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To the Graduate Council:

I am submitting herewith a dissertation written by Kyle Dean Turner entitled "Competition and cooperation: An assessment and integration of seemingly paradoxical actions." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Business Administration.

Russell Crook, Major Professor

We have read this dissertation and recommend its acceptance:

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(Original signatures are on file with official student records.)

Competition and cooperation: An assessment and integration of seemingly paradoxical actions

A Dissertation Presented for the
Doctor of Philosophy
Degree
The University of Tennessee, Knoxville

Kyle Dean Turner
August 2015

Dedication

I dedicate this dissertation to my family and friends who provided their unwavering support and encouragement.

Acknowledgements

This dissertation is the product of a journey filled with the support and guidance of mentors, colleagues, and friends. The challenges and triumphs along the way have helped me grow both personally and professionally, and for that I am grateful to a number of individuals.

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for her continued support and kindness. I'd also like to thank my mother and father, Craig and Sharon Turner. Their steadfast guidance and encouragement have been especially valuable in completing this endeavor.

Abstract

Competition and cooperation represent two foundational elements within the strategic management research domain. While substantial research examining competition or cooperation exists, research assessing these two paradoxical actions simultaneously has been limited. This study leverages the attention based view of the firm and insights from literature examining organizational ambidexterity to further understand if, and how, these two seemingly contradictory actions are managed and leveraged by firms. First, this research identifies and assesses the extent to which attention within the firm shapes competitive and cooperative action. Further, this research conceptually defines and empirically tests curvilinear relationships between competitive and cooperative action and subsequent firm performance. Finally, this study predicts and tests the performance implications associated with balancing competitive and cooperative actions.

The findings suggest that attention to cooperation is associated with subsequent cooperative action, and that the curvilinear relationship between cooperative action and firm performance is moderated by cooperative action diversity such that high levels of action diversity lead to poorer performance. In the context of competitive actions, the results are found to be nonsignificant, but present valuable opportunities for future research.

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CHAPTER 1: INTRODUCTION

Over the past few decades, strategic management has developed into a respected domain of academic inquiry within the social sciences. At the core of strategic management is the means through which firms leverage resources to develop competitive advantages and enhance firm performance (Nag, Hambrick, & Chen, 2007). Indeed, in a recent analysis of how the term strategy has been defined since the field's inception, the general concept of strategy has been characterized as "the dynamics of the firm's relation with its environment for which the necessary actions are taken to achieve its goals and/or increase performance by means of the rational use of resources" (Ronda-Pupo & Guerras-Martin, 2012). While strategic management includes several independent substreams such as competitive dynamics (Chen & Miller, 2012), interorganizational relationships (Parmigiani & Rivera-Santos, 2011), the importance of internal resources (Barney, 1991), and the nature of the external environment (Porter, 1991), the core tenets of strategic management research focus on (1) a firm, (2) its actions, (3) application of resources, and (4) the presence of, and interaction with, an external environment (Nag et al., 2007). Each of these four elements is present in a firm's competitive and cooperative decisions.

Considering the above definition of strategy, one of the core actions firms engage in regularly is competition. Competitive actions are indicative of how a firm attempts to gain a competitive advantage relative to peers, how a firm seeks out and implements strategies, and how a firm leverages internal resources most effectively in the broader external environment (Ketchen, Snow, & Hoover, 2004). Competition research within the domain of strategic management represents the integration of the firm's internal resources, the actions the firm takes to capitalize on these resources, and the environments in which these behaviors are enacted (Ferrier, 2001; Ndofor, Sirmon, & He, 2011; Venkatraman & Prescott, 1990). Due to the clear

parallel between the definition of strategy and the nature of competition, research on competition continues to remain a core stream of research within the domain of strategic management.

On the other hand, cooperation also represents a domain of research within strategic management that has flourished due to clear parallels with the core elements of strategy. Interorganizational relationships at multiple levels have attracted scholarly attention and provided the academic community with rich insights into the motivation and outcomes associated with engaging in cooperative actions (Provan, Fish, & Sydow, 2007; Ring & Van de Ven, 1994). Topics such as how firms select partner firms, how firms manage the dynamics associated with relationships, and how firms manage an alliance portfolio are all representative of how and why firms engage in cooperation (Dyer & Singh, 1998; Jiang, Tao, & Santoro, 2010; Parkhe, 1993). As firms engage in interorganizational relationships, they are directly engaging the external environment and seeking out ways to acquire and leverage resources (Parmigiani & Rivera-Santos, 2011). Considering the extant research conducted on cooperative behaviors of firms, it is clear that cooperation research represents an integral element of strategic management.

While competitive and cooperative behaviors are both core issues within the strategic management research domain, little research has been conducted that integrates both types of behaviors of the firm (Lado, Boyd, & Hanlon, 1997). Considering all firms engage in some type of competitive activity and most firms engage in cooperative relationships, it is clear that the majority of organizations engage in both competitive and cooperative behaviors, rather than one or the other (Dyer & Singh, 1998). Also, research integrating competition and cooperation remains relatively inconclusive as to the nature of the relationship between a firm's competitive and cooperative behaviors (Bengtsson & Kock, 2014). While scholars suggest the two are

related and possibly interdependent, empirical work examining the extent to which these two types of actions are related has been limited (Chen, 2008). In order to further develop strategic management research in the domains of competition and cooperation, it is imperative that research integrate both types of actions of the firm to understand (1) if the two are related, (2) how the two are related, and (3) how the relationship between the two influences a firm's performance. This study surveys existing literature on both competition and cooperation, as well as both attention-based view and ambidexterity literature to further understand how organizations enact and manage competitive and cooperative actions simultaneously.

Competition and Cooperation

Independently, research on competition and cooperation has provided valuable contributions to the literature. Competition research, for example, has extended the management literature by studying how competition impacts interactions with other firms and how firm behaviors relate to the firm's competitive positioning relative to peers (Ferrier, Smith, & Grimm, 1999; Upson, Ketchen, Connelly, & Ranft, 2012). Within the broad domain of competition, competitive dynamics researchers have integrated the interactive nature of competition among firms and how actions and reactions influence the competitive environment of the firm (Rindova, Ferrier, & Wiltbank, 2010). While this external approach to understanding competition provides useful insights as to the nature of realized competition, it does not necessarily identify and address how internal factors such as attention and limitations associated with attention influence the decision and ability to engage in competitive activity. Research within the competition domain have proposed stronger links between micro and macro organizational factors that could provide both fields with rich insights (Chen & Miller, 2012). Within the competitive research domain, research that simultaneously integrates and examines external contingencies with

internal characteristics could offer a strong contribution and extension of the competition literature.

While competition research has been an integral part of strategic management research, researchers focused on cooperation have also made valuable contributions to the literature. Building off of the proverb that ‘no man is an island,’ cooperation research suggests that no organization truly exists completely independent of its relationships with others (Parmigiani & Rivera-Santos, 2011). Cooperation research has flourished in terms of identifying the motivation for interorganizational relationships, digging deeper into how firms manage cooperation within a dyad, and also identified how a firm develops a network of cooperative engagements (Hillman, Withers, & Collins, 2009; Provan et al., 2007). Traditionally, research has provided valuable insights into joint ventures and alliances among industry peers as a means for assessing a firm’s cooperative behaviors (Ahuja, Lampert, & Tandon, 2008; Brouthers & Hennart, 2007); however, firms also engage upstream and downstream partners for cooperative relationships (Mayer & Teece, 2008). Also, while the dynamics associated with dyadic cooperative engagements has proven to be a strong area of focus for cooperation research, little research has identified and assessed how firms manage cooperative engagements holistically from a portfolio perspective that integrates and assesses a firm’s entire set of cooperative behaviors simultaneously (Wassmer, 2010). While much research has been done on interorganizational relationships, ample opportunities exist in areas such as non-industry relationships and also focusing attention on a firm’s cooperative portfolio in its entirety rather than at the dyad level.

While both competition and cooperation research streams have developed and flourished independently, the cross-fertilization between these two domains has been limited (Chen, 2008). Research has examined the extent to which network positioning influences competitive

behaviors, and how competition influences cooperation among firms (Gimeno, 2004; Gnyawali & Madhavan, 2001); however, little research has examined the extent to which firms manage and balance these two types of behaviors within the firm. While both competition and cooperation have been studied extensively by strategic management scholars, integration of these two domains of inquiry will provide strong contributions to both independent streams of research and strategic management research at large. One of the purposes of this study is to identify and assess the nature of the relationship between competition and cooperation by applying and leveraging theoretical insights from the attention-based view of the firm and the ambidexterity literature. By coupling the insights from the attention-based view with the logic presented in the existing ambidexterity literature (March, 1991; Ocasio, 1997), the following section elaborates on how these theoretical foundations provide an appropriate lens through which to view the competition and cooperation paradox.

Theoretical Background

Integrating competition and cooperation into a research model necessitates the application of theories that can shed light on how two seemingly contradictory actions can be related and how these actions are managed by the firm. Competition and cooperation are manifested in the actions of the firm, and these actions are indicative of where a firm directs its attention (Cyert & March, 1963). As such, the attention based view (ABV) of the firm can be leveraged as a means for understanding how a firm's actions are a result of where the firm directs its organizational attention and focuses its finite cognitive resources (Ocasio, 1997). Firms develop strategies, apply resources, and enact behaviors based on the extent to which they structure and focus their organizational attention as a means for improving performance (Nadkarni & Barr, 2008). Where a firm focuses attention will likely be manifested in firm

actions, and these actions, in turn, are likely to be related to the firm's performance. As such, I present a research model that assesses where firms focus attention, the firms subsequent actions, and the performance associated with these previous actions. While the attention based view of the firm suggests that an organization's attention is likely to predict its actions (Ocasio, 2011), little research has explicitly focused on attention at the firm level.

