prior research has called for the conceptualization of a disposition at the organizational level of analysis, essentially treating organizations "as if they were living, breathing entities with predictable behavioral tendencies" (Staw, 1991, p. 814). However, this perspective has not been applied directly to the EO literature, even though the very notion of having an "orientation" implies that organizational entities are comparable to human beings and, as such, capable of behaving in a certain manner (Basso et al., 2009). Viewing the organization as a social actor is not necessarily new to the entrepreneurship literature; scholars as far back as Stinchcombe (1965) have emphasized the unique nature of individual organizations as actors with emergent, path-dependent personalities and enduring qualities (King et al., 2010). These previous remarks comply with the necessary theoretical assumptions of the organization-as-a-social-actor perspective, suggesting that entrepreneurial firms have been recognized for their ability to take action and for an intentionality that is based on a motivating self-view that guides or justifies action. Hence, treating organizations as distinct social actors, when viewed from an entrepreneurial context, suggests that organizations demonstrate purposeful, intentional *entrepreneurial* behavior. As directed by the fundamental

principles of the TPB, behavior is preceded by behavioral intentions; thus, organizations that behave entrepreneurially should exhibit a purposeful and intentional disposition to behave entrepreneurially.

In viewing organizations as independent and intentional social actors, it becomes important then to reflect on EO as dispositional in nature. Disposition is defined as an object's inherent qualities of mind and character, or its mood or temperament. It can also be the inclination or tendency of this object to respond to situations, or classes of situations, in a particular or predetermined manner (House et al., 1996). Quoting directly from Covin and Slevin (1991, p. 13), EO "reflects an overall strategic philosophy concerning how the firm *should* operate on particular behavioral dimensions" (emphasis added). Viewed in this way, EO is the commitment to a philosophy of innovation, proactivity, and risk taking (Krueger & Brazeal, 1994), rather than the behaviors themselves. Hence, it is an inclination to behave in an innovative, proactive, and risk-taking manner in search of economic gain, but it is not this action in and of itself. As argued by Anderson, Kreiser, Kuratko, and Hornsby (2011), entrepreneurial behaviors may occur in isolation from entrepreneurial dispositions of organizations. Consistent with intentions-based theories of the individual, organizational intentionality is an *expectation* of behavior, but is not behavior. While intentionality is independent from behavior, it is, however, a precursor to behavior. Therefore, organizational intentionality to behave entrepreneurially is represented through firms' strategic orientation. These intentions reflect an organization's entrepreneurial goals (i.e., desired end-states, rather than means of conduct; Bird, 1988), which are primarily economic in nature (Churchill & Lewis, 1983). Others have taken a similar perspective, specifically referring to EO as the

organizational decision makers' intentions and inclinations toward entrepreneurial behaviors (Krauss, Frese, Friedrich, & Unger, 2005; Zhao et al., 2010). Furthermore, Ireland et al. (2009) explicitly view EO as the "philosophical justification" and stimulus for entrepreneurial organizational behavior (Ireland et al., 2009, p. 25). This helps to position EO for this study as a precursor to firm-level entrepreneurial behavior.

In viewing the organization as a social actor within a context of entrepreneurship, one can see that the organization has entrepreneurial intentionality, such that an organization's member-agents frame decision making through an entrepreneurial philosophy that leads to subsequent entrepreneurial behavior. Thus, an organization's entrepreneurial intentionality is further supported by the entrepreneurial dominant logic perspective (Meyer & Heppard, 2000a). An entrepreneurial dominant logic is an extension of the dominant logic perspective through which "the firm and its members interpret, value, and act on information on the basis of the potential of value creation and profitability for the firm" (Meyer & Heppard, 2000a, p. 2). This view suggests an entrepreneurial dominant logic "captures the collective mindset exhibited by entrepreneurial firms" (Covin & Lumpkin, 2011, p. 861) and helps to frame decisions in a manner that reinforces an entrepreneurial identity and increases a firm's intentionality toward entrepreneurial behavior. With an entrepreneurial dominant logic in place, a firm and its members incessantly search and filter information for new product ideas and process innovations that might lead to entrepreneurial pursuits, and through these pursuits, greater profitability. Thus, an entrepreneurial dominant logic is "consistent with the notion that sustained patterns of entrepreneurial behavior … are the result of top management beliefs, attitudes, and philosophies regarding the value and advisability of

entrepreneurial actions" (Covin & Lumpkin, 2011, p. 861), which further supports the assertion that an organizational philosophy that embodies EO is a precursor to the behaviors interpreted by the environment as entrepreneurial.

Viewing EO through a lens of intentions-based theory frees the field from intermingling EO with organization-level behaviors and allows one to assume the perspective of EO as dispositional in nature. Furthermore, it offers some indication of characteristics that influence an organization's level of EO. As the TPB offers motivational factors that precede individuals' behavioral intentions, similar factors may serve to guide organizational behavioral intentions. While not structurally identical, the subsequent section of this chapter identifies precursors to organizational-level entrepreneurial behavior, some of which have been previously acknowledged in the literature and all of which are grounded in TPB elements. The next section also uses the TPB to further develop a comprehensive model of firm-level entrepreneurship, linking the subsequent action of firms displaying entrepreneurial intentions with corresponding performance gains or losses. This linkage speaks to the nature of the relationship between EO and firm financial performance. A series of hypotheses is offered in support of the model.

Proposed Theoretical Model and Research Hypotheses

Entrepreneurship has been clearly characterized by planned, intentional behavior (Bird, 1988). Moreover, the field of entrepreneurship has been amenable to research using formal models of intentions (Krueger & Brazeal, 1994; Krueger & Carsrud, 1993). However, the field has not ardently utilized intentions-based theory to characterize firm-

level behavior. The efforts of this dissertation support the core emphasis of the (individual-focused) TPB while viewing entrepreneurial behavior at the organizational level of analysis. An elaboration of TPB at the organizational level of analysis would suggest that firms develop intentions toward a particular behavior before it is commenced, offering some ability to predict the entrepreneurial behavior of firms by assessing organizational and environmental characteristics and the firm's EO. Shepherd and Krueger's (2002) model of corporate entrepreneurial intentions was conceived at the group level of analysis, but serves as a bridge to a firm-level conceptualization, as the top management team might be viewed as the focal group. The influence of this group, which exhibits substantial authority over an organization, would then diffuse the entrepreneurial cognitions to the rest of the organization through a shared mental model, contributing to a shared entrepreneurial vision (with implicitly or explicitly stated goals) and greater entrepreneurial identity for the organization as a whole. In its entirety, the proposed model specified in Figure 1.2 encompasses antecedents and outcomes of firm-level entrepreneurial intentionality, i.e., entrepreneurial orientation.

Antecedents to entrepreneurial orientation. To understand firm-level entrepreneurial behavior, it is important to identify the determinants of entrepreneurial intentions. As pointed out by Ajzen (1985), a social actor's intentions are a function of both intrinsic factors and social influence. Furthermore, the perceived control or ability to carry out behaviors influences intention and the execution of behavior. These determinants are expected to be different across individuals, as individuals exhibit different attitudes and beliefs, have different experiences and goals, and perceive social influence and their ability to act uniquely (Ajzen, 1991).

Much like individuals, organizations are different from one another. They reside in dissimilar marketplaces, with diverse consumers and one-of-a-kind competitive dynamics. Firms, even those within the same industry, differ in their resources and sources of competitive advantage (Barney, 1991). Organizations have unique leaders with distinct backgrounds and experiences that guide the direction of the organization (Hambrick & Mason, 1984). There are information asymmetries, knowledge differences, cognitive differences, and behavioral differences that lead to certain organizations (or individuals within organizations) recognizing opportunities while others do not (Ucbasaran et al., 2001). These differing characteristics of an organization and its environment influence the perceptions of organizational member-agents as they develop a firm's intentionality toward a behavior. As entrepreneurial intentions are based on the member-agents' perceptions (Krueger & Brazeal, 1994) of these characteristics, firm-level intentions will also inevitably vary across firms. In consequence, organizations—as independent social actors—are expected to differ in how they approach entrepreneurship and how they cultivate an identity that fosters entrepreneurial activity (Shepherd & Krueger, 2002).

In viewing EO as a dispositional construct embodying an organization's intentions toward entrepreneurial behavior, it is important to look at the factors that influence this strategic posture. While firm-level entrepreneurial intentionality is undoubtedly influenced by the perceptions of organizational member-agents, for the purpose of this dissertation a focus is placed on the organizational and environmental characteristics that are ultimately responsible for driving these perceptions and are therefore linked to a firm's EO. Guided by the TPB, intrinsic factors and social influence

are likely to play a role, as will elements of achievability (or lack thereof). In the following subsection, organizational influences of an EO are addressed before moving on to normative and feasibility-related determinants.

Organizational influences and entrepreneurial orientation. For two and a half decades, the strategic management literature has relied on the characteristics of key organizational leaders to help predict organizational processes, strategies, and outcomes (Hambrick & Mason, 1984). From this perspective, the experiences, biases, and tendencies of organizational decision makers are influential in guiding organizational behavior (Hambrick, 2007). Thus, the utilization of executives' demographic characteristics can serve as proxies of executives' cognitive frames (Carpenter, Geletkanycz, & Sanders, 2004). Demographic information on the dominant coalition of organizations has been used to predict firm strategy (e.g., Carpenter & Fredrickson, 2001; Eisenhardt & Schoonhoven, 1996; Tihanyi, Ellstrand, Daily, & Dalton, 2000), competitive action (e.g., Ferrier, 2001; Hambrick, Cho, & Chen, 1996), and performance (e.g., Finkelstein & Hambrick, 1990; Haleblian & Finkelstein, 1993). Given their unique position of power within a firm and their direct influence on firm performance (Mackey, 2008), the CEO has received a large share of this attention, especially within the context of entrepreneurial firms (Begley & Boyd, 1987; Daily, McDougall, Covin, & Dalton, 2002; Simsek, Heavey, Prabhakar, & Huvaj, 2011).

While demographic characteristics such as age, tenure, gender, race, and education have been consistently-used proxies of interest in upper echelons research (Finkelstein et al., 2009), the functional background of organizational leaders has also received considerable attention. Prior research has helped to establish relationships with

organizational factors, environmental factors, and outcomes (see Menz, 2012, for a recent review). Specifically in CE-related research, organizational leaders' functional background has proven to be instrumental in focusing organizational attention toward entrepreneurial concerns. In their content analysis of key strategic decision-making meeting minutes, Tuggle, Schnatterly, and Johnson (2010) found that certain types of functional backgrounds lend themselves to greater focus on entrepreneurial endeavors. Executives with output-oriented backgrounds—that is, those with sales, marketing, R&D, and/or customer relations expertise—are much more focused on product-related issues and developments than executives from other backgrounds. Executives with finance, accounting, personnel, labor relations, production, operations, law, and management (i.e., throughput-oriented) backgrounds are likely to focus their attention on short-term productivity (Rappaport, 1992) and in areas more aligned with their own specialties (Carpenter & Fredrickson, 2001).

Accordingly, executives with output-oriented backgrounds have a greater propensity to engage in more scanning of entrepreneurial-oriented stimuli in search of new opportunities (Hambrick, 1981). These product-focused leaders are also more likely to focus on evaluating product-market issues, and as a result are more likely than firms led by executives primarily from other functional backgrounds to focus on new entrepreneurial issues (Cho & Hambrick, 2006). Output-oriented executives attach more weight to product-oriented stimuli and "generally increase their attention to the entrepreneurial-oriented domain" (Cho & Hambrick, 2006, p. 456). Consequently, these decision makers are likely to develop an identity around entrepreneurial endeavors and goals (Miller et al., 1982). CEOs with a strong output-oriented emphasis will lead their

organizations with a focus on opportunity recognition and exploitation through new product development (Thomas, Litschert, & Ramaswamy, 1991), as they invest heavily in research and development (Barker & Mueller, 2002). Conversely, firms led by an executive with predominantly throughput-oriented backgrounds may comparatively neglect entrepreneurial issues and fail to develop an organizational philosophy that supports innovation, proactiveness, and risk taking. Thus, the following is offered:

Hypothesis 1a: An output-oriented chief executive officer is positively associated with a firm's entrepreneurial orientation.

Firms seeking to pursue entrepreneurial strategies must establish structure, systems, and/or processes to encourage opportunity recognition and exploitation. Firms must integrate and balance their need to exploit existing market inequalities with an investment of resources to uncover the new opportunities that lead to tomorrow's competitive advantages (Ireland et al., 2003). However, many executives are compensated primarily for short-term financial performance (Jacobs, 1991), incentivizing efficiency-building efforts over opportunity-seeking activities which often take much longer to obtain return on investments.

While innovation and venturing initiatives are aimed to increase the long-term value of the firm (Hitt, Hoskisson, & Ireland, 1994), they often take years to come to fruition and include additional risk due to uncertainty. By structuring executive compensation packages with stock ownership through options, top managers' interests become aligned with other owners in seeking long-term value creation (Agrawal & Mandelker, 1987; Jensen & Meckling, 1976). Increased ownership ties executives' wealth to their company's long-term performance, which gives executives the incentive

to initiate and champion entrepreneurial behavior (Finkelstein & D'Aveni, 1994) and pursue CE-related projects (Jenkins & Seiler, 1990; Jones & Butler, 1992).

Motivated by their ownership stake and the desire to increase personal wealth, CEOs with high levels of stock ownership are likely to encourage an entrepreneurial philosophy throughout their organization. In building goals and an organizational identity around entrepreneurship, these manager-owners seek personal financial benefit from the firm's long-term performance gains by establishing a culture that supports employee innovation, risk taking, and proactiveness. Prior research has found a positive relationship between top managers' stock ownership and both innovating and venturing activities (Zahra, 1996; Zahra et al., 2000). As these CE behaviors were highly correlated with Miller's (1983) measures in the Zahra (1996) study, similar results with EO are expected. Thus:

> *Hypothesis 1b: Executive ownership is positively associated with a firm's entrepreneurial orientation.*

Social influence and entrepreneurial orientation. Ajzen (1985, 1987, 1991) argued for the role of norms as a determinant of the behavioral intentions of individuals. In much the same way, social norms are likely to influence firm behavior and behavioral intentions. Within the strategic management literature, institutional theory speaks to comparable influences and offers guidance at the organizational level of analysis. Institutional theory examines the role of social influence and pressures in shaping organizational behavior (Oliver, 1997). A core premise of institutional theory suggests that organizations are inclined to adopt generally accepted practices and procedures as defined by the institutions within which they subsist (Meyer & Rowan, 1977).

Institutions exert both formal and informal pressures for organizations to conform (DiMaggio & Powell, 1983), offering a sense of legitimacy from organizational stakeholders in return (Deephouse, 1996). The pressures can come from regulatory agencies, cultural expectations from external entities holding necessary resources, or by others in the industry seeking more well-defined structure or standards (Scott, 1995).

Incorporating institutional practices or behaviors into one's own and playing by the institutional "rules" is not necessarily deemed damaging to an organization. Observing the behavior of successful organizations in their competitive environment offers direction to other firms at little expense. Especially when facing uncertainty, underperforming organizations can follow the blueprints of successful firms by mimicking or modeling their own behaviors correspondingly (DiMaggio & Powell, 1983). They do so with the hope of achieving similar (or greater) success, or at least legitimizing their organization in the eyes of stakeholders to unlock access to necessary but currently unavailable resources.

This isomorphic behavior may apply to how firms approach CE. Organizations will look to others in their industry to gauge their level of entrepreneurial behavior. Across an industry, firms interpret institutional attention toward innovation and venturing by looking at competitors' resource distribution and the depth and breadth of new entries into the marketplace. As mentioned previously, investments in CE can be costly and time consuming, calling for firms to take on a considerable amount of risk in many cases. Firms may model their behavior according to institutional levels in order to maintain legitimacy for customers, suppliers, or among the peer group. If institutional norms suggest a large investment in research and development (R&D) or venturing initiatives,

firms will mimic these efforts and allocate resources similarly. The observation of prevalent corporate entrepreneurial behavior within an organization's industry will call upon it to, in turn, adopt an EO in order to maintain legitimacy and actively compete for resources and market share in new and existing markets. By signaling these entrepreneurial intentions internally, firms encourage innovation and venturing by their member-agents. Bolstered by a firm-wide entrepreneurial identity and goals, member-agents are encouraged to act on behalf of the organization to utilize these resources in a way that can propel them to new innovations in which they can recognize and proactively take advantage of new opportunities. Accordingly:

Hypothesis 2: Industry norms toward corporate entrepreneurship are positively associated with a firm's entrepreneurial orientation.

Feasibility influences and entrepreneurial orientation. Behavioral control is the third major element of Ajzen's determinants of behavioral intentions. Behavioral control encompasses the ease or difficulty in performing a behavior, and includes having the requisite ability and resources to perform that behavior (Ajzen, 1985). It has been linked with the concept of self-efficacy (Ajzen, 1991), and correspondingly relies on an analysis of task requirements, an assessment of experience, and an evaluation of situational and personal resources and constraints (Gist & Mitchell, 1992). Elevating the concept of behavioral control to the organizational level of analysis, in turn, requires consideration of similar assessments, recognizing that potential resources and impediments can come from both the organization and its environment[2].

[2] In this view, the environment is not a separate level of analysis, but rather the organizational task environment, which includes those elements that actively and directly cooperate and compete with the focal organization (Dess & Beard, 1984).

In understanding the requirements for entrepreneurial behavior, a reflection on prior experience is helpful. As stated by Bandura (1986), past experience with a particular behavior is the most important source of information about behavioral control. Therefore, having previously behaved entrepreneurially increases an organization's knowledge of task requirements while also reducing the perceived difficulty of behaving similarly in the future (Ajzen, 1991). Within an entrepreneurial context, the success of previous entrepreneurial behavior may not even be necessary. While traditional measures of organizational success (such as an increase in firm profitability) due to prior entrepreneurial behavior would certainly encourage and reinforce firm-level entrepreneurial intentions, struggles do not necessarily shake the credibility of entrepreneurial action (Garud & Van de Ven, 1992). In fact, such failure "may even reinforce its credibility and serve as a learning experience" (Shapero & Sokol, 1982, p. 85) for organization's member-agents. Hence, the organization and its member-agents may have positive learning effects (Sitkin, 1992) that further reinforce entrepreneurial aspirations and encourage future initiatives that build off prior entrepreneurial efforts, overshadowing any financial consequences incurred along the way. Furthermore, investments in innovation and venturing take time to develop, and often the fruits of these labors aren't appreciable for several years (Zahra & Covin, 1995) and therefore may not be immediately identifiable. Thus, experience with CE—regardless of whether the endeavor lead to immediate financial success or not—is likely to positively contribute to an organization's entrepreneurial disposition and subsequent entrepreneurial behavior.

Furthermore, history and past behavior contribute to inertial forces within an organization (Hannan & Freeman, 1977). In this way, the organization itself may invoke

normative pressures to behave in a particular manner. Past behavior provides justification for future behavior of a similar manner. Organizational processes that are ingrained within a firm's environment can be difficult to change, as they are self-reinforcing (Miller & Friesen, 1980; Teece, Pisano, & Shuen, 1997). As explained by Sydow, Schreyögg, and Koch (2009), organizational processes become self-reinforcing due to enhanced coordination and efficiencies over time that embed them with organizational member-agents. Because of this entrenchment, past behavior also tends to limit the consideration of alternative behavior. For these reasons, organizational inertia restricts managerial flexibility (Finkelstein & Hambrick, 1990), locking a firm into behavior that mimics past behavior and strengthening an organizational identity.

As a firm develops and accepts organizational goals and an organizational identity based on entrepreneurship (and subsequently behaves in an entrepreneurial manner), its entrepreneurial disposition will become further embedded within that organization (Zahra et al., 1999). In this way, past entrepreneurial behavior serves to strengthen a firm's EO, as it reinforces the factors that led to the earlier behavior (Ajzen, 1991). From this logic, the following is posited:

Hypothesis 3a: Prior organizational corporate entrepreneurship experience is positively associated with a firm's entrepreneurial orientation.

As mentioned, behavioral control includes an assessment of readily available resources. From an individual's perspective, one must conduct a self-reflection to determine if appropriate skills and abilities are in place to perform the behavior in question. Similarly, a firm's behavior (and behavioral intentions) partially depends on its existing resources (Sapienza et al., 2005). Therefore, in viewing the organization as the

actor, an organization conducts a similar assessment to determine if it has ample resources available to behave in a particular way. Because entrepreneurial behavior can be resource intensive, corporate entrepreneurs often seek resources that are not otherwise committed to specific tasks or functions (Nohria & Gulati, 1996). In general, the more resources at one's disposal, the greater the ability to freely engage in acts that explore and exploit new opportunities. These excess resources—also known as organizational slack—allow an organization to successfully adapt to internal or external pressures, or alter their competitive strategy with respect to the external environment (Bourgeois, 1981).

Properly defined, organizational slack represents "potentially utilizable resources that can be diverted or redeployed for the achievement of organizational goals" (George, 2005, p. 661). Because resources are readily available, organizational slack encourages experimentation within firms, allowing them to pursue and capitalize on new opportunities in the marketplace (Bourgeois, 1981; March & Simon, 1958/1994). These excess resource pools also provide a cushion should new initiatives fail, and therefore provide some sense of security and encouragement for pursuing riskier initiatives (Zahra & Covin, 1995). Hence, firms are more likely to be proactive and take risks if they possess resources to absorb potential losses (Rosenbusch et al., 2013). Conversely, resource deficiencies would decrease behavioral intentions, as they would restrict managers' range of options and hamper the ability to act on new opportunities (Covin & Slevin, 1991).

Slack is therefore viewed as an important catalyst for innovation and organizational adaptation (Lawson, 2001). Correspondingly, slack has reflected a

positive association with CE-related behavior in past research, including both innovation (Greve, 2003; Herold, Jayaraman, & Narayanaswamy, 2006; Nohria & Gulati, 1996; Simsek, Veiga, & Lubatkin, 2007; Voss, Sirdeshmukh, & Voss, 2008) and venturing (Verbeke, Chrisman, & Yuan, 2004, 2007). Researchers have explicitly investigated the influence of slack on EO, with confounding results; Anderson and Covin (2011) found that slack increases EO, whereas Bradley, Wiklund, and Shepherd (2011) found a negative relationship between slack and EO.

In all, some firms have the resources to turn recognized opportunities into financial success while others do not (Ucbasaran et al., 2001). In general, the exploitation of opportunities through entrepreneurial action is more common when people have access to greater financial capital (Evans & Leighton, 1989). Therefore, it is expected that the availability of financial support for entrepreneurial activities directly influences the propensity for organizations to behave entrepreneurially (Shapero & Sokol, 1982). In agreement with Anderson and Covin (2011), it is proposed that organizational slack represents a theoretically meaningful antecedent to a firm's EO. Consequently, the following hypothesis is presented:

> *Hypothesis 3b: Organizational slack is positively associated with a firm's entrepreneurial orientation.*

Beyond an assessment of internal resources, Ajzen's concept of behavioral control includes an assessment of external or situational factors. In this way, the availability of resources and opportunities in a social actor's immediate external environment also contributes to behavioral intentions (Ajzen, 1985). In viewing the organization as the focal actor, this warrants consideration of a firm's task environment,

particularly the industry in which the firm competes. Prior research has suggested that the characteristics of an organization's task environment greatly affect organizational decision making and firm behavior (Aldrich, 1979; Bourgeois, 1980). Generally speaking, industries that are characterized by demand instability, low capital intensity, market growth, and freedom from government regulation offer greater flexibility for strategic implementation than do other, more constrained industries (Finkelstein & Hambrick, 1990). Thus, the characteristics of the environment within which a firm operates in have the capacity to encourage or discourage certain firm behavior.

Consideration of environmental characteristics is not new in the CE literature, as the task environment can provide resources and opportunities necessary for entrepreneurial strategies (Miller, 1983). Original models of firm-level entrepreneurship by Guth and Ginsberg (1990) and Covin and Slevin (1991) include elements of an organization's environment, as have most other subsequent models of CE. Though there are a number of conceptualizations of the environment across the fields of strategy and entrepreneurship, many are largely consistent with the three dimensions suggested by Dess and Beard (1984): munificence, dynamism, and complexity. These dimensions have been specifically identified as important elements within the framework of EO (Lumpkin & Dess, 1996), and have been recognized in recent meta-analyses investigating various relations with the EO construct (Rauch et al., 2009; Rosenbusch et al., 2013). Due to this conceptual and empirical support, it is expected that each of these three environmental dimensions play a role as an antecedent to EO.

According to Rosenbusch et al. (2013, p. 3), environmental munificence describes the "favorability of the firm's task environment in terms of the existence of opportunities

and the availability of resources." Further, it includes the extent to which the environment can support sustained growth (Aldrich, 1979). A munificent environment, then, is amenable to entrepreneurial firms because it is usually in the early stages of the industry life cycle, often on the verge of rapid growth (Eckhardt & Shane, 2003; Shane & Venkataraman, 2000). Thus, munificence encourages and enables the exploitation of new opportunities, and also serves as a stimulating and/or facilitating factor for innovation.

Defined in this manner, munificence directly captures the availability of resources and opportunities described in Ajzen's conceptualization of behavioral control. In turn, the adoption of an EO is "a legitimate response" to a munificent environment (Rosenbusch et al., 2013, p. 3), as firms perceive a resource-rich external environment as conducive to entrepreneurial behavior. Entrepreneurial firms can proactively take advantage of resources provided by the environment to innovate and exploit new opportunities in search of competitive advantage and wealth creation. Prior research has concluded that munificence is positively associated with both innovating and venturing behaviors (Simsek et al., 2007; Zahra, 1993b), and more generally with EO (Marino, Strandholm, Steensma, & Weaver, 2002; Rosenbusch et al., 2013; Wiklund & Shepherd, 2003). Hence, the following is proposed:

> *Hypothesis 3c: Industry munificence is positively associated with a firm's entrepreneurial orientation.*

Environmental dynamism also captures some of the situational factors for assessing behavioral control. Dynamism refers to uncertainty or instability in the external environment attributable to continuing changes (Keats & Hitt, 1988). These

changes can come from technological advancements, competitive rivalry, regulatory developments, or similar forces (Zahra, 1993b). A lack of information about these (often rapid) changes and their consequences leads to the perceived uncertainty and instability in the environment (Khandwalla, 1972). A dynamic, turbulent environment encourages CE because uncertainty and a changing environment create new opportunities in a firm's markets (Zahra, 1991) that are exploitable by entrepreneurial firms.

As dynamism tends to intensify rivalries by bringing new firms into the market (Zahra, 1991), firms must embrace an entrepreneurial disposition to effectively compete. They must promote a culture of innovation, risk taking, and proactiveness as they consider new technological breakthroughs to better compete in existing markets or diversify into new markets in search of additional revenue streams. Past research has empirically confirmed dynamic environments as an antecedent to CE behavior (Zahra, 1991, 1993b), as well as EO (Covin et al., 2006; Marino et al., 2002; Wiklund & Shepherd, 2005). In their recent meta-analysis, Rosenbusch et al. (2013) conclude that EO mediates the relationship between environmental dynamism and firm performance. In corroboration with this prior research, it is proposed that as dynamism increases, EO increases.

Hypothesis 3d: Industry dynamism is positively associated with a firm's entrepreneurial orientation.

Another common dimension conceptualized within an organization's task environment is complexity. Environmental complexity reflects the amount of diverse knowledge, information, resources, and capabilities necessary to operate in a particular environment (Keats & Hitt, 1988; Mintzberg, 1979). Complex environments have

greater uncertainty and require greater information-processing than simple environments (Dess & Beard, 1984), and are therefore more difficult for firms to navigate. These heterogeneous environments require active scanning and monitoring of information and intense coordination across organizational leaders, adding to the difficulty of strategic decision making (Child, 1972).

Despite these challenges, complexity can be beneficial for entrepreneurial firms. The heterogeneity of the environment implies greater diversity of customer needs and expectations across market segments (Miller & Friesen, 1984), which promises plentiful opportunities for proactive, innovative firms. Firms that engender an entrepreneurial disposition are more adept and proactive toward knowledge acquisition and organizational learning (Li et al., 2010; Wang, 2008; Zhao et al., 2010). Through this knowledge and learning, entrepreneurial firms can better deal with a complex environment by combining resources in new and innovative ways to exploit market opportunities. Due to the uncertainty and convolution attributable to complex environments, a propensity to assume some risk is also required. In all, firms that exist in complex environments are more likely to adopt a high EO, as it affords them a greater likelihood in exploring and exploiting opportunities, translating into increased financial success (Rosenbusch et al., 2013). Previous research has found a positive relationship between environmental complexity and firm-level entrepreneurial behaviors (Zahra, 1991, 1993b), and recent research by Rosenbusch et al. (2013) and Wiklund and Shepherd (2003) supports a link between complex environments and EO. Hence:

> *Hypothesis 3e: Industry complexity is positively associated with a firm's entrepreneurial orientation.*

The arguments to this point have addressed determinants of the behavioral intentions of entrepreneurial firms. Attention now moves to the outcomes of a dispositional EO by addressing the relationship with firm performance and the mediating effects of corporate entrepreneurial behavior.

The relationship between entrepreneurial orientation and firm performance. The challenges facing firms today are great. With rapidly changing technologies and consumer expectations coupled with global competition, firms must seek out new opportunities beyond existing operations in order to compete in the long term. Thus, as firms with high EO proactively investigate new market opportunities and are willing to take risks and innovate to exploit those opportunities (Miller & Friesen, 1982), EO is viewed as a key element for organizational success (Lumpkin & Dess, 1996). As a dynamic capability (Teece et al., 1997; Zahra, Sapienza, & Davidsson, 2006), EO allows organizations to reconfigure their existing resources and continuously reshape themselves in order to exploit existing capabilities and develop new capabilities in search of wealth creation and economic rents (Kreiser, 2011). By anticipating demand and aggressively attacking the product/market opportunities, entrepreneurial firms set themselves up for above average returns relative to their competition (Ireland et al., 2003). The two recent meta-analyses support these views, finding a significant positive relationship between EO and firm performance (Rauch et al., 2009; Rosenbusch et al., 2013). However, simply examining the direct effect of EO on firm performance provides an incomplete picture of the association (Wang, 2008), and preceding research has largely failed to extricate the intermediary processes that underlie this relationship (Sapienza et al., 2005).