A second literature that can provide insights into the nature of the relationship between competition and cooperation can be found in the research on ambidexterity. Ambidexterity research suggests that firms engage in exploratory and exploitative behaviors and must manage these behaviors in a way that maximizes the firm's performance (March, 1991). Exploratory behaviors are represented by behaviors focused on developing new products and pioneering new technologies, whereas exploitative behaviors are represented by how a firm hopes to capitalize on its existing technologies or leveraging current resources to improve performance (He & Wong, 2004). The exploration versus exploitation paradox shares many parallels with the discussion about how competition and cooperation may be related, namely the extent to which these behaviors are directly or interactively related (Gupta, Smith, & Shalley, 2006). The core elements of ambidexterity that are critical to understanding the current research model are (1) the paradoxical nature of competition and cooperation and (2) the concept of balance of these seemingly opposing actions. By leveraging insights from the ambidexterity literature, this study takes a critical first step to clarify some of the questions regarding if and how competition and cooperation are related and may need to co-exist.

Research Model

The purpose of this study is to address two gaps in the competition and cooperation research streams—namely the lack of integration across these two streams of research and the

integration of micro and macro factors of the firm simultaneously. This study also seeks to extend the theoretical application of both the attention-based view of the firm and ambidexterity literature to further understand the nature of the relationship between competition and cooperation. The present study makes one of the first applications of attention-based view of the firm to the organizational level, and also extends the ambidexterity logic to a new context by assessing how the predictions from ambidexterity relate to how a firm balances competition and cooperation and how this balance influences the firm's performance. Finally, the nature and diversity of competitive and cooperative actions are identified as important moderators of how competition, cooperation, and the balance of these two influence a firm's performance. Each of these issues is discussed below.

The attention-based view of the firm suggests that where a firm focuses its organizational attention is also where actions will be enacted (Ocasio, 1997). As such, the front end of the model displayed in Figure 1 proposes that where a firm directs its attention is positively related to the actions that are indicative of this type of attention. For example, if a firm is investing heavily in product innovation and R&D, it is likely that the firm will engage in competitive actions that are related to this attention to product development. These include actions initiated by a focal firm, as well as reactive competitive actions that are responses to the behaviors of other competitors (Ferrier, 2001). On the flip side, it can also be expected that a firm that invests attention in joint research collaborations (Rothaermel & Deeds, 2004), the firm will engage in higher levels of cooperation in these domains, as well. Finally, the attention-based view of the firm also suggests that organizations tend to continue in existing domains where they previously and currently focus attention. As a result of inertial forces associated with attention, where the organization directed its attention in the past is likely to be seen in the present (Ocasio, 2011).

As such, this study proposes a positive relationship between previous attention to competitive and cooperative behaviors and current competitive and cooperative behaviors, respectively.

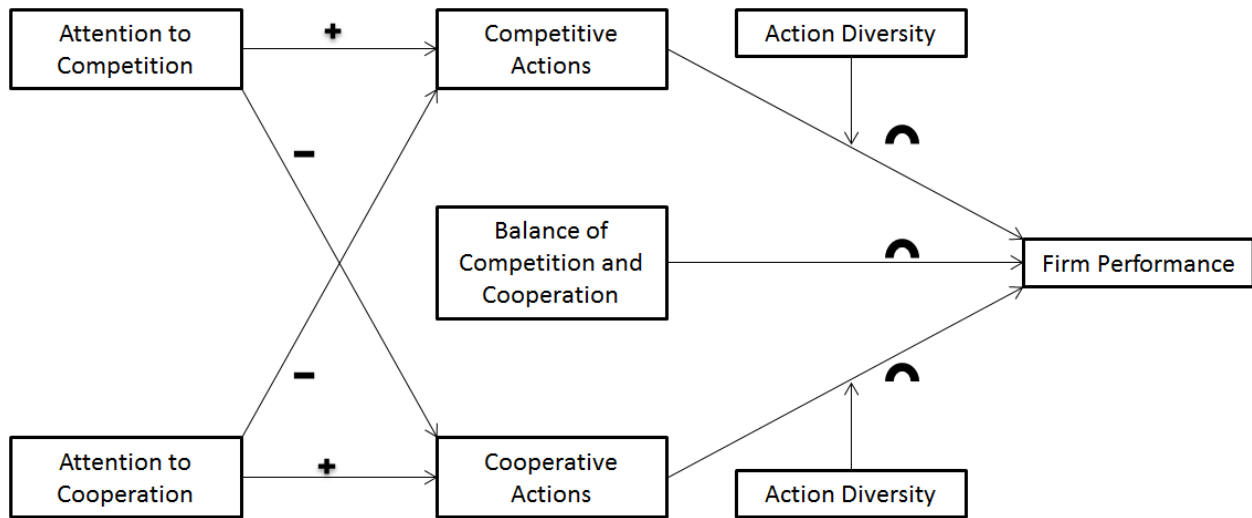


Figure 1.1: Research Model

While the attention-based view suggests that focusing attention on competition and cooperation will increase the likelihood of these types of actions, this study extends that relationship to assess how the attention to and enactment of these actions influences firm performance. A core tenet of the attention-based view of the firm is derived from the concept of bounded rationality (Simon, 1947), and the theory suggests that firms have limited amounts of attention to direct towards different organizational issues and actions. This study proposes a curvilinear relationship between both competition and cooperation and subsequent firm performance due to the inherent attention constraints of the organization. As a firm increases the number of competitive and cooperative behaviors, it is proposed here that the positive relationship does not continue infinitely but has diminishing returns. Bounded rationality and the development and application of heuristics both support this argument by suggesting that as a firm

tries to direct attention to too many actions and behaviors, the firm will not be able to effectively (1) manage the variety of actions and (2) focus and maximize the utility of each type of action of the firm.

While this study contributes to both the competition and cooperation literature by identifying organizational attention as an important predictor of these behaviors and how this influences performance, it also contributes to the literature by integrating both of these phenomena as potentially interdependent behaviors (Chen, 2008). The logic presented in the ambidexterity literature, though often applied to the concepts of exploration and exploitation, provide valuable insight into how the balance of what may be seen as conflicting behaviors can be mutually beneficial (Lewis, 2000). Ambidexterity logic proposes that, in order to outperform competitors, a firm must balance the demands for new innovation and exploiting existing resources and competencies (He & Wong, 2004). The relationship between exploration and exploitation has seen ample attention from researchers (Raisch & Birkinshaw, 2008); however, the logic of ambidexterity and empirical examination of the nature of the relationship between competition and cooperation has been scarce. The present study takes an important first step to identifying if and how the balance of competition and cooperation influences a firm's performance through the lens of ambidexterity.

This study also proposes the relationships between competition and cooperation and performance are likely to be influenced by the type or variety of firm actions. For example, as a firm engages in a variety of types of actions, these actions may require too much of the firm's limited resources. As such, the firm's performance may deteriorate faster with a more diverse portfolio of competitive and cooperative actions (Ferrier & Lyon, 2004). In essence, firms may struggle to maximize the value associated with these behaviors due to being stretched too thin.

Not only does this study provide an initial empirical examination of competition and cooperation balance, it also breaks ground on identifying and testing important contingencies that are likely to influence the main effect relationship.

Based on the previous discussion the purpose of this research is to examine a holistic model of organizational attention, how this attention is manifested in firm behaviors, and how these behaviors influence a firm's performance. As such, the goals of this research can be summarized as:

- (1) Does the attention-based view of the firm predict competitive and cooperative actions?
- (2) Does the independent *level* of competition and cooperation influence firm performance?
- (3) Does type of competitive or cooperative action influence the relationship between competition/cooperation and performance?
- (4) Does the integrative *balance* of competitive and cooperative actions influence a firm's performance?

Methodology Overview

In order to test the relationships and model presented above, this study presents a test of organizational attention, nature and number of competitive and cooperative actions, and firm performance. To assess the research model, it is necessary to identify and analyze contexts in which competition and cooperation are common behaviors. As such, the sample is drawn from industries characterized by these actions. The data is collected from a longitudinal sample of 15 medical device manufacturing firms and 15 oil and gas field services firms across the 10-year period ranging from 2003-2013. This sample provides a unique context in which to study the effects of attention and competitive and cooperative behaviors on firm performance. Content analysis is conducted and applied to annual reports as well as news reports, coupled with

cooperation data from the SDC Platinum database and financial metrics available from Compustat. Measures used in the study have been derived from existing literature, while new measures have also been developed and applied to examine constructs that have yet to be empirically assessed in the existing literature. The relationships within the model are analyzed using OLS regression to examine both linear and non-linear relationships.

Conclusion

The present study proposes several contributions to both competition and cooperation literature, and also contributes to and extends the theoretical bounds of the attention-based view of the firm and ambidexterity literature. First, this study identifies and assesses the potential for a curvilinear relationship between both competition and cooperation and subsequent firm performance. It is proposed, based on the concept of bounded rationality and misappropriated heuristics (Cyert & March, 1963; Haleblan & Finkelstein, 1999), that attentional constraints of the firm limit a firm's ability to capitalize on competitive and cooperative actions. It also suggests diversity of competitive and cooperative actions as an important moderator of the curvilinear relationships proposed. Second, this study takes an initial examination of how the balance between competition and cooperation influences a firm's performance. Third, it contributes theoretically to both the attention-based view of the firm and also the ambidexterity literature. This study is one of the first to address the organizational attention that is theorized in Ocasio's (1997) initial conceptualization of the attention-based view of the firm. It also extends the logic of ambidexterity to a related domain by translating the insights associated with the exploration-exploitation balance to a similar conceptualization of seemingly opposing constructs of competition and cooperation (Gupta et al., 2006). By addressing the questions and

relationships proposed in the research model, this study is expected to make theoretical and conceptual contributions to the field of strategic management.

CHAPTER 2: THEORY AND LITERATURE OVERVIEW

In order to understand the nature of competitive and cooperative behaviors of the firm, it is important to understand the theories and logical frameworks that have been applied and developed in the separate research domains of competition and cooperation. It is also important to identify and assess the theoretical rationale applied to the existing, but limited, research that assesses these two behaviors simultaneously. The existing literature assessing competition and cooperation provides a useful understanding of the state of both domains, and also identifies opportunities for future analysis and integration.

This chapter provides a review of the relevant literature that identifies the current state of both the research on competition and cooperation, as well as an overview of the attention-based view and ambidexterity literature. By coupling the literature associated with competition and cooperation with the current state of the attention-based view of the firm and ambidexterity literature, this study proposes contributions to both of the research domains of competition and cooperation and theory extension and application. The review leads to the identification of a research opportunity that integrates both research domains with new theories that provide the logical framework necessary, and appropriate, for understanding how firms manage and capitalize on competition and cooperation simultaneously.

Relevant Competition Literature Overview

As one of the central tenets and foundational cornerstones of strategic management research, competition has been the focus of ample amounts of scholarly inquiry and analysis (Baum & Korn, 1996; Miller, 1996; Smith, Ferrier, & Ndofor, 2001). Considering the fundamental role competition plays in strategic management, scholars have identified and analyzed phenomena from an external perspective, as well as an internal perspective in order to

understand the motivations for, and the outcomes of, competitive behavior (Ferrier, 2001; Ketchen et al., 2004). While the phenomenon of competition has been heavily studied, numerous opportunities exist to extend, integrate, and contribute to the existing literature. In this section, an overview of the relevant prior research and theoretical logics will be reviewed, followed by the identification of opportunities and research objectives addressed by the current research study. The review of the literature is summarized in Table 2.1.

From a theoretical perspective, a variety of frameworks and logics have been applied to understand the phenomenon of competition. Many are grounded in internal aspects of the firm such as the resource-based view (Barney, 1991) and dynamic capabilities (Teece, Pisano, & Shuen, 1997); however, the dominant theories that have been applied from an external perspective have been drawn from areas such as industrial economics (Porter, 1980), game theory (Nalebuff & Brandenburger, 1996), and network theory (Tsai & Ghoshal, 1998). While these theoretical frameworks are all unique, the majority of recent competition research has fallen under the broad umbrella of competitive dynamics—the study of an interactive and dynamic exchange of behaviors among rivals (Chen & Miller, 2012).

Derived from Austrian Economics and work by Schumpeter (1934), competitive dynamics are largely motivated by the balance between external demands and internal capabilities of the firm. In essence, competitive dynamics suggests that a competitive advantage is a result of factors both internal and external to the firm (Smith et al., 2001). As a result, firms that are able to identify and engage in competitive actions that address external issues, and also acquire and manage resources necessary to enact and capitalize on these actions are likely to have higher levels of performance (Eisenhardt & Martin, 2000). While this overview of theories

applied to competition provide a foundation of understanding how the research has developed, externally and internally oriented theories will be further examined below.

Competition has been analyzed using a variety of lenses, one of which includes a focus on the external factors that influence competitive behaviors of the firm. At the dawn of strategic management, many scholars translated economic concepts and theories to understand how firms behave and what provides firms with competitive advantages over peers. One such broad theoretical lens applied is derived from the IO-Economics perspective provided by Porter (1980). Work drawing from this theoretical framework identified external factors such as industry characteristics and macro-economic conditions that determine the extent to which competitive actions would lead to positive performance outcomes (Khanna & Palepu, 2002). For example, industry growth, the presence and concentration of competitors, the nature of industry dependencies, and the barriers to entry and exit of the industry defined the landscape and competitive conditions firms had to manage in order to survive and thrive among competitors (Derfus, Maggitti, Grimm, & Smith, 2008; Ferrier, 2001).

A second theory that has been leveraged that has an externally-oriented scope is found in network theory (Tsai, 2002). In essence, network theory focuses attention on how firms engage and manage their relative positioning among peers within a larger network of organizations (Gimeno, 2004). Common themes addressed in this literature include the identification of and value capture associated with structural holes, top management team (TMT) social networks, as well as the firm's relative positioning among competitors as key determinants of performance of the firm (Ahuja, 2000). While this research offers valuable insights into competition, it provides a relatively deterministic perspective of competition that lacks an understanding of how firm characteristics and actions shape competitive advantage. As firms continue to manage and adapt

to external contingencies, theories that address external issues alongside internal factors will be critical to understanding the nature of competition as the research within this stream continues to develop and grow.

While research applying IO-Economic principles and theories focuses the lens of attention towards the external environment, other theories have focused attention towards the internal determinants of competitive behaviors and subsequent performance. Two such theories can be found in the foundational logic of RBV and also research applying insights from dynamic capabilities. RBV proposes that organizations engage in competitive behaviors and develop competitive advantages based on the extent to which they are able to acquire and leverage valuable, rare, inimitable, and non-substitutable resources (Barney, 1991). This research has been extended by researchers that suggest resource orchestration—the ability to not only possess the resources, but also manage them effectively—is an important determinant of a firm’s ability to develop and maintain a competitive advantage (Sirmon, Hitt, Ireland, & Gilbert, 2011). Specific to the competition literature, the act of ‘leveraging’ resources from the resource orchestration literature supports the notion that internal resources of the firm are tied directly to the competitive actions and behaviors of the firm (Ndofor et al., 2011).

Second, dynamic capabilities extends the internal perspective by addressing how firms manage the changing demands of the external environment by adapting their internal characteristics to improve the fit between the expectations of the environment and the internal resources and structure of the firm (Teece et al., 1997). Dynamic capabilities research suggests that firms are able to develop and change their resources to maintain a competitive advantage over peers (Easterby-Smith, Lyles, & Peteraf, 2009). As firms alter their resource structuring and application, they are able to enact competitive actions and develop or maintain a competitive

advantage (Sirmon, Hitt, Arregle, & Campbell, 2010). While internally and externally oriented theories have been applied to understand competition and performance of the firm, recent work has sought to focus on a more integrative approach to understanding the competition-performance relationship.

Competitive dynamics represents a broad domain of research that examines the interaction of the internal and external environment on competition. One of the core elements of competitive dynamics is the identification and analysis of tacit competitive actions. The unit of analysis has shifted from the IO Economics analysis of industry or strategic group characteristics, and focused more attention on understanding the specific competitive actions and reactions that firms implement (Ferrier et al., 1999; Miller & Chen, 1994; Smith, Grimm, & Gannon, 1992). By identifying and analyzing the specific actions of the firm, researchers have focused the lens of research on a behavior that can be uniquely assessed in terms of how it relates to both internal firm characteristics like attention and external factors, as well. In other words, actions of the firm can be identified based on internal motivations and capabilities, but also how these actions are manifested and the subsequent implications and outcomes that are realized in the external environment (Parmar et al., 2010). These can be actions that spawn reactions of other firms, or they can provide the firm with a stronger relative positioning in terms of market positioning and market share (Derfus et al., 2008; Tsai, Su, & Chen, 2011). Also, the actions enacted by the firm are likely manifestations of a firm's intended strategies and the direction in which the firm intends to propel the organization (Andrews, 1971). By shifting the analysis of competition from purely external contingencies or internal capabilities, developing and applying research that focuses on the actions of firms provides a strong operationalization of how internal and external factors relate to one another.

Table 2.1: Competition Literature

<i>Theoretical Foundation</i>	<i>Orientation</i>	<i>Predictions</i>	<i>Competition Issues</i>	<i>Recent Literature</i>
IO-Economics	External	Industry conditions and structural elements determine competition and performance	Multipoint Competition, industry barriers, growth, and concentration influence competitive behaviors	Upton, Ketchen, Connelly, & Ranft, 2012; Yu & Cannella, 2007
Resource-Based View	Internal	Firm resources determine competition and performance	Possession and leveraging of VRIN resources improves effectiveness of competitive behaviors	Ndofor, Sirmon, & He, 2011; Sirmon, Gove, & Hitt, 2008
Dynamic Capabilities	Internal	Firms that manage the changes of the environment will enact better competitive behaviors and have stronger performance	Managing a firm's resources/structure in a dynamic environment improves competitive effectiveness	Easterby-Smith, Lyles, & Peteraf, 2009; Sirmon, Hitt, Arregle, & Campbell, 2010
Network Theory	External	A firm's relative positioning within a network of peers influences competitive behaviors	Structural holes, TMT characteristics, network positioning determine competitive behaviors	Gnyawali & Madhavan, 2001; Tsai, 2002
Competitive Dynamics	Integrative	Interactions among internal and external forces shape competitive behaviors of the firm	Core issues include (1) time (sequencing, spacing, duration of actions) and (2) change (environmental shifts, competitor behaviors, external and internal forces)	Ferrier & Lee, 2002; Smith, Ferrier, & Ndofor 2001; Tsai, Su, & Chen, 2011

This study seeks to extend competition research and the competitive dynamics domain by applying the attention-based view of the firm and logic from the ambidexterity literature. ABV captures elements of the external and internal environment by identifying the issues (environmental factors) that the organization directs attention (a finite internal factor) towards, and how this attention is manifested in tacit and identifiable firm behaviors (Ocasio, 1997). Second, ambidexterity provides a strong logical framework that can shed light on how competition may have an interactive relationship with a related yet contradictory behavior such as cooperation (Raisch & Birkinshaw, 2008). The logical tenets of ambidexterity provide a strong foundation that identifies the paradoxical nature of actions and how these actions may be interdependent rather than independent.