Entrepreneurial orientation, corporate entrepreneurial behavior, and firm performance. While a positive relationship between EO and firm performance has generally been found, the underlying reason for why this occurs has not been investigated (Zhao et al., 2010). From the arguments presented previously in this chapter, a case is made for EO as a dispositional construct, measured at the firm level of analysis. This parallels recent conceptualization of EO as a psychological concept that reflects the intentions and inclinations of the organization toward entrepreneurial tasks and behaviors (Krauss et al., 2005; Zhao et al., 2010). As such, a firm with a high EO is analogous to one that has accepted entrepreneurial behavior as both desirable and feasible, and has an intentionality to act in accordance. Intent, however, means little without subsequent action; in order for a firm to take advantage of an entrepreneurial disposition, it must act entrepreneurially (Lumpkin & Dess, 1996). To capture the CE process in its entirety, additional characteristics are required that entail action (George & Marino, 2011).

The TPB relies on using measures of behavioral intentions to predict behavior (Ajzen, 1985, 1987, 1991). In accordance with this theoretical perspective, firm-level organizational behavior is a means through which an EO can be realized (Ireland et al., 2009). Therefore, one must look for ways that an inclination for innovation, proactiveness, and risk taking is carried out by an organization in search of higher performance. Previous research advocates that entrepreneurial intentions of individuals result in entrepreneurial action (Shook, Priem, & McGee, 2003); these intentions are aimed at either creating a new venture or creating new value in existing ventures (i.e., innovation; Bird, 1988). In elevating the level of analysis and viewing the organization as the focal actor, it is logical to look at similar outcomes. For decades, scholars of CE

have investigated and measured the entrepreneurial behaviors of firms through their levels of innovation and corporate venturing (Guth & Ginsberg, 1990). These behaviors have been regarded as the implementation of entrepreneurial choices (Zahra, 1993b), and a "key element for gaining competitive advantage and consequently greater financial rewards" (Covin & Slevin, 1991, p. 9). Innovation can take many forms, including strategic renewal, sustained regeneration, domain redefinition, organizational rejuvenation, and business model reconstruction (Morris et al., 2008). These forms represent changes to the firm's prior strategies, products, markets, organizational structures, processes, capabilities, or business models, each of which have the potential to differentiate a firm from its industry rivals (Covin & Miles, 1999). Venturing includes adding new businesses to a firm's portfolio to exploit current or existing markets. Venturing can also include wholly-owned subsidiaries, spin-offs, and investments in third-party companies or joint ventures.

Previous studies imply that entrepreneurial intent represents a state that precedes action (Bird, 1988, 1992; Bird & Jelinek, 1988). Empirical results suggest higher intention corresponds to the increased actualization of behavior (Kim & Hunter, 1993). Therefore, firms measured to have greater entrepreneurial behavioral intentions (through a higher EO) would predict greater entrepreneurial behavior (measured via innovation and venturing) from firms. Prior studies would seem to support this relationship, as a number of studies have shown high correlation between these constructs (e.g., Zahra, 1991, 1996). Furthermore, corporate entrepreneurial behavior has been positively related to organizational performance across a number of studies (Zahra, 1991, 1993b, 1995; Zahra & Covin, 1995; Zahra et al., 2000), as these behaviors "enable the firm to create

new markets, launch new products and services, modify customer value propositions, and significantly cut costs… and allow the organization to move quickly in capitalizing on fleeting opportunities" (Coombes, Morris, Allen, & Webb, 2011, p. 838). The proactive introduction of new products and services makes firms less vulnerable to the danger that their existing knowledge and competencies become obsolete (Leonard-Barton, 1992; March, 1991). These activities are deemed critical because they stimulate both general economic development and the economic performance of individual firms (Covin & Slevin, 1991).

To summarize, the views subscribed to in this dissertation concur with previous sentiments that EO represents "a firm's *disposition* toward, rather than actual engagement in, corporate entrepreneurship activities" (emphasis in original; Zahra, 1991, p. 272). From this view, EO is a necessary antecedent that leads to, but does not include, specific acts of CE (Dess & Lumpkin, 2005; Morris et al., 2008). Firm-level entrepreneurial behavior, such as innovation and venturing, confirms an organization's entrepreneurial nature and manifests the entrepreneurial inclination as suggested by a dispositional view of EO. These corporate entrepreneurial actions offer explanatory power for how EO is translated into improved financial performance and are likely to have a mediating effect on the EO-performance relationship. These activities represent the essential behavioral element in the entrepreneurial process alluded to by Covin and Slevin (1991). Empirically examining the intentions-behavior-outcomes linkage stands to separate the dispositional elements of EO with subsequent measures of entrepreneurial behavior (Miller, 2011), while offering a more complete picture of the CE-performance relationship. Accordingly:

Hypothesis 4a: An entrepreneurial orientation is positively associated with corporate entrepreneurial behavior.

Hypothesis 4b: Corporate entrepreneurial behavior mediates the relationship between entrepreneurial orientation and firm financial performance.

The moderating role of feasibility influences. Reinforced by prior theory (e.g., Fleishman, 1958; Locke, 1965; Vroom, 1964), the TPB suggests that behavioral achievement depends jointly on motivation (i.e., intention) and ability (i.e., behavioral control). While more recent empirics suggest a direct influence, the original conceptualization of the TPB hypothesized the elements of behavioral control to have an indirect relationship on behavior, above and beyond the direct influence they have on intentions (Ajzen, 1991). From this view, intentions are expected to influence behavior to the extent that an individual has perceived high behavioral control, and behavior should increase with behavioral control to the extent that the individual is motivated to try (Ajzen, 1991). In other words, intentions and feasibility are likely to interact in their effects on behavioral achievement.

Correspondingly, intentions and feasibility are likely to have an interacting effect on firm-level entrepreneurial behavior. While high levels of EO are likely to result in subsequent CE activity regardless of other contextual conditions, the existence of feasibility factors are expected to bias the relationship. Thus, the combination of an organization's EO and the feasibility of entrepreneurial action are expected to lead to greater investments in firm-level entrepreneurial behavior. For firms that do embrace an EO, prior entrepreneurial experience and the availability of resources and opportunities, both internal and external, should positively influence a firm's innovation and venturing

activity. Thus, prior experience with entrepreneurial activities combines with a propensity to be innovative, proactive, and risk taking to result in a higher engagement in entrepreneurial behavior. Similarly, organizational slack is likely to moderate the relationship, as access to excess financial resources affords entrepreneurial firms a greater ability to swiftly and actively engage in entrepreneurial behavior to explore or exploit an opportunity in search of better performance (or absorb potential losses associated with an EO; Wiklund & Shepherd, 2005). As resource-based theory (Barney, 1991; Wernerfelt, 1984) would support, the bundling of EO (viewed as a valuable, rare, and difficult-to-imitate intangible resource) with other knowledge, resources, or capabilities (such as past CE experience or slack) can work in concert to improve firm performance (Chandler & Hanks, 1994; Obloj, Obloj, & Pratt, 2010; Sirmon, Hitt, & Ireland, 2007).

The successful behavioral outcomes of EO may also be affected by the characteristics of a firm's external environment. If the environment has resources and opportunities available, it also seems conducive for a firm with entrepreneurial intentionality (high EO) to follow through with entrepreneurial behavior. Prior results have suggested that outcomes of risky and proactive firm orientations are influenced by environmental characteristics (Wiklund & Shepherd, 2005). The changes and uncertainty of dynamic, complex, and resource-rich environments afford entrepreneurial firms more opportunity to engage in activities to release new products or enter new markets than stable, benign environments would (Perez-Luno et al., 2011). In more turbulent contexts, entrepreneurial firms are properly equipped to react to change, sometimes anticipate it, and occasionally even set the pace of change (Brown & Eisenhardt, 1998).

Contingency theories are central to organizational research (Lawrence & Lorsch, 1967), and specifically to the field of strategic management, as they assist in establishing boundary conditions for explaining performance relationships (Boyd, Haynes, Hitt, Bergh, & Ketchen, 2012). As contingencies have been an essential element in prior EO-related frameworks (Covin & Slevin, 1991; Lumpkin & Dess, 1996), an intentions-based model of firm-level entrepreneurship parallels the original intuitions established by Ajzen by suggesting a moderating role for feasibility influences between entrepreneurial intentions and entrepreneurial behavior. In accordance with these theoretical conceptualizations, the following is proposed:

Hypothesis 5a: Prior organizational corporate entrepreneurship experience moderates the positive relationship between entrepreneurial orientation and corporate entrepreneurial behavior: the relationship is more positive when prior organizational corporate entrepreneurship experience is high.

Hypothesis 5b: Organizational slack moderates the positive relationship between entrepreneurial orientation and corporate entrepreneurial behavior: the relationship is more positive when organizational slack is high.

Hypothesis 5c: Industry munificence moderates the positive relationship between entrepreneurial orientation and corporate entrepreneurial behavior: the relationship is more positive when industry munificence is high.

Hypothesis 5d: Industry dynamism moderates the positive relationship between entrepreneurial orientation and corporate entrepreneurial behavior: the relationship is more positive when industry dynamism is high.

Hypothesis 5e: Industry complexity moderates the positive relationship between entrepreneurial orientation and corporate entrepreneurial behavior: the relationship is more positive when industry complexity is high.

Model Overview

Following the general rules set forth by the TPB, this model suggests that the more favorable the organizational influences and social norms with respect to entrepreneurial behavior, and the greater the feasibility of this action, the stronger should be an organization's intention to perform entrepreneurially. Furthermore, the greater an organization's inclination to be innovative, proactive, and risk taking, the more likely that organization will participate in the entrepreneurial behaviors of innovation and venturing. Following through on this entrepreneurial behavior may be influenced by a combination of both the organization's intentionality toward entrepreneurship and the feasibility of the target behavior. Table 2.1 offers a summary of the five hypotheses developed in consideration of testing an intentions-based model of firm-level entrepreneurship.

The next chapter of this dissertation discusses the methods for conducting an empirical investigation of the study's hypotheses. First, the sample used in the analyses is described, including details on the data collection and data screening efforts. Also included in the chapter are the particulars for how each variable was operationalized in order to conduct the study.

Table 2.1: Hypotheses for investigating an intentions-based model of firm-level entrepreneurship.

Hypothesis 1a: An output-oriented chief executive officer is positively associated with a firm's entrepreneurial orientation.
Hypothesis 1b: Executive ownership is positively associated with a firm's entrepreneurial orientation.
Hypothesis 2: Industry norms toward corporate entrepreneurship are positively associated with a firm's entrepreneurial orientation.
Hypothesis 3a: Prior organizational corporate entrepreneurship experience is positively associated with a firm's entrepreneurial orientation.
Hypothesis 3b: Organizational slack is positively associated with a firm's entrepreneurial orientation.
Hypothesis 3c: Industry munificence is positively associated with a firm's entrepreneurial orientation.
Hypothesis 3d: Industry dynamism is positively associated with a firm's entrepreneurial orientation.
Hypothesis 3e: Industry complexity is positively associated with a firm's entrepreneurial orientation.
Hypothesis 4a: An entrepreneurial orientation is positively associated with corporate entrepreneurial behavior.
Hypothesis 4b: Corporate entrepreneurial behavior mediates the relationship between entrepreneurial orientation and firm financial performance.
Hypothesis 5a: Prior organizational corporate entrepreneurship experience moderates the positive relationship between entrepreneurial orientation and corporate entrepreneurial behavior: the relationship is more positive when prior organizational corporate entrepreneurship experience is high.
Hypothesis 5b: Organizational slack moderates the positive relationship between entrepreneurial orientation and corporate entrepreneurial behavior: the relationship is more positive when organizational slack is high.
Hypothesis 5c: Industry munificence moderates the positive relationship between entrepreneurial orientation and corporate entrepreneurial behavior: the relationship is more positive when industry munificence is high.
Hypothesis 5d: Industry dynamism moderates the positive relationship between entrepreneurial orientation and corporate entrepreneurial behavior: the relationship is more positive when industry dynamism is high.
Hypothesis 5e: Industry complexity moderates the positive relationship between entrepreneurial orientation and corporate entrepreneurial behavior: the relationship is more positive when industry complexity is high.

III. METHOD

The chapter includes a description of the dataset used to test this study's research hypotheses and documents the efforts conducted to collect the research sample. Furthermore, the chapter includes an explanation for how each variable in the study is operationalized.

Sample

To build a dataset suitable for investigation of the hypotheses presented in the previous chapter, an extensive dataset was compiled using the most current data publicly available at the time. The initial dataset included 220 large corporations randomly selected from the 2007 *Fortune* 1000 list (Fortune, 2007) [3]. The 2007 *Fortune* 1000 list was selected for sampling as it incorporates the main effect under investigation (i.e., the year EO is being sampled). The *Fortune* 1000 represents the 1,000 largest companies in America, based on revenues for their respective fiscal years. Companies eligible for this ranking are those which have been incorporated or authorized to do business in the United States and who file financial statements with a government agency. Large firms play a critical role in the American economy, and the selection of this sample offers

[3] The initial dataset was compiled by creating a complete list of the 2007 *Fortune* 1000 firms in Microsoft Excel. Each company was assigned a random number between 0 and 1 using the RAND function. The list was resorted by the assigned number, and the first 220 firms were selected as the sample.

insight into the sources and consequences of EO in larger organizations. The investigation of EO in this context serves as an additional contribution to EO scholars, as most prior research on EO has been on smaller, private organizations (e.g., Dess et al., 2011; Miller & Le Breton-Miller, 2011; Rauch et al., 2009; Short, Payne, Brigham, Lumpkin, & Broberg, 2009) or restricted to specific industry segments, most often in the manufacturing sector (e.g., Zahra, 1991, 1996).

The total data collection period spanned ten years (2002-2011), with appropriate variables lagged to better examine the nature of the relationships across the full hypothesized model and allow for the strongest inference of causality (Cole & Maxwell, 2003; Kelloway, 1995; Shook, Ketchen, Hult, & Kacmar, 2004). Antecedents to EO were gathered from 2006. Those that used an average (to avoid one-year aberrations in the variable) were pulled using a five-year average (2002-2006). The main effect under consideration (EO) was pulled using 2007 data. Mediating variables (innovation and venturing behavior) were calculated using data from 2008-2010. Performance (outcome) variables were pulled for the period 2009-2011.

From the initial random selection of 220, 196 firms—spanning 49 different industries (based on 2-digit Standard Industrial Classification (SIC) code)—afforded the opportunity for complete data collection across the full ten-year period. Four of the firms were private or were taken private during the period under study, and thus much of the data were publicly unavailable. One other firm, on the basis of their regulation by the Texas Department of Insurance, was exempt from periodic filings with the U.S. Securities and Exchange Commission (SEC) and also had limited information publicly available prior to 2009 (American National Insurance Co., 2010). Three firms were

acquired during the sample period, and thus did not exist for the full extent of the sample. Three other firms were part of a merger at some point during the 2002-2011 period; due to the revised makeup of these firms, they were also dropped from the sample. One firm ended the 2006 year with an interim CEO, and was therefore excluded. Complete data for twelve additional firms were also unavailable, due to limited reporting by the firms. (As addressed in more detail below, shareholder letters are an important source of information for this research, as a qualitative assessment of shareholder letters was used to measure EO.) In lieu of providing shareholders an annual report, companies can elect to simply send the same Form 10-K that was filed with the SEC (U.S. Securities and Exchange Commission, 2011). Unfortunately, 10-Ks filings often do not include shareholders letters written by executives, so complete data for these twelve firms did not exist. Any potential bias due to this missing data was evaluated by comparing the firm size of the 196 collected firms and the 24 that were dropped from the sample; results confirmed the difference between the means of the two groups was not significant (t = 0.411, df = 217, $p > 0.5$). A complete list of the 196 firms and their industries is available in Appendix B.

Measures

The operationalization of each variable included in the dissertation's model is described in detail in the following subsections. Dependent variables are presented first, followed by independent variables; control variables are described last. All data collected for this study were gathered from archival data sources, which provide several advantages over data gathered through survey instruments. Beyond simply the benefit of

being accessible (especially for longitudinal research designs), archival data are an attractive source of data because it more readily allows for researchers to describe constraints faced by all firms in an industry (Bourgeois, 1980), which is important for this study. Furthermore, archival data reduce the issues associated with the biases inherent to managerial responses (Golden, 1992; Huber & Power, 1985) and non-respondent bias (Boyd, Dess, & Rasheed, 1993), which can confound empirical results.

Financial performance. The investigation of economic outcomes is a hallmark of both strategic management (Meyer, 1991) and entrepreneurship (Shane & Venkataraman, 2000) research, and has been an important focus of research on CE and EO, as previously noted. As stated by Lumpkin and Dess (1996), researchers studying the influence of EO on firm performance should include multiple performance measures, which conforms with strategic management research that suggests organizational performance is multidimensional in nature (Combs, Crook, & Shook, 2005; Richard, Devinney, Yip, & Johnson, 2009; Venkatraman & Ramanujam, 1986). In accordance with these guidelines, firm performance was operationalized through measures of both accounting- and market-based returns as well as growth, all of which are important for the financial well-being of large firms. Return on assets (ROA -- George et al., 2001; Zahra, 1996; Zahra & Garvis, 2000) and return on sales (ROS -- Zahra, 1993b) serve as accounting-related measures, while market value-added (MVA -- Dess et al., 2003) and Tobin's *Q* (Short, Broberg, Cogliser, & Brigham, 2010) are included as measures of market-based performance. ROA is a measure of profitability that was calculated by dividing a company's net earnings by its total assets. For this study, ROA was calculated as a 3-year average, using the period from 2009-2011. ROS also measures profitability

and was measured as the 3-year average of the ratio of company's net earning divided by its sales, covering the same time period. MVA is a market-based measure that captures the relative success of firms in maximizing shareholder value through the efficient allocation and management of scarce resources (Hillman & Keim, 2001). MVA was calculated as a firm's market value less its capital, where market value refers to the equity market valuation of the company and capital refers to the debt and equity invested in the company. MVA is simply the difference between the cash that both debt and equity investors have contributed to a company and the value of the cash that they expect to get out of it. As with the accounting-based measures, a 3-year average (2009-2011) was used. Tobin's *Q*, a market-based measure of performance used frequently in entrepreneurship research, assesses the degree to which the stock market values a firm relative to its replacement cost (Short, Broberg, et al., 2010). Tobin's *Q* was measured as the 3-year average of the ratio of the market value of firm assets to their replacement cost for the years 2009-2011. Following Covin et al. (2006), a measure of firm growth was operationalized as a firm's average rate of growth in sales revenue over the 3-year period from 2009-2011. As the sample covers multiple industries with differing growth rates, the 3-year average sales growth rate of the firm's principal industry (as determined by two-digit SIC code) was subtracted from the firm's 3-year average sales growth rate. All performance measures were collected from the secondary database COMPUSTAT. The use of independently verified, objective measures of performance data has been viewed as beneficial in EO research, as much of the extant empirical investigation has relied on subjective, perceptions-based assessments of firm performance (Lumpkin & Dess, 2001; Rauch et al., 2009). In an effort to maintain consistency with prior research and build

"cumulative knowledge" around the EO-performance phenomenon (George, 2011), each of the objective measures selected for investigation have been previously used in EO and/or CE research. The hypothesized model was analyzed separately for each of the five dependent variables in order to determine the direct and indirect influences on each without confounding the relationships.

Corporate entrepreneurial behavior. Consistent with the definition espoused by Sharma and Chrisman (1999), corporate entrepreneurial behavior encompasses both innovation & venturing activities. Corporate innovation is "the generation, development, and implementation of new ideas or actions" (Damanpour, 1991) which may or may not result in new business for the firm (Morris et al., 2008). Innovation activity was operationalized using R&D intensity. Miller and Le Breton-Miller (2011) promote the use of R&D intensity as a measurement of innovative behavior because it is applicable to a broad array of businesses and is available from reliable published sources. Although some studies argue for the use of patents as an indicator of innovation, patents are counterproductive in many industries where they cannot be easily enforced or where these are potential disclosure liabilities (Lee & O Neill, 2003; Miller & Le Breton-Miller, 2011). R&D intensity was calculated by dividing the R&D expenses of a firm for a given year by the total sales for that year. A three-year average R&D intensity for each firm, covering the years 2008-2010, was used.

Corporate venturing is focused on the adding of new businesses (or portions of new businesses via equity investments) to the corporation (Holt et al., 2010), and was captured by venturing intensity. Venturing intensity was measured by dividing the total equity investment of a firm in unconsolidated subsidiaries and affiliates for a given year

by total assets. Similar to the measure for R&D intensity, an average of the venturing intensity for a 3-year period was the final measure. All data used to compile innovation and venturing spending, including sales and total assets were found in the COMPUSTAT database.

Entrepreneurial orientation. While scholars have typically used survey instruments to measure an organization's EO (Rauch et al., 2009), previous research has encouraged the use of content analysis to measure the construct (Lyon et al., 2000). Until recently, few have pursued this operationalization. However, Short and colleagues have explored the measurement of firm-level EO through qualitative means by using computer-aided text analytics of shareholder letters (Short, Broberg, et al., 2010; Short et al., 2009). Shareholder letters are excellent resources to gain insight into managerial cognitions and "are useful for capturing elements of top management's values, beliefs, and ideologies (which include entrepreneurial orientations)" (Short, Broberg, et al., 2010, p. 334). This operationalization has been lauded in current manuscripts for its objective indicators of the construct (Covin & Lumpkin, 2011; Miller, 2011) and for its reliability and validity[4] (Short, Broberg, et al., 2010). Hence, the language dictionaries for the innovation, proactiveness, and risk taking sub-dimensions, as provided by Short and his coauthors (and available in Appendix C), were used to measure the uni-dimensional EO construct, representing a firm's entrepreneurial disposition. This uni-dimensional conceptualization stays true to the origins of the EO construct (Miller, 1983) in evaluating a firm as entrepreneurial (as opposed to conservative) and is best suited for

[4] In their 2010 *Organizational Research Methods* article, Short, Broberg, Cogliser, and Brigham demonstrated methods for assessing content, external, discriminant, and predictive validity with computer-aided text analytic software by using the entrepreneurial orientation construct.Short, Broberg, et al. (2010)Short, Broberg, et al. (2010)Short, Broberg, et al. (2010)Short, Broberg, et al. (2010)Short, Broberg, et al. (2010)Short, Broberg, et al. (2010)Short, Broberg, et al. (2010)

theory development surrounding the larger domain of CE (Miller, 2011). Shareholder letters from the 2007 annual reports were collected from company websites, the SEC's website, and Mergent and Bloomberg proprietary database resources. Letters were electronically or manually transcribed into individual text files, which were then run through a text analysis program. Similar to the previous work by Short and colleagues, the DICTION 6.0 (Hart & Carroll, 2011) software was utilized for the qualitative analysis. This software analyzes narrative text to identify significant differences in word usage and assign scores for the specified variable dictionaries. The software was set to extrapolate short shareholder letters (less than 500 words) by multiplying raw scores by 500 divided by the number of words in the letter; shareholder letters longer than 500 words were divided and analyzed in 500 word segments, and the resulting segment scores were averaged. DICTION has been advocated by management and entrepreneurship scholars for its potential to measure a number of theoretically-based constructs of interest (Short & Palmer, 2008).

Output-oriented CEO functional background. The chief executive officer (CEO) has "overall responsibility for the conduct and performance of an entire organization" (Finkelstein et al., 2009, p. 9). As noted by Dearborn and Simon (1958), an individual's functional experiences serve as a lens through which they approach the leadership of their company. Identification of these experiences provides an indication as to how the leader views problems, establishes goals, and cultivates an identity and culture for his or her organization. To classify output-oriented leadership orientation of CEOs, a dichotomous variable was created to indicate if a CEO had functional experience in sales, marketing, R&D, and/or customer service (coded "1" if the executive has this experience,

"0" otherwise). Data was initially collected from the 2006 *Dun & Bradstreet Reference Book of Corporate Managements*. Corporate websites, the proprietary Bloomberg database, and other media publications (e.g., press releases, newspaper/magazine articles, etc.) were used to supplement the data collection effort and resolve issues of missing data.

Executive ownership. Executive ownership was measured by the percentage of a company's total stock held by the CEO in 2006. Data were obtained from the COMPUSTAT, EXECUCOMP, and Risk Metrics databases, and supplemented by annual proxy statements, 10K filings, and other sources as required. A natural log transformation was calculated on this variable to correct for elevated skewness and kurtosis.

Industry norms toward corporate entrepreneurship. A firm's dominant industry was determined based on the primary two-digit SIC code available in COMPUSTAT. SIC designations are based upon a list specified by the U.S. government to indicate a company's type of business. Industry norms toward CE were calculated using a five-year (2002-2006) average annual investment in innovation and venturing across firms in the dominant industry. The calculation was the average of the sum of R&D intensity and venturing intensity for all companies in the industry. As specified earlier, all data used to compile R&D intensity and venturing intensity came from COMPUSTAT.

Prior corporate entrepreneurship experience. To measure an organization's prior CE experience, a five-year (2002-2006) average investment in innovation and venturing activities was calculated. Similar to the variable above, R&D intensity and

venturing intensity were calculated and summed. Data used for this calculation was sourced from COMPUSTAT.

Organizational slack. Of the various forms of slack addressed in the literature, unabsorbed (or available) slack is the most common (Anderson & Covin, 2011) and most appropriate for investigating a slack-innovation relationship because it represent a surplus of capital, i.e., internal resources that are liquid and unaccounted for (Bourgeois, 1981; Herold et al., 2006). For this study, organizational slack was measured using the 2006 current ratio of the firm (Bourgeois & Singh, 1983; Bromiley, 1991). The current ratio divides current assets by current liabilities, allowing one to assess a firm's ability to pay short-term obligations. The balance sheet items necessary for this calculation were collected from COMPUSTAT.

Industry munificence. Prior research has suggested that the "environment of a firm's core business becomes the dominant focus or frame of reference for most corporate-level decisions, even in firms that are diversified (Prahalad & Bettis, 1986)" (Keats & Hitt, 1988, p. 578). As specified earlier, industry munificence reflects an environment's resource abundance and resulting capacity to support growth. For this dissertation, munificence was operationalized as the regression slope coefficient of sales growth regressed on time (Keats & Hitt, 1988). The period measured was the five years from 2002-2006, with data available through COMPUSTAT.

Industry dynamism. Industry dynamism, reflecting an environment's volatility or instability, was measured using the antilogs of the standard error of the slope coefficient of sales growth in the regression analysis used to calculate industry munificence (Keats & Hitt, 1988). This operationalization provides insight into the five-

year pattern of instability of an organization's primary industry, using the same five-year period as described for the munificence indicator.

Industry complexity. Industry complexity—defined as the heterogeneity and concentration of environmental elements—was captured using a four-firm concentration ratio (Schmalensee, 1977). Complexity was measured by summing the 5-year (2002-2006) average sales of the top four firms in each industry (using two-digit SIC code) and dividing it by the total average sales for the period. COMPUSTAT was used as the data source.

Control variables. Firm-level variables which could be reasonably expected to influence the model were incorporated into the study and used as control variables in the statistical analyses. It is important to provide a conceptual understanding as to why a given control is included and why its absence would hinder interpretation of the results if its influence was not removed (Atinc, Simmering, & Kroll, 2012; Becker, 2005; Williams, Vandenberg, & Edwards, 2009), and so a brief explanation is provided for each selected for the study. A clear description for how each control variable was measured is also provided (Becker, 2005).

Both organizational age and size have been used in past CE-related studies as controls, as they can reveal different organizational characteristics which might influence performance (Wiklund & Shepherd, 2005). Older firms may have more resources at their disposal to pursue different strategies than younger firms (Venkataraman, Van de Ven, Buckeye, & Hudson, 1990), while large firms are expected to maintain greater levels of resources and control greater market share than smaller firms (Bradley et al., 2011).

Firm age was measured by the number of years since the company was established. *Firm size* was operationalized by a firm's total number of employees.

As the board of directors (BOD) is recognized for its role in influencing corporate strategy (Golden & Zajac, 2001; Judge & Zeithaml, 1992) and performance (Dalton, Daily, Ellstrand, & Johnson, 1998), consideration of some board characteristics is warranted. The number of directors sitting on a firm's board might influence the resources available in pursuing entrepreneurial initiatives (Kor, 2006; Pfeffer & Salancik, 1978) or their ability to effectively process relevant information about CE (Haleblian & Finkelstein, 1993). *Board size* was measured using the total number of directors on the board. The number of outsiders on the BOD might also have an influence on firm performance, as outside directors' knowledge of different companies, industries, or opportunities may further broaden the board's perspective and alert executives to promising CE opportunities (Carpenter & Westphal, 2001; Kor & Misangyi, 2008). Conversely, outsiders' detachment from a firm might hinder them from intimately understanding the firm's entrepreneurial intentions and initiatives (Zahra, 1996; Zahra et al., 2000); and may also force outside directors to emphasize financial (rather than strategic) controls, which have been found to reduce CE (Baysinger & Hoskisson, 1990). *BOD outsiders* was measured as a ratio of the number of unrelated directors relative to the total number of board members.

Additional characteristics of the CEO were also considered. A CEO's age may play a role in a firm's entrepreneurial strategic pursuits (Barker & Mueller, 2002), as older executives tend to be more conservative (Hambrick & Mason, 1984) and have less incentives to instigate change to better long-term performance—as they may be nearing

retirement age (Dechow & Sloan, 1991). *CEO age* was measured in years. A CEO's compensation structure may also have an influence on firm performance, as compensation packages may be weighted to reward short-term and/or long-term performance. Packages heavily weighted with cash tend to reinforce decisions made to increase short-term performance, while stock options generally support agency theorists' arguments of aligning long-term interests with that of owners (Jensen & Zimmerman, 1985). *CEO compensation structure* was captured by dividing cash-related compensation (salary + bonus) by total compensation.

Similar to other exogeneous variables in the hypothesized model, all control variables were captured for the year 2006, which precedes the year of measurement for EO. Following recommendations from Becker (2005), all control variables were allowed to covary in the model. Data for each of these control variables was available through the archival data resources previously mentioned in this chapter. Table 3.1 provides an overview of the variables included in this dissertation, how they were operationalized, the year(s) of measurement, and the primary data collection source.

Following the complete data collection effort, the sample was further trimmed to account for extreme outliers. Outlier analyses were conducted to identify cases that exceeded three standard deviations from the mean on all variables and accounted for heightened skewness and kurtosis. Five firms were removed due to their large size. Two were removed due to extreme values of prior organizational CE experience. Another nineteen were removed for high CE (innovation and/or venturing) behavior. Eight more were removed due to severely depressed levels of sales growth. Two additional firms were removed for elevated Tobin's *Q*. Finally, nine firms were removed from the sample

Table 3.1: List of model variables

Study variable	*Operationalization*	*Year(s) of measurement*	*Primary data source*
Firm performance	(1) Return on assets: three-year average of a firm's net earnings divided by its total assets (2) Return on sales: three-year average of a firm's net earning divided by its sales (3) Market value-added: three-year average of a firm's (common shares outstanding * calendar year closing price) – (total debt + total equity) (4) Tobin's *Q*: three-year average of (common shares outstanding * calendar year closing price) + (current liabilities – current assets) + long-term debt + liquidating value of preferred stock) all divided by total assets (5) Sales growth: three-year average rate of growth in sales revenue of the firm minus the firm's primary industry 3-year average sales growth rate	2009-2011	COMPUSTAT
Corporate entrepreneurial behavior	(1) Innovation: three-year average of a firm's R&D expenses divided by the firm's total sales (2) Venturing: three-year average of a firm's total equity investment in unconsolidated subsidiaries and affiliates divided by the firm's total assets	2008-2010	COMPUSTAT
Entrepreneurial orientation	Sum of computer-aided text analytic scores (from DICTION software) assigned to the language dictionaries for the innovation, proactiveness, and risk taking sub-dimensions	2007	Shareholder letters

Table 3.1: List of model variables

Study variable	*Operationalization*	*Year(s) of measurement*	*Primary data source*
Output-oriented CEO functional background	Coded as "1" if CEO has sales, marketing, R&D, and/or customer service functional experience; "0" otherwise	2006	*Dun & Bradstreet Reference Book of Corporate Managements*
Executive ownership	Natural log of the percentage of a company's total stock held by the CEO	2006	EXECUCOMP
Industry norms toward CE	Five-year average investment in innovation and venturing across firms in the dominant industry (measured as per corporate entrepreneurial behavior)	2002-2006	COMPUSTAT
Prior organizational CE experience	Five-year average investment in innovation and venturing activities for the firm (measured as per corporate entrepreneurial behavior)	2002-2006	COMPUSTAT
Organizational slack	Current assets divided by current liabilities	2006	COMPUSTAT
Industry munificence	Regression slope coefficient of sales growth regressed on a five-year time period	2002-2006	COMPUSTAT
Industry dynamism	Antilogs of the standard error of the slope coefficient of sales growth in the regression analysis used to calculate industry munificence	2002-2006	COMPUSTAT
Industry complexity	Four-firm concentration ratio	2002-2006	COMPUSTAT

Table 3.1: List of model variables

Study variable	*Operationalization*	*Year(s) of measurement*	*Primary data source*
Firm age	Number of years since the company was first established	2006	*Dun & Bradstreet Reference Book of Corporate Managements*
Firm size	Total number of firm employees	2006	*Dun & Bradstreet Reference Book of Corporate Managements*
BOD size	Total number of board members	2006	Risk Metrics
BOD outsiders	Number of unrelated directors divided by total number of board members	2006	Risk Metrics
CEO age	Age in years of CEO	2006	EXECUCOMP
CEO compensation structure	CEO's cash-related compensation (i.e., salary + bonus) divided by his or her total compensation	2006	EXECUCOMP

CE = corporate entrepreneurship; TMT = top management team; BOD = board of directors; CEO = chief executive officer

due to extreme values of MVA. This resulted in a final sample of 151 cases suitable for testing the complete set of hypotheses for all five of the dependent variables.

Upon the finalization of the dataset, an analysis to evaluate multicollinearity was undertaken. In doing so, variance inflation factors (VIFs) for each of the independent variables were examined. VIF measures how much the variance of each regression coefficient increases as a result of multicollinearity, with those greater than 10 indicating high multicollinearity. As the highest VIF in the analysis was 1.741, these indicators suggested multicollinearity was not an issue.

To conclude the data screening process, a power analysis was conducted to confirm the suitability of the sample size. Power analyses determine the probability that results of the hypotheses testing leads to rejection of the null hypothesis when it is false, and should be done during planning and after data collection (Kline, 2005). The power analysis for this dissertation was calculated based on computations suggested by MacCallum, Browne, and Sugawara (1996). The final sample (151 cases) resulted in a power of 0.97, which is well above the suggested guidelines of 0.80 for adequate power (Shook et al., 2004).

The next chapter addresses the statistical methods applied to test the proposed model using the final sample described above. In addition to discussing the statistical techniques, the chapter also reviews the empirical results of each of the study's hypotheses and the overall fit of the model.

IV. ANALYSES AND RESULTS

This chapter discusses the statistical methodologies utilized to assess the overall fit of the proposed model and conduct the hypotheses testing, and shares the results of these empirical analyses. An examination of alternative models is also summarized.

Analyses

Following recommendations regarding the testing of hypothesized mediation relationships (James, Mulaik, & Brett, 2006; LeBreton, Wu, & Bing, 2009; Preacher & Hayes, 2008), structural equation modeling (SEM) was used to assess the relationships and test how well the overall model fits the observed data. SEM has been identified as a productive tool of analysis for management scholars due to its ability to handle multidimensional constructs and complex relational models (Shook et al., 2004), and has been increasingly applied in both strategic management (Shook, Ketchen, Cycyota, & Crockett, 2003) and entrepreneurship (Dean, Shook, & Payne, 2007) research. Due to the measures used in the study (and described in detail in the previous chapter), this dissertation utilizes path analysis, the original SEM technique for analyzing structural models with observed variables (Kline, 2005). SEM (and therefore, path analysis) offers the ability to concurrently test relationships among multiple dependent and independent variables (Henley, Shook, & Peterson, 2006). SEM models can adequately handle both

the mediation and moderation inherent to the hypothesized model (Preacher, Rucker, & Hayes, 2007). Furthermore, recommendations offered by Preacher and Hayes (2008) were employed to allow for the simultaneous examination of multiple mediators (both innovating behavior and venturing behavior) in a single model. Testing a single multiple mediation model rather than separate simple mediation models allows one to determine: 1) if the overall effect of the mediation exists; 2) to what extent each of the mediating variables intervenes between the IV and DV in the presence of other potential mediators; 3) the relative magnitudes of specific indirect effects; and 4) also helps to limit missing parameter bias (Preacher & Hayes, 2008). All preliminary analyses—including data screening and descriptives—were run using IBM's SPSS 21.0 predictive analytics software (IBM Corp., 2012), and subsequent path analyses were run on the AMOS (Arbuckle, 2006) module provided in SPSS using maximum likelihood estimations.

Table 4.1 reports the means, standard deviations, and bivariate correlations for the dependent, independent, and control variables used in the study. For simplicity, the five dependent variables were all included in the table, even though none appear together in the model (each was tested as the single dependent variable with the full model).

Overall Model Fit

This dissertation undertakes a confirmatory modeling strategy—in which a single model, composed of a set of specified relationships, is tested—and uses SEM to assess how well the model fits the data. A variety of model evaluation techniques were used to assess the hypothesized model (although one core model was hypothesized, it was tested separately using the five different firm performance dependent variables). The chi-square statistic is the most common test of model fit (Kline, 2005; Shook et al., 2004), and is the

Table 4.1: Means, standard deviations, and bivariate correlations.

	Means	St. Dev.	1	2	3	4	5	6
(1) Firm age	57.1457	40.7883						
(2) Firm size	29.5797	36.7904	.032					
(3) BOD size	10.6225	1.9689	-.044	.093				
(4) BOD outsiders	0.8492	0.0853	.029	.132	.191 *			
(5) CEO age	58.5629	5.6268	.083	.151	.031	.048		
(6) CEO compensation structure	0.2830	0.2446	.000	-.153†	-.088	-.275**	-.118	
(7) Output-oriented CEO	0.4305	0.4968	.056	.243**	.017	.081	-.030	-.060
(8) Executive ownership	0.4782	0.7172	-.018	-.078	-.104	-.448**	.226 **	.271 **
(9) Industry norms toward CE	1.9098	5.1872	.125	-.099	-.072	.094	-.019	-.055
(10) Prior organizational CE experience	0.0251	0.0359	.016	.042	-.046	.063	-.039	-.151†
(11) Organizational slack	1.3869	0.9176	.237 **	-.013	-.218 **	.030	.119	.093
(12) Industry munificence	1.0115	0.0097	-.058	.084	-.056	.083	-.128	.032
(13) Industry dynamism	1.2971	0.1268	-.218 **	-.056	.000	.143†	-.034	.110
(14) Industry complexity	0.3566	0.1742	.125	.205*	-.105	-.184*	.199 *	.064
(15) Entrepreneurial orientation	4.1410	2.5823	.087	-.008	-.088	.037	-.070	.059
(16) Innovation behavior	0.0085	0.0160	.013	.080	.038	.233**	-.002	-.011
(17) Venturing behavior	0.0142	0.0215	-.028	-.117	.068	-.032	-.035	-.073
(18) ROA[(a)]	0.0385	0.0516	-.050	.013	.095	.058	-.109	-.026
(19) ROS[(a)]	0.0543	0.0634	-.146 †	-.107	.282 **	.025	-.185 *	-.085
(20) MVA[(a)]	4.6614	7.0052	-.052	.390**	.222 **	.018	-.132	-.102
(21) Tobin's Q[(a)]	0.9559	0.5383	-.025	.064	-.028	.011	-.118	.012
(22) Sales growth[(a)]	-0.5403	0.7031	-.106	-.015	.160 *	.020	.027	.031

N = 151; ** p<.01; * p<.05; † p<.10; ROA = return on assets; ROS = return on sales; MVA = market-value added; BOD = board of directors; CEO = chief executive officer; CE = corporate entrepreneurship;

(a) These dependent variables do not appear simultaneously in the hypothesized model. Each was tested independently; for simplicity, all are included in table.

Table 4.1 (continued): Means, standard deviations, and bivariate correlations.

	7	8	9	10	11	12	13	14
(1) Firm age								
(2) Firm size								
(3) BOD size								
(4) BOD outsiders								
(5) CEO age								
(6) CEO compensation structure								
(7) Output-oriented CEO								
(8) Executive ownership	-.217**							
(9) Industry norms toward CE	.065	-.085						
(10) Prior organizational CE experience	.055	-.063	.327**					
(11) Organizational slack	.148†	-.102	.184*	.044				
(12) Industry munificence	.040	-.124	-.241**	-.042	.044			
(13) Industry dynamism	-.167*	-.006	-.265**	-.131	-.167*	.119		
(14) Industry complexity	.033	.159†	-.343**	-.104	.136†	-.105	.035	
(15) Entrepreneurial orientation	-.038	-.064	.217**	.089	.091	.024	.015	-.103
(16) Innovation behavior	.210**	-.175*	.372**	.351**	.147†	.129	.019	-.155†
(17) Venturing behavior	-.118	.089	.156†	.467**	-.052	-.025	-.045	-.040
(18) ROA[(a)]	.009	-.080	.221**	.087	-.001	-.136†	-.101	-.107
(19) ROS[(a)]	-.096	-.115	.164*	.207*	-.211**	-.066	-.122	-.265**
(20) MVA[(a)]	.151†	-.133	.112	.205*	-.067	-.022	-.103	.031
(21) Tobin's *Q*[(a)]	.138†	-.091	.235**	.145†	-.026	-.090	-.125	.058
(22) Sales growth[(a)]	-.209**	.081	-.466**	-.223**	-.164*	.045	-.048	.286**

N = 151; ** $p<.01$; * $p<.05$; † $p<.10$; ROA = return on assets; ROS = return on sales; MVA = market-value added; BOD = board of directors; CEO = chief executive officer; CE = corporate entrepreneurship;

(a) Dependent variables do not appear simultaneously in the hypothesized model. Each was tested independently; for simplicity, all are included in the table.

Table 4.1 (continued): Means, standard deviations, and bivariate correlations.

	15	16	17	18	19	20	21
(1) Firm age							
(2) Firm size							
(3) BOD size							
(4) BOD outsiders							
(5) CEO age							
(6) CEO compensation structure							
(7) Output-oriented CEO							
(8) Executive ownership							
(9) Industry norms toward CE							
(10) Prior organizational CE experience							
(11) Organizational slack							
(12) Industry munificence							
(13) Industry dynamism							
(14) Industry complexity							
(15) Entrepreneurial orientation							
(16) Innovation behavior	.175*						
(17) Venturing behavior	.095	-.008					
(18) ROA[(a)]	-.010	.189 *	-.095				
(19) ROS[(a)]	.003	.131	.038	.693 **			
(20) MVA[(a)]	.082	.191 *	.029	.411 **	.330 **		
(21) Tobin's *Q*[(a)]	.036	.163 *	.030	.649 **	.392 **	.546 **	
(22) Sales growth[(a)]	-.088	-.238 **	-.063	-.087	-.054	-.110	-.114

N = 151; ** $p<.01$; * $p<.05$; † $p<.10$; ROA = return on assets; ROS = return on sales; MVA = market-value added; BOD = board of directors; CEO = chief executive officer; CE = corporate entrepreneurship;

(a) Dependent variables do not appear simultaneously in the hypothesized model. Each was tested independently; for simplicity, all are included in the table.

first measure reported. As the chi-square test has the potential for sample size bias, a normed chi-square statistic (Jöreskog, 1969) is also reported. In this test, the chi-square is adjusted by the degrees of freedom to assess model fit; models with adequate fit should have a normed chi-square values less than 2.0 or 3.0 (Bollen, 1989). Although frequently reported, most researchers have moved beyond these measures to include more sophisticated fit tests. In recent years, management researchers have regularly relied on the comparative fit index (CFI) and the root mean square error approximation (RMSEA) (Williams et al., 2009), which have both been deemed more robust than the chi square statistic (Brown, 2006; Kline, 2005). Both will be included to assess the hypothesized model. CFI compares the relative improvement of the proposed model with the null model, which assumes zero population covariances among the observed variances (Kline, 2005); RMSEA estimates lack of fit compared to a just-identified model. Guidelines suggest that models are favorable if the CFI value exceeds 0.90 (Hu & Bentler, 1999) and RMSEA is below 0.08 (Browne & Cudeck, 1993). The standardized root mean square residual (SRMR), a measure of the overall difference between the observed and predicted correlations, was also reported, as it too is has been lauded for assessing model fit in management research (Williams et al., 2009). SRMR values less than 0.10 reflect a good model (Williams et al., 2009).

Table 4.2 shows the model fit statistics for the hypothesized model, run with each of the firm performance dependent variables. Results suggest conflicting determinations based on the selected indices, but generally indicate an adequate model fit, as three of the five fit indices achieved acceptable fit for the analysis using ROA as the dependent variable ($\chi^2 = 313.573$, $p < .001$; normed $\chi^2 = 1.867$; CFI = 0.658; RMSEA = 0.076; SRMR = 0.088). As seen in Table 4.2, the overall model fit did not change dramatically

Table 4.2: Goodness-of-fit indices for hypothesized model using five different firm performance dependent variables

DV	**χ^2**	**Normed χ^2**	**CFI**	**RMSEA**	**SRMR**
guidelines	$p > 0.05$	< 2.00	> 0.90	< 0.08	< 0.10
ROA	313.573 ($p < 0.001$)	1.867	0.658	0.076	0.088
ROS	325.785 ($p < 0.001$)	1.939	0.653	0.079	0.091
MVA	303.979 ($p < 0.001$)	1.809	0.699	0.073	0.088
Tobin's *Q*	316.702 ($p < 0.001$)	1.885	0.650	0.077	0.086
Sales growth	352.079 ($p < 0.001$)	2.096	0.609	0.085	0.092

DV = dependent variable; CFI = comparative fit index; RMSEA = root mean square error approximation; SRMR = standardized root mean square residual; ROA = return on assets; ROS = return on sales; MVA = market-value added

when the four other firm performance dependent variables were substituted into the model, though only the SRMR index indicated adequate model fit for the analysis using sales growth. In all, these results would seem to suggest some merit in an intentions-based model of firm-level entrepreneurship.

Results of Hypotheses Testing

After a conclusion of adequate model fit, each individual hypothesis was assessed. Table 4.3 displays the results of the path analyses for this empirical investigation, showing each of the direct effects that correspond to the hypothesized relationships. In an effort for simplicity and transparency, the results for both forms of CE behavior (innovation and venturing) have been included under the line items for hypotheses 4 and 5. Each of the five different firm performance dependent variables (all run in separate models) have also been included in the results for Hypothesis 4b.

The first set of hypotheses dealt with organizational influences that served as antecedents to the development of an EO within a firm. Hypothesis 1a proposed that output-oriented CEO functional experience would be positively associated with a firm's

Table 4.3: Results of path analyses for testing hypotheses

No.	Hypothesis statement	Estimate	S.E.	*p*-value*
1a	Output-oriented CEO → EO	-0.322	0.420	0.444
1b	Executive ownership → EO	-0.138	0.291	0.635
2	Industry CE norms → EO	0.112	0.049	**0.021**
3a	Prior firm CE experience → EO	1.659	5.998	0.782
3b	Organizational slack → EO	0.184	0.233	0.430
3c	Industry munificence → EO	16.96	22.310	0.447
3d	Industry dynamism → EO	1.442	1.688	0.393
3e	Industry complexity → EO	-0.302	1.291	0.815
4a	EO → IB	0.001	0.000	**0.013**
	EO → VB	0.001	0.001	0.329
4b**	IB → ROA	0.605	0.250	**0.015**
	VB → ROA	-0.262	0.187	0.161
	IB → ROS	0.576	0.289	**0.046**
	VB → ROS	-0.047	0.217	0.830
	IB → MVA	78.443	30.044	**0.009**
	VB → MVA	15.163	22.563	0.502
	IB → Tobin's *Q*	5.489	2.631	**0.037**
	VB → Tobin's *Q*	0.958	1.976	0.628
	IB → Sales growth	-11.259	3.329	**0.000**
	VB → Sales Growth	-2.432	2.501	0.331
5a	Prior CE experience X EO → IB	0.037	0.013	**0.005**
	Prior CE experience X EO → VB	0.026	0.018	0.138
5b	Slack X EO → IB	0.001	0.001	0.171
	Slack X EO → VB	-0.001	0.001	0.530
5c	Munificence X EO → IB	-0.029	0.052	0.571
	Munificence X EO → VB	0.033	0.069	0.633
5d	Dynamism X EO → IB	0.000	0.004	0.929
	Dynamism X EO → VB	-0.008	0.006	0.150
5e	Complexity X EO → IB	0.003	0.003	0.269
	Complexity X EO → VB	0.000	0.004	0.951

CEO = chief executive officer; EO = entrepreneurial orientation; CE = corporate entrepreneurship; IB = innovative behavior; VB = venturing behavior; ROA = return on assets; ROS = return on sales; MVA = market-value added;

* for ease of reading, significant *p*-values ($p < .05$) appear in bold;

** Hypothesis 4b predicts mediation and therefore interprets the first-stage paths identified in 4a as well as the second-stage paths between the mediators and dependent variable; to completely test this hypothesis, the full hypothesized model was run independently with each of the five different firm performance measures (ROA, ROS, MVA, Tobin's *Q*, and sales growth) substituted as the dependent variable – results for each are provided

EO, while Hypothesis 1b hypothesized a similar relationship between executive ownership and EO. Based on this sample, neither hypothesis was supported.

Hypothesis 2 functionally paralleled the social norms antecedent in the TPB by positing that industry norms toward CE behavior would be positively associated with EO. Results shown in Table 4.3 support this hypothesis ($p < .05$). In light of these findings, as the norms with regard to CE behavior across an industry increase, one can expect an increase in firm EO.

The third set of hypotheses identified feasibility-related organizational and environmental determinants of EO. Hypothesis 3a predicted that prior firm experience with CE would positively relate to EO, while Hypothesis 3b predicted that excess levels of organizational slack would also have a positive association with EO. Results from the empirical analysis refute these hypotheses, as both paths were non-significant. Three additional hypotheses suggested industry munificence (Hypothesis 3c), dynamism (Hypothesis 3d), and complexity (Hypothesis 3e) would have a strong positive association with EO. Similar to the other feasibility-related measures, these hypotheses were not supported.

Hypothesis 4a posited that a dispositional measure of EO would be positively associated with CE behavior. As explained previously, CE behavior was operationalized through two means: innovation behavior (IB) and venturing behavior (VB). These path analyses suggest that EO is positively related to IB ($p < .05$), but significant results for VB were not found. These results suggest that as a firm's EO increases, their investment in R&D will increase. Hence, Hypothesis 4a was partially supported.

Hypothesis 4b suggests that CE behavior mediates the relationship between EO and firm financial performance. Following the straightforward SEM-based approach for mediation as recommended by James and colleagues (James & Brett, 1984; James et al., 2006), results reported in Table 4.3 indicate that, in the presence of the VB mediator, IB

mediates the EO-performance relationship as both paths involving IB (e.g., first-stage: EO→IB and second-stage: IB→ROA) are significant ($p < .05$). Results for all five of the dependent variables imply significant indirect effects of EO on firm performance through IB. All paths are positive except for the relationship between IB and sales growth, which indicates that an increase in IB actually decreases sales growth in subsequent years.

Beyond the SEM-based approach for testing mediation, a bootstrap analysis was also conducted. Following guidance by Preacher and Hayes (2008), this extra step—using 5,000 bootstrap samples—was undertaken due to a potential concern with nonnormality of the sampling distribution of specific indirect effects when using a finite sample. Results of the bootstrap analysis are presented in Table 4.4. Per MacKinnon, Lockwood, and Williams (2004), bootstrapping analysis is superior to using the product-of-coefficients approach (Sobel, 1982, 1986) or the causal steps approach (Baron & Kenny, 1986) for multiple mediation models because it has higher power while maintaining reasonable control over the Type I error rate (i.e., incorrect rejection of a true null hypothesis; a "false positive"). As the bias-corrected 95% confidence intervals[5] reported in Table 4.4 do not contain zero, results support the indirect effect found in the SEM-based approach and indicate that IB is a mediator of the EO-ROA relationship. Further examination of the specific indirect effects in Table 4.4 suggests that VB does not contribute to the indirect effect of EO on performance above and beyond IB. Similar to the results using ROA as the dependent variable, confidence intervals for models using ROS, MVA, Tobin's *Q*, and sales growth do not span zero, rejecting the null hypothesis

[5] Following Preacher and Hayes (2008), percentile bootstrap confidence intervals (CIs) were run first. As percentile bootstrap CIs can be asymmetrical because they are based on an empirical estimation of the sampling distribution of the indirect effect, bias-corrected CIs, which include an adjustment to the percentile values of the sorted distribution of bootstrap estimates used for determining the bounds of the interval, were also run. Both sets of CIs are provided in Table 4.4.

Table 4.4: Bootstrapping results of indirect effects of innovation and venturing behavior on entrepreneurial orientation-firm performance relationship

	Percentile 95% CI		BC 95% CI	
	Lower	Upper	Lower	Upper
DV: ROA				
IB	0.0001	0.0015	0.0001	0.0016
VB	-0.0010	0.0002	-0.0014	0.0001
TOTAL	-0.0005	0.0013	-0.0006	0.0012
DV: ROS				
IB	0.0000	0.0015	0.0001	0.0017
VB	-0.0009	0.0005	-0.0011	0.0004
TOTAL	-0.0004	0.0015	-0.0003	0.0017
DV: MVA				
IB	-0.0080	0.1779	0.0062	0.2101
VB	-0.0498	0.0752	-0.0225	0.1108
TOTAL	-0.0192	0.2004	0.0038	0.2348
DV: Tobin's *Q*				
IB	-0.0002	0.0160	0.0004	0.0177
VB	-0.0034	0.0065	-0.0017	0.0088
TOTAL	-0.0008	0.0175	-0.0006	0.0178
DV: Sales Growth				
IB	-0.0266	-0.0018	-0.0285	-0.0024
VB	-0.0104	0.0028	-0.0141	0.0013
TOTAL	-0.0297	-0.0023	-0.0312	-0.0029

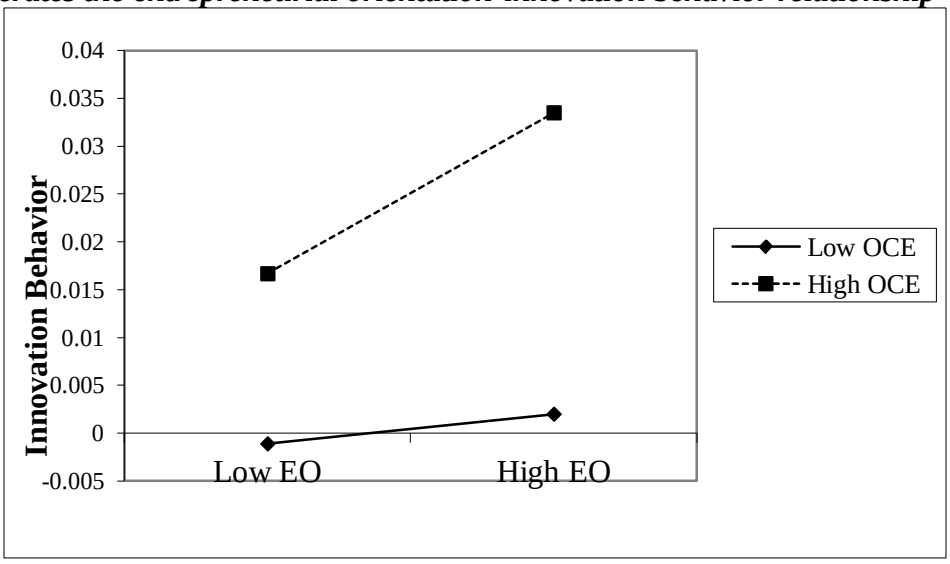
ROA = return on assets; ROS = return on sales; MVA = market-value added; IB = innovation behavior; VB = venturing behavior; CI = confidence intervals; BC = bias corrected; 5,000 bootstrap samples.

that would suggest indirect effects are not significantly different than zero. Also similar to the prior SEM-based results, the confidence interval is negative for sales growth, indicating an overall negative EO-IB-sales growth relationship.

Hypotheses 5a-5e proposed moderation involving the feasibility influences on the EO-CE behavior relationship. Hypothesis 5a explicitly predicted that prior organizational CE experience would moderate the EO-CE behavior relationship such that the relationship was stronger when prior CE experience was high. Although prior firm CE experience was not found to be a significant moderator when examined with VB, it

did strengthen the specified relationship for IB ($p < .01$). Stated otherwise, high levels of prior firm CE experience increase the positive influence EO has on IB. Figure 4.1 illustrates the interaction between EO and prior firm CE experience as they influence innovation behavior. Thus, Hypothesis 5a was partially supported. Hypothesis 5b predicted that organizational slack would interact with EO to strengthen the EO-CE behavior relationship. Results from this sample do not support slack as a moderator in this case. Hypotheses 5c, 5d, and 5e proposed that industry munificence, dynamism, and complexity (respectively) would moderate the EO-CE behavior relationship. These three hypotheses were not supported.

Figure 4.1: Prior organizational corporate entrepreneurship experience moderates the entrepreneurial orientation-innovation behavior relationship



EO = entrepreneurial orientation; OCE = organizational corporate entrepreneurship experience

Alternative Models

Although a confirmatory modeling strategy was the primary examination for this dissertation, one potential concern that must be addressed is the potential for equivalent

models (Williams, Edwards, & Vandenberg, 2003). An equivalent model is an alternative model that fits the data equally well, producing the same covariance or correlation matrix (Luijben, 1991) and goodness-of-fit statistics (Breckler, 1990), but differs in theoretical interpretation. Researchers who fail to acknowledge equivalent models and eliminate them based on study design or theoretical foundation may report imperfect or inaccurate findings and conclusions (Henley et al., 2006). In this dissertation, the use of a longitudinal research design essentially make the reversal of causality found in many equivalent models implausible (Mitchell & James, 2001), and therefore eliminates such models from further consideration.

However, three additional models were run based on possible alternatives theoretically grounded in the literature. The first alternative, labeled Alternative Model 1, expands on the default (hypothesized) model by including a direct effect from EO to firm performance. In accordance with the rule of parsimony from the philosophy of science (e.g., Simon, 1977), the default model employs complete mediation as the focal or baseline paradigm for mediation. Rather than complete mediation of IB and VB, Alternative Model 1 assumes partial mediation (hence, a less parsimonious model with the addition of a direct effect from EO to firm performance). This addition implies that part of the causal effect of EO on firm performance is direct, whereas a separate part of the EO to performance effect passes through the mediators (James et al., 2006). Analyses of Alternative Model 1 find very similar fit ($\chi^2 = 313.460$, $p < .001$; normed $\chi^2 = 1.877$; CFI = 0.656; RMSEA = 0.076; SRMR = 0.088), as compared to the default model. As the default model is more parsimonious and has better normed chi square and CFI results, it would stand as the preferred model. Furthermore, the path between EO and firm

performance was not significant, adding additional support to the hypothesized model and the findings regarding complete mediation (Hypothesis 4b).

The second alternative model is based on the more recent conceptualization of the TPB, with the only change from the default model being that feasibility influences have a direct effect on CE behavior, rather than a moderating effect on the EO-CE behavior relationship. Empirical tests of the TPB at the individual level of analysis confirm a model with direct effects of perceived behavioral control on behavior as an improvement over the originally hypothesized TPB model (Ajzen, 1991), making this a logical alternative to the default model for this study. Goodness-of-fit analyses would suggest Alternative Model 2 to be a poorer fitting model ($\chi^2 = 199.600$, $p < .001$; normed $\chi^2 = 2.146$; CFI = 0.596; RMSEA = 0.087; SRMR = 0.090) than the default, as normed chi square, RMSEA, and SRMR values increased and CFI decreased.