This study contributes to the current literature by extending this perspective of competition as a dynamic interaction of internal and external factors. By analyzing the competitive actions of the firm, this study captures specific and tangible behaviors of the firm that are a result of a firm's internal processes and external contingencies that influence the effectiveness of these actions. Also, by analyzing a similar phenomenon—cooperation—simultaneously, this study provides cross-disciplinary contributions that can bridge a gap between two types of actions often discussed, yet seldom assessed, simultaneously. The following section provides a similar review of the existing cooperation literature, as well as proposes possible integration between the two domains of research.

Relevant Cooperation Literature Review

A second pillar on which the foundation of strategic management is set can be found in the research on cooperation. Interorganizational relationships (IORs) have also seen a variety of theoretical frameworks applied within the overarching domain of cooperation. By leveraging

multiple theories and addressing unique cooperative actions, from the motivations of cooperation to the implications and outcomes associated with interorganizational relationships, cooperation research has provided numerous valuable contributions to strategic management. Similar to the competition literature, cooperation research has flourished and continues to grow; however, there also exist opportunities to extend our knowledge associated with how cooperation is managed and influences firm performance. The review of the cooperation literature is summarized in Table 2.2.

Theories that address the cooperation among firms have largely been derived from transaction cost economics (TCE) and the resource-based view of the firm (RBV) (Barney, 1991; Williamson, 1981). Within each of these domains, separate theoretical streams have developed such as agency theory within TCE, and knowledge-based view of the firm within the RBV perspective (Eisenhardt, 1989; Grant, 1996). While these theories address the unique elements associated with specific IORs, research focusing on portfolios of cooperative relationships of firms has also developed. This portfolio perspective is largely grounded in social network theory, and also organizational learning literature (Ahuja, 2000; Deeds & Hill, 1996). The history of theoretical frameworks applied to cooperative behaviors of the firm will be briefly discussed and reviewed below.

Since cooperation research necessitates the existence and interaction of at least two firms, researchers have identified, applied, and extended theories that capture the motivation for and nature of cooperation among firms. Like the theory applied in the competition literature, early foundational work in cooperation translated economic principles and theories to the strategic management context as a starting point for the relatively new field of inquiry. The main example of this is found in the application and development of transaction cost theory (TCT) in strategic

management research (Williamson, 1981). At the core of TCT is the ‘make-or-buy’ decision which—in the context of cooperation—is defined by the expected and realized costs associated with engaging in cooperation with another organization (Masten & Saussier, 2000). Cooperation offers firms an alternative to the market or hierarchy with more control than purely market transactions but also less control than bringing the behavior completely into the firm (Geyskens, Steenkamp, & Kumar, 2006).

TCT research has provided a strong foundation that has commonly been leveraged to explore the nature of dyadic relationships, and scholars that have applied this theoretical framework have provided invaluable contributions to the field’s understanding of (1) what motivates transacting relationships among firms and (2) rich insights into the inner workings associated with specific relationships between organizations (Parmigiani & Rivera-Santos, 2011). The main focus of this research has been used to understand the unique elements and factors associated with specific relationships. For example, researchers have assessed how organizations identify, engage, and manage relationships based on similarities, costs, and ambiguity within the relationship and the overall environment (David & Han, 2004). A subsidiary theoretical framework of TCT that has been applied to cooperation is found in agency theory (Kim & Mahoney, 2005). Like TCT, agency theory is often leveraged in contexts that are specific to individual relationships between firms, and assesses the extent to which agency costs shape relationships and develop over time (Blair & Lafontaine, 2005). While these two theoretical frameworks are often applied, the focus of these theories is on the individual relationships, rather than the nature of a firm’s overall cooperative activity.

Table 2.2: Cooperation Literature

<i>Theoretical Foundation</i>	<i>Orientation</i>	<i>Predictions</i>	<i>Cooperation Issues</i>	<i>Recent Literature</i>
Transaction Cost Theory	Relationship	Market or hierarchy decisions are made based on expected costs associated with IOR	Largely focused on dyads. Costs, asset specificity, ambiguity influence the decision to 'make-or-buy'	Carter & Hodgson, 2006; David & Han, 2004; Geyskens, Steenkamp, & Kumar 2006
Resource-Based View	Internal	Resources the firm possesses, and resources the firm needs influence IORs	Firm resource needs, complementarity, and opportunities to leverage existing resources influence IOR decisions	Rivera-Santos & Inkpen, 2009; Zaheer & Bell, 2005
Knowledge-Based View	Internal	Substream of RBV that posits knowledge is a necessary resource for firms to achieve competitive advantage	Firms engage in IORs to acquire or develop new knowledge and leverage existing knowledge	Draulans, de Man, & Volberda, 2003; Kale, Dyer, & Singh, 2002
Agency Theory	Relationship	Substream of Transaction Cost Theory that emphasizes the importance of ownership, rewards, and authority	Focuses on nature of contracts and IOR negotiations in dyads to ascertain the extent to which agency costs influence cooperative behaviors	Blair & Lafontaine, 2005; Reuer & Ragozzino, 2006
Network Theory	External	A firm's IORs embed the organization among network peers, and this positioning determines a firm's ability to capture value from IORs	Positioning and embeddedness within a network (often at the network level) determine the performance of firms within a given network	Koka & Prescott, 2008; Provan, Fish, & Sydow, 2007

TCT and agency theory provide rich insights into the details associated with individual dyadic relationships; however, other theoretical frameworks have been leveraged that assess a broader level of cooperation of the firm. Rather than focusing solely on the intricacies associated within dyadic relationships, theories such as RBV, knowledge-based view of the firm, and network theory have been applied to understand why and how firms engage in multiple cooperative engagements simultaneously. RBV and the knowledge-based view of the firm, suggest that firms engage in interorganizational relationships to acquire and/or develop core competencies to create and capture value for the firm (Poppo & Zenger, 1998; Rivera-Santos & Inkpen, 2009). While the focus of RBV is broader and captures diverse resources, the knowledge-based view of the firm focuses on understanding how firms go about acquiring and leveraging knowledge resources and human capital as a means of developing competitive advantages (Van Wijk, Jansen, & Lyles, 2008). These two theories focus attention inward when determining what motivates a firm to engage in cooperative activity, and doesn't necessarily address the management of a firm's holistic cooperative engagements.

Rather than focusing on the internal nature of cooperative activity, network theory has largely focused on an external or structural approach to understanding cooperative action (Borgatti & Foster, 2003). Network theory has assessed cooperative actions of organizations and examines the extent to which a firm's positioning within a network of organizations influences performance (Kilduff & Tsai, 2003). Research applying network theory often assesses performance at the network level, and often lacks the insights associated with firm-level research by focusing at the network-level of analysis of cooperation (Parmigiani & Rivera-Santos, 2011). RBV, knowledge-based view of the firm, and network theory represent three theoretical

frameworks that have focused attention on cooperation beyond the dyad and provide a strong foundation for other areas of inquiry such as alliance portfolio research.

As a relatively new substream within the cooperation literature, alliance portfolio research has become quickly established as a research topic partly due to the appropriate and strong application of theory to the phenomenon of interest (Wassmer, 2010). Within the alliance portfolio management literature studies have focused on understanding how a firm's position in a network lends itself to a better competitive advantage relative to peers due to access to resources, knowledge, markets, among numerous other network-derived benefits (Baum, Calabrese, & Silverman, 2000; Capaldo, 2007; Goerzen, 2007). A second focal area of research has been targeted at understanding how firms capture the value associated with multiple different cooperative relationships. Falling under the domain of organizational learning, this research has sought to shed light on how firms can create and capture value from a holistic perspective in terms of alliance portfolio management (Lavie, 2007). Again, this research focuses on understanding how resources, both within the firm and through IORs, are critical to the success of the organization. While these fall under the broad domain of cooperation research, these subcategories within cooperation research focus understanding how firms manage the entire set of IORs rather than the unique characteristics of individual relationships between firms.

While portfolio research has been relatively popular within recent years, many opportunities to extend the literature exist. While early stage research examined the implications of size of cooperative portfolios, many researchers have suggested these studies have merely scratched the surface with other opportunities to explore how the size of a portfolio is managed by the firm (Deeds & Hill, 1996; Goerzen, 2007). By extending this research to address potential curvilinear effects, and also examining internal and external factors simultaneously, this

study offers a valuable and insightful contribution to the existing literature. Also, many of the theories applied to the cooperative activity of firms have been limited to understanding what motivates a firm to engage in cooperation, or the way firms manage individual cooperative engagements. The proposed study extends cooperation research by leveraging attention-based view of the firm and theoretical insights from the ambidexterity literature to explore if a firm manages multiple cooperative engagements simultaneously, and if attention influences a firm's ability to capture value from their cooperative portfolio.

Attention Based View of the Firm

The attention-based view of the firm (ABV) is a theoretical framework aimed broadly at understanding the nature of attention within the firm and how this influences a firm's decisions and actions (Ocasio, 1997). This theoretical approach focuses on answering how, why, when, and who within the organization addresses specific issues, and how the firm's attention to these issues results in subsequent activity (Ocasio, 2011). One of the core tenets that is particularly relevant to understanding firm behavior lies in the concept of bounded rationality, which posits that firms have limited amounts of attention that can be leveraged at any given time (Cyert & March, 1963). Since attention of the firm and individuals within the firm are finite resources, the actions firms enact are likely to be strongly related to the issues the firm chooses to focus attention towards (Sapienza, De Clercq, & Sandberg, 2005). Below, a brief summary of research leveraging the attention-based view of the firm is summarized, followed by how it provides a relevant and appropriate framework for understanding competitive and cooperative actions of the firm.

In Ocasio's (1997) seminal work establishing and developing the attention-based view of the firm, he proposed that the structuring and direction of attention of the firm represents a

critical and centrally important predictor of firm behavior (Simon, 1947). By reengaging and reviving earlier concepts of structure and cognition, the ABV perspective establishes attention at the organizational level and suggests that organizational attention—as manifested in the patterns of attention directed by managers—is a strong predictor of firm actions (Ren & Guo, 2011). The three focal elements of ABV are:

- (1) The focus of attention—what issues are being identified and engaged by managers?
- (2) Situated attention—how does context (or other factors) influence what issues receive attention?
- (3) Structural distribution of attention—how do resources, rules, and control within the organization influence the allocation of attention and subsequent enactment of behaviors?

While these three elements represent the holistic model associated with ABV, traditionally researchers have focused on identifying elements of each subcategory in order to understand firm behavior (Rerup, 2009). For example, research applying ABV has often leveraged letters to shareholders as being indicative of issues and topics that the firm is focusing attention towards and hoping to address with subsequent firm actions.

While previous empirical research has provided valuable insight about how attention influences firm decisions, opportunities to extend the literature still exist. One such opportunity exists in the empirical examination of organizational level attention (Cho & Hambrick, 2006). Previous research has largely focused on assessing and analyzing the attention associated with individuals within the firm, rather than assessing the firm's overall allocation of attention (Kaplan, 2008). While previous research applying ABV has traditionally focused on assessing individual level measurement of attention (Eggers & Kaplan, 2009), the future of ABV lies in the integration and simultaneous assessment of individual and organizational level attention (Ocasio

& Joseph, 2005). By focusing attention on how organizational attention is manifested in actions and its subsequent influence on performance, this study provides valuable contributions to the ABV literature.

This study also makes a strong contribution and extends the ABV literature by integrating and analyzing tangible and relevant outcome variables. Previous research leveraging ABV has traditionally only assessed the extent to which attention influences firm actions (Ocasio, 2011). While this is a useful contribution to the literature and offers strong insights as to how firms behave, it lacks a stronger connection to the strategic management research at large. This study proposes a mediated relationship between attention and firm performance—a dependent variable that lies at the core of strategic management (Nag et al., 2007). By empirically assessing the proposed research model, this study provides a strong link between ABV and the broader field of strategic management.

Ambidexterity

The concept of organizational ambidexterity has become a popular topic of study for management scholars. Since the seminal work by March (1991), researchers have focused on understanding the unique relationship between exploration and exploitation behaviors of the firm. Exploration behaviors are identified and generally defined as behaviors focused on learning and/or innovating, whereas exploitation behaviors are traditionally viewed as behaviors that leverage or apply previous knowledge, resources, or skills (March, 1991). While this balance of exploration and exploitation is the domain in which the concept of ambidexterity was born, the logic and rationale behind ambidexterity can be leveraged in the unique context of how firms manage and balance cooperation and competitive actions, as well.

In terms of parallels, the exploration-exploitation balance is closely related to the discussion that exists in the current literature in regards to competition and cooperation. Namely, researchers are interested in studying and understanding the extent to which competitive and cooperative activity are related, and if they are related, to what extent. In essence, the question still remains as to whether competition and cooperation are loosely related to each other, or if these two actions are mutually exclusive (Park, Srivastava, & Gnyawali, 2013). This debate strongly parallels the discussions that have been applied in the exploration-exploitation realm (Gupta et al., 2006). Questions regarding the extent to which competition and cooperation exist on two ends of a continuum or exist as orthogonal constructs that are relatively independent of each other continue to be identified as critical future research opportunities but have yet to attract thorough empirical analysis (Chen, 2008).

A second parallel exists between the two literatures in terms of the sequencing or balance associated with competition and cooperation. For example, what levels and types of competitive and cooperative actions are likely to yield the highest levels of firm performance? How do external contingencies influence the “appropriate” balance that optimizes performance in a given context? These questions continue to permeate the ambidexterity literature, and again have a clear similarity to the debate and discussion within the cooperation and competition literature (Benner & Tushman, 2003; Burgelman, 2002; Raisch, Birkinshaw, Probst, & Tushman, 2009). The need for both competition and cooperation has received ample support in each independent domain; however, the need for integration and the understanding of how the firm should balance these actions simultaneously or sequentially represents a critical question that can only be addressed by cross-disciplinary research that applies insights from both independent research streams.

The application of ambidexterity to the proposed study is not to examine the debate between exploration and exploitation. The purpose of applying ambidexterity to the proposed study is to leverage the underlying logic associated with research in the ambidexterity literature. As such, this study focuses on understanding the foundational elements of ambidexterity—the concept of paradox, and the balance of paradoxical behaviors—in the context of competition and cooperation. While ambidexterity has been limited to exploration and exploitation, the proposed study makes a first step in translating the logic associated with ambidexterity to a new context. By applying the concepts of paradox and the balance associated with managing potentially conflicting behaviors to the competition/cooperation phenomenon, this study extends and strengthens the existing ambidexterity literature.

Integration of Theory and Phenomena

The study being proposed here provides contributions and integration of unique domains of research, and it also extends and tests the theories discussed above. The research model presented answers a call to research for integration of competition and cooperation, while also applying and extending new theories to the phenomenon of interest. By integrating the related yet independent research streams of competition and cooperation, this research provides an initial framework for examining these two types of phenomena simultaneously (Chen, 2008). Also, this study applies, integrates, and extends the theoretical insights that can be drawn from the growing literature on the attention-based view of the firm and the study of organizational ambidexterity.

Having assessed the historical development of competition and cooperation literatures, as well as providing an overview of the attention-based view of the firm and the ambidexterity literature, the focus of the following section is to integrate the theoretical frameworks with the

phenomena being assessed. Previous discussions identified the gaps within each specific domain; however, the focus of this section is to identify how the proposed study fits with and contributes to each research stream, while discussing and assessing how this research integrates elements from each area to fit the overall research model. This study proposes new contributions to competition and cooperation, while simultaneously extending the application of ABV and the logic found in the ambidexterity literature to new phenomena.

In order to explain how the proposed study plans to contribute to the literature, it is best to review the gaps that were identified in previous sections as well as the current state of research in each domain. First, this study seeks to contribute to both competition and cooperation literatures by empirically assessing the extent to which firm actions are shaped by where and how a firm directs attention towards issues. Research addressing how attention influences the competitive and cooperative behaviors and subsequent performance of the firm represents a strong contribution by integrating a key predictor of how firms manage and attend to competitive and cooperative issues. This integrative contribution extends the application of ABV, while also providing a strong theoretical framework for understanding competitive and cooperative behaviors of the firm simultaneously. By integrating insights from ABV and ambidexterity research, this study provides a unique perspective that assesses internal and external factors associated with competitive and cooperative actions simultaneously. This holistic model aligns well with the recent trends in the development of ABV and ambidexterity, as well as the continuing development of competitive and cooperative research. Table 2.3 provides a brief summary of both competition and cooperation research and the theoretical frameworks being applied.

Table 2.3: Literature Summary

<i>Topic</i>	<i>Prior Research Topics</i>	<i>Current and Future Research Topics</i>
Competition	Environmental characteristics, industry characteristics, resources of the firm, management of resources of the firm	Competitive behaviors, integration of internal and external factors, potential interactions with cooperation
Cooperation	Dyadic relationships, relationship issues (costs, negotiations, contracts, etc.), network structure, network positioning	Alliance portfolios, integrating micro-elements into cooperation research, potential interactions with competition
Attention-Based View of the Firm	Individual attention to identifiable behaviors, how attention focus shapes behaviors, attention manifested in organization structure	Identifying relationships between individual attention and organizational factors or outcomes, application to more holistic models
Ambidexterity	Exploration and exploitation, variation of focus on exploration or exploitation influencing performance, industry characteristics	Examining the nature of the relationship between paradoxical behaviors, extension to new domains

In terms of contributions to competition and cooperation, this research makes contributions to both research streams independently but also integratively. From a competitive dynamics perspective this research proposes an empirical examination of potential curvilinear effects associated with competition, and it continues within the existing research by examining specific actions overall as indicative of the firm's competitive strategies (Ketchen et al., 2004). From a cooperative research perspective this research again fits into the current literature by addressing the cooperative behaviors of the firm overall and moves beyond dyadic relationships to understand how firms' cooperative behaviors influence performance (Wassmer, 2010). Finally, the proposed research also identifies the balance of competition and cooperation as an important starting point to understanding the nature of the relationship of competitive and cooperative activity, and also the extent to which this balance influences performance

(Bengtsson & Kock, 2014). The contributions to each area of research are discussed below, followed by how this study proposes integrating the phenomena of interest with the theoretical frameworks being leveraged.

Specific to the competition literature, researchers have called for a stronger integration of micro issues (like attention) to further understand how and why firms engage in competitive behaviors. By leveraging ABV, this study proposes not only cross-disciplinary contributions by integrating cooperation as a potentially conflicting demand for the finite attention of the firm (Cyert & March, 1963), but also integrating micro-level concepts as critical determinants in a firm's competitive and cooperative decision-making (Chen, 2008). Further, this study contributes to the competition literature by looking at antecedents and outcomes of competitive behaviors simultaneously. As a holistic model, this study seeks to determine how competition is enacted based on the direction of attention of organizational members and how this influences the firm's ability to gain and/or sustain a competitive advantage.

Specific to the cooperation literature, this study extends the growing literature on assessing a firm's cooperative behaviors at the firm level as opposed to the dyad level. By positioning this study in the existing literature that examines a firm's cooperative actions holistically (Wassmer, 2010), it fits well within the current discussion while also integrating competition as a potential factor that may influence the extent to which a firm is able to engage in and capture value associated with cooperation. ABV provides a unique and strong theoretical lens to understanding how a firm directs and manages attention to cooperation, and how this attention to cooperation influences cooperative actions and subsequent performance. Also, the logic and theoretical framework presented in the ambidexterity literature provides insight as to

how competition and cooperation as seemingly paradoxical behaviors may have interactive effects on each other. These theories are discussed in further detail below.