Alternative Model 3 offers a composite of the first two alternative models, by including both the direct effect from EO to firm performance and also replacing the moderating feasibility influences with direct effects on CE behavior. Fit indices for this model ($\chi^2 = 199.487$, $p < .001$; normed $\chi^2 = 2.168$; CFI = 0.593; RMSEA = 0.088; SRMR = 0.090) were similar to the second alternative; therefore, Alternative Model 3 was also deemed a poor fit relative to the default model. For all three alternative models, analyses were run using ROA as the dependent variable, and compared to the corresponding default model using ROA. Results are shown in Table 4.5.

Figure 4.2 graphically depicts the three alternative models of intentions-based firm-level entrepreneurship, identifying the added paths with dotted lines. In conducting these *post-hoc* analyses, all models were found to have similar results on the path coefficients, except that EO was no longer a significant indicator of innovative behavior

Table 4.5: Comparison of hypothesized and alternative models using return on assets dependent variable

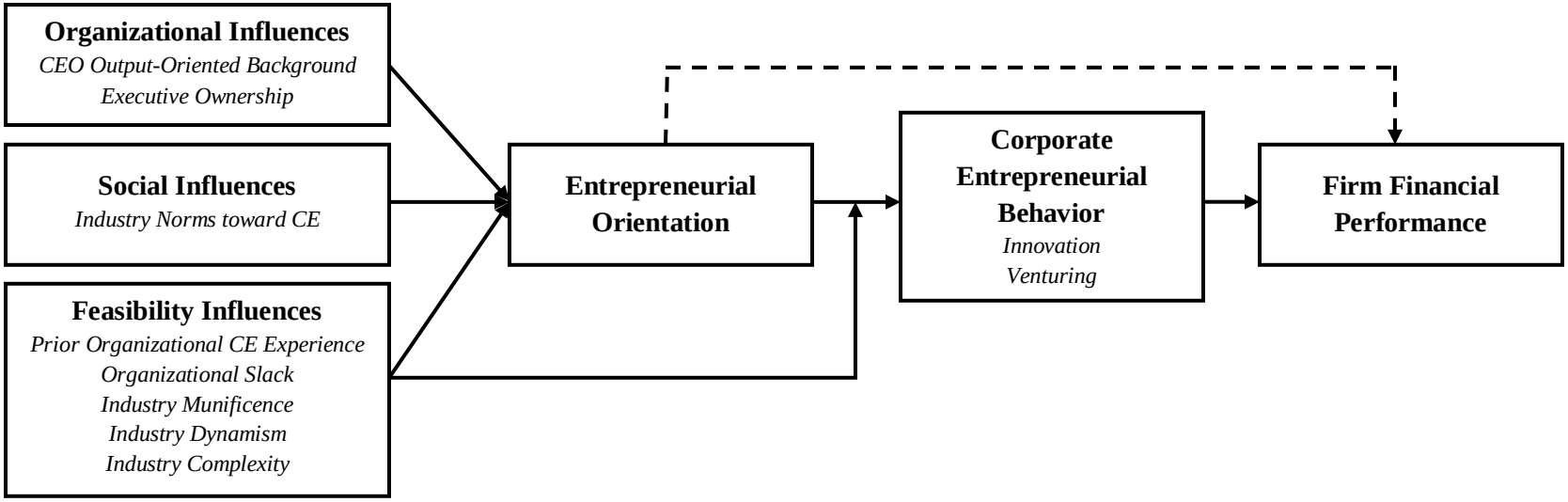
Model	**χ^2**	**Normed χ^2**	**CFI**	**RMSEA**	**SRMR**
guidelines	$p > 0.05$	< 2.00	> 0.90	< 0.08	< 0.10
Default (hypothesized)	313.573 ($p < 0.001$)	1.867	0.658	0.076	0.088
Alternative 1	313.460 ($p < 0.001$)	1.877	0.656	0.076	0.088
Alternative 2	199.600 ($p < 0.001$)	2.146	0.596	0.087	0.090
Alternative 3	199.487 ($p < 0.001$)	2.168	0.593	0.088	0.090

CFI = comparative fit index; RMSEA = root mean square error approximation;
SRMR = standardized root mean square residual

in Alternative Models 2 and 3, where the moderation effects of feasibility influences are replaced by direct effects. In these two models, prior organizational CE experience is a significant predictor of both innovation behavior and venturing behavior ($p < .001$). In all, these models were identified as having poorer fit, when compared to the default model, as normed χ^2, CFI, RMSEA, and SRMR results deteriorated.

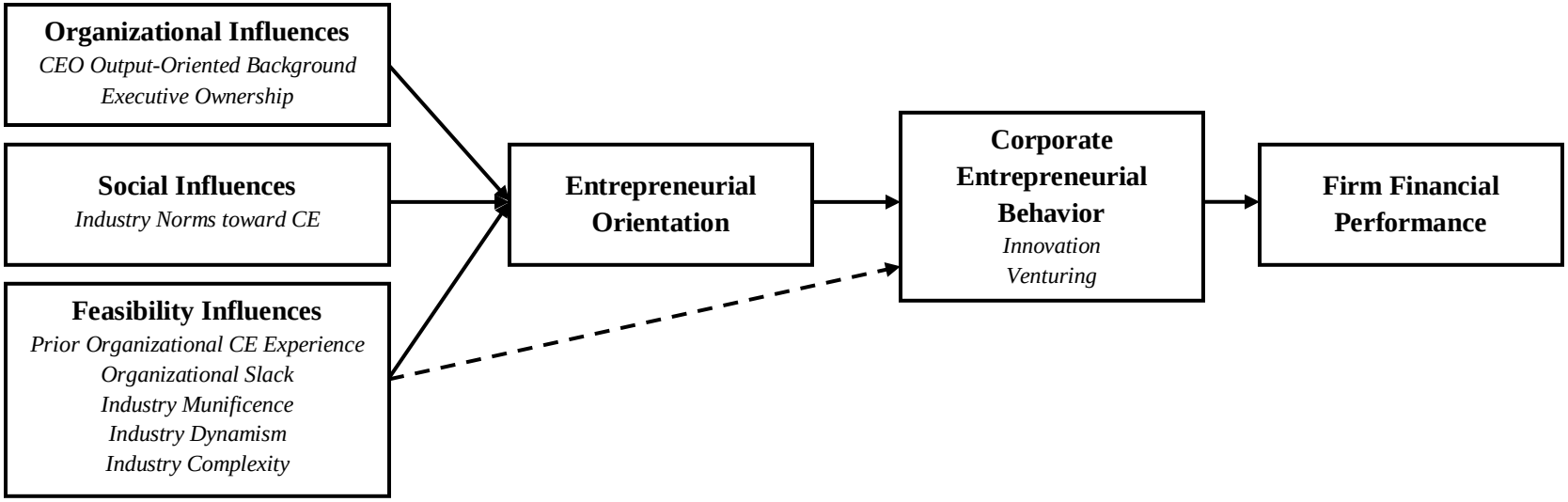
This chapter covered the empirical results of the hypotheses testing achieved through path analyses of the dissertation sample. The next chapter proceeds with a discussion of these results, including the limitations and contributions of this study. Suggestions for future research are also offered.

Figure 4.2: Alternative intentions-based models of firm-level entrepreneurship.



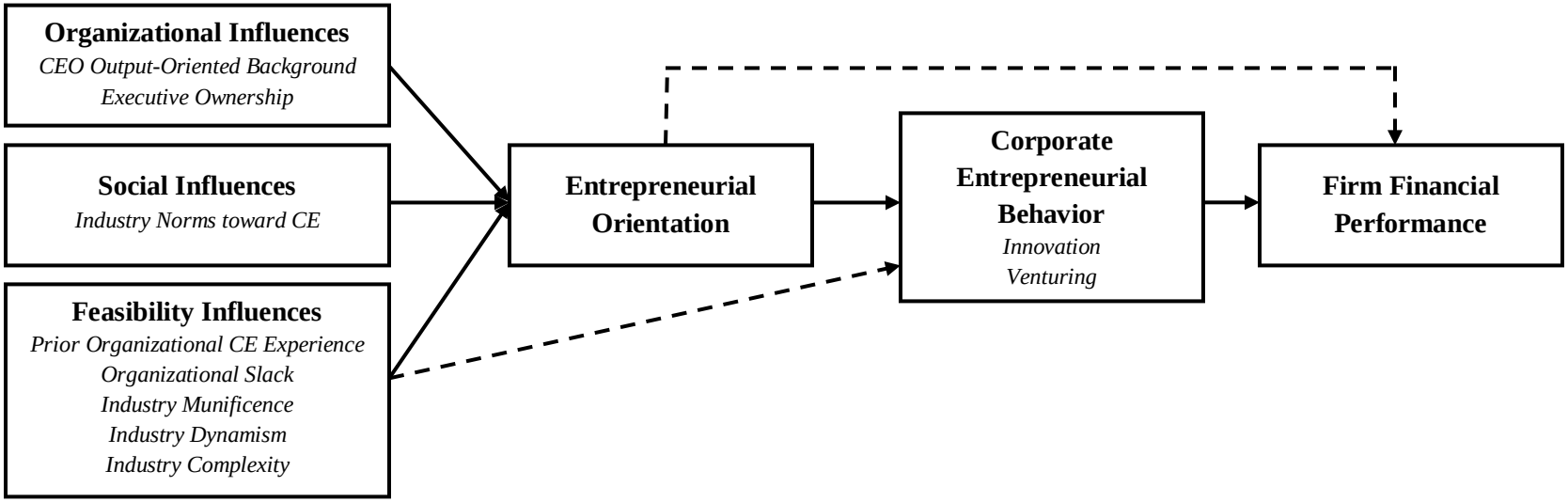
(a) Alternative Model 1 adds a direct effect from entrepreneurial orientation to firm financial performance.

Figure 4.2 (continued): Alternative intentions-based models of firm-level entrepreneurship.



(b) Alternative Model 2 removes the moderation of feasibility influences, and includes a direct effect from feasibility influences to corporate entrepreneurial behavior.

Figure 4.2 (continued: Alternative intentions-based models of firm-level entrepreneurship.



(c) Alternative Model 3 removes the moderation of feasibility influences, and includes both a direct effect from feasibility influences to corporate entrepreneurial behavior and a direct effect from entrepreneurial orientation to firm financial performance.

V. DISCUSSION AND CONCLUSIONS

The role of entrepreneurship in a corporate context has continued to fuel interest among managers, entrepreneurs, and scholars for several decades. This dissertation has sought to contribute to the body of knowledge on EO and, more broadly, CE by studying the antecedents and consequences of firms' strategic entrepreneurial posture. More specifically, theory was borrowed from social and cognitive psychology to develop an intentions-based model for firm-level entrepreneurship, establishing EO as a dispositional characteristic developed by firms in search of wealth creation through innovation and/or the creation of (or investment in) new ventures. This chapter presents a general discussion of the empirical results for each of the study's hypotheses; Table 5.1 provides a summary of these results. The chapter also reviews the key empirical findings, clearly identifying the contributions offered by this work. Further, this chapter includes suggestions for future research. The chapter begins, however, with an overview of the acknowledged limitations of the study.

Limitations of the Study

As with any research, this study has limitations. This research focused on firm-level entrepreneurship in large, mature U.S.-based companies. Accordingly, the average

Table 5.1: Hypotheses results for investigating an intentions-based model of firm-level entrepreneurship.

Hypotheses	**Support?**
Hypothesis 1a: An output-oriented chief executive officer is positively associated with a firm's entrepreneurial orientation.	No
Hypothesis 1b: Executive ownership is positively associated with a firm's entrepreneurial orientation.	No
Hypothesis 2: Industry norms toward corporate entrepreneurship are positively associated with a firm's entrepreneurial orientation.	Yes
Hypothesis 3a: Prior organizational corporate entrepreneurship experience is positively associated with a firm's entrepreneurial orientation.	No
Hypothesis 3b: Organizational slack is positively associated with a firm's entrepreneurial orientation.	No
Hypothesis 3c: Industry munificence is positively associated with a firm's entrepreneurial orientation.	No
Hypothesis 3d: Industry dynamism is positively associated with a firm's entrepreneurial orientation.	No
Hypothesis 3e: Industry complexity is positively associated with a firm's entrepreneurial orientation.	No
Hypothesis 4a: An entrepreneurial orientation is positively associated with corporate entrepreneurial behavior.	Partial
Hypothesis 4b: Corporate entrepreneurial behavior mediates the relationship between entrepreneurial orientation and firm financial performance.	Partial
Hypothesis 5a: Prior organizational corporate entrepreneurship experience moderates the positive relationship between entrepreneurial orientation and corporate entrepreneurial behavior: the relationship is more positive when prior organizational corporate entrepreneurship experience is high.	Partial
Hypothesis 5b: Organizational slack moderates the positive relationship between entrepreneurial orientation and corporate entrepreneurial behavior: the relationship is more positive when organizational slack is high.	No
Hypothesis 5c: Industry munificence moderates the positive relationship between entrepreneurial orientation and corporate entrepreneurial behavior: the relationship is more positive when industry munificence is high.	No
Hypothesis 5d: Industry dynamism moderates the positive relationship between entrepreneurial orientation and corporate entrepreneurial behavior: the relationship is more positive when industry dynamism is high.	No
Hypothesis 5e: Industry complexity moderates the positive relationship between entrepreneurial orientation and corporate entrepreneurial behavior: the relationship is more positive when industry complexity is high.	No

firm size in the sample was almost 30,000 employees and the average firm age was 57 years. Therefore, the findings of this study are not generalizable to smaller and nascent firms. Future research might look to test the theoretical framework suggested in this study on smaller, emerging firms. These firms face challenges that large, mature firms don't, such as the liabilities of smallness and newness (Stinchcombe, 1965); therefore, decision-making, contextual factors, resource availability, and other factors will certainly vary across these two samples. An intentions-based model of firm-level entrepreneurship may, in fact, have even greater applicability to smaller firms, where the CEO has more direct influence on the firm. For that reason, an extension of this research might be to investigate the model on a sample of small, nascent firms.

Additionally, as the sample selection was pulled from the *Fortune* 1000, which includes only firms that are incorporated and operate in the United States, the results are not generalizable to firms located in other countries. Future research might employ a sample of foreign companies to see if relationships are different in alternative cultural contexts (Kreiser et al., 2010) or more specifically look at firm-level entrepreneurship that crosses national borders (Zahra & Garvis, 2000).

While this research did employ a lagged design in an attempt to model causal sequence, a full panel dataset was beyond the scope of the study. However, collection of all observed variables across the full ten years under study would afford additional opportunity to understand how changes in one variable influence changes in another (Pitariu & Ployhart, 2010). Future research might expand the data collection effort to more fully investigate these relations over time, potentially employing a growth modeling strategy. Furthermore, prospective research might investigate the hypothesized model on samples pulled from other time periods. In an effort to capture as current a dataset as

possible, the current data collection includes a tumultuous time for U.S. businesses. The 2008-2010 period captured as part of the study is one of great macroeconomic turmoil, as failures in the U.S. financial and real estate markets—caused in large part by over-exposure and heavy investments in risky loans—led to a recession. Firms were severely and negatively impacted as lending dried up and consumer spending was drastically reduced, and so investigation of more prosperous economic periods may reveal interesting and varying implications on firm-level entrepreneurship.

Beyond the sample, this research focused solely on firm financial performance. Although non-financial firm performance was beyond the scope of the study, it might serve as an interesting opportunity for future work. With compelling research looking at outcomes relating to more balanced scorecard-type metrics and non-profit companies, including in CE-related research (e.g., Morris, Allen, Schindehutte, & Avila, 2006; Morris & Jones, 1999; Morris et al., 2011), there may be opportunity to investigate this intentions-based model, or derivatives of this model, on alternative performance measures. Despite the limitations noted in this section, the results of this study offer some interesting implications.

General Discussion of Study Objectives and Implications

Two specific research questions have guided this study. The first asks: *What influences lead firms to behave entrepreneurially?* In light of this question, the proposed model begins with the antecedent relationships to EO by paralleling the determinants of behavioral intentions, as prescribed by Ajzen's (1985, 1987, 1991) theory of planned behavior. Going all the way back to Peterson and Berger (1971), much of the research in this area has assumed that active, entrepreneurially-focused leaders and environmental

turbulence were the driving forces for entrepreneurship within organizations. The proposed model was structured in accordance with this research, and although the overall model offers potential in explaining, understanding, and predicting firm-level entrepreneurial behavior, these analyses tendered limited support of antecedent relationships.

On the basis that functional experience in product-focused roles would induce CEOs to develop greater entrepreneurial intentions for their firm, output-oriented leader orientation was hypothesized to have a positive relationship with EO (Hypothesis 1a). Contrary to expectations, no statistically significant support was found to indicate that output-oriented functional experience positively impact a firm's EO; however, there are some reasonable explanations for why the data did not support the predicted relationship. One possibility for the statistically insignificant findings might be that, while research has shown output-oriented executives (Cho & Hambrick, 2006) and board members (Tuggle et al., 2010) focus greater attention on entrepreneurial issues, it hasn't explicitly looked at the clear definition of an entrepreneurial identity and/or goals for the organization. Perhaps product-focused leaders focus greater attention toward strategically altering their firms' CE pursuits and this attention is transferred directly through short-term wins, using success in preliminary entrepreneurial activities to build consensus for or work in concert with other efforts to develop an entrepreneurial posture for their organization. Prior research (Barker & Mueller, 2002) and positive correlations between output-oriented CEOs and innovating behavior (see Table 4.1) suggest this could perhaps be the case, so future research might investigate a different sequence of causal relations that would better represent the activities of executives. Accordingly, there may be merit in incorporating Ocasio's (1997) attention-based view of firm behavior into the model, such that CEO

functional background influences organizational attention patterns, which subsequently impact firm-level entrepreneurial behavior; hence, strategic leaders' attention toward entrepreneurial issues may be applicable in the causal chain leading to CE, running in parallel with or as a determinant of EO. Another reason for the lack of support for Hypothesis 1a may be related to the sample used for this study. Past research on the output-oriented executive-EO relationship has focused on firms in a very limited number of highly volatile industries, so it's possible that less turbulent industries like insurance products (SIC = 63; 7.95% of sample) and food and kindred products (SIC = 20; 4.64%) mute the overall effects in such a broad sample of large firms. Therefore, building upon arguments found in contingency theory (e.g., Lawrence & Lorsch, 1967), future research might delve further into the relationship between industry environmental conditions, CEO backgrounds, and EO.

The hypothesized positive relationship between executive ownership and EO (Hypothesis 1b) was also not statistically supported. The focus on large firms across many industries could have played a role here as well, as Zahra and colleagues' work looked only at small- and medium-sized manufacturing firms (Zahra, 1996; Zahra et al., 2000). Furthermore, it may be that agency-related arguments are more complex than originally hypothesized. Recently published research would seem to support this in finding that executives reduce risk taking (a core sub-dimension of EO) in order to mitigate threats to current personal wealth (Martin, Gomez-Mejia, & Wiseman, 2013), which includes current value of existing options (Tortella, Gomez-Mejía, De Castro, & Wiseman, 2005; Wiseman & Gomez-Mejia, 1998). Hence, attenuating circumstances such as prospective wealth, hedging instruments, and CEO vulnerability are likely to play

a factor in this relationship (Martin et al., 2013). Future research might explicitly look at these relations with innovation and venturing behavior and, more definitively, EO.

Consistent with expectations, empirical results supported the notion that industry norms with CE were a strong predictor of firm EO (Hypothesis 2). This is encouraging in that it provides indication that executives are actively scanning their competitive environment as part of the process to develop their firm's entrepreneurial intentions. As such, firms are taking cues from their industry counterparts as to their level of EO. Following traditional logic of institutional theory, prospective research might further decompose and distinguish cultural-cognitive, normative, and regulatory elements (Scott, 1995) that contribute to firm EO. Better understanding of the factors affecting the diffusion of institutional norms toward CE and the processes at work in constructing the rules and logics of industry-wide CE (Leblebici & Salancik, 1982; Scott, 2005) would offer significant contributions to the body of knowledge on CE. This might direct future research to take a deeper look at the role of industry CE norms and the dynamic impact they can have in the development of firm EO. As industry norms develop over a period of years, future work might employ longitudinal datasets to investigate the patterns of behavior that lead to appropriate and optimal levels (of both innovation and venturing behavior) for dealing with environmental demands, as well as the impact of certain environmental jolts on these levels. The impact of these changing trends on EO can also provide insight into the possible dynamic nature of EO (Wales, Monsen, & McKelvie, 2011).

Hypothesis 3 focused on the relationship between feasibility influences and EO. Feasibility influences, mirroring the concepts of perceived behavioral control in the TPB, were assessed using measures for prior organizational CE behavior, organizational slack,

and three characteristics of an organization's task environment (primary industry munificence, dynamism, and complexity). While none of these measures were found to significantly influence EO, several possible explanations exist. To address the relationship involving prior firm CE experience (Hypothesis 3a), it seems important to reflect on the results of Alternative Models 2 and 3. In both models, prior CE experience has a significant and positive influence on both innovation and venturing behavior ($p <$ .01), suggesting the important role it plays in CE. Thus, rather than having a direct effect on EO, prior CE experience directly influences subsequent CE behavior. Prior research by Bentler and Speckart (1979) would seem to support these results, as they—using an SEM-based approach—found that a direct path from prior behavior to later behavior offered a better fitting model than one where prior behavior on later behavior is assumed to be mediated by intention. This supports the notion that intentions alone are not sufficient to explain all systematic variance of behavior (Ajzen, 1991). Slack has somewhat similar relations, as it was found to have a non-significant relationship with EO (Hypothesis 3b), but a positive influence on innovation behavior ($p < .10$; as found in Alternative Models 2 and 3). As slack has long been recognized for its influence on innovation behavior (e.g., Bourgeois, 1981; Cyert & March, 1963; Geiger & Cashen, 2002; Nohria & Gulati, 1996), the positive relationship identified in the alternative models is not surprising. The relationship between slack and EO, though may be more complex. Perhaps there are additional contextual factors, such as resource knowledge, that must be present in order for slack to have a positive influence on EO (Anderson & Covin, 2011). A second possibility might be that the relationship between slack and EO would be better represented in a different causal sequence. An interesting course of action to pursue might be to look at slack as a mediating factor between the EO-

innovation behavior link. Moving on to focus on the non-significant relationship of the three indicators of an organization's task environment (Hypotheses 3c – 3e), the findings would appear to have some relevance to the relationship found with industry CE norms (Hypothesis 2). While other research has looked at the relationship between EO and task environment indicators, such as dynamism and munificence, the failure to include industry norms for entrepreneurial behavior may have led to over-estimation of these environmental effects. Future research should further investigate the sequence of these constructs, as industry norms might mediate the relationship between a firm's task environment and its development of entrepreneurial intent.

Intention-based models imply that the development of intentions precedes action. Appropriately, entrepreneurial intention is viewed as a precursor to strategic decision-making and strategic implementation (Bird, 1988). The second part of the dissertation model parallels the intentions-behavior relationship in Ajzen's TPB model and defines the actions that execute EO. Additionally, this CE behavior was predicted to mediate the link between EO and firm financial performance. This explicitly addresses the dissertation's second research question: *What transpires in the underlying relationship between EO and firm performance?* The proposed model identifies the specific entrepreneurial behaviors of innovation and venturing (e.g., Guth & Ginsberg, 1990; Morris et al., 2008) as how a firm realizes and capitalizes on its EO. The activation of EO is then expected to lead to the gains in financial performance that have been suggested in prior research.

EO is positively related to CE behavior focused on innovation. These findings support the hypothesized relationship (Hypothesis 4a) and suggest that firms develop intentions to behave entrepreneurially before carrying out subsequent entrepreneurial

actions. Furthermore, innovation behavior mediates the relationship between EO and all five prominent measures of firm performance that were included in this study (Hypothesis 4b). Innovation behavior positively influenced the accounting- and market-based performance measures, but was found to have a contrasting relationship with sales growth. The operationalization of innovation behavior may have implications for the relationship found with sales growth. While steadfastly used in CE-related research, the R&D intensity measure does have limitations in that it does not necessarily capture the specific *implementation* of incremental or discontinuous innovation into the marketplace (as new products or in new markets) that might have a more direct impact on sales; it is, rather, an indication of firms' investment in innovation—which could broadly be applied to innovations relative to operational efficiency, business model improvement, and/or other areas. Hence, it is reasonable that these innovations might increase profitability and not have an immediate positive effect on revenues (especially during a recessionary period in which consumer spending is largely down); thus, growth rates may lag behind the influence on profitability measures. Future research might extend data collection beyond three years in an effort to see if sales growth rates increase as investment into innovation has more opportunity (i.e., time) to be leveraged in the marketplace. In all, these results offer a tremendous advance for the EO knowledge base, by offering critical empirical support for a dispositional EO construct that is, indeed, distinct from the acts of entrepreneurship (Lumpkin & Dess, 1996). Additional insight is gained into the EO-performance relationship by putting forth innovating behavior as a mechanism that positively activates EO and helps translate into higher firm financial performance.

Venturing behavior was not found to be positively related to EO, nor did it mediate the EO-performance relationship (Hypotheses 4a and 4b) in this sample. While

this was contrary to hypotheses, it is an important finding nonetheless; it helps to support the notion that intentions do not always correspond with subsequent action, as circumstances may still dictate that an actor refrain from carrying out an intended behavior. As such, the recessionary period—with restricted lending and tremendous uncertainty—may have led firms to cautiously limit or minimize venturing activities during this time. However, it might also be noted that the current study measures total investment in unconsolidated subsidiaries and affiliates. While this was an appropriate step to measure investment levels of venturing activity, a follow-up course of action might be to move beyond an average total investment and rather look at *change* in equity investment year-over-year. Such a research design could provide additional insight into how varying levels of EO influence the strategic change of investment activity in subsidiary and affiliate organizations.

The fifth and final set of hypotheses (5a – 5e) explored contextual relations between EO and CE behavior. While each of the feasibility influences were posited to strengthen the EO-CE behavior relationship, only prior organizational CE experience was found to be significant (with innovation behavior). The interaction between EO and prior CE experience suggests that prior experience leads to a greater understanding of CE and, when combined with entrepreneurial intentions, leads to a greater likelihood in carrying out entrepreneurial acts. Possible explanations for the non-significant relations involving the other four feasibility influence measures coincide with those addressed above (in the discussion of the results pertaining to Hypothesis 3).

In total, organizational influences and feasibility influences were not found to have positive relations with EO in this sample, while social norms did significantly and positively influence EO. Although several of the hypothesized influences were not

statistically supported, it is not wholly unexpected. As stated by Ajzen (1991), the relative importance of precursors to behavioral intention may vary across behaviors and situation, and so it is possible that hypothesized relations for organizational and feasibility influences play little or no role in determining levels of EO or, more likely, that circumstances facing firms at the time of study may have dictated relations. Therefore, as prescribed above, additional research is required to explore additional contexts and samples to develop further understanding for which of these precursors are important to EO and how, why, and when these characteristics might influence firm-level entrepreneurial intentions. Moving beyond antecedents, EO was found to have a significant and positive direct effect on innovation behavior, which mediated the EO-firm performance relationship. Furthermore, prior firm CE experience was found to strengthen the EO-innovation behavior relationship. No relationship between EO and venturing behavior was found.

Contributions to the Literature

Considering these results, the current study makes several noteworthy contributions to the literature on firm-level entrepreneurship. The first contribution is the elevation of the TPB from the individual to the organizational level of analysis as an overarching framework from which to understand and explain CE. As the overall model fit was deemed satisfactory, this vertical theory borrowing has developed a theory-driven model that has merit (as seen by the supporting evidence of the positive influence of social norms on EO, the intention-behavior-outcome relationship, and the acceptable goodness-of-fit values) within the context of large firms. However, while the model was found to fit the data well, many of the specified hypotheses were not supported. This

would indicate that additional inquiry is necessary before the TPB would be widely adopted as a guiding configuration for CE. Follow-up research is needed to determine if, as Ajzen noted, some determinants (e.g., the organizational- and feasibility-related factors) have little to no role in influencing firm-level entrepreneurial intentions or if the intentions-based model requires further modification, which may include accounting for contextual arguments to better distinguish relationships found to be non-significant through the design of this study. Although more work may be necessary in selecting and measuring determinants of EO and exploring contextual influences, the use of micro theory as a purposeful metaphor for organization-level theory (Staw, 1991) does help to reframe the discussion on EO. By viewing the organization as the social actor, this study highlights the important role of institutional pressures on firm-level entrepreneurship. This finding should prompt scholars to emphasize social norms as critical in the development of firm-level entrepreneurial intentions and subsequent behavior. In continuing to build off this organization-as-a-social-actor perspective and using the metaphor of the intentions-behavior theoretical model, there is the potential for future empirical research and more precise predictions of the relationships driving firm-level entrepreneurship (Sutton & Staw, 1995).

A second principal contribution of this dissertation is the clarity offered regarding the nature of the EO construct. An ongoing debate in the EO literature surrounds whether EO is dispositional or behavioral. Those arguing for EO as behavioral rely on viewing patterns of entrepreneurial behavior in order to refer to an organization as entrepreneurial. However, these views disregard the capacity of firms to develop entrepreneurial goals and intentions (without yet seeing them through), and fail to recognize that intentions do not always lead to behavior. Additionally, there currently lacks justification for why it is

important for external parties to easily recognize EO through readily apparent behaviors representing innovation, risk-taking, and proactiveness. From a dynamic capabilities perspective (Teece et al., 1997), a dispositional EO would presume to be much more causally ambiguous and socially complex, making it more difficult for others to replicate, but more justly representative of gaining wealth and a sustainable competitive advantage, and possibly—and perhaps, more importantly—helping to define an entrepreneurial identity for the firm through internal means. In turn, this study argues for a dispositional EO construct, one that represents a firm's true "orientation" to be entrepreneurial. As such, and in accordance with the organization-as-a-social-actor perspective, entrepreneurial firms are recognized as purposeful, sovereign entities that develop an entrepreneurial intentionality that underlies their decision making and behavior. In paralleling the TPB, the framework developed and tested in this study builds on prior models of CE by focusing on EO as the central construct in the causal chain of firm-level entrepreneurship. Furthermore, this work presents empirical evidence of EO as a distinct construct that equates to the entrepreneurial intentionality of firms and, most notably, precedes firm-level entrepreneurial action. Separating EO from firms' entrepreneurial action allows for a clearer picture of the strategic implementation of an organization's entrepreneurial posture. This presents tremendous opportunity for scholars to delve into the specifics of the dispositional EO construct, and further refine and unpack the relationships between EO, different types of firm-level entrepreneurial behavior, and other constructs.

A final major contribution of this study addresses the outcomes of EO by including intervening and contingent relationships inherent to the EO-performance model. By introducing corporate entrepreneurial behavior as a mediating variable that

helps to distinguish EO as a dispositional construct and employing a lagged design to analyze the relationship between these construct across time, this study contributes to the EO literature by more clearly specifying the relationship between EO and firm performance. Empirical analysis supports innovation behavior as a mechanism that positively transforms EO into improved financial performance (though it did have negative effects on sales growth). Furthermore, the integration of prior CE experience with a firm-level entrepreneurial disposition led to increased levels of innovation behavior. Although venturing behavior was not found to mediate the EO-performance relationship, as mentioned previously, future research might investigate the relations during another window of time. Future research might also investigate other constructs that activate and intensify (or attenuate) a firm's EO, translating an entrepreneurial disposition into better financial performance.

Several secondary contributions might also be derived from this work. Using a sample of large firms to investigate firm-level entrepreneurship, while not entirely novel, certainly highlights the potential for alternative results (on CE-related research) based on the very different contexts and complexities faced by the firms. As large firms are critical to the American economy, a greater effort should focus on these firms—spanning more industries—to understand the dynamics surrounding the causal sequence of CE. Furthermore, this study integrates both quantitative and qualitative research methodologies, answering previous calls for mixed methods studies of firm-level entrepreneurship (Zahra et al., 1999). While this study encountered mixed results, future research might continue in this manner, including both quantitative and qualitative research methodologies, in an attempt to gain greater insight into the important 'why' and

'how' questions regarding the link and causal sequences between firm performance and CE (Ucbasaran et al., 2001).

The results of these empirical analyses offer practical implications for managers as well. This work has shown the influence of industry norms on the development of EO, and stresses the importance of scanning the innovation and venturing behaviors of firms in one's industry to gain insight into appropriate levels of EO. Furthermore, analyses to assess competitors' levels of EO and past CE experience will help predict rival innovation behavior.

Future Research

In the previous sections of this chapter, a number of general research suggestions, based on the noted contributions and limitations of the current study, have been offered. This section outlines multiple projects planned (or currently underway) to extend the contributions of the dissertation and further develop this research stream, while also serving to cultivate and combine areas of growing scholarly interest. First, the findings of this work suggest that more empirical investigation is required of strategic leadership influences on EO. For example, while output-oriented CEO functional background was not found to have a significant relationship with the aggregate EO construct used in this study, further analyses of the data has shown there to be disparate relations due to contextual influences (such as CEO duality) with the EO sub-dimensions (using the Lumpkin and Dess version of the EO construct). In this instance, output-oriented experience was positively associated with the innovation sub-dimension of EO only in cases of non-duality. This might suggest that power consolidation (through duality) limits EO as firms are more invested in the status quo, whereas non-duality promotes

greater intentions toward innovation. As another example, executive ownership was also a non-significant predictor of EO, but the very recent findings from Martin et al. (2013) suggest other influences—such as prospective wealth, hedging instruments, and CEO vulnerability—are likely to play a factor in this relationship. Hence, these relationships require a deeper investigation of possible contextual factors.

In addition to the CEO, an appropriate area upon which to expand this line of research would be to also focus on both top management team (TMT) and board of director (BOD) characteristics. The data collection effort from this research has afforded adequate and appropriate resources to get at a multitude of strategic leaders' demographic characteristics, and provides ample opportunity to explore the relations between TMT and BOD characteristics and EO. Using an upper echelons' theoretical framework (Hambrick & Mason, 1984), future work will investigate the influence of TMT and BOD heterogeneity (using factors such as functional experience, education, firm tenure, and industry tenure) on EO. Aware that directors are recognized for the unique resources they supply firms (Hillman, Withers, & Collins, 2009; Pfeffer, 1972)—above and beyond their monitoring powers—another project will apply resource dependence (Haynes & Hillman, 2010) and social network (Ruigrok, Peck, & Keller, 2006) theories to investigate how the social relationships of a firm's outside directors might serve to influence a high EO or the likelihood of firm-level entrepreneurial behavior.

A second stream of research to follow this dissertation will be a more explicit investigation of the influence of social norms on EO. Here, future research might expand upon the findings of this study and prior work by Greve (1998, 2003) to look more closely at institutional theory (e.g., Scott, 1994, 1995) as an appropriate lens for the development of EO. Hence, attention will be focused on the cultural-cognitive,

normative, and regulatory elements influential in the development of social norms surrounding CE. Coercive and mimetic isomorphism (DiMaggio & Powell, 1983) are likely external factors influencing firms' EO, but it may also be important to consider pressures cultivated through internal means as well. For example, as argued by Mishina, Dykes, Block, and Pollock (2010), performance relative to external expectations and internal aspirations—perhaps both financial and entrepreneurial—may be applicable when viewing the potentially risky behaviors attributable to firm-level entrepreneurship.

Beyond the aforementioned research interests, theoretical implications of the dissertation require delving further into EO as the "intentions" of the organization, using the TPB as the underlying psychological theory. Future work might expand on Staw's (1991) different perspectives on theory borrowing. Under the view that individuals exert control over an organization, an appropriate extension might further examine strategic leaders' agenda to develop organizational identity and goals (King et al., 2010) that help push firm-level entrepreneurial intentions. From Staw's intimation that individuals are "disguised" as organizations, further research might investigate the "micro-foundations" (Foss, 2011) of EO. This would build from prior work by Miller and colleagues (Miller et al., 1982; Miller & Toulouse, 1986) to further investigate individual factors of strategic leaders (e.g., attitude toward CE, locus of control relevant to CE). Additionally, this work has the potential to confirm the heterogeneous pervasiveness of EO throughout the organization (Wales et al., 2011), as future tests might investigate how EO diffuses from the CEO or TMT and spreads to the rest of the organization.

A major contribution of this work—in fact, the one that corresponds with the central tenet of the theoretical framework—is establishing the intentions-behavior relationship. Therefore, a primary consideration for future research from this dissertation

will be on publishing the mediation results of this study. As explained in the contributions section of this chapter, this work advances the understanding of the EO construct and delivers additional meaning to the underlying mechanisms of the EO-performance relationship. Subsequent analyses of a truncated model that focuses on the intentions-behavior-outcomes sequence (sans the antecedents to intentions) produces an extremely well-fitting model (χ^2 = 20.809, p = .593; CFI = 1.000; RMSEA = 0.000; SRMR = 0.045), with innovation behavior positively mediating the EO-performance relationship, as expected. Future investigation into the intentions-behavior-outcomes mediation sequence might also expand to include additional forms of entrepreneurial behavior. While this study focused on two primary corporate entrepreneurial activities recognized in extant research (innovation and venturing behavior), subsequent research might include other types of entrepreneurial behavior such as patent applications, product innovations, new product introductions, new businesses created, strategic renewal, and others. Furthermore, these CE behaviors could be segmented in numerous ways to offer greater clarity into the relationships with both intentions and firm performance. Prior literature has identified several ways to break down the aforementioned CE behaviors, including formal versus informal entrepreneurial efforts (Burgelman, 1983, 1991), internal versus external entrepreneurial behavior (Zahra et al., 1999), exploratory versus exploitative innovation (Jansen, Van Den Bosch, & Volberda, 2006), or domestic actions versus those that emphasize international exposure (Covin & Miller, in press).

With a heightened interest in longitudinal inquiry across all management research, there is ample opportunity to explore the dynamic relationships surrounding EO. Most scholars have assumed EO to be a static construct during empirical work (as was done in this dissertation), presenting an enormous opportunity to investigate EO as a dynamic

construct (Wales et al., 2011) that shifts over time as firms undertake strategic reorientations during periods of punctuated equilibrium (Tushman & Romanelli, 1985). Questioning the assumption of a static EO calls for empirical work to investigate both antecedents and outcomes of a changing EO. Prior research has called attention to specific triggering events that drive CE (Hornsby, Naffziger, Kuratko, & Montagno, 1993; Schindehutte et al., 2000), and so future research shall incorporate previously mentioned constructs of interest to investigate such events. Accordingly, a project is already underway to investigate the influences of a change in strategic leadership (i.e., CEO succession event) on the change in a firm's EO. Subsequent work will follow to investigate the impact on EO of other triggering events, such as TMT or BOD turnover, changes in the CEO/BOD power distribution, and changes in industry norms toward CE (as mentioned previously). In addition, work is already in progress to add on to the dataset accumulated during this dissertation with more annual EO data. This will present numerous opportunities to build from prior research by Zahra and Covin (1995) and Wiklund (1999) to more thoroughly investigate the dynamic relationship between EO and firm financial performance. In such investigation, the use of a longitudinal dataset could allow one to more explicitly detail how a change in EO (potentially using both the Miller/Covin and Slevin measure and the Lumpkin and Dess measure) influences the change in firm financial performance.

Conclusion

As businesses today face a new competitive landscape that includes rapid technological advance, shortened business model life cycles, and worldwide economic development (Bettis & Hitt, 1995; Hamel, 2000), EO has been an attractive rallying point

for scholars of both strategic management and entrepreneurship. The integration of entrepreneurship with strategy "implies that innovation and value creation play a significant part in the firm's strategic direction" (Morris et al., 2008, p. 188). As such, firms are taking to entrepreneurial strategies with vigor, in pursuit of increased wealth creation through innovation and the entrance in new markets. Therefore, with increasing importance and a focus on out-competing rivals, executives pursuing entrepreneurial strategies for their firm must understand how these strategies are best developed internally, as well as scan their firms' competitive environment in order to recognize, explain, and predict entrepreneurial behavior in others.

While Ireland et al. (2009) maintain that no single theory can support the entire model of a corporate entrepreneurial strategy, this research has made attempts to offer clarification to firm-level entrepreneurship by viewing the organization as a social actor. Through this lens, this study borrowed psychological theory from lower levels of analysis to reframe the focus of EO as a dispositional construct that is unique from, but leads to, various forms of entrepreneurial behavior. Although many of this study's hypotheses were not statistically supported, an intentions-based theoretical framework was used to examine factors critical to the development of EO. Moreover, this research has offered additional refinement of the nature of EO and its relationship with firm performance. While further development of the framework and its measurement is warranted, this work has successfully advanced the literature on EO and CE by introducing intentions-based theory as a framework for CE and offering empirical evidence of EO as a dispositional construct that precedes firm-level entrepreneurial behavior.

REFERENCES

Agrawal, A., & Mandelker, G. N. (1987). Managerial incentives and corporate investment and financing decisions. *Journal of Finance, 42*(4), 823-837.

Aguinis, H., Boyd, B. K., Pierce, C. A., & Short, J. C. (2011). Walking new avenues in management research methods and theories: Bridging micro and macro domains. *Journal of Management, 37*(2), 395-403.

Ajzen, I. (1982). On behaving in accordance with one's attitudes. In M. P. Zanna, E. T. Higgins & C. P. Herman (Eds.), *Consistency in social behavior: The Ontario symposium* (Vol. 2, pp. 3-16). Hillsdale, NJ: Erlbaum.

Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In J. Kuhl & J. Beckmann (Eds.), *Action-control: From cognition to behavior* (pp. 11-39). Heidelberg, Germany: Springer.

Ajzen, I. (1987). Attitudes, traits, and actions: Dispositional prediction of behavior in personality and social psychology. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 20, pp. 1-63). New York, NY: Academic Press.

Ajzen, I. (1988). *Attitudes, personality and behavior*. Chicago, IL: Dorsey Press.

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179-211.

Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice-Hall.

Albert, S., & Whetten, D. A. (1985). Organizational identity. In L. L. Cummings & B. M. Staw (Eds.), *Research in organizational behavior* (Vol. 7, pp. 263-295). Greenwich, CT: JAI Press.

Aldrich, H. E. (1979). *Organizations and environments*. Englewood Cliffs, NJ: Prentice-Hall.

Aldrich, H. E. (1992). Methods in our madness? Trends in entrepreneurship research. In D. L. Sexton & J. D. Kasarda (Eds.), *The state of the art of entrepreneurship* (pp. 191-213). Boston, MA: PWS-Kent.

American National Insurance Co. (2010). Annual Reports. Retrieved April 12, 2013, from http://www.anico.com/InvestorRelations/SECStockholderReports/index.htm

Anderson, B. S., & Covin, J. G. (2011). *Resource knowledge, organizational slack, and entrepreneurial orientation*. Paper presented at the 2011 Academy of Management Annual Conference, San Antonio, TX.

Anderson, B. S., Kreiser, P. M., Kuratko, D. F., & Hornsby, J. S. (2011). *Attitude, behavior, or both? An empirical investigation of the entrepreneurial orientation construct*. Paper presented at the 2011 Babson College Entrepreneurship Research Conference, Syracuse, NY.

Anderson, B. S., Kreiser, P. M., Kuratko, D. F., & Hornsby, J. S. (2012). *Reconceptualizing entrepreneurial orientation: Revising a vital but troublesome construct*. Manuscript submitted for publication.

Arbuckle, J. L. (2006). AMOS (Version 7.0). Chicago, IL: SPSS.

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

Atinc, G., Simmering, M. J., & Kroll, M. J. (2012). Control variable use and reporting in macro and micro management research. *Organizational Research Methods, 15*(1), 57-74.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.

Barker, V. L., & Mueller, G. C. (2002). CEO characteristics and firm R&D spending. *Management Science, 48*(6), 782-801.

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*(1), 99-120.

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

Barringer, B. R., & Bluedorn, A. C. (1999). The relationship between corporate entrepreneurship and strategic management. *Strategic Management Journal, 20*(5), 421-444.

Basso, O., Fayolle, A., & Bouchard, V. (2009). Entrepreneurial orientation: The making of a concept. *International Journal of Entrepreneurship and Innovation, 10*(4), 313-321.

Baysinger, B. D., & Hoskisson, R. E. (1990). The composition of boards of directors and strategic control: Effects on corporate strategy. *Academy of Management Review, 15*(1), 72-87.

Becherer, R. C., & Maurer, J. G. (1997). The moderating effect of environmental variables on the entrepreneurial and marketing orientation of entrepreneur-led firms. *Entrepreneurship Theory and Practice, 22*(1), 47-58.

Becker, T. E. (2005). Potential problems in the statistical control of variables in organizational research: A qualitative analysis with recommendations. *Organizational Research Methods, 8*(3), 274-289.

Begley, T. M., & Boyd, D. P. (1987). Psychological characteristics associated with performance in entrepreneurial firms and smaller businesses. *Journal of Business Venturing, 2*(1), 79-103.

Bentler, P. M., & Speckart, G. (1979). Models of attitude–behavior relations. *Psychological Review, 86*(5), 452-464.

Bettis, R. A., & Hitt, M. A. (1995). The new competitive landscape. *Strategic Management Journal, 16*(Summer Special Issue), 7-19.

Bettis, R. A., & Prahalad, C. K. (1995). The dominant logic: Retrospective and extension. *Strategic Management Journal, 16*(1), 5-14.

Bird, B. (1988). Implementing entrepreneurial ideas: The case for intention. *Academy of Management Review, 13*(3), 442-453.

Bird, B. (1992). The operation of intentions in time: The emergence of the new venture. *Entrepreneurship Theory and Practice, 17*(1), 11-20.

Bird, B., & Jelinek, M. (1988). The operation of entrepreneurial intentions. *Entrepreneurship Theory and Practice, 13*(2), 21-29.

Block, Z., & MacMillan, I. C. (1993). *Corporate venturing: Creating new businesses within the firm*. Boston, MA: Harvard Business School Press.

Bollen, K. (1989). *Structural equations with latent variables*. New York, NY: John Wiley & Sons.

Bourgeois, L. J. (1980). Strategy and environment: A conceptual integration. *Academy of Management Review, 5*(1), 25-39.

Bourgeois, L. J. (1981). On the measurement of organizational slack. *Academy of Management Review, 6*(1), 29-39.

Bourgeois, L. J., & Singh, J. V. (1983). Organizational slack and political behavior within top management teams. *Academy of Management Annual Meeting Proceedings*, 43-47.

Boyd, B. K., Dess, G. G., & Rasheed, A. M. A. (1993). Divergence between archival and perceptual measures of the environment: Causes and consequences. *Academy of Management Review, 18*(2), 204-226.

Boyd, B. K., Haynes, K. T., Hitt, M. A., Bergh, D. D., & Ketchen, D. J. (2012). Contingency hypotheses in strategic management research. *Journal of Management, 38*(1), 278-313.

Bradley, S. W., Wiklund, J., & Shepherd, D. A. (2011). Swinging a double-edged sword: The effect of slack on entrepreneurial management and growth. *Journal of Business Venturing, 26*(5), 537-554.

Breckler, S. J. (1990). Applications of covariance structure modeling in psychology: Cause for concern? *Psychological Bulletin, 107*(2), 260-273.

Bromiley, P. (1991). Testing a causal model of corporate risk taking and performance. *Academy of Management Journal, 34*(1), 37-59.

Brown, S. L., & Eisenhardt, K. M. (1998). *Competing on the edge: Strategy as structured chaos*. Boston, MA: Harvard Business School Press.

Brown, T. A. (Ed.). (2006). *Confirmatory factor analysis for applied research*. New York, NY: Guilford Press.

Brown, T. E., Davidsson, P., & Wiklund, J. (2001). An operationalization of Stevenson's conceptualization of entrepreneurship as opportunity-based firm behavior. *Strategic Management Journal, 22*(10), 953-968.

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 136-162). Newbury Park, CA: Sage.

Bruno, A. V., & Tyebjee, T. T. (1982). The environment for entrepreneurship. In C. A. Kent, D. L. Sexton & K. H. Vesper (Eds.), *Encyclopedia of entrepreneurship* (Vol. 2, pp. 288-307). Englewood Cliffs, NJ: Prentice-Hall.

Burgelman, R. A. (1983). A process model of internal corporate venturing in the diversified major firm. *Administrative Science Quarterly, 28*(2), 223-244.

Burgelman, R. A. (1984). Designs for corporate entrepreneurship in established firms. *California Management Review, 26*(3), 154-167.

Burgelman, R. A. (1991). Intraorganizational ecology of strategy making and organizational adaptation: Theory and field research. *Organization Science, 2*(3), 239-262.

Busenitz, L. W., West, G. P., Shepherd, D., Nelson, T., Chandler, G. N., & Zacharakis, A. (2003). Entrepreneurship research in emergence: Past trends and future directions. *Journal of Management, 29*(3), 285-308.

Cahill, D. J. (1998). Organizational decline and innovation: Are entrepreneurs a special case? *Academy of Management Review, 23*(3), 387-388.

Carpenter, M. A., & Fredrickson, J. W. (2001). Top management teams, global strategic posture, and the moderating role of uncertainty. *Academy of Management Journal, 44*(3), 533-545.

Carpenter, M. A., Geletkanycz, M. A., & Sanders, W. G. (2004). Upper echelons research revisited: Antecedents, elements, and consequences of top management team composition. *Journal of Management, 30*(6), 749-778.

Carpenter, M. A., & Westphal, J. D. (2001). The strategic context of external network ties: Examining the impact of director appointments on board involvement in strategic decision making. *Academy of Management Journal, 44*(4), 639-660.

Chandler, G. N., & Hanks, S. H. (1994). Market attractiveness, resource-based capabilities, venture strategies, and venture performance. *Journal of Business Venturing, 9*(4), 331-349.

Child, J. (1972). Organizational structure, environment, and performance: The role of strategic choice. *Sociology, 6*(1), 1-22.

Child, J. (1997). Strategic choice in the analysis of action, structure, organizations, and environment: Retrospect and prospect. *Organization Studies, 18*(1), 43-76.

Cho, T. S., & Hambrick, D. C. (2006). Attention as the mediator between top management team characteristics and strategic change: The case of airline deregulation. *Organization Science, 17*(4), 453-469.

Christensen, C. M. (1997). *The innovator's dilemma: When new technologies cause great firms to fail*. Boston, MA: Harvard Business School Press.

Churchill, N. C., & Lewis, V. (1983). Growing concerns: The five stages of small business growth. *Harvard Business Review, 61*(3), 30-50.

Cogliser, C. C., Brigham, K. H., & Lumpkin, G. T. (2008). Entrepreneurial orientation research: A review of theory, measurement, and data-analytic practices (Summary). *Frontiers of Entrepreneurship Research, 28*(13), 5.

Cole, D. A., & Maxwell, S. E. (2003). Testing mediational models with longitudinal data: Questions and tips in the use of structural equation modeling. *Journal of Abnormal Psychology, 112*(4), 558-577.

Combs, J. G., Crook, T. R., & Shook, C. L. (2005). The dimensionality of organizational performance and its implications for strategic management research. In D. J. Ketchen & D. D. Bergh (Eds.), *Research methodology in strategy and management* (Vol. 2, pp. 259-286). Oxford, UK: Elsevier.

Coombes, S. M. T., Morris, M. H., Allen, J. A., & Webb, J. W. (2011). Behavioural orientations of non-profit boards as a factor in entrepreneurial performance: Does governance matter? *Journal of Management Studies, 48*(4), 829-856.

Cooper, A. C., Markman, G. D., & Niss, G. (2000). The evolution of the field of entrepreneurship. In G. D. Meyer & K. Heppard (Eds.), *Entrepreneurship as strategy: Competing on the entrepreneurial edge* (pp. 115-133). Thousand Oaks, CA: Sage.

Covin, J. G. (1991). Entrepreneurial versus conservative firms: A comparison of strategies and performance. *Journal of Management Studies, 28*(5), 439-462.

Covin, J. G., Green, K. M., & Slevin, D. P. (2006). Strategic process effects on the entrepreneurial orientation-sales growth rate relationship. *Entrepreneurship Theory and Practice, 30*(1), 57-81.

Covin, J. G., & Lumpkin, G. T. (2011). Entrepreneurial orientation theory and research: Reflections on a needed construct. *Entrepreneurship Theory and Practice, 35*(5), 855-872.

Covin, J. G., & Miles, M. P. (1999). Corporate entrepreneurship and the pursuit of competitive advantage. *Entrepreneurship Theory and Practice, 23*(3), 47-63.

Covin, J. G., & Miller, D. (in press). International entrepreneurial orientation: Conceptual considerations, research themes, measurement issues, and future research directions. *Entrepreneurship Theory and Practice*.

Covin, J. G., & Slevin, D. P. (1988). The influence of organization structure on the utility of an entrepreneurial top management style. *Journal of Management Studies, 25*(3), 217-234.

Covin, J. G., & Slevin, D. P. (1989). Strategic management of small firms in hostile and benign environments. *Strategic Management Journal, 10*(1), 75-87.

Covin, J. G., & Slevin, D. P. (1990). New venture strategic posture, structure, and performance: An industry life cycle analysis. *Journal of Business Venturing, 5*(2), 123-135.

Covin, J. G., & Slevin, D. P. (1991). A conceptual model of entrepreneurship as firm behavior. *Entrepreneurship Theory and Practice, 16*(1), 7-25.

Covin, J. G., Slevin, D. P., & Covin, T. J. (1990). Content and performance of growth-seeking strategies: A comparison of small firms in high- and low-technology industries. *Journal of Business Venturing, 5*(6), 391-412.

Covin, J. G., Slevin, D. P., & Schultz, R. L. (1994). Implementing strategic missions: Effective strategic, structural and tactical choices. *Journal of Management Studies, 31*(4), 481-506.

Covin, J. G., & Wales, W. J. (2012). The measurement of entrepreneurial orientation. *Entrepreneurship Theory and Practice, 36*(4), 677-702.

Cyert, R. M., & March, J. G. (1963). *A behavioral theory of the firm*. Englewood Cliffs, NJ: Prentice-Hall.

Daily, C. M., McDougall, P. P., Covin, J. G., & Dalton, D. R. (2002). Governance and strategic leadership in entrepreneurial firms. *Journal of Management, 28*(3), 387-412.

Dalton, D. R., Daily, C. M., Ellstrand, A. E., & Johnson, J. L. (1998). Meta-analytic reviews of board composition, leadership structure, and financial performance. *Strategic Management Journal, 19*(3), 269-290.

Damanpour, F. (1991). Organizational innovation: A meta-analysis of effects of determinants and moderators. *Academy of Management Journal, 34*(3), 555-590.

De Clercq, D., Dimov, D., & Thongpapanl, N. T. (2010). The moderating impact of internal social exchange processes on the entrepreneurial orientation-performance relationship. *Journal of Business Venturing, 25*(1), 87-103.

Dean, M. A., Shook, C. L., & Payne, G. T. (2007). The past, present, and future of entrepreneurship research: Data analytic trends and training. *Entrepreneurship Theory and Practice, 31*(4), 601-618.

Dearborn, D. C., & Simon, H. A. (1958). Selective perception: A note on the departmental identifications of executives. *Sociometry, 21*(2), 140-144.

Dechow, P. M., & Sloan, R. G. (1991). Executive incentives and the horizon problem: An empirical investigation. *Journal of Accounting and Economics, 14*(1), 51-89.

Deephouse, D. L. (1996). Does isomorphism legitimate? *Academy of Management Journal, 39*(4), 1024-1039.

Dess, G. G., & Beard, D. W. (1984). Dimensions of organizational task environments. *Administrative Science Quarterly, 29*(1), 52-73.

Dess, G. G., Ireland, R. D., Zahra, S. A., Janney, J. J., Lane, P. J., & Floyd, S. W. (2003). Emerging issues in corporate entrepreneurship. *Journal of Management, 29*(3), 351-378.

Dess, G. G., & Lumpkin, G. T. (2005). The role of entrepreneurial orientation in stimulating effective corporate entrepreneurship. *Academy of Management Executive, 19*(1), 147-156.

Dess, G. G., Lumpkin, G. T., & Covin, J. G. (1997). Entrepreneurial strategy making and firm performance: Tests of contingency and configurational models. *Strategic Management Journal, 18*(9), 677-695.

Dess, G. G., Pinkham, B. C., & Yang, H. (2011). Entrepreneurial orientation: Assessing the construct's validity and addressing some of its implications for research in the areas of family business and organizational learning. *Entrepreneurship Theory and Practice, 35*(5), 1077-1090.

Dickson, P. H., & Weaver, K. M. (1997). Environmental determinants and individual-level moderators of alliance use. *Academy of Management Journal, 40*(2), 404-425.

DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review, 48*(2), 147-160.

Doh, J. P. (2000). Entrepreneurial privatization strategies: Order of entry and local partner collaboration as sources of competitive advantage. *Academy of Management Review, 25*(3), 551-571.

Drucker, P. (1970). Entrepreneurship in business enterprise. *Journal of Business Policy, 1*(1), 3-12.

Dutton, J. E. (1993). Interpretations on automatic: A different view of strategic issue diagnosis. *Journal of Management Studies, 30*(3), 339-357.

Eckhardt, J. T., & Shane, S. A. (2003). Opportunities and entrepreneurship. *Journal of Management, 29*(3), 333-349.

Eisenhardt, K. M., & Schoonhoven, C. B. (1996). Resource-based view of strategic alliance formation: Strategic and social effects in entrepreneurial firms. *Organization Science, 7*(2), 136-150.

Eisenhardt, K. M., & Sull, D. N. (2001). Strategy as simple rules. *Harvard Business Review, 79*(1), 106-119.

Evans, D. S., & Leighton, L. S. (1989). Some empirical aspects of entrepreneurship. *American Economic Review, 79*(3), 519-535.

Ferrier, W. J. (2001). Navigating the competitive landscape: The drivers and consequences of competitive aggressiveness. *Academy of Management Journal, 44*(1), 858-877.

Finkelstein, S., & D'Aveni, R. A. (1994). CEO duality as a double-edged sword: How boards of directors balance entrenchment avoidance and unity of command. *Academy of Management Journal, 37*(5), 1079-1108.

Finkelstein, S., & Hambrick, D. C. (1990). Top-management-team tenure and organizational outcomes: The moderating role of managerial discretion. *Administrative Science Quarterly, 35*(3), 484-503.

Finkelstein, S., Hambrick, D. C., & Cannella, A. A. (2009). *Strategic leadership: Theory and research on executives, top management teams, and boards*. New York, NY: Oxford University Press.

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behaviour: An introduction to theory and research*. Reading, MA: Addison-Wesley.

Fleishman, E. A. (1958). A relationship between incentive motivation and ability level in psychomotor performance. *Journal of Experimental Psychology, 56*(1), 78-81.

Fortune. (2007). Fortune 500: Our annual ranking of America's largest corporations. Retrieved May 30, 2012, from http://money.cnn.com/magazines/fortune/fortune500/2007/full_list/

Foss, N. J. (2011). Why micro-foundations for resource-based theory are needed and what they may look like. *Journal of Management, 37*(5), 1413-1428.

Garud, R., & Van de Ven, A. H. (1992). An empirical evaluation of the internal corporate venturing process. *Strategic Management Journal, 13*(5), 93-109.

Geiger, S. W., & Cashen, L. (2002). A multidimensional examination of slack and its impact on innovation. *Journal of Managerial Issues, 14*(1), 68-84.

George, B. A. (2011). Entrepreneurial orientation: A theoretical and empirical examination of the consequences of differing construct representations. *Journal of Management Studies, 48*(6), 1291-1313.

George, B. A., & Marino, L. D. (2011). The epistemology of entrepreneurial orientation: Conceptual formation, modeling, and operationalization. *Entrepreneurship Theory and Practice, 35*(5), 989-1024.

George, G. (2005). Slack resources and the performance of privately held firms. *Academy of Management Journal, 48*(4), 661-676.

George, G., Wood, D. R., & Khan, R. (2001). Networking strategy of boards: Implications for small and medium-sized enterprises. *Entrepreneurship and Regional Development, 13*(3), 269-285.

Gist, M. E., & Mitchell, T. B. (1992). Self-efficacy: A theoretical analysis of its determinants and malleability. *Academy of Management Review, 17*(2), 183-211.

Golden, B. R. (1992). The past is the past--or is it? The use of retrospective accounts as indicators of past strategy. *Academy of Management Journal, 35*(4), 848-860.

Golden, B. R., & Zajac, E. J. (2001). When will boards influence strategy? Inclination x power = strategic change. *Strategic Management Journal, 22*(12), 1087-1111.