The attention-based view of the firm has been leveraged to understand how the focus of finite attention influences firm actions. Previous research leveraging the attention-based view of the firm has largely focused on understanding how attention influences behaviors (Ocasio, 2011); however, this study tests that relationship while also extending the relationship to include performance implications, as well. By integrating these moderating effects, it provides a stronger representation of how attention directly impacts an organization's behaviors and indirectly impacts performance. The proposed study also extends the ABV literature by empirically assessing the concept of bounded rationality and the finite nature of attention within the firm. This study provides an initial attempt to assess how attentional limitations affect firm performance. It also examines the performance implications associated with the development and management of heuristics. By applying the attention-based view to the context of competition and cooperation, this study contributes to the growing literature that integrates micro and macro concepts to more holistically understand phenomena.

While the above discussion explains how this study contributes to the domains of competition and cooperation individually, the study also makes integrative contributions that are informed by the logic proposed in the ambidexterity literature. The attention-based view provides the theoretical foundation for the individual competitive and cooperative elements of the research model; however, ambidexterity serves as the binding logic that integrates the two types of actions and suggests that these two divergent actions may be related (March, 1991). While ambidexterity has traditionally been applied to exploration and exploitation, many of the logical rationales and frameworks applied in the exploration-exploitation debate have parallels

with the discussion involving competition and cooperation. As discussed in the previous section, the questions revolving around the ambidexterity literature about the nature of exploration and exploitation strongly parallel the issues and questions that plague the competition and cooperation literatures (Gupta et al., 2006). For example, are competition and cooperation mutually exclusive, or relatively independent and orthogonal? By leveraging the theoretical insights from ambidexterity, this study contributes and extends the ambidexterity to a similar context while simultaneously providing the theoretical foundation for the integration of competition and cooperation in the research model.

CHAPTER 3: HYPOTHESIS DEVELOPMENT

While the focus of the previous chapters is to (1) outline the overall scope of the proposed study and (2) offer a background of extant competition and cooperation research and theory that might shed new light into this research, the purpose of the current chapter is to leverage the theory to offer specific hypotheses. Specifically, the purpose is to (1) identify the nature of the relationships being examined, and (2) explain and apply the theory, logic, and prior research that support the relationships being proposed and assessed. By integrating and applying insights discussed previously, this chapter provides the necessary link between theory and phenomena to support the research model.

To recall, the questions and issues identified in the earlier sections focused on understanding the nature of competition and cooperation within the firm, and how these two types of actions independently and integratively influence firm performance. The driving theoretical frameworks being leveraged to understand the dynamics associated with these seemingly paradoxical actions are drawn from the attention based view and the ambidexterity literature. By examining this holistic model of attention of the organization, the behavioral results of where this attention is focused and directed, and also the performance implications of these actions, the proposed model addresses the following questions:

- (1) Does the attention-based view of the firm predict competitive and cooperative actions?
- (2) Does the independent *level* of competition and cooperation influence firm performance?
- (3) Does diversity of competitive or cooperative action influence the relationship between competition/cooperation and performance?
- (4) Does the integrative *balance* of competitive and cooperative actions influence a firm's performance?

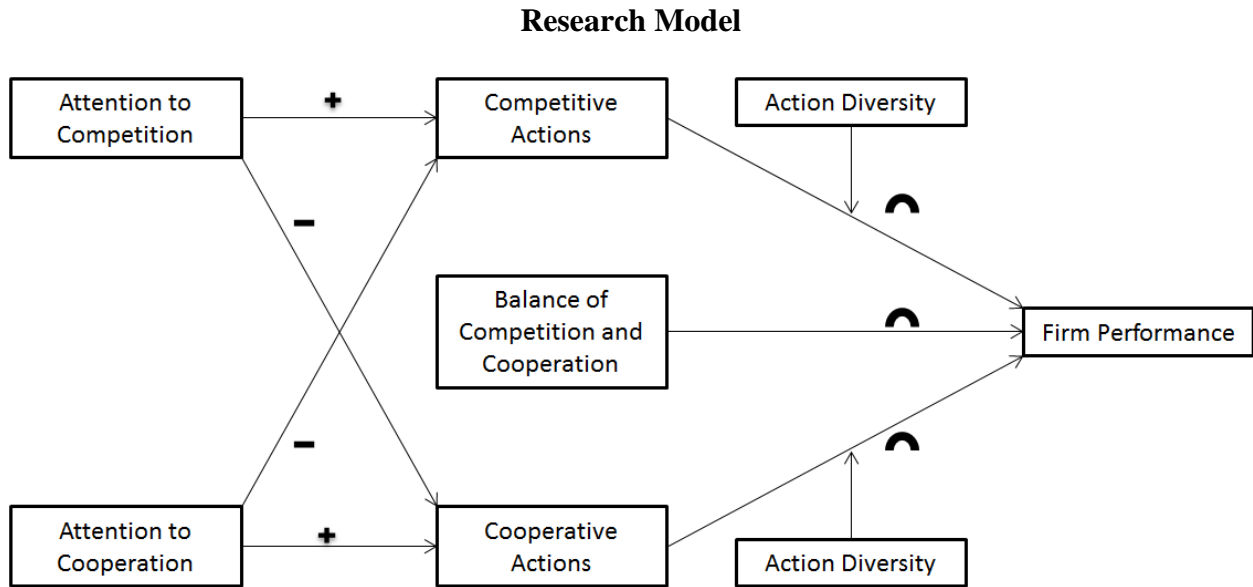


Figure 3.1: Research Model, Reviewed

Attention's Influence on Actions

Examining the effects of attention on actions of individuals and organizations has long been a popular topic of inquiry for both micro and macro scholars in the field of management (Cyert & March, 1963; Sullivan, 2010). The cognitive nature of attention within the firm lends itself to a unique context where integration of micro and macro factors provides a rich explanation of how and why firms engage in certain behaviors. Attention is represented by the extent to which firms and individuals dedicate time and effort on issues and answers associated with characteristics of the firm and environment (Ocasio, 1997). The attention based view of the firm posits that the three key elements to understanding the relationship between attention and actions lie in (1) the focus of attention—issues and answers that receive attention are likely to be acted on, (2) the way attention is situated—contextual and situational features determine how attention is applied, and (3) the structural nature of attention—how a firm is structured or situated among peers influences the extent to which different issues and answers attract attention and subsequent action. While research has examined the separate elements of ABV, the current

study seeks to understand how (1) the focus of attention and (2) the situated nature of attention relative to competition and cooperation shape competitive and cooperative activity, while controlling for the effects of structural characteristics of attention within the organization.

The attention based view has been leveraged in a variety of studies with the intention of understanding how focusing attention on certain issues and answers result in firm actions related to a given phenomenon. Much of the research has been conducted at the executive level of the organization, and focused on understanding how managerial attention determines the firm's behaviors (Eggers & Kaplan, 2009; Ocasio & Joseph, 2008). While these studies provide a unique perspective on how firm actions are influenced by executive attention, it often fails to connect the attention of the organization and its members to the actions of the organization. Rather than solely examining how executives influence a firm's actions, the current study extends the attention-based view to ascertain the extent to which an organization focuses the attention of its organizational members on competition and cooperation to understand what types of actions are enacted by the firm. Also, while previous research has focused on understanding the effects of executive attention on individual actions, little research has focused on the limited nature of attention by empirically assessing the extent to which related actions are dependent on overall attention within the organization. For example, previous research has empirically assessed the extent to which executive attention influences a firm's focus on new technologies (Eggers & Kaplan, 2009), the attention-based view also supports a broader perspective which suggests that the attention of organizational members overall will also likely shape firm actions.

Research at both the micro and macro levels has focused on understanding the extent to which attention and allocation of resources shapes the actions of an organization and its members. For example, research in the micro literature supports the notion that focusing

attention on specific goals leads to actions associated with achieving these goals (Locke & Latham, 2002). In this context, competition and cooperation represent the overarching goal, and the focus on these actions will likely lead to the enactment of competitive and cooperative actions. From the macro context, researchers have also supported the power of attention influencing firm activity. By focusing attention on future-oriented actions, organizations that identify and focus on new concepts and phenomena are able to overcome the potentially negative consequences of organizational inertia (Hambrick & Finkelstein, 1995). Also from the macro literature on attention, research suggests that continuous focus on both new and existing heuristics influences the enactment of behaviors in related domains (Weick & Sutcliffe, 2006). Levinthal and Rerup (2006) have also suggested a strong relationship between the focus of attention and the subsequent enactment of related behaviors. They suggest that organizations that maintain attentional vigilance—defined as ‘mindfulness’—are likely to engage in more effective actions than organizations that ignore changing contexts and environments. This positive relationship between attention and subsequent action is consistent with the original formulation of the attention-based view (Ocasio, 1997). While the competitive and cooperative behaviors of the firm represent two independent behaviors that firms can focus attention towards, this study proposes that attention to competition and cooperation will be positively related to competitive and cooperative behaviors, respectively. Stated formally:

Hypothesis 1a: *Attention to competition is positively related to the enactment of competitive actions.*

Hypothesis 1b: *Attention to cooperation is positively related to the enactment of cooperative actions.*