Green, K. M., Covin, J. G., & Slevin, D. P. (2008). Exploring the relationship between strategic reactiveness and entrepreneurial orientation: The role of structure-style fit. *Journal of Business Venturing, 23*(3), 356-383.

Greve, H. R. (1998). Performance, aspirations, and risky organizational change. *Administrative Science Quarterly, 43*(1), 58-86.

Greve, H. R. (2003). A behavioral theory of R&D expenditures and innovations: Evidence from shipbuilding. *Academy of Management Journal, 46*(6), 685-702.

Guth, W. D., & Ginsberg, A. (1990). Corporate entrepreneurship. *Strategic Management Journal, 11*(4), 5-15.

Haleblian, J., & Finkelstein, S. (1993). Top management team size, CEO dominance, and firm performance: The moderating roles of environmental turbulence and discretion. *Academy of Management Journal, 36*(4), 844-863.

Hambrick, D. C. (1981). Environment, strategy, and power within top management teams. *Administrative Science Quarterly, 26*(2), 253-275.

Hambrick, D. C. (2007). Upper echelons theory: An update. *Academy of Management Review, 32*(2), 334-343.

Hambrick, D. C., Cho, T. S., & Chen, M. J. (1996). The influence of top management team heterogeneity on firms' competitive moves. *Administrative Science Quarterly, 41*(4), 659-684.

Hambrick, D. C., & Mason, P. A. (1984). Upper echelons: The organization as a reflection of its top managers. *Academy of Management Review, 9*(2), 193-206.

Hamel, G. (2000). *Leading the revolution*. Boston, MA: Harvard Business School Press.

Hannan, M. T., & Freeman, J. (1977). The population ecology of organizations. *American Journal of Sociology, 82*(5), 929-964.

Hansen, J. D., Deitz, G. D., Tokman, M., Marino, L. D., & Weaver, K. M. (2009). Cross-national invariance of the entrepreneurial orientation scale. *Journal of Business Venturing, 26*(1), 61-78.

Hart, R. P., & Carroll, C. E. (2011). DICTION: The text analysis program (Version 6.0). Austin, TX: Digitext, Inc.

Haynes, K. T., & Hillman, A. (2010). The effect of board capital and CEO power on strategic change. *Strategic Management Journal, 31*(11), 1145-1163.

Henley, A. B., Shook, C. L., & Peterson, M. (2006). The presence of equivalent models in strategic management research using structural equation modeling: Assessing and addressing the problem. *Organizational Research Methods, 9*(4), 516-535.

Herold, D. M., Jayaraman, N., & Narayanaswamy, C. R. (2006). What is the relationship between organizational slack and innovation? *Journal of Managerial Issues, 18*(3), 372-392.

Hillman, A. J., & Keim, G. D. (2001). Shareholder value, stakeholder management, and social issues: What's the bottom line? *Strategic Management Journal, 22*(2), 125-139.

Hillman, A. J., Withers, M. C., & Collins, B. J. (2009). Resource dependence theory: A review. *Journal of Management, 35*(6), 1404-1427.

Hitt, M. A., Beamish, P. W., Jackson, S. E., & Mathieu, J. E. (2007). Building theoretical and empirical bridges across levels: Multilevel research in management. *Academy of Management Journal, 50*(6), 1385-1399.

Hitt, M. A., Hoskisson, R. E., & Ireland, R. D. (1994). A mid-range theory of the interactive effects of international and product diversification on innovation and performance. *Journal of Management, 20*(2), 297-326.

Hitt, M. A., Ireland, R. D., Camp, S. M., & Sexton, D. L. (2001). Strategic entrepreneurship: Entrepreneurial strategies for wealth creation. *Strategic Management Journal, 22*(6-7), 479-491.

Holt, D. T., Hornsby, J. S., & Kuratko, D. F. (2010). *The entrepreneurial orientation (EO) construct: Assessing its dynamic nature*. Paper presented at the 2010 Academy of Management Annual Meeting, Montreal, Canada.

Hornsby, J. S., Kuratko, D. F., Shepherd, D. A., & Bott, J. P. (2009). Managers' corporate entrepreneurial actions: Examining perception and position. *Journal of Business Venturing, 24*(3), 236-247.

Hornsby, J. S., Kuratko, D. F., & Zahra, S. A. (2002). Middle managers' perception of the internal environment for corporate entrepreneurship: Assessing a measurement scale. *Journal of Business Venturing, 17*(3), 253-273.

Hornsby, J. S., Naffziger, D. W., Kuratko, D. F., & Montagno, R. V. (1993). An interactive model of the corporate entrepreneurship process. *Entrepreneurship Theory and Practice, 17*(2), 29-37.

Hoskisson, R. E., Covin, J. G., Volberda, H. W., & Johnson, R. A. (2011). Revitalizing entrepreneurship: The search for new research opportunities. *Journal of Management Studies, 48*(6), 1141-1168.

House, R. J., Shane, S. A., & Herold, D. M. (1996). Rumors of the death of dispositional research are vastly exaggerated. *Academy of Management Review, 21*(1), 203-224.

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

Huber, G. P., & Power, D. J. (1985). Retrospective reports of strategic-level managers: Guidelines for increasing their accuracy. *Strategic Management Journal, 6*(2), 171-180.

Hughes, M., Hughes, P., & Morgan, R. E. (2007). Exploitative learning and entrepreneurial orientation alignment in emerging young firms: Implications for market and response performance. *British Journal of Management, 18*(4), 359-375.

Hunter, J. E., & Schmidt, F. L. (1990). *Methods of meta-analysis: Correcting error and bias in research findings*. Newbury Park, CA: Sage.

IBM Corp. (2012). IBM SPSS Statistics for Windows (Version 21.0). Armonk, NY: IBM Corp.

Ireland, R. D., Covin, J. G., & Kuratko, D. F. (2009). Conceptualizing corporate entrepreneurship strategy. *Entrepreneurship Theory and Practice, 33*(1), 19-46.

Ireland, R. D., Hitt, M. A., Camp, S. M., & Sexton, D. L. (2001). Integrating entrepreneurship and strategic management actions to create firm wealth. *Academy of Management Executive, 15*(1), 49-63.

Ireland, R. D., Hitt, M. A., & Sirmon, D. G. (2003). A model of strategic entrepreneurship: The construct and its dimensions. *Journal of Management, 29*(6), 963-989.

Ireland, R. D., & Webb, J. W. (2007). A cross-disciplinary exploration of entrepreneurship research. *Journal of Management, 33*(6), 891-927.

Jacobs, M. T. (1991). *Short-term America: The causes and cures of our business myopia*. Boston, MA: Harvard Business School Press.

James, L. R., & Brett, J. M. (1984). Mediators, moderators, and tests for mediation. *Journal of Applied Psychology, 69*(2), 307-321.

James, L. R., Mulaik, S. A., & Brett, J. M. (2006). A tale of two methods. *Organizational Research Methods, 9*(2), 233-244.

Jansen, J. J. P., Van Den Bosch, F. A. J., & Volberda, H. W. (2006). Exploratory innovation, exploitative innovation, and performance: Effects of organizational antecedents and environmental moderators. *Management Science, 52*(11), 1661-1674.

Jenkins, E., & Seiler, R. E. (1990). The impact of executive compensation schemes upon the level of discretionary expenditures and growth in stockholder wealth. *Journal of Business Finance and Accounting, 17*(4), 585-592.

Jennings, D. F., & Lumpkin, J. R. (1989). Functioning modeling corporate entrepreneurship: An empirical integrative analysis. *Journal of Management, 15*(3), 485-502.

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

Jensen, M. C., & Zimmerman, J. L. (1985). Management compensation and the managerial labor market. *Journal of Accounting and Economics, 7*(1), 3-9.

Jones, G. R., & Butler, J. E. (1992). Managing internal corporate entrepreneurship: An agency theory perspective. *Journal of Management, 18*(4), 733-749.

Jöreskog, K. G. (1969). A general approach to confirmatory maximum likelihood factor analysis. *Psychometrika, 34*(2), 183-202.

Judge, W. Q., & Zeithaml, C. P. (1992). Institutional and strategic choice perspective on board involvement in the strategic decision process. *Academy of Management Journal, 35*(4), 766-794.

Keats, B. W., & Hitt, M. A. (1988). A causal model of linkages among environmental dimensions, macro organizational characteristics, and performance. *Academy of Management Journal, 31*(3), 570-598.

Keh, H. T., Nguyen, T. T. M., & Ng, H. P. (2007). The effects of entrepreneurial orientation and marketing information on the performance of SMEs. *Journal of Business Venturing, 22*(4), 592-611.

Kelloway, E. K. (1995). Structural equation modelling in perspective. *Journal of Organizational Behavior, 16*(3), 215-224.

Khandwalla, P. N. (1972). Environment and its impact on the organization. *International Studies of Management Organization, 2*(3), 297-313.

Khandwalla, P. N. (1976). Some top management styles, their context and performance. *Organization and Administrative Sciences, 7*(4), 21-51.

Khandwalla, P. N. (1977). *The design of organizations*. New York, NY: Harcourt Brace Jovanovich.

Kim, M. S., & Hunter, J. E. (1993). Relationships among attitudes, behavioral intentions, and behavior. *Communication Research, 20*(3), 331-364.

Kim, W. C., & Mauborgne, R. (2005). *Blue ocean strategy: How to create uncontested market space and make competition irrelevant*. Boston, MA: Harvard Business School Press.

King, B. G., Felin, T., & Whetten, D. A. (2010). Finding the organization in organizational theory: A meta-theory of the organization as a social actor. *Organization Science, 21*(1), 290-305.

Kline, R. B. (2005). *Principles and practice of structural equation modeling* (2nd ed.). New York, NY: Guilford Press.

Knight, G. A. (1997). Cross-cultural reliability and validity of a scale to measure firm entrepreneurial orientation. *Journal of Business Venturing, 12*(3), 213-225.

Kor, Y. Y. (2006). Direct and interaction effects of top management team and board compositions on R&D investment strategy. *Strategic Management Journal, 27*(11), 1081-1099.

Kor, Y. Y., & Misangyi, V. F. (2008). Outside directors' industry-specific experience and firms' liability of newness. *Strategic Management Journal, 29*(12), 1345-1355.

Krauss, S. I., Frese, M., Friedrich, C., & Unger, J. M. (2005). Entrepreneurial orientation: A psychological model of success among southern African small business owners. *European Journal of Work and Organizational Psychology, 14*(3), 315-344.

Kreiser, P. M. (2011). Entrepreneurial orientation and organizational learning: The impact of network range and network closure. *Entrepreneurship Theory and Practice, 35*(5), 1025-1050.

Kreiser, P. M., Kuratko, D. F., Covin, J. G., & House, J. M. (2011). *Operationalizing corporate entrepreneurship strategy (CES): A configurational approach*. Paper presented at the 2011 Academy of Management Annual Meeting, San Antonio, TX.

Kreiser, P. M., Marino, L. D., Dickson, P., & Weaver, K. M. (2010). Cultural influences on entrepreneurial orientation: The impact of national culture on risk taking and proactiveness in SMEs. *Entrepreneurship Theory and Practice, 34*(5), 959-983.

Kreiser, P. M., Marino, L. D., & Weaver, K. M. (2002). Assessing the psychometric properties of the entrepreneurial orientation scale: A multi-country analysis. *Entrepreneurship Theory and Practice, 26*(4), 71-94.

Krueger, N. F. (1993). The impact of prior entrepreneurial exposure on perceptions of new venture feasibility and desirability. *Entrepreneurship Theory and Practice, 18*(1), 5-21.

Krueger, N. F., & Brazeal, D. V. (1994). Entrepreneurial potential and potential entrepreneurs. *Entrepreneurship Theory and Practice, 18*(3), 91-104.

Krueger, N. F., & Carsrud, A. L. (1993). Entrepreneurial intentions: Applying the theory of planned behaviour. *Entrepreneurship and Regional Development, 5*(4), 315-330.

Krueger, N. F., Reilly, M. D., & Carsrud, A. L. (2000). Entrepreneurial intentions: A competing models approach. *Journal of Business Venturing, 15*(5/6), 411-432.

Kuckertz, A., & Wagner, M. (2010). The influence of sustainability orientation on entrepreneurial intentions - Investigating the role of business experience. *Journal of Business Venturing, 25*(5), 524-539.

Kuratko, D. F. (2010). Corporate entrepreneurship: An introduction and research review. In Z. J. Acs & D. B. Audretsch (Eds.), *Handbook of entrepreneurship research* (Vol. 5, pp. 129-163). New York, NY: Springer.

Kuratko, D. F., & Audretsch, D. B. (2009). Strategic entrepreneurship: Exploring different perspectives of an emerging concept. *Entrepreneurship Theory and Practice, 33*(1), 1-17.

Kuratko, D. F., Hornsby, J. S., Holt, D. T., & Rutherford, M. W. (2009). *Factors affecting corporate entrepreneurial activity and firm performance: An empirical examination as to whether size matters.* Paper presented at the 2009 Southern Management Association Annual Meeting, Asheville, NC.

Kuratko, D. F., Ireland, R. D., Covin, J. G., & Hornsby, J. S. (2005). A model of middle-level managers' entrepreneurial behavior. *Entrepreneurship Theory and Practice, 29*(6), 699-716.

Kuratko, D. F., Ireland, R. D., & Hornsby, J. S. (2001). Improving firm performance through entrepreneurial actions: Acordia's corporate entrepreneurship strategy. *Academy of Management Executive, 15*(4), 60-71.

Lawrence, P. R., & Lorsch, J. W. (1967). *Organization and environment*. Boston, MA: Harvard Business School Press.

Lawson, M. B. (2001). In praise of slack: Time is of the essence. *Academy of Management Executive, 15*(3), 125-135.

Leblebici, H., & Salancik, G. R. (1982). Stability in interoganizational exchanges: Rulemaking processes of the Chicago Board of Trade. *Administrative Science Quarterly, 27*(2), 227-242.

LeBreton, J. M., Wu, J., & Bing, M. N. (2009). The truth(s) on testing for mediation in the social and organizational sciences. In C. E. Lance & R. J. Vandenberg (Eds.), *Statistical and methodological myths and urban legends: Doctrine, verity, and fable in the organizational and social sciences* (pp. 109-144). New York, NY: Routledge.

Lee, P. M., & O Neill, H. M. (2003). Ownership structures and R&D investments of US and Japanese firms: Agency and stewardship perspectives. *Academy of Management Journal, 46*(2), 212-225.

Leonard-Barton, D. (1992). Core capabilities and core rigidities: A paradox in managing new product development. *Strategic Management Journal, 13*(Summer Special Issue), 111-125.

Li, Y., Wei, Z., & Liu, Y. (2010). Strategic orientations, knowledge acquisition, and firm performance: The perspective of the vendor in cross-border outsourcing. *Journal of Management Studies, 47*(8), 1457-1482.

Locke, E. A. (1965). Interaction of ability and motivation in performance. *Perceptual and Motor Skills, 21*(3), 719-725.

Luijben, T. C. W. (1991). Equivalent models in covariance structure analysis. *Psychometrika, 56*(4), 653-665.

Lumpkin, G. T., Cogliser, C. C., & Schneider, D. R. (2009). Understanding and measuring autonomy: An entrepreneurial orientation perspective. *Entrepreneurship Theory and Practice, 33*(1), 47-69.

Lumpkin, G. T., & Dess, G. G. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review, 21*(1), 135-172.

Lumpkin, G. T., & Dess, G. G. (2001). Linking two dimensions of entrepreneurial orientation to firm performance: The moderating role of environment and industry life cycle. *Journal of Business Venturing, 16*(5), 429-451.

Lyon, D. W., Lumpkin, G. T., & Dess, G. G. (2000). Enhancing entrepreneurial orientation research: Operationalizing and measuring a key strategic decision making process. *Journal of Management, 26*(5), 1055-1085.

MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling. *Psychological Methods, 1*(2), 130-149.

Mackey, A. (2008). The effect of CEOs on firm performance. *Strategic Management Journal, 29*(12), 1357-1367.

MacKinnon, D. P., Lockwood, C. M., & Williams, J. (2004). Confidence limits for the indirect effect: Distribution of the product and resampling methods. *Multivariate Behavioral Research, 39*(1), 99-128.

March, J. G. (1991). Exploration and exploitation in organizational learning. *Organization Science, 2*(1), 71-87.

March, J. G., & Simon, H. A. (1958/1994). *Organizations*. Cambridge, MA: Blackwell.

Marino, L. D., Lohrke, F. T., Hill, J. S., Weaver, K. M., & Tambunan, T. (2008). Environmental shocks and SME alliance formation intentions in an emerging economy: Evidence from the Asian financial crisis in Indonesia. *Entrepreneurship Theory and Practice, 32*(1), 157-183.

Marino, L. D., Strandholm, K., Steensma, H. K., & Weaver, K. M. (2002). The moderating effect of national culture on the relationship between entrepreneurial orientation and strategic alliance portfolio extensiveness. *Entrepreneurship Theory and Practice, 26*(4), 145-160.

Martin, G. P., Gomez-Mejia, L. R., & Wiseman, R. M. (2013). Executive stock options as mixed gambles: Revisiting the behavioral agency model. *Academy of Management Journal, 56*(2), 451-472.

McCline, R. L., Bhat, S., & Baj, P. (2000). Opportunity recognition: An exploratory investigation of a component of the entrepreneurial process in the context of the health care industry. *Entrepreneurship Theory and Practice, 25*(2), 81-94.

McGrath, R. G., & MacMillan, I. C. (2000). *The entrepreneurial mindset*. Boston, MA: Harvard Business School Press.

McMullen, J. S., & Shepherd, D. A. (2006). Entrepreneurial action and the role of uncertainty in the theory of the entrepreneur. *Academy of Management Review, 31*(1), 132-152.

Menz, M. (2012). Functional top management team members. *Journal of Management, 38*(1), 45-80.

Merz, G. R., & Sauber, M. H. (1995). Profiles of managerial activities in small firms. *Strategic Management Journal, 16*(7), 551-564.

Meyer, A. D. (1991). What is strategy's distinctive competence? *Journal of Management, 17*(4), 821-833.

Meyer, G. D., & Heppard, K. (2000a). Entrepreneurial strategies: The dominant logic of entrepreneurship. In G. D. Meyer & K. Heppard (Eds.), *Entrepreneurship as strategy: Competing on the entrepreneurial edge* (pp. 1-22). Thousand Oaks, CA: Sage.

Meyer, G. D., & Heppard, K. (Eds.). (2000b). *Entrepreneurship as strategy: Competing on the entrepreneurial edge*. Thousand Oaks, CA: Sage.

Meyer, J. W., & Rowan, B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. *American Journal of Sociology, 83*(2), 340-363.

Miles, M. P., & Arnold, D. R. (1991). The relationship between marketing orientation and entrepreneurial orientation. *Entrepreneurship Theory and Practice, 15*(4), 49-65.

Miles, R. E., & Snow, C. C. (1978). *Organizational strategy, structure, and process*. New York, NY: McGraw-Hill.

Miller, D. (1983). The correlates of entrepreneurship in three types of firms. *Management Science, 29*(7), 770-791.

Miller, D. (1987). Strategy making and structure: Analysis and implications for performance. *Academy of Management Journal, 30*(1), 7-32.

Miller, D. (2011). Miller (1983) revisited: A reflection on EO research and some suggestions for the future. *Entrepreneurship Theory and Practice, 35*(5), 873-894.

Miller, D., & Friesen, P. H. (1978). Archetypes of strategy formulation. *Management Science, 24*(9), 921-933.

Miller, D., & Friesen, P. H. (1980). Momentum and revolution in organizational adaptation. *Academy of Management Journal, 23*(4), 591-614.

Miller, D., & Friesen, P. H. (1982). Innovation in conservative and entrepreneurial firms: Two models of strategic momentum. *Strategic Management Journal, 3*(1), 1-25.

Miller, D., & Friesen, P. H. (1984). A longitudinal study of the corporate life cycle. *Management Science, 30*(10), 1161-1183.

Miller, D., Kets de Vries, M. F. R., & Toulouse, J.-M. (1982). Top executive locus of control and its relationship to strategy-making, structure, and environment. *Academy of Management Journal, 25*(2), 237-253.

Miller, D., & Le Breton-Miller, I. (2011). Governance, social identity, and entrepreneurial orientation in closely held public companies. *Entrepreneurship Theory and Practice, 35*(5), 1051-1076.

Miller, D., & Toulouse, J.-M. (1986). Chief executive personality and corporate strategy and structure in small firms. *Management Science, 32*(11), 1389-1409.

Mintzberg, H. (1973). Strategy-making in three modes. *California Management Review, 16*(2), 44-53.

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

Mishina, Y., Dykes, B. J., Block, E. S., & Pollock, T. G. (2010). Why "good" firms do bad things: The effects of high aspirations, high expectations, and prominence on the incidence of corporate illegality. *Academy of Management Journal, 53*(4), 701-722.

Mitchell, T. R., & James, L. R. (2001). Building better theory: Time and the specification of when things happen. *Academy of Management Review, 26*(4), 530-547.

Molloy, J. C., Ployhart, R. E., & Wright, P. M. (2011). The myth of “the” micro-macro divide: Bridging system-level and disciplinary divides. *Journal of Management, 37*(2), 581-609.

Monsen, E., & Boss, R. W. (2009). The impact of strategic entrepreneurship inside the organization: Examining job stress and employee retention. *Entrepreneurship Theory and Practice, 33*(1), 71-104.

Morgeson, F. P., & Hofmann, D. A. (1999). The structure and function of collective constructs: Implications for multilevel research and theory development. *Academy of Management Review, 24*(2), 249-265.

Morris, M. H., Allen, J., Schindehutte, M., & Avila, R. (2006). Balanced management control systems as a mechanism for achieving corporate entrepreneurship. *Journal of Managerial Issues, 18*(4), 468-493.

Morris, M. H., & Jones, F. F. (1999). Entrepreneurship in established organizations: The case of the public sector. *Entrepreneurship Theory and Practice, 24*(1), 71-91.

Morris, M. H., & Kuratko, D. F. (2002). *Corporate entrepreneurship*. Mason, OH: South-Western.

Morris, M. H., Kuratko, D. F., & Covin, J. G. (2008). *Corporate entrepreneurship and innovation: Entrepreneurial development within organizations* (2nd ed.). Mason, OH: Thomson South-Western.

Morris, M. H., & Paul, G. W. (1987). The relationship between entrepreneurship and marketing in established firms. *Journal of Business Venturing, 2*(3), 247-259.

Morris, M. H., Webb, J. W., & Franklin, R. J. (2011). Understanding the manifestation of entrepreneurial orientation in the nonprofit context. *Entrepreneurship Theory and Practice, 35*(5), 947-971.

Narayanan, V. K., Yang, Y., & Zahra, S. A. (2009). Corporate venturing and value creation: A review and proposed framework. *Research Policy, 38*(1), 58-76.

Nohria, N., & Gulati, R. (1996). Is slack good or bad for innovation? *Academy of Management Journal, 39*(5), 1245-1264.

Obloj, T., Obloj, K., & Pratt, M. G. (2010). Dominant logic and entrepreneurial firms' performance in a transition economy. *Entrepreneurship Theory and Practice, 34*(1), 151-170.

Ocasio, W. (1997). Towards an attention-based view of the firm. *Strategic Management Journal, 18*(Summer Special Issue), 187-206.

Oliver, C. (1997). Sustainable competitive advantage: Combining institutional and resource-based views. *Strategic Management Journal, 18*(9), 697-713.

Pearce, J. A., Fritz, D. A., & Davis, P. S. (2010). Entrepreneurial orientation and the performance of religious congregations as predicted by rational choice theory. *Entrepreneurship Theory and Practice, 34*(1), 219-248.

Perez-Luno, A., Wiklund, J., & Cabrera, R. V. (2011). The dual nature of innovative activity: How entrepreneurial orientation influences innovation generation and adoption. *Journal of Business Venturing, 26*(5), 555-571.

Peterson, R. A., & Berger, D. G. (1971). Entrepreneurship in organizations: Evidence from the popular music industry. *Administrative Science Quarterly, 16*(1), 97-106.

Peterson, R. T. (1989). Small business adoption of the marketing concept vs. other business strategies. *Journal of Small Business Management, 27*(1), 38-46.

Pfeffer, J. (1972). Size and composition of corporate boards of directors: The organization and its environment. *Administrative Science Quarterly*, *17*(2), 218-228.

Pfeffer, J., & Salancik, G. R. (1978). *The external control of organizations*. New York, NY: Harper & Row.

Pinchot, G. (1985). *Intrapreneuring: Why you don't have to leave the corporation to become an entrepreneur*. New York, NY: Harper & Row.

Pitariu, A. H., & Ployhart, R. E. (2010). Explaining change: Theorizing and testing dynamic mediated longitudinal relationships. *Journal of Management, 36*(2), 405-429.

Porter, L. W. (1996). Forty years of organization studies: Reflections from a micro perspective. *Administrative Science Quarterly, 41*(2), 262-269.

Porter, M. E. (1985). *Competitive advantage*. New York, NY: Free Press.

Prahalad, C. K., & Bettis, R. A. (1986). The dominant logic: A new linkage between diversity and performance. *Strategic Management Journal, 7*(6), 485-501.

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods, 40*(3), 879-891.

Preacher, K. J., Rucker, D. D., & Hayes, A. F. (2007). Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research, 42*(1), 185-227.

Ramachandran, K., & Ramnarayan, S. (1993). Entrepreneurial orientation and networking: Some Indian evidence. *Journal of Business Venturing, 8*(6), 513-524.

Rappaport, A. (1992). CFOs and strategists: Forging a common framework. *Harvard Business Review, 70*(3), 84-91.

Rauch, A., Wiklund, J., Lumpkin, G. T., & Frese, M. (2009). Entrepreneurial orientation and business performance: An assessment of past research and suggestions for the future. *Entrepreneurship Theory and Practice, 33*(3), 761-787.

Richard, O. C., Barnett, T., Dwyer, S., & Chadwick, K. (2004). Cultural diversity in management, firm performance, and the moderating role of entrepreneurial orientation dimensions. *Academy of Management Journal, 47*(2), 255-266.

Richard, P. J., Devinney, T. M., Yip, G. S., & Johnson, G. (2009). Measuring organizational performance: Towards methodological best practice. *Journal of Management, 35*(3), 718-804.

Robinson, P. B., Stimpson, D. V., Huefner, J. C., & Hunt, H. K. (1991). An attitude approach to the prediction of entrepreneurship. *Entrepreneurship Theory and Practice, 15*(4), 13-31.

Rosenbusch, N., Rauch, A., & Bausch, A. (2013). The mediating role of entrepreneurial orientation in the task environment–performance relationship: A meta-analysis. *Journal of Management, 39*(3), 633-659.

Ruigrok, W., Peck, S. I., & Keller, H. (2006). Board characteristics and involvement in strategic decision making: Evidence from Swiss companies. *Journal of Management Studies, 43*(5), 1201-1226.

Sapienza, H. J., De Clercq, D., & Sandberg, W. R. (2005). Antecedents of international and domestic learning effort. *Journal of Business Venturing, 20*(4), 437-457.

Schindehutte, M., Morris, M. H., & Kuratko, D. F. (2000). Triggering events, corporate entrepreneurship and the marketing function. *Journal of Marketing Theory and Practice, 8*(2), 18-30.

Schmalensee, R. (1977). Using the H-index of concentration with published data. *Review of Economics and Statistics, 59*(2), 186-193.

Schollhammer, H. (1982). Internal corporate entrepreneurship. In C. A. Kent, D. L. Sexton & K. H. Vesper (Eds.), *Encyclopedia of entrepreneurship* (pp. 209-223). Englewood Cliffs, NJ: Prentice-Hall.

Schumpeter, J. (1934). *The theory of economic devlopment*. Cambridge, MA: Harvard University Press.

Scott, W. R. (1994). Institutional analysis: Variance and process theory approaches. In W. R. Scott, J. W. Meyer & Associates (Eds.), *Institutional environments and organizations: Structural complexity and individualism* (pp. 81-99). Thousand Oaks, CA: Sage.

Scott, W. R. (1995). *Institutions and organizations.* Thousand Oaks, CA: Sage.

Scott, W. R. (2003). *Organizations: Rational, natural, and open systems* (5th ed.). Englewood Cliffs, NJ: Prentice-Hall.

Scott, W. R. (2005). Institutional theory: Contributing to a theoretical research program. In K. G. Smith & M. A. Hitt (Eds.), *Great minds in management: The process of theory development* (pp. 460-484). New York, NY: Oxford University Press.

Shane, S. A., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Review, 25*(1), 217-226.

Shapero, A., & Sokol, L. (1982). Social dimensions of entrepreneurship. In C. A. Kent, D. L. Sexton & K. H. Vesper (Eds.), *Encyclopedia of entrepreneurship* (pp. 72-90). Englewood Cliffs, NJ: Prentice-Hall.

Sharma, P., & Chrisman, J. J. (1999). Toward a reconciliation of the definitional issues in the field of corporate entrepreneurship. *Entrepreneurship Theory and Practice, 23*(3), 11-27.

Shepherd, D. A., & Krueger, N. F. (2002). An intentions-based model of entrepreneurial teams' social cognition. *Entrepreneurship Theory and Practice, 27*(2), 167-185.

Shook, C. L., & Bratianu, C. (2010). Entrepreneurial intent in a transitional economy: An application of the theory of planned behavior to Romanian students. *International Entrepreneurship and Management Journal, 6*(3), 231-247.

Shook, C. L., Ketchen, D. J., Cycyota, C. S., & Crockett, D. (2003). Data analytic trends and training in strategic management. *Strategic Management Journal, 24*(12), 1231-1237.

Shook, C. L., Ketchen, D. J., Hult, G. T. M., & Kacmar, K. M. (2004). An assessment of the use of structural equation modeling in strategic management research. *Strategic Management Journal, 25*(4), 397-404.

Shook, C. L., Priem, R. L., & McGee, J. E. (2003). Venture creation and the enterprising individual: A review and synthesis. *Journal of Management, 29*(3), 379-399.

Short, J. C., Broberg, J. C., Cogliser, C. C., & Brigham, K. H. (2010). Construct validation using computer-aided text analysis (CATA): An illustration using entrepreneurial orientation. *Organizational Research Methods, 13*(2), 320-347.

Short, J. C., Ketchen, D. J., Shook, C. L., & Ireland, R. D. (2010). The concept of "opportunity" in entrepreneurship research: Past accomplishments and future challenges. *Journal of Management, 36*(1), 40-65.

Short, J. C., & Palmer, T. B. (2008). The application of DICTION to content analysis research in strategic management. *Organizational Research Methods, 11*(4), 727-752.

Short, J. C., Payne, G. T., Brigham, K. H., Lumpkin, G., & Broberg, J. C. (2009). Family firms and entrepreneurial orientation in publicly traded firms. *Family Business Review, 22*(1), 9-24.

Simon, H. A. (1977). *Models of discovery*. Boston, MA: D. Reidel Publishing Co.

Simsek, Z., Heavey, C., Prabhakar, S., & Huvaj, M. N. (2011). Romeo, Juliet, and Shakespeare: Thematizing the nexus of strategic leadership and entrepreneurship. In M. A. Carpenter (Ed.), *Handbook of research on top management teams* (pp. 284-345). Cheltenham, UK: Edward Elgar.

Simsek, Z., Heavey, C., & Veiga, J. J. F. (2010). The impact of CEO core self-evaluation on the firm's entrepreneurial orientation. *Strategic Management Journal, 31*(1), 110-119.

Simsek, Z., Veiga, J. F., & Lubatkin, M. H. (2007). The impact of managerial environmental perceptions on corporate entrepreneurship: Towards understanding discretionary slack's pivotal role. *Journal of Management Studies, 44*(8), 1398-1424.

Sirmon, D. G., Hitt, M. A., & Ireland, R. D. (2007). Managing firm resources in dynamic environments to create value: Looking inside the black box. *Academy of Management Review, 32*(1), 273-292.

Sitkin, S. B. (1992). Learning through failure: The strategy of small losses. In B. M. Staw & L. L. Cummings (Eds.), *Research in organizational behavior* (Vol. 14, pp. 231-266). Greenwich, CT: JAI Press.

Slevin, D. P., & Terjesen, S. A. (2011). Entrepreneurial orientation: Reviewing three papers and implications for further theoretical and methodological development. *Entrepreneurship Theory and Practice, 35*(5), 973-987.

Sobel, M. E. (1982). Asymptotic confidence intervals for indirect effects in structural equation models. In S. Leinhart (Ed.), *Sociological Methodology* (Vol. 13, pp. 290-312). San Francisco: Jossey-Bass.

Sobel, M. E. (1986). Some new results on indirect effects and their standard errors in covariance structure models. In N. Tuma (Ed.), *Sociological Methodology* (Vol. 16, pp. 159-186). Washington, DC: American Sociological Association.

Stam, W., & Elfring, T. (2008). Entrepreneurial orientation and new venture performance: The moderating role of intra- and extraindustry social capital. *Academy of Management Journal, 51*(1), 97-111.

Staw, B. M. (1991). Dressing up like an organization: When psychological theories can explain organizational action. *Journal of Management, 17*(4), 805-819.

Staw, B. M., Sandelands, L. E., & Dutton, J. E. (1981). Threat-rigidity effects in organizational behavior: A multilevel analysis. *Administrative Science Quarterly, 26*(4), 501-524.

Stevenson, H. H., & Gumpert, D. E. (1985). The heart of entrepreneurship. *Harvard Business Review, 85*(2), 85-95.

Stevenson, H. H., & Jarillo, J. C. (1990). A paradigm of entrepreneuriship: Entrepreneurial management. *Strategic Management Journal, 11*(5), 17-27.

Stinchcombe, A. L. (1965). Social structure and organizations. In J. G. March (Ed.), *Handbook of organizations* (pp. 142-193). Chicago, IL: Rand-McNally.

Stopford, J. M., & Baden-Fuller, C. W. F. (1994). Creating corporate entrepreneurship. *Strategic Management Journal, 15*(7), 521-536.

Sutton, R. I., & Staw, B. M. (1995). What theory is *not*. *Administrative Science Quarterly, 40*(3), 371-384.

Sydow, J., Schreyögg, G., & Koch, J. (2009). Organizational path dependence: Opening the black box. *Academy of Management Review, 34*(4), 689-709.

Tan, J. (2002). Culture, nation, and entrepreneurial strategic orientations: Implications for an emerging economy. *Entrepreneurship Theory and Practice, 26*(4), 95-111.

Tan, J., & Tan, D. (2005). Environment–strategy co-evolution and co-alignment: A staged model of Chinese SOEs under transition. *Strategic Management Journal, 26*(2), 141-157.

Tang, J., Tang, Z., Marino, L. D., Zhang, Y., & Li, Q. (2008). Exploring an inverted U-shape relationship between entrepreneurial orientation and performance in Chinese ventures. *Entrepreneurship Theory and Practice, 32*(1), 219-239.

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal, 18*(7), 509-533.

Thomas, A. S., Litschert, R. J., & Ramaswamy, K. (1991). The performance impact of strategy-manager coalignment: An empirical examination. *Strategic Management Journal, 12*(7), 509-522.

Thompson, E. R. (2009). Individual entrepreneurial intent: Construct clarification and development of an internationally reliable metric. *Entrepreneurship Theory and Practice, 33*(3), 669-694.

Tihanyi, L., Ellstrand, A. E., Daily, C. M., & Dalton, D. R. (2000). Composition of the top management team and firm international diversification. *Journal of Management, 26*(6), 1157-1177.

Tollefsen, D. (2002). Organizations as true believers. *Journal of Social Philosophy, 33*(3), 395-410.

Tortella, B. D., Gomez-Mejía, L. R., De Castro, J. O., & Wiseman, R. M. (2005). Incentive alignment or perverse incentives? A behavioral view of stock options. *Management Research, 3*(2), 109-120.

Tuggle, C., Schnatterly, K., & Johnson, R. (2010). Attention patterns in the boardroom: How board composition and processes affect discussion of entrepreneurial issues. *Academy of Management Journal, 53*(3), 550-571.

Tushman, M. L., & Romanelli, E. (1985). Organizational evolution: A metamorphosis model of convergence and reorientation. In L. L. Cummings & B. M. Staw (Eds.), *Research in organizational behavior* (Vol. 7, pp. 171-222). Greenwich, CT: JAI Press.

U.S. Securities and Exchange Commission. (2011, September 2). Annual Report. Retrieved April 11, 2013, from http://www.sec.gov/answers/annrep.htm

Ucbasaran, D., Westhead, P., & Wright, M. (2001). The focus of entrepreneurial research: Contextual and process issues. *Entrepreneurship Theory and Practice, 25*(4), 57-80.

Venkataraman, S., Van de Ven, A. H., Buckeye, J., & Hudson, R. (1990). Starting up in a turbulent environment: A process model of failure among firms with high customer dependence. *Journal of Business Venturing, 5*(5), 277-295.

Venkatraman, N., & Ramanujam, V. (1986). Measurement of business performance in strategy research: A comparison of approaches. *Academy of Management Review, 11*(4), 801-814.

Verbeke, A., Chrisman, J. J., & Yuan, W. (2004). *Subsidiary entrepreneurship in multinational enterprises: A behavioral theory perspective*. Mimeo.

Verbeke, A., Chrisman, J. J., & Yuan, W. (2007). A note on strategic renewal and corporate venturing in the subsidiaries of multinational enterprises. *Entrepreneurship Theory and Practice, 31*(4), 585-600.

Voss, G. B., Sirdeshmukh, D., & Voss, Z. G. (2008). The effects of slack resources and environmental threat on product exploration and exploitation. *Academy of Management Journal, 51*(1), 147-164.

Voss, Z. G., Voss, G. B., & Moorman, C. (2005). An empirical examination of the complex relationships between entrepreneurial orientation and stakeholder support. *European Journal of Marketing, 39*(9/10), 1132-1150.

Vroom, V. H. (1964). *Work and motivation*. New York, NY: Wiley.

Wales, W., Monsen, E., & McKelvie, A. (2011). The organizational pervasiveness of entrepreneurial orientation. *Entrepreneurship Theory and Practice, 35*(5), 895-923.

Walter, A., Auer, M., & Ritter, T. (2006). The impact of network capabilities and entrepreneurial orientation on university spin-off performance. *Journal of Business Venturing, 21*(4), 541-567.

Wang, C. L. (2008). Entrepreneurial orientation, learning orientation, and firm performance. *Entrepreneurship Theory and Practice, 32*(4), 635-657.

Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal, 5*(2), 171-180.

West, G. P., Bamford, C. E., & Marsden, J. W. (2008). Contrasting entrepreneurial economic development in emerging Latin American economies: Applications and extensions of resource-based theory. *Entrepreneurship Theory and Practice, 32*(1), 15-36.

Whetten, D. A. (2006). Albert and Whetten revisited: Strengthening the concept of organizational identity. *Journal of Management Inquiry, 15*(3), 219-234.

Whetten, D. A., Felin, T., & King, B. G. (2009). The practice of theory borrowing in organizational studies: Current issues and future directions. *Journal of Management, 35*(3), 537-563.

Whetten, D. A., & Mackey, A. (2002). A social actor conception of organizational identity and its implications for the study of organizational reputation. *Business & Society, 41*(4), 393-414.

Wiklund, J. (1999). The sustainability of the entrepreneurial orientation-performance relationship. *Entrepreneurship Theory and Practice, 24*(1), 37-48.

Wiklund, J., & Shepherd, D. A. (2003). Knowledge based resources, entrepreneurial orientation, and the performance of small and medium-sized businesses. *Strategic Management Journal, 24*(13), 1307-1314.

Wiklund, J., & Shepherd, D. A. (2005). Entrepreneurial orientation and small business performance: A configurational approach. *Journal of Business Venturing, 20*(1), 71-91.

Wiklund, J., & Shepherd, D. A. (2011). Where to from here? EO-as-experimentation, failure, and distribution of outcomes. *Entrepreneurship Theory and Practice, 35*(5), 925-946.

Williams, L. J., Edwards, J. R., & Vandenberg, R. J. (2003). Recent advances in causal modeling methods for organizational and management research. *Journal of Management, 29*(6), 903-936.

Williams, L. J., Vandenberg, R. J., & Edwards, J. R. (2009). Structural equation modeling in management research: A guide for improved analysis. *Academy of Management Annals, 3*(1), 543-604.

Wiseman, R. M., & Gomez-Mejia, L. R. (1998). A behavioral agency model of managerial risk taking. *Academy of Management Review, 23*(1), 133-153.

Zahra, S. A. (1991). Predictors and financial outcomes of corporate entrepreneurship: An exploratory study. *Journal of Business Venturing, 6*(4), 259-285.

Zahra, S. A. (1993a). A conceptual model of entrepreneurship as firm behavior: A critique and extension. *Entrepreneurship Theory and Practice, 17*(4), 5-21.

Zahra, S. A. (1993b). Environment, corporate entrepreneurship, and financial performance: A taxonomic approach. *Journal of Business Venturing, 8*(4), 319-340.

Zahra, S. A. (1993c). New product innovation in established companies: Associations with industry and strategy variables. *Entrepreneurship Theory and Practice, 18*(2), 47-70.

Zahra, S. A. (1995). Corporate entrepreneurship and financial performance: The case of management leveraged buyouts. *Journal of Business Venturing, 10*(3), 225-247.

Zahra, S. A. (1996). Governance, ownership, and corporate entrepreneurship: The moderating impact of industry technological opportunities. *Academy of Management Journal, 39*(6), 1713-1735.

Zahra, S. A., & Covin, J. G. (1995). Contextual influences on the corporate entrepreneurship-performance relationship: A longitudinal analysis. *Journal of Business Venturing, 10*(1), 43-58.

Zahra, S. A., & Garvis, D. M. (2000). International corporate entrepreneurship and firm performance: The moderating effect of international environmental hostility. *Journal of Business Venturing, 15*(5/6), 469-492.

Zahra, S. A., Jennings, D. F., & Kuratko, D. F. (1999). The antecedents and consequences of firm-level entrepreneurship: The state of the field. *Entrepreneurship Theory and Practice, 24*(2), 47-67.

Zahra, S. A., Neubaum, D. O., & Huse, M. (2000). Entrepreneurship in medium-size companies: Exploring the effects of ownership and governance systems. *Journal of Management, 26*(5), 947-976.

Zahra, S. A., Sapienza, H. J., & Davidsson, P. (2006). Entrepreneurship and dynamic capabilities: A review, model and research agenda. *Journal of Management Studies, 43*(4), 917-955.

Zhao, Y., Li, Y., Lee, S. H., & Chen, L. B. (2010). Entrepreneurial orientation, organizational learning, and performance: Evidence From China. *Entrepreneurship Theory and Practice, 35*(2), 293-317.

APPENDIX A

Details of the Literature Review on Entrepreneurial Orientation

The broad review of top management and entrepreneurship journals undertaken for this assessment includes those peer-reviewed academic journals previously identified in past reviews of entrepreneurship research (e.g., Busenitz et al., 2003; Short, Ketchen, Shook, & Ireland, 2010). The EBSCO database was searched for articles, regardless of time period, in which "entrepreneurial orientation" or "entrepreneurial posture" were used in the title, keywords, or abstract. Journals targeted for the search included *Academy of Management Journal*, *Academy of Management Review*, *Entrepreneurship Theory and Practice*, *Journal of Business Venturing*, *Journal of Management*, *Journal of Management Studies*, *Management Science*, *Organization Science*, *Strategic Entrepreneurship Journal*, and *Strategic Management Journal*. The EBSCO search resulted in sixty-three relevant scholarly articles. Table A1 lists each of these articles (plus the seminal 1983 article by Danny Miller) and offers a brief summary of the contribution. These articles serve as the core of the literature review, but examination of their reference sections led to other potentially relevant articles that contributed to an understanding of EO and the identification of significant knowledge gaps related to the concept.

Table A1. List of articles in top journals featuring entrepreneurial orientation.

Authors	Year	Journal	Summary
Miller, D.	1983	MS	Outlines three types of firms from which to draw differential characteristics with regard to entrepreneurship. Simple firms are based upon centralization and the individual characteristics of the leader. Planning firms are most closely linked with explicit strategies, which ritualize and systematize innovation and entrepreneurship. Organic firms act entrepreneurially based on the demands of their environments and the capacities of their structures. Also critical in this work was Miller drawing three key sub-dimensions of entrepreneurial action for existing firms: innovation, proactiveness, and risk-taking.
Morris, M. H., & Paul, G. W.	1987	JBV	Examines the relationship between EO and marketing orientation, both of which represent strategic responses to turbulent environments faced by current firms. Results suggest that entrepreneurial scores were higher for firms in which there was a formal marketing department, in which marketing professionals were in senior executive positions, in which marketing research is a regular activity, and where marketing is felt to play a major role in innovation and the strategic direction of the firm.
Covin, J. G., & Slevin, D. P.	1988	JMS	Examines the influence of organizational structure on the relationship between top management's EO and financial performance. Find that an entrepreneurial top management style has a positive effect on the performance of organically-structure firms and a negative effect on the performance of mechanistically-structured firms, and the better the EO is aligned with the structure (high EO, organic; low EO, mechanistic), the better the firm will perform.

Table A1. List of articles in top journals featuring entrepreneurial orientation.

Authors	Year	Journal	Summary
Covin, J. G., & Slevin, D. P.	1989	SMJ	Investigates the effective strategic responses to environmental hostility on a sample of small manufacturing firms. Find that performance among small firms in hostile environments was positively related to organic structure, a high EO, and a competitive profile characterized by a long-term orientation, high product prices, and a concern for predicting industry trends. In benign environments, performance was positively related to a mechanistic structure, low EO, and a competitive profile characterized by conservative financial management and a short-term financial orientation, an emphasis on product refinement, and a willingness to rely heavily on single customers.
Covin, J. G.	1991	JMS	Studies business strategies and performance levels of firms with entrepreneurial and conservative postures. Results indicate that entrepreneurial firms differ from conservative firms in terms of their growth rates, as well as several financial (external financing, customer credit), operating (customer service, high quality), and marketing-related (superior warranties, high prices, prediction of customer and industry trends) variables, suggesting that patterns of strategic behavior associated with high performance are different for these two types of firms.
Miles, M. P., & Arnold, D. R.	1991	ETP	Finds that, while correlated, EO and marketing orientation are not the same construct and do not represent the same underlying business philosophy (contrary to Morris & Paul, 1987)

Table A1. List of articles in top journals featuring entrepreneurial orientation.

Authors	Year	Journal	Summary
Robinson, P. B., Stimpson, D. V., Huefner, J. C., & Hunt, H. K.	1991	ETP	Presents attitude theory as an alternative to trait and demographic approaches used to study entrepreneurs. Also explains the development and validation of the Entrepreneurial Attitude Orientation scale, based on attitude theory and designed to predict entrepreneurship.
Ramachandran, K., & Ramnarayan, S.	1993	JBV	Finds that Indian entrepreneurs with high pioneering and innovative (PI) scores resorted to networking to raise capital resources more than those with low PI scores. High PI did not merely adopt the suggestions or ideas acquired from their networks, but synthesized them in a way that resulted in substantial learning. Networks, especially with inner circle contacts, provided hard resources such as capital and technology. Family and friends form the major sources of resources.

Table A1. List of articles in top journals featuring entrepreneurial orientation.

Authors	Year	Journal	Summary
Covin, J. G., Slevin, D. P., & Schultz, R. L.	1994	JMS	Investigates the impact of strategic mission on the relationships between firm performance and selected strategic, structural, and tactical variables. Found that firms with build-oriented strategic missions, relative to those with more hold- and harvest-oriented strategic missions, performed better when had high EO, had organic organizational structures, offered relatively low prices, employed relatively large sales forces, offered relatively generous customer credit, and offered relatively broad product lines. Firms with hold- and harvest-oriented strategic missions performed better when they emphasized R&D activity geared toward the development and refinement of existing products. Strategic mission did not moderate the effectiveness of the firms' advertising expenditures or their new product development activity.
Merz, G. R., & Sauber, M. H.	1995	SMJ	Addresses the contingency issues of managerial activities and reports the results of a study that configures such activities in small firms. Find that small firms can be classified based on perceived differences in strategy, structure, and the environments they face, and they display managerial and structural consistency when faced with similar contextual situations. Developed a taxonomy of four distinct configurations describing the managerial profiles among small firms. Used proactiveness and innovativeness dimensions of EO in profiling contingencies, as well as environmental turbulence (dynamism, hostility, and heterogeneity).

Table A1. List of articles in top journals featuring entrepreneurial orientation.

Authors	Year	Journal	Summary
Lumpkin, G. T., & Dess, G. G.	1996	AMR	Defines EO as the "processes, practices, and decision-making activities that lead to new entry." Suggests it emerges from strategic choice literature. Refines and discusses EO as a multi-dimensional construct (with 5 sub-dimensions), then suggests alternative models for testing the EO-performance relationship, including moderating, mediating, interaction, and independent effects, primarily focusing on a contingency framework.
Becherer, R. C., & Maurer, J. G.	1997	ETP	Looks at relationship between EO and marketing orientation, as well as the relationship between the two and firm performance. Suggest environmental turbulence and hostility as moderators for all of the relationships (neither moderated the EO-performance relationship).
Dickson, P. H., & Weaver, K. M.	1997	AMJ	Identifies and tests perceived environmental uncertainty as a multidimensional construct. They also find that perceived environmental uncertainty predicts alliance use, and provides evidence that variations in EO and individualism/collectivism orientation can influence how managers perceive the environments of their firms and react to those perceived environments in terms of alliance use.

Table A1. List of articles in top journals featuring entrepreneurial orientation.

Authors	Year	Journal	Summary
Knight, G. A.	1997	JBV	Tests a foreign language (French) version of the Khandwalla (1977)/Miller & Friesen (1978)/ Covin & Slevin (1989) scale for EO and tests the utility in cross-cultural settings (in Canada) as a means to validate it for use abroad.
Cahill, D. J.	1998	AMR	Offers a brief dialogue about entrepreneurs from his experience as a marketing and management consultant, offering that entrepreneurs may face some inertia on their initial innovations due to their past track record of success and attraction to their own innovation(s).
Covin, J. G., & Miles, M. P.	1999	ETP	Proposes a typology of corporate entrepreneurship based on four elements: sustained regeneration, organizational rejuvenation, strategic renewal, and domain redefinition. Sustained regeneration is the process of regularly and continuously introducing new products and services or entering new markets. Organizational rejuvenation is seeking to sustain or improve competitive standing by altering internal processes, structures, and/or capabilities. Strategic renewal is redefining the relationship with markets or industry competitors by fundamentally altering how it competes. Domain redefinition is proactively creating a new product-market arena that others have not recognized or actively sought to exploit. The authors also tie each form of CE into the multiple bases for competitive advantage.

Table A1. List of articles in top journals featuring entrepreneurial orientation.

Authors	Year	Journal	Summary
Wiklund, J.	1999	ETP	Looks at the compounding performance effect of EO (rather than just performance implications for individual years). Results indicate a positive relationship between EO and performance (using growth and financial performance indicators), such that the effects of EO appear to be long-term and persistent rather than short term and a "quick fix" (at least for a two-year period).
Doh, J. P.	2000	AMR	Offers conceptual piece on privatization strategies. Integrate EO by proposing that firms with a high EO are likely to be first movers, and will thusly be more likely to take advantage of and benefit from privatization opportunities.
Lyon, D. W., Lumpkin, G. T., & Dess, G. G.	2000	JOM	Defines EO as "processes, structures, and/or behaviors" described using 5 sub-dimensions. Reviews three approaches to measuring EO: managerial perceptions, firm behaviors, and resource allocations. Looks at both advantages and disadvantages.
McCline, R. L., Bhat, S., & Baj, P.	2000	ETP	Investigates the issue of entrepreneurial uniqueness and the frequently presumed tendency of the entrepreneur to recognize opportunities in his/her relevant environment. Creates a new scale for entrepreneurial opportunity recognition.

Table A1. List of articles in top journals featuring entrepreneurial orientation.

Authors	Year	Journal	Summary
Brown, T. E., Davidsson, P., & Wiklund, J.	2001	SMJ	Develops an instrument to test Stevenson's (1983) conceptualization of "entrepreneurial management," with results identifying six sub-dimensions: strategic orientation, resource orientation, growth orientation, entrepreneurial culture, management structure, and reward philosophy. Further investigation shows these dimensions only partially overlap with EO.
Lumpkin, G. T., & Dess, G. G.	2001	JBV	Explores the dimensionality of proactiveness and competitive aggressiveness and how these dimensions might be related to each other and to performance. Results suggest the two are distinct dimensions of EO, but proactiveness is strong positive and competitive aggressiveness is not statistically relevant to performance. Early stage industry is good for proactive firms, but more mature are better for aggressive firms. Proactiveness is most effective in a dynamic and/or hostile environments
Kreiser, P. M., Marino, L. D., & Weaver, K. M.	2002	ETP	Provides cross-cultural validity for Covin & Slevin EO scale on a sample of 1000+ firms across 6 countries. Confirmed with a confirmatory factor analysis (with 3 sub-dimensions). Correlation analysis confirmed the three are able to vary independently of one another in many situations.

Table A1. List of articles in top journals featuring entrepreneurial orientation.

Authors	Year	Journal	Summary
Marino, L., Strandholm, K., Steensma, H. K., & Weaver, K. M.	2002	ETP	Looks at the influence of national culture on the relationship between EO and strategic alliance formation. Found that firms with higher EO will use strategic alliances more extensively (i.e., use a greater number of agreements) that those with low EO. The relationship is strengthened in countries that demonstrate either feminine or collective characteristics.
Tan, J.	2002	ETP	Seeks to isolate the role of cultural and national differences in order to test their relationship to entrepreneurial perceptions of environment and strategic orientations. Find that national differences have a more significant impact than cultural differences on entrepreneurial beliefs, specifically that Chinese-American and Caucasian-American entrepreneurs tend to share more similarities when compared with their counterparts in mainland China.
Wiklund, J., & Shepherd, D.	2003	SMJ	Primary contribution is that EO moderates the relationship between a bundle of knowledge-based resources (applicable to opportunity discover and exploitation) and firm performance (i.e., the willingness to be innovative, proactive, and take risks enhances the positive impact of knowledge-based resources on performance). Also suggests a contingent relationship between EO and characteristics internal to the firm.

Table A1. List of articles in top journals featuring entrepreneurial orientation.

Authors	Year	Journal	Summary
Richard, O. C., Barnett, T., Dwyer, S., & Chadwick, K.	2004	AMJ	Analyzes the diversity-performance curvilinear relationship with different dimensions of EO as moderators. Study revealed that innovativeness positively and risk taking negatively moderated the nonlinear relationship patterns for both racial and gender management heterogeneity.
Sapienza, H. J., De Clercq, D., & Sandberg, W. R.	2005	JBV	Examines the antecedents of international and domestic learning efforts in independent firms. Find that early entry into foreign markets and an EO are positively related to a culture that promotes learning effort in international and domestic markets. The degree of internationalization is negatively related to domestic learning effort, but not significant with international learning effort.
Wiklund, J., & Shepherd, D.	2005	JBV	Using a sample of 413 Swedish firms (and a lagged dataset), finds that while an EO positively influences small business performance, relying solely on a main effect relationship provides an incomplete understanding of small business performance. A greater understanding is gained by the concomitant consideration of EO, access to capital, and environmental dynamism (3-way interaction). The nature of the configurations suggests that businesses that face performance constraints, in terms of a stable environment and limited access to capital, can be superior performers if they have high EO. Thus, a high EO provides firms the ability to find and/or discover new opportunities that can differentiate them from other firms and create a competitive advantage.

Table A1. List of articles in top journals featuring entrepreneurial orientation.

Authors	Year	Journal	Summary
Covin, J. G., Green, K. M., & Slevin, D. P.	2006	ETP	Looks at three strategic process variables – strategic decision-making participativeness, strategy formation mode, and strategic learning from failure – on the EO-firm sales growth rate relationship.
Walter, A., Auer, M., & Ritter, T.	2006	JBV	Investigates the impact of network capability (NC; a firm's ability to develop and utilize inter-organizational relationships) and EO on organizational performance. Find that a spin-off's performance is positively influence by NC and the spin-off's EO fosters competitive advantages. Results show that NC strengthens the relationship between EO and spin-off performance.
Keh, H. T., Nguyen, T. T. M., & Ng, H. P.	2007	JBV	Finds that EO plays an influential role on the acquisition and utilization of marketing info, and also has a direct effect on firm performance. The utilization of info regarding marketing mix decisions partially mediates the EO-performance relationship.

Table A1. List of articles in top journals featuring entrepreneurial orientation.

Authors	Year	Journal	Summary
Green, K. M., Covin, J. G., & Slevin, D. P.	2008	JBV	Explores the relationship between strategic reactiveness (a firm's ability to adjust its business practices and competitive tactics in response to the perceived efficacy of its strategic actions) and EO, as well as the moderating effect of structure-style fit on this relationship. Results show that strategic reactiveness is not related to EO; however, firms that exhibit theoretically congruent alignments between their organizational structures and top management decision-making styles tend to have positive strategic reactiveness-EO relationships.
Marino, L. D., Lohrke, F. T., Hill, J. S., Weaver, K. M., & Tambunan, T.	2008	ETP	Looks at how environmental shock type, a firm's strategic orientation, and its slack resources affect strategic alliance formation intentions during and immediately following the Asian Financial Crisis. Results from Indonesian SMEs show that these factors influenced alliance intentions, although not always in ways that were consistent with previous research findings in more mature markets. Most hypotheses were not supported, but EO did positively related to strategic alliance intentions (was not moderated by slack in temporary shock environment, was marginally significant ($p<.10$) in permanent shock environment).

Table A1. List of articles in top journals featuring entrepreneurial orientation.

Authors	Year	Journal	Summary
Stam, W., & Elfring, T.	2008	AMJ	Examines how the configuration of a founding team's intra- and extra-industry network ties shapes the relationship between EO and new venture performance. Using a sample from the open-source software industry, find that the combination of high network centrality and extensive bridging ties strengthened the focal link. Among firms with few bridging ties, centrality weakened the relationship between EO and performance.
Tang, J., Tang, Z., Marino, L. D., Zhang, Y., & Li, Q.	2008	ETP	Finds an inverted U-shaped relationship between EO and (both perception and objective) performance in an emerging economy (China).
Wang, C. L.	2008	ETP	Investigates learning orientation (LO) in a sample of medium to large firms as a missing link in the EO-performance relationship. Find that LO mediates the EO-performance relationship, and the EO-LO-performance link is stronger for prospectors than analyzers, indicating that LO must be in place to maximize the effect of EO on performance.
West, G. P., Bamford, C. E., & Marsden, J. W.	2008	ETP	Draws on theories of resource and resource development, as well as qualitative data from two regions of Latin America, to shed light on entrepreneurial economic development in emerging economies through a focus on resource development and the creation of economic sustainability from within.

Table A1. List of articles in top journals featuring entrepreneurial orientation.

Authors	Year	Journal	Summary
Hansen, J. D., Deitz, G. D., Tokman, M., Marino, L. D., & Weaver, K. M.	2009	JBV	Uses a sample of SMEs in seven countries to assess the psychometric properties and cross-national invariance of the Covin & Slevin EO scale. Results highlight a three-factor (innovativeness, proactiveness, and risk-taking), six-item scale and provide additional info regarding the level of measurement equivalence that exists between the US and each of the other countries analyzed.
Lumpkin, G., Cogliser, C. C., & Schneider, D. R.	2009	ETP	Discusses autonomy in the context of EO and how it contributes to entrepreneurial value creation. Both top-down and bottom-up approaches can be used to encourage autonomy. Suggests strategic autonomy is necessary for EO (though structural autonomy is necessary). Reviews existing autonomy scales, and develops and tests a new, more generalizable one.
Monsen, E., & Boss, R. W.	2009	ETP	Uses a modified EO scale as a proxy for strategic entrepreneurship in order to investigate how managers and their staff members perceive and react to entrepreneurial strategies. 3 dimensions of EO are associated with less role ambiguity and intention to quit (contrary to hypotheses). Also find that intention to quit and perceptions of EO is partially moderated by role ambiguity, and that staff react to an EO posture in a more moderate and consistent manner than management.