Attention to competitive and cooperative action represents an interdependent phenomenon and likely falls on a continuum within the firm since these actions draw from the

same finite attention of the firm. Also, research in the ambidexterity literature suggests organizational resource constraints present a challenge when seeking to effectively manage seemingly contradictory behaviors (Jansen, Simsek, & Cao, 2012). By pairing the attention-based view with ambidexterity, these two theoretical streams support the limiting effects associated with a finite cognitive resource of the firm such as the attention of members within the organization. While this study proposes this single continuum perspective for attention, the actions themselves are proposed to be independent of each other. Considering the nature of attention and the limited amount of attention firms possess (Ocasio, 1997), this study proposes an inherent tradeoff associated with devoting attention to the two seemingly paradoxical actions. For instance, if attention is directed towards cooperative engagements and increasing the relationships with other organizations, it is likely at the expense of focusing attention on competitive actions of the firm. For example, Navis & Glynn (2011) analyzed the relationship between satellite radio providers XM and Sirius as satellite radio gained legitimacy in the market. Their findings suggested that competition and cooperation occurred sequentially rather than simultaneously due to the conflicting nature of these two actions within the firm. In early stages, the relationship was characterized by cooperation, whereas once the market was established, the competitive actions became the focus of the organizations' attention. While attention can be directed at both competition and cooperation, the argument presented in the attention-based view literature on the finite nature of attention suggests that these behaviors are at odds in competition for the same attention (Weick & Sutcliffe, 2006). As such, this study proposes a negative relationship between attention to competition and cooperative behaviors, and a negative relationship between attention to cooperation and competitive actions. By directing

and focusing attention towards one activity, the firm is using resources at the expense of being able to direct the resources towards the opposite type of action. Stated formally:

***Hypothesis 2a:** Attention to competition is negatively related to the enactment of cooperative actions.*

***Hypothesis 2b:** Attention to cooperation is negatively related to the enactment of competitive actions.*

Actions' Influence on Performance

From the above discussion, it is proposed that firm actions are indicative of where a firm's managers direct their focus and attention (Simon, 1947). As a firm's attention is directed at actions such as cooperation, it is likely that the firm will extract value when they focus on maximizing the returns from interorganizational relationships. By increasing cooperative actions, it suggests the firm is aware of the need for relationships as a means of developing and maintaining a competitive advantage (Das & Teng, 1998). While engaging in cooperative agreements are a means through which organizations can gain access to resources, many cooperative engagements may result in diminishing returns or even yield negative returns for the organization (Gulati, Wohlgezogen, & Zhelyazkov, 2012). These diminishing results are a result of two factors that influence a firm's ability to capitalize on increased cooperative engagements.

First, within the same cognition literature from which the attention based view originates, organizational learning literature supports the notion that organizations improve in their ability to manage more engagements the more they have managed similar situations in the past (Haleblian & Finkelstein, 1999). Within the learning literature, researchers have found that organizations—and specifically managers within organizations—are able to leverage prior experiences and behaviors to improve their ability to capture value associated with cooperative engagements (Zollo, Reuer, & Singh, 2002). By overcoming this “learning curve,” organizations are able to more rapidly integrate core resources, manage the processes of cooperation, and create and

capture value for the firm by improving the firm's performance (Von Hippel, 1998). Specific to the context of cooperation, Rindova and Kotha (2001) conducted an in-depth case analysis of Yahoo! which identified heuristics and organizational learning as a key factor in the firm's ability to continuously develop and maintain a competitive advantage through cooperative engagements. By managing a consistent heuristic for alliance formation, Yahoo! was able to adapt and manage the dynamic external environment effectively.

While this literature supports the notion that individuals are able to more quickly apply existing heuristics from previous experience, there is also research that supports the notion of misappropriation of these heuristics (Bingham, Eisenhardt, & Furr, 2007). Researchers have identified multiple characteristics of the environment that decrease the effectiveness of previous experience such as situational similarity, market turbulence, and other externally derived factors that can have a negative relationship with the effectiveness of heuristics and organizational learning (Davis, Eisenhardt, & Bingham, 2007). While research in organizational learning supports the notion that firms can improve their cooperative performance with experience and volume, researchers have also found that routinization, excess structure in heuristics, and the lack of attention towards new engagements may prove to hinder a firm's ability to continue capturing value from cooperative engagements (Siggelkow, 2001).

Second, consistent with the attention-based view of the firm, organizations have a limited amount of attention that can be directed towards different strategies, actions, and issues of the firm (Ocasio, 1997). As organizations continue engaging in cooperative engagements with other firms, individuals within an organization are likely to devote less attention to the new relationships and apply previously developed heuristics to managing the cooperative relationships (Miner, Bassof, & Moorman, 2001). While this lack of effort to apply attention to

the cooperation may hurt the organization, there may be a sheer lack of attention available to dedicate to the new cooperative engagements in the midst of other cooperative relationships.

While ABV predicts the relationship between attention and actions, it also provides a framework for understanding how actions mediate the relationship between attention to competition and cooperation and subsequent firm performance. In essence, the actions of the firm represent a manifestation of where a firm directs attention, and the performance is a direct outcome of these tangible and identifiable firm actions. This indirect curvilinear relationship that assesses attention to cooperation, cooperative actions, and firm performance is well supported by concepts of organizational learning (Haleblian & Finkelstein, 1999). In the specific context of cooperation, as a firm increases the number of cooperative actions, it may become too much for the organization to manage effectively. Also, as firms become complacent in long-term relationships, firms may not be able to capitalize on these relationships as much as they could when the firm had more attention to devote to the cooperative engagement (Park et al., 2013). As such, it is hypothesized:

***Hypothesis 3a:** Cooperative actions are positively related to firm performance; however, at a certain point these benefits begin to diminish.*

This study also proposes a similar curvilinear relationship between competitive actions and firm performance. Drawing from the attention based view of the firm and the assumption that firms are only able to manage and leverage a certain number of competitive actions effectively without diminishing returns (Weick & Sutcliffe, 2006). From an external perspective, researchers have heavily studied the motivations and outcomes of competitive behaviors within the competitive dynamics literature (Chen, Kuo-Hsien, & Tsai, 2007; Ferrier, 2001). While this research has identified non-linear relationships with performance as a possibility due to increased competition, battles for market share, and leveraging multiple attacks

against competitors (Baum & Korn, 1999), research addressing potential curvilinear effects from an internal perspective has been limited. Traditionally drawing from the resource based view, studies examining internal factors often focus on understanding either how resources shape firm actions, or how resources and resource management influence performance (Sirmon et al., 2011). Research within this perspective also suggests that organizations need to focus attention on core competencies and focus on doing a few things great as opposed to a variety of things poorly (Miller, 1993b; Miller & Chen, 1996). Unique to this study, the attention based view provides a compelling theoretical framework for understanding both the motivations for enacted behaviors, and the subsequent relationship with firm performance.

Again referencing the finite nature of attention available to the firm, this study proposes a curvilinear relationship between competitive behaviors and firm performance due to resource constraints of the firm and the firm's ability to effectively manage a large number of competitive behaviors. On one hand, too few competitive behaviors become routinized and are not given the necessary attention to be appropriately leveraged, while on the other hand managing too many competitive behaviors may be detrimental to firm performance as well (Ferrier & Lyon, 2004; March, 1991). For example, Miller and Chen (1996) analyzed firm competitive action repertoires and found that the performance implications associated with the simplicity of a firm's competitive repertoire might be contingent upon the demands of the environment. In their study of the airline industry—a dynamic and competitive environment—the results of competitive action simplicity were mixed. In their externally focused analysis, the effectiveness of competitive repertoire simplicity was contingent on the nature of the industry. From an internal perspective, the results may also be a result of misappropriation of attention, or a lack of available attention to devote to the changing externalities faced by the firm. Members of the

organization may become overwhelmed and not be able to truly focus attention on the behaviors to create and sustain the competitive advantage necessary to outperform competitors. Second, by stretching the firm's resources with a large number of competitive actions, organizations may misappropriate attention and sacrifice effectively managing a few competitive behaviors for poorly executing more competitive actions. This builds directly off of previous literature that suggest managerial factors are likely to influence the likelihood of a firm's ability to effectively leverage a competitive repertoire (Ferrier & Lyon, 2004). By being stretched too thin, the organization may not be able to reap the benefits of high levels of competitive activity. As such it is hypothesized:

***Hypothesis 3b:** Competitive actions are positively related to firm performance; however, at a certain point these benefits begin to diminish.*

While the direct effects between competition and cooperation and subsequent performance represent meaningful relationships when examined with an attention based view and ambidexterity, this study also proposes moderation of these relationships based on the same theoretical frameworks. The previous hypotheses examine the argument that higher levels of competition and cooperation may be difficult for firms to appropriately and effectively manage. In essence, the arguments presented suggest that the volume of actions may become too large for the firm to capture the value associated with the given actions. While previous research has traditionally examined the volume *or* variety of behaviors in relation to performance (Wassmer, 2010), this study proposes an integrative model that examines both the number and diversity of actions as important factors to be addressed when examining the relationship between actions and performance. This provides a more holistic understanding of how competitive repertoire and cooperative portfolio volume and variety interactively influence firm performance. Second, whereas previous research examining these two types of actions has had limited theoretical

backing, this study proposes these relationships based on the tenets of the attention based view of the firm.