Table A1. List of articles in top journals featuring entrepreneurial orientation.

Authors	Year	Journal	Summary
Rauch, A., Wiklund, J., Lumpkin, G. T., & Frese, M.	2009	ETP	A meta-analysis investigating the EO-performance relationship was conducted, using 51 studies with 53 independent samples. Results support a positive relationship. Few studies relied solely on financial performance measures, and few are even lagged. Thus, a must for longitudinal panel studies to help tease apart the causal relationship between EO and performance. Possible moderators include firm age, environmental dynamism, national culture, strategy pursued, and organizational structure.
De Clercq, D., Dimov, D., & Thongpapanl, N. T.	2010	JBV	Investigates internal contingencies (i.e., the roles of social relationships between functional managers and their organizational commitment) of the EO-performance relationship, finding positive moderating effects for higher levels of procedural justice, trust, and organizational commitment. Find a stronger EO-performance relationship when the organization's social context comes closer to an ideal configuration of procedural justice, trust, and organizational commitment that is more conducive to knowledge exchange within the organization.
Kreiser, P. M., Marino, L. D., Dickson, P., & Weaver, K. M.	2010	ETP	Empirically examines the impact of cultural values on two dimensions of firm-level EO (risk-taking & proactiveness). Also explores between-country differences in these dimensions of EO in relation to the institutions representative of national culture. Results suggest that uncertainty avoidance and power distance have a negative influence on risk-taking, and uncertainty avoidance, individualism, and power distance have a negative influence on proactive firm behaviors.

Table A1. List of articles in top journals featuring entrepreneurial orientation.

Authors	Year	Journal	Summary
Kuckertz, A., & Wagner, M.	2010	JBV	Finds that individuals with stronger sustainability orientations exhibited stronger entrepreneurial intentions, but this was negatively moderated by business experience.
Li, Y., Wei, Z., & Liu, Y.	2010	JMS	Finds that knowledge acquisition of vendors in emerging economies positively affects firm performance. Also find that EO of vendors has a positive effect on knowledge acquisition, but relationship between market orientation and knowledge acquisition is an inverted U-shape. The EO-MO interactive effect on knowledge acquisition is positive. These results amplify and extend the understanding of learning activities in cross-border outsourcing from the vendor's view.
Pearce, John, A., Fritz, D. A., & Davis, P. S.	2010	ETP	Investigates whether nonprofit, religious congregations benefit from EO. Found an EO is positively associated with organizational performance in a sample of 250 religious congregations in five different geographical markets.
Simsek, Z., Heavey, C., & Veiga, J. J. F.	2010	SMJ	Proposes and tests a model examining the impact of CEO core self-evaluation on EO using lagged, multi-source data from 129 firms. Results were positive and significant, linking CEO personality on a firm's entrepreneurial proclivity over time. Environmental dynamism was also found to positively moderate the relationship.

Table A1. List of articles in top journals featuring entrepreneurial orientation.

Authors	Year	Journal	Summary
Zhao, Y., Li, Y., Lee, S. H., & Chen, L. B.	2010	ETP	Explores learning mechanisms (experimental/incremental learning (EL), acquisitive learning (AL)) as links between EO and firm performance in an emerging economy (China). Find that EO was positively related to EL but had an inverse U-shaped relationship with AL. Both EL and AL enhanced firm performance although the effects from AL were weaker and became non-significant when external knowledge was embedded into the firm's internal private knowledge.
Coombes, S. M. T., Morris, M. H., Allen, J. A., & Webb, J. W.	2011	JMS	Examines the influence of non-profit boards (as a strategic resource) on the firm's EO and performance. Suggest the board's behavioral orientations (strategic, activist, conservative, and cohesive) serve to define types of opportunities that are acceptable with regard to the non-profit organization's social mission, as well as the activities through which to exploit those opportunities. Develop scales for board behavioral orientation and test a model with EO as the mediator. Find no relationship between EO and financial performance in non-profit context, but did find a relationship between EO and social performance.

Table A1. List of articles in top journals featuring entrepreneurial orientation.

Authors	Year	Journal	Summary
Covin, J. G., & Lumpkin, G.	2011	ETP	Addresses many issues covered or facing EO. Provided a link between EO and CE, including the number of articles devoted to each over the last two years. Argued for EO as a behavior more than a disposition (and that a disposition is created by a pattern of behavior). Address the dimensionality of EO, suggesting that uni-dimensional vs. multidimensional should not be chosen, but that both have a (separate) place in the literature. Suggest subjectivist theory, dynamic capabilities perspective, entrepreneurial dominant logic, and learning theory as fruitful theoretical lenses for advancing EO research. Discussed use as reflective construct (over formative). Also communicated that research on environmental context and dimensionality of EO has dried up, but that looking at entrepreneurial configurations and alternative dimensions of EO may be interesting research directions.
Dess, G. G., Pinkham, B. C., & Yang, H.	2011	ETP	Reviews three papers in the 2011 *Entrepreneurship Theory and Practice* special issue on EO. Offers future research directions on EO, including the descriptive and theoretical generalizability of EO and the context of EO research (such as viewing EO in family firms or in a different institutional setting in an emerging economy like China). Descriptive generalization is the extension of findings in a given sample to the broader population, while theoretical generalization is the declaration of a principle which encompasses a variety of situations.

Table A1. List of articles in top journals featuring entrepreneurial orientation.

Authors	Year	Journal	Summary
George, B. A.	2011	JMS	Examines two different measurement models of the EO construct (formative, reflective) and describes the implications of each model with regard to dimensionality as well as broader theoretical and practical implications for EO studies. A Monte Carlo simulation shows that misspecification of the construct can inflate structural parameter estimates by over 240% and critical ratios by up to 68%, illustrating the threat to the statistical conclusion validity studies and emphasizing the importance of congruence between the theoretical definition of the construct and its measurement.
George, B. A., & Marino, L.	2011	ETP	Examines the evolution of the EO concept to identify areas of concern for future development of knowledge around the construct. Suggest EO as a reflective model utilizing three dimensions that can be extend through the use of a classical classification scheme and that additional subcategories of EO should be developed within the EO conceptual family utilizing new measurement items.
Hoskisson, R. E., Covin, J., Volberda, H. W., & Johnson, R. A.	2011	JMS	Intro to special issue of *Journal of Management Studies* on the future of entrepreneurship. Provides an overview of the articles based upon a framework calling for future directions in entrepreneurship research, including: research into the contributions of BODs into CE; research into EO (existing at levels other than firm, costs of an EO, maximum vs. optimum level of EO for an organization).

Table A1. List of articles in top journals featuring entrepreneurial orientation.

Authors	Year	Journal	Summary
Kreiser, P. M.	2011	ETP	Presents a series of theoretical propositions that provide insight into the impact of EO on knowledge acquisition and knowledge integration/exploitation, as well as the role of network characteristics in impacting these relationships. Argues that EO plays an important role in enhancing levels of acquisitive and experimental learning within firms, and that a firm's ability to directly link itself to disparate sources of knowledge between networks positively moderates the relationship between EO and acquisitive learning, while its ability to maintain a series of strong ties within a network enhances the relationship between EO and experimental learning.
Miller, D.	2011	ETP	Addresses earlier work by stating a core message was not properly communicated: the importance of context when analyzing organizations such that looking at various typologies may explain why research finds conflicting results of a similar measure (on a different sample). Furthermore, reviews EO research in addressing operationalization & measurement, contextual effects, connections to theory, and suggestions for future research direction. Included in this is the need for longitudinal studies and/or qualitative research to better measure the construct, as well as moderating, mediating, and control variables based on theory.

Table A1. List of articles in top journals featuring entrepreneurial orientation.

Authors	Year	Journal	Summary
Miller, D., & Le Breton-Miller, I.	2011	ETP	Develops a model of how role and social identities are shaped by the different social contexts of those who govern, and how these identities influence EO and performance. Also found that in public firms in which ownership is concentrated, owner-CEO identities influenced EO. Lone founder owners had the highest levels of EO, while post-founder family owners were "family nurturers" and had limited EO. Family firm founders exhibited blended identities and demonstrated intermediate levels of EO and performance. Used composite measure of EO: R&D intensity for innovation; percentage of profits reinvested in the company each year compared with that of rivals in the same industry for proactiveness; used magnitude of the fluctuations in a firm's share price that could not be attributed to industry or economic factors for risk taking.
Morris, M. H., Webb, J. W., & Franklin, R. J.	2011	ETP	Presents a new approach for capturing the manifestation of EO in the non-profit context, specifically based on differing motives, processes, and outcomes when compared with for-profits. Discuss limitations of prior attempts to measure entrepreneurial behavior in non-profits, and propose a new measure. Also present a typology of non-profits to highlight the multiple facets of EO in a social entrepreneurship context.

Table A1. List of articles in top journals featuring entrepreneurial orientation.

Authors	Year	Journal	Summary
Perez-Luno, A., Wiklund, J., & Cabrera, R. V.	2011	JBV	Looks at two modes of innovation – generation and adoption, using a theoretical model based on the EO literature. Find that 54% of their sample adopt innovations of other firms, 7% generate innovations internally, while 39% combine the two. Also find that proactivity and risk taking influence the number of innovations generated and the extent to which firms favor generation over adoption and that environmental dynamism moderates one of these relationships.
Rosenbusch, N., Rauch, A., & Bausch, A.	2011	JOM	Investigates the role of EO as the mechanism that transforms advantages provided by the environment into above-average performance. Results show that EO mediates the relationship between three dimensions of the task environment (environmental munificence, dynamism, and complexity) and firm performance.
Slevin, D. P., & Terjesen, S. A.	2011	ETP	Reviews three papers in the 2011 *Entrepreneurship Theory and Practice* special issue on EO. Outlines the potential for a multiplicative construct of EO (IxPxR rather than I+P+R) and offer future research direction in international entrepreneurship.
Wales, W., Monsen, E., & McKelvie, A.	2011	ETP	Examines the questions of how and why EO might pervade organizations heterogeneously along three dimensions: vertically across hierarchy levels, horizontally across business units, and temporally as an organization develops. Proposes three dynamic models of how EO can be manifested and change inside organizations: continuous morphing, ambidextrous, and cyclical wave.

Table A1. List of articles in top journals featuring entrepreneurial orientation.

Authors	Year	Journal	Summary
Wiklund, J., & Shepherd, D. A.	2011	ETP	Introduces a new paradigm for EO research: EO-as-experimentation. While the traditional EO-as-advantage research perspective expects EO to have a positive influence on survival and performance among surviving firms, the EO-as-experimentation expects EO to have negative influence on survival but a positive influence on performance among surviving firms. Results support the EO-as-experimentation perspective. Suggestions for how this paradigm might influence future EO research are offered.

APPENDIX B

Fortune 1000 Firms Used for this Study

As described in the third chapter, 196 (of the original 220) randomly selected 2007 *Fortune* 1000 firms were available for complete data collection across the full ten-year period (2002-2011). Table B1 lists each of the 196 firms, along with their ticker symbol, primary SIC code, and a corresponding description of the primary industry.

Table B1. List of 196 firms used in study.

	TIC	Company Name	SIC Code	Primary Industry
1	A	AGILENT TECHNOLOGIES INC	3825	Electronic Measurement and Test Instruments
2	AA	ALCOA INC	3350	Rolling and Draw Nonferrous Metal
3	ABC	AMERISOURCEBERGEN CORP	5122	Drugs and Proprietary-Wholesale
4	ABG	ASBURY AUTOMOTIVE GROUP INC	5500	Auto Dealers, Gas Stations
5	ABM	ABM INDUSTRIES INC	7340	Services to Dwellings, Other Buildings
6	ACI	ARCH COAL INC	1220	Bituminous Coal, Lignite Mining
7	ADI	ANALOG DEVICES	3674	Semiconductor, Related Device
8	ADP	AUTOMATIC DATA PROCESSING	7374	Computer Processing, Data Prep Services
9	AEE	AMEREN CORP	4931	Electric and Other Services Combined
10	AFL	AFLAC INC	6321	Accident and Health Insurance
11	AGCO	AGCO CORP	3523	Farm Machinery and Equipment
12	AGN	ALLERGAN INC	2834	Pharmaceutical Preparations
13	AKS	AK STEEL HOLDING CORP	3312	Steel Works and Blast Furnaces
14	ALB	ALBEMARLE CORP	2890	Miscellaneous Chemical Products
15	ALL	ALLSTATE CORP	6331	Fire, Marine, Casualty Insurance
16	ALV	AUTOLIV INC	3714	Motor Vehicle Parts, Accessory
17	AM	AMERICAN GREETINGS	2771	Greeting Cards
18	AME	AMETEK INC	3823	Industrial Measurement Instruments
19	ANN	ANN INC	5621	Women's Clothing Stores
20	AOI	ALLIANCE ONE INTL INC	5190	Miscellaneous Nondurable Goods-Wholesale
21	APA	APACHE CORP	1311	Crude Petroleum and Natural Gas
22	APC	ANADARKO PETROLEUM CORP	1311	Crude Petroleum and Natural Gas
23	APD	AIR PRODUCTS & CHEMICALS INC	2810	Industrial Inorganic Chemicals
24	ARW	ARROW ELECTRONICS INC	5065	Electronic Parts, Equip.-Wholesale, Not Elsewhere Classified
25	AVP	AVON PRODUCTS	2844	Perfume, Cosmetic, Toilet Preparations

Table B1. List of 196 firms used in study.

	TIC	Company Name	SIC Code	Primary Industry
26	AZO	AUTOZONE INC	5531	Auto and Home Supply Stores
27	BA	BOEING CO	3721	Aircraft
28	BAC	BANK OF AMERICA	6020	Commercial Banks
29	BAX	BAXTER INTERNATIONAL	2836	Biological Products, Except Diagnostics
30	BC	BRUNSWICK CORP	3510	Engines and Turbines
31	BEN	FRANKLIN RESOURCES INC	6282	Investment Advice
32	BIIB	BIOGEN IDEC INC	2836	Biological Products, Except Diagnostics
33	BLK	BLACKROCK INC	6282	Investment Advice
34	BLL	BALL CORP	3411	Metal Cans
35	BPOP	POPULAR INC	6020	Commercial Banks
36	BWA	BORGWARNER	3714	Motor Vehicle Part, Accessory
37	C	CITIGROUP INC	6199	Finance Services
38	CACI	CACI INTL INC	7373	Computer Integrated System Design
39	CAG	CONAGRA FOODS INC	2000	Food and Kindred Products
40	CAT	CATERPILLAR INC	3531	Construction Machinery and Equipment
41	CB	CHUBB	6331	Fire, Marine, Casualty Insurance
42	CBT	CABOT CORP	2890	Miscellaneous Chemical Products
43	CCK	CROWN HOLDINGS INC	3411	Metal Cans
44	CEG	CONSTELLATION ENERGY GRP INC	4931	Electric and Other Services Combined
45	CHK	CHESAPEAKE ENERGY CORP	1311	Crude Petroleum and Natural Gas
46	CINF	CINCINNATI FINANCIAL CORP	6331	Fire, Marine, Casualty Insurance
47	CIT	CIT GROUP INC	6172	Finance Lessors
48	CLF	CLIFFS NATURAL RESOURCES INC	1000	Metal Mining
49	CLX	CLOROX CO	2842	Special Clean, Polish Preparations
50	CMC	COMMERCIAL METALS	5051	Metals Service Centers-Wholesale

Table B1. List of 196 firms used in study.

	TIC	Company Name	SIC Code	Primary Industry
51	COH	COACH INC	3100	Leather and Leather Products
52	COST	COSTCO WHOLESALE CORP	5399	Miscellaneous General Merchandise Stores
53	CPB	CAMPBELL SOUP CO	2030	Canned, Frozen, Preserved Fruit and Vegetables
54	CQB	CHIQUITA BRANDS INTL INC	100	Agricultural Crop and Livestock Production
55	CR	CRANE CO	3490	Miscellaneous Fabricated Metal Products
56	CSC	COMPUTER SCIENCES CORP	7370	Computer Programming, Data Processing
57	CSX	CSX CORP	4011	Railroads, Line-Haul Operating
58	CTL	CENTURYTEL	4813	Telephone Communications, Except Radiotelephone
59	CVG	CONVERGYS CORP	7389	Business Services, Not Elsewhere Classified
60	CVS	CVS CAREMARK CORP	5912	Drug and Proprietary Stores
61	CVX	CHEVRON	2911	Petroleum Refining
62	CYT	CYTEC INDUSTRIES INC	2890	Miscellaneous Chemical Products
63	D	DOMINION RESOURCES INC	4911	Electric Services
64	EA	ELECTRONIC ARTS INC	7372	Prepackaged Software
65	ED	CONSOLIDATED EDISON INC	4931	Electric and Other Services Combined
66	EMN	EASTMAN CHEMICAL CO	2821	Plastics, Resins, Elastomers
67	ENR	ENERGIZER HOLDINGS INC	3690	Miscellaneous Electrical Machinery, Equipment Supplies
68	ESRX	EXPRESS SCRIPTS HOLDING CO	6411	Insurance Agents, Brokers and Services
69	ETN	EATON CORP	3620	Electrical Industrial Apparatus
70	F	FORD MOTOR CO	3711	Motor Vehicles and Car Bodies
71	FAST	FASTENAL CO	5200	Building Material, Hardware, Garden-Retail
72	FBN	FURNITURE BRANDS INTL INC	2510	Household Furniture
73	FDX	FEDEX CORP	4513	Air Courier Services
74	FISV	FISERV INC	7374	Computer Processing, Data Prep Services
75	FL	FOOT LOCKER	5661	Shoe Stores

Table B1. List of 196 firms used in study.

	TIC	Company Name	SIC Code	Primary Industry
76	FLR	FLUOR CORP	1600	Heavy Construction-Not Building Construction
77	FNF	FIDELITY NATIONAL FINANCIAL	6361	Title Insurance
78	FRED	FRED'S INC.	5331	Variety Stores
79	FRX	FOREST LABORATORIES	2834	Pharmaceutical Preparations
80	FTO	FRONTIER OIL CORP	2911	Petroleum Refining
81	GE	GENERAL ELECTRIC	9997	Industrial Conglomerates
82	GLW	CORNING INC	3679	Electronic Components, Not Elsewhere Classified
83	GT	GOODYEAR TIRE & RUBBER CO	3011	Tires and Inner Tubes
84	HAL	HALLIBURTON CO	1389	Oil and Gas Field Services, Not Elsewhere Classified
85	HD	HOME DEPOT INC	5211	Lumber and Other Building Material-Retail
86	HE	HAWAIIAN ELECTRIC INDUSTRIES	4911	Electric Services
87	HES	HESS CORP	2911	Petroleum Refining
88	HOT	STARWOOD HOTELS & RESORTS	7011	Hotels and Motels
89	HPQ	HEWLETT-PACKARD CO	3570	Computer and Office Equipment
90	HSP	HOSPIRA INC	2834	Pharmaceutical Preparations
91	HST	HOST HOTELS & RESORTS INC	6798	Real Estate Investment Trust
92	IBM	INTL BUSINESS MACHINES CORP	7370	Computer Programming, Data Processing
93	INGR	INGREDION INC	2040	Grain Mill Products
94	ITW	ILLINOIS TOOL WORKS	3540	Metalworking Machinery and Equipment
95	JNJ	JOHNSON & JOHNSON	2834	Pharmaceutical Preparations
96	K	KELLOGG CO	2040	Grain Mill Products
97	KEY	KEYCORP	6020	Commercial Banks
98	KLAC	KLA-TENCOR CORP	3827	Optical Instruments and Lenses
99	L	LOEWS CORP	6331	Fire, Marine, Casualty Ins
100	LEG	LEGGETT & PLATT INC	2510	Household Furniture

Table B1. List of 196 firms used in study.

	TIC	Company Name	SIC Code	Primary Industry
101	LH	LABORATORY CORP OF AMERICA HLDGS	8071	Medical Laboratories
102	LLY	ELI LILLY	2834	Pharmaceutical Preparations
103	LMT	LOCKHEED MARTIN	3760	Guided Missiles and Space Vehicles
104	LNT	ALLIANT ENERGY CORP	4931	Electric and Other Services Combined
105	LPX	LOUISIANA-PACIFIC	2400	Lumber and Wood Products, Except Furniture
106	LUV	SOUTHWEST AIRLINES	4512	Air Transport, Scheduled
107	LXK	LEXMARK INTL INC	3577	Computer Peripheral Equipment, Not Elsewhere Classified
108	MAN	MANPOWERGROUP	7363	Help Supply Services
109	MAR	MARRIOTT INTL INC	7011	Hotels and Motels
110	MEE	MASSEY ENERGY CO	1220	Bituminous Coal, Lignite Mining
111	MHK	MOHAWK INDUSTRIES INC	2273	Carpets and Rugs
112	MHP	MCGRAW-HILL COMPANIES	2731	Book Publishing and Printing
113	MHS	MEDCO HEALTH SOLUTIONS INC	5912	Drug and Proprietary Stores
114	MLM	MARTIN MARIETTA MATERIALS	1400	Mining, Quarry Nonmetal Minerals
115	MON	MONSANTO CO	100	Agricultural Crop and Livestock Production
116	MRO	MARATHON OIL	1311	Crude Petroleum and Natural Gas
117	MSFT	MICROSOFT CORP	7372	Prepackaged Software
118	MTD	METTLER-TOLEDO INTERNATIONAL	3826	Lab Analytical Instruments
119	MTOR	MERITOR INC	3714	Motor Vehicle Parts, Accessory
120	MTW	MANITOWOC CO	3530	Construction, Mining, Material Handling Equipment
121	MUR	MURPHY OIL CORP	2911	Petroleum Refining
122	NBL	NOBLE ENERGY INC	1311	Crude Petroleum and Natural Gas
123	NKE	NIKE INC	3021	Rubber and Plastics Footwear
124	NOC	NORTHROP GRUMMAN CORP	3812	Search, Detection, Navigation, Guidance, Aeronautical Sys.
125	NRG	NRG ENERGY	4911	Electric Services

Table B1. List of 196 firms used in study.

	TIC	Company Name	SIC Code	Primary Industry
126	NSC	NORFOLK SOUTHERN CORP	4011	Railroads, Line-Haul Operating
127	NST	NSTAR	4911	Electric Services
128	NU	NORTHEAST UTILITIES	4911	Electric Services
129	OGE	OGE ENERGY CORP	4931	Electric and Other Services Combined
130	OI	OWENS-ILLINOIS INC	3221	Glass Containers
131	OKE	ONEOK	4923	Natural Gas Transmission and Distribution
132	OLN	OLIN CORP	2810	Industrial Inorganic Chemicals
133	OMI	OWENS & MINOR INC	5047	Medical, Dental, Hospital Equipment-Wholesale
134	PDCO	PATTERSON COMPANIES INC	5047	Medical, Dental, Hospital Equipment-Wholesale
135	PEP	PEPSICO INC	2080	Beverages
136	PFE	PFIZER INC	2834	Pharmaceutical Preparations
137	PG	PROCTER & GAMBLE CO	2840	Soap, Detergent, Toilet Preparations
138	PGR	PROGRESSIVE CORP-OHIO	6331	Fire, Marine, Casualty Insurance
139	PH	PARKER-HANNIFIN CORP	3490	Miscellaneous Fabricated Metal Products
140	PLL	PALL	3569	General Industrial Mach. & Equip., Not Elsewhere Classified
141	PNW	PINNACLE WEST CAPITAL CORP	4911	Electric Services
142	PPC	PILGRIM'S PRIDE CORP	2015	Poultry Slaughter and Process
143	PPG	PPG INDUSTRIES INC	2851	Paints, Varnishes, Lacquers
144	PX	PRAXAIR INC	2810	Industrial Inorganic Chemicals
145	QCOM	QUALCOMM	3674	Semiconductor, Related Devices
146	R	RYDER SYSTEM INC	7510	Auto Rent and Lease, No Drivers
147	RAD	RITE AID CORP	5912	Drug and Proprietary Stores
148	RHI	ROBERT HALF INTL INC	7363	Help Supply Services
149	RKT	ROCK-TENN CO	2650	Paperboard Containers, Boxes
150	SAI	SAIC INC	7373	Computer Integrated Systems Design

Table B1. List of 196 firms used in study.

	TIC	Company Name	SIC Code	Primary Industry
151	SEE	SEALED AIR CORP	2670	Converted Paper, Paperboard Products, Except Boxes
152	SIAL	SIGMA-ALDRICH CORP	2836	Biological Products, Except Diagnostics
153	SII	SMITH INTERNATIONAL INC	2890	Miscellaneous Chemical Products
154	SJM	SMUCKER (JM) CO	2033	Canned Fruit, Vegetables, Preservatives, Jam, Jellies
155	SLGN	SILGAN HOLDINGS INC	3411	Metal Cans
156	SON	SONOCO PRODUCTS CO	2650	Paperboard Containers, Boxes
157	SPG	SIMON PROPERTY GROUP INC	6798	Real Estate Investment Trust
158	SPTN	SPARTAN STORES INC	5411	Grocery Stores
159	SSP	E.W. SCRIPPS CO	2711	Newspaper Publishing and Print
160	STR	QUESTAR CORP	4923	Natural Gas Transmission and Distribution
161	STZ	CONSTELLATION BRANDS	2084	Wine, Brandy and Brandy Spirits
162	SVU	SUPERVALU INC	5411	Grocery Stores
163	SWX	SOUTHWEST GAS CORP	4923	Natural Gas Transmission and Distribution
164	T	AT&T	4813	Telephone Communications, Except Radiotelephone
165	TFX	TELEFLEX INC	3841	Surgical, Medical Instruments, Apparatus
166	TGT	TARGET CORP	5331	Variety Stores
167	THO	THOR INDUSTRIES INC	3790	Miscellaneous Transportation Equipment
168	TJX	TJX COMPANIES INC	5651	Family Clothing Stores
169	TLAB	TELLABS INC	3661	Telephone and Telegraph Apparatus
170	TMK	TORCHMARK CORP	6311	Life Insurance
171	TMO	THERMO FISHER SCIENTIFIC INC	3826	Lab Analytical Instruments
172	TOL	TOLL BROTHERS INC	1531	Operative Builders
173	TSCO	TRACTOR SUPPLY CO	5200	Building Material, Hardware, Garden-Retail
174	TSO	TESORO CORP	2911	Petroleum Refining
175	TWX	TIME WARNER INC	4888	Diversified Multi-Media

Table B1. List of 196 firms used in study.

	TIC	Company Name	SIC Code	Primary Industry
176	TXN	TEXAS INSTRUMENTS INC	3674	Semiconductor, Related Devices
177	TXT	TEXTRON INC	3721	Aircraft
178	UHAL	AMERCO	7510	Auto Rent and Lease, No Drivers
179	UNH	UNITEDHEALTH GROUP INC	6324	Hospital and Medical Service Plans
180	UNM	UNUM GROUP	6321	Accident and Health Insurance
181	USTR	UNITED STATIONERS INC	5045	Computers and Software-Wholesale
182	UTX	UNITED TECHNOLOGIES CORP	3720	Aircraft and Parts
183	VFC	VF CORP	2300	Apparel and Other Finished Products
184	VNO	VORNADO REALTY TRUST	6798	Real Estate Investment Trust
185	VVC	VECTREN CORP	4923	Natural Gas Transmission and Distribution
186	VZ	VERIZON COMMUNICATIONS INC	4812	Radiotelephone Communication
187	WFC	WELLS FARGO & CO	6020	Commercial Banks
188	WGL	WGL HOLDINGS INC	4924	Natural Gas Distribution
189	WLP	WELLPOINT INC	6324	Hospital and Medical Service Plans
190	WM	WASTE MANAGEMENT INC	4953	Refuse Systems
191	WMT	WAL-MART STORES INC	5331	Variety Stores
192	WRB	BERKLEY (WR) CORP	6331	Fire, Marine, Casualty Insurance
193	WY	WEYERHAEUSER CO	2400	Lumber and Wood Products, Except Furniture
194	XRAY	DENTSPLY INTERNATL INC	3843	Dental Equipment and Supplies
195	YRCW	YRC WORLDWIDE INC	4213	Trucking, Except Local
196	ZLC	ZALE CORP	5944	Jewelry Stores

APPENDIX C

Language Dictionaries for Sub-dimensions of Entrepreneurial Orientation

The language dictionaries developed by Short and colleagues (Short, Broberg, et al., 2010; Short et al., 2009) to assess content, external, discriminant, and predictive validity for the EO construct are available in Table C1. Short, Broberg, et al. (2010) provide a detailed description for how the dictionaries were developed and validated.

Table C1. Language dictionaries for entrepreneurial orientation.

Sub-dimension	Content Analysis Words*
Innovation	Ad-lib, adroit, adroitness, bright-idea, change, clever, cleverness, conceive, concoct, concoction, concoctive, conjure-up, create, creation, creative, creativity, creator, discover, discoverer, discovery, dream, dream-up, envisage, envision, expert, form, formulation, frame, framer, freethinker, genesis, genius, gifted, hit-upon, imagination, imaginative, imagine, improvise, ingenious, ingenuity, initiative, initiator, innovate, innovation, inspiration, inspired, invent, invented, invention, inventive, inventiveness, inventor, make-up, mastermind, master-stroke, metamorphose, metamorphosis, neoteric, neoterism, neoterize, new, new-wrinkle, innovation, novel, novelty, original, originality, originate, origination, originative, originator, patent, radical, recast, recasting, resourceful, resourcefulness, restyle, restyling, revolutionize, see-things, think-up, trademark, vision, visionary, visualize
Proactiveness	Anticipate, envision, expect, exploration, exploratory, explore, forecast, foreglimpse, foreknow, foresee, foretell, forward-looking, inquire, inquiry, investigate, investigation, look-into, opportunity-seeking, proactive, probe, prospect, research, scrutinization, scrutiny, search, study, survey
Risk taking	Adventuresome, adventurous, audacious, bet, bold, bold-spirited, brash, brave, chance, chancy, courageous, danger, dangerous, dare, daredevil, daring, dauntless, dicey, enterprising, fearless, gamble, gutsy, headlong, incautious, intrepid, plunge, precarious, rash, reckless, risk, risky, stake, temerity, uncertain, venture, venturesome, wager

** per Short and colleagues (Short, Broberg, et al., 2010; Short et al., 2009)*