Research in the cooperation literature has studied both volume and variety to better understand the nature of the relationship between cooperation and performance. For example, Deeds and Hill (1996) examine the number of alliances a firm manages and report a curvilinear relationship between number of relationships and new product development in a high tech sector. Other studies have also examined the extent to which number of cooperative engagements influence firm performance; however, most of this research has been in limited contexts with unique measures of performance like new product development, patents, or other measures of firm innovation outputs (Rothaermel & Deeds, 2004). Researchers have also taken a configurational approach to understand how a certain mix of cooperative engagements may help or hinder a firm's performance (Ahuja, 2000; Hoffmann, 2007). While these studies provide strong insights into the performance implications of cooperation, they fall outside the scope of the current study. By taking an attention based view approach to understanding how cooperative diversity influences performance, the focus is more on the internal limitations rather than how a firm positions itself relative to peers to gain an advantageous position. This study proposes that in situations characterized by highly diverse cooperative engagements, the deteriorating effects of alliance portfolio size will be magnified. In essence, when a firm is faced with a large number of diverse cooperative engagements, the firm will struggle to manage and capitalize on the value associated with the cooperative engagements of the firm. Firms that actively engage relevant cooperative partners, and do not overextend themselves into unrelated cooperative engagements will likely have higher levels of performance due to the value relationships with market-specific and market-related partners provide the firm (Jiang et al., 2010). Stated formally:

Hypothesis 4a: *The cooperation-performance relationship will be moderated by the diversity of cooperative actions, such that the relationship will deteriorate with fewer cooperative actions when the actions are diverse.*

Likewise, within the competition literature, researchers have identified volume and variety as important factors in the relationship between behaviors and performance. Traditionally, this literature focuses attention on the dynamic nature of competition from an economic perspective (D'Aveni, Dagnino, & Smith, 2010). For instance, structural determinants such as industry, market similarity, among a variety of other external factors have been identified as predictors of competitive behaviors (Chi, Ravichandran, & Andrevski, 2010; Markman, Gianiodis, & Buchholtz, 2009). A relatively newer stream of research focuses attention on understanding the cognitive motivations for behavior, and how cognition effects a firm's ability to effectively manage and leverage competitive behaviors (Barberis & Thaler, 2003; Marcel, Barr, & Duhaime, 2011). This growing area of inquiry seeks to shed light on how competitive moves are determined by features and factors within the firm. Extending this internal perspective beyond possessing and managing resources, this study contributes by proposing where a firm focuses attention as a core determinant of a firm's ability to capture value from competitive activity. This study not only examines the volume of competitive actions, but also tests the interactive effects of diversity of competitive actions on the curvilinear relationship between competitive action and firm performance. At low levels of diversity, firms continue applying and leveraging the competitive actions that have been commonly leveraged in the past. At high levels of diversity, firms may struggle to effectively leverage the competitive actions. This may be a result of misappropriated heuristics and lack of attention to routinized behaviors without devoting necessary attention to determine the most effective and appropriate types of actions to enact (Haleblian & Finkelstein, 1999). In other words, the attention-based view

suggests that firms with highly diverse competitive repertoires may not be able to devote the necessary attention to these behaviors to effectively manage and leverage the competitive behaviors. As such, it is proposed that the original relationship will be magnified at high levels of competitive behavior diversity. Stated formally:

***Hypothesis 4b:** The competition-performance relationship will be moderated by the diversity of competitive actions, such that the relationship will deteriorate with fewer competitive actions when the actions are diverse.*

Finally, the model also proposes a relationship between the balance of competitive and cooperative behaviors and subsequent firm performance. A key distinction that separates the final hypothesis from the previous discussion is the concept of balance. While the previous hypotheses focus attention on understanding how the independent level of competition and cooperation influence performance, little research has examined the effect the balance of these two behaviors has on the firm's performance. In considering cooperative and competitive actions in tandem, this study draws from the ambidexterity literature (March, 1991).

Research examining organizational ambidexterity provides a view of how potentially paradoxical behaviors within the firm can be managed and leveraged appropriately to maximize performance outcomes. Literature examining organizational ambidexterity suggests that opposing types of behavior provides unique benefits to the organization; however, an overreliance on one or the other is often detrimental to the organization due to the sacrifice of the benefits associated with the other (Chen, 2008). Within the existing ambidexterity literature, research supports the notion that, while these behaviors may seem paradoxical, they both represent necessary actions for the firm to improve performance and gain a competitive advantage (Raisch et al., 2009). In cooperation research, the logic of balance has been applied to corporate expansions. Prior research has shown that a balance between greenfield activity and

acquisitions leads to longer term success rather than reliance on one type of activity over the other (Vermeulen & Barkema, 2001). Prior research in the ambidexterity literature has begun to shed light onto the appropriate balance for competing organizational actions, although the debate continues regarding what constitutes balance (Gupta et al., 2006; March, 1991; Raisch & Birkinshaw, 2008).

In a similar vein to the classic organizational ambidexterity notion of balance between opposing forces, it is expected that competition and cooperation require balance between the two sets of actions to positively influence performance (Bengtsson & Kock, 2014; Ketchen et al., 2004). At the extreme, intense, cut-throat competition within an industry can lead to rapidly deteriorating profitability in an industry (Porter, 1980). An overreliance on cooperation may also lead to deteriorating performance (Park et al., 2013). An organization must find and manage an appropriate balance of these two seemingly competing interests to maximize firm performance over time (Raisch et al., 2009).

In the context of the present study, it is proposed that a balance between competition and cooperation is necessary to maximize firm performance. Competition and cooperation represent an inherent tradeoff in order to increase one or the other. For example, organizations often engage in cooperation to acquire or develop new resources and engage in competitive behaviors to capitalize and reap the benefits of the resources of the firm (Bengtsson, Eriksson, & Wincent, 2010; Tsai, 2002). As a means of understanding how competition and cooperation integratively impact firm performance, this study predicts that organizations with moderate levels of competition and cooperation, relative to peers, will have higher levels of firm performance. Firms that are able to maintain a balance of moderate levels of competition and cooperation will be able to reap the benefits of both competitive and cooperative actions without overemphasizing

one or the other. This approach emphasizes the interdependent nature of competitive and cooperative actions and suggests a need for both types of actions, but also predicts that an imbalance of these actions will negatively impact performance. Stated formally:

***Hypothesis 5:** Industry adjusted balance of moderate competition and cooperation will have a curvilinear relationship with firm performance, such that cooperation or competition dominated firms will have lower levels of performance.*

Conclusion

To summarize, the purpose of the proposed research model seeks to understand the antecedents and outcomes associated with competitive actions by leveraging the attention based view of the firm and insights from the ambidexterity literature. The model suggests that attention to competition and cooperation is manifested in competitive and cooperative actions, and the firm's ability to focus attention on these actions will determine the extent to which the organization effectively captures the value from these actions. By examining direct, indirect, and curvilinear relationships, the complexity of the model extends knowledge of both the theories and the phenomena being addressed.

The previous sections provided the overview of the proposed study, a review of the relevant literatures, and connect theory to the hypotheses within the research model. Having developed the rationale for the research model and overviewing how this research will fit and contribute within the existing research, the following section discusses the empirical framework being leveraged to analyze the research questions of interest. In later sections, the research outcomes are reported and contributions to the literature will be reviewed along with limitations and future research opportunities.

CHAPTER 4: METHODOLOGY

This chapter provides a detailed description and overview of the measurement and analytical tools used to empirically test the research model hypothesized in the dissertation. First, a broad overview of the data, measurements, and tools is presented. Second, a detailed explanation of the process behind developing and applying content analysis is provided. Third, a detailed description of the variable measurements is provided. Fourth, a description of the analytical tests is provided to overview the statistical analyses applied to test the research model. Finally, the results are reported followed by *post hoc* analyses and robustness tests of the research findings.

Overview

In order to test the proposed model, this study uses a longitudinal quantitative approach; this approach has been leveraged and validated by others in related streams of research (Chen & Hambrick, 1995; Furrer, Thomas, & Goussevskaia, 2008; Gnyawali & He, 2006). To capture the necessary elements associated with the model, it is necessary that the sample be drawn from a context in which competition and cooperation are likely to occur. As such, the sample is drawn from two industries—the medical devices manufacturing industry (3841) and the oil and gas field services industry (1381, 1389)—and focuses solely on publicly traded companies. Measurement of the variables leverages existing metrics for established measures or, for new variables, follows existing processes of construct development. Attention measures are drawn from a unique dictionary that was developed, validated, and applied to annual reports (Marcel et al., 2011), competitive and cooperative actions are measured through news reports (Andrevski, Brass, & Ferrier, 2013; Rindova et al., 2010), and performance and control variables are drawn

from Compustat. Finally, the model is analyzed using a two-stage OLS regression model to assess the hypothesized relationships.

Content Analysis

Content analysis has a strong history of application in the social sciences, and also within the field of strategic management (Jauch, Osborn, & Martin, 1980; Shapiro & Markoff, 1997). Content analysis has been applied to data of many forms such as interview transcripts, speeches, letters to shareholders, newspaper articles, and a variety of other mediums from which words, themes, and accounts of actions or behaviors can be drawn (Duriau, Reger, & Pfarrer, 2007). This data collection tool is often used when collecting, coding, and analyzing secondary data both from and about a focal subject, or in this case a focal firm. When applied to text analysis, content analysis provides researchers with an opportunity to assess both manifest and latent variables that are being explicitly or implicitly addressed in the text source (Bettman & Weitz, 1983; Phillips, 1994; Short & Palmer, 2007). For example, text analysis has been applied in the strategic management field to assess the extent to which firms focus attention on different technologies, and has also been applied to phenomena such as competitive behaviors and actions (Eggers & Kaplan, 2009; Ferrier et al., 1999). With a well-established history within strategic management research, content analysis appears to be an appropriate and robust tool for assessing the constructs and relationships proposed in the research model.

When applying content analysis, it is necessary to identify the unit of analysis associated with the phenomena of interest. In this case, the proposed study seeks to identify and analyze (1) attention to competition and cooperation, and (2) the manifestation of this attention in the form of competitive and cooperative actions. When assessing the attention to competition and cooperation, the focus is on understanding the implicit attention to competitive and cooperative

elements. In the present context, it is necessary to develop a dictionary through inductive coding of documents, and then apply this dictionary to further documents. This approach to dictionary development and application is common when being applied to new contexts that have yet to be studied in prior research (Sonpar & Golden-Biddle, 2008). New dictionaries are needed to fit the idiosyncratic contexts in which the phenomena are studied, given the analysis focuses on organizational level measures rather than measures at the individual level. Second, while the attention measures focus on identifying implicit attention to competition and cooperation, the content analysis of secondary sources associated with competitive behaviors is drawn from explicit, identifiable behaviors. This type of content analysis of competitive behaviors is commonly used in the strategic management literature, and will not require development of a unique dictionary (Ferrier & Lyon, 2004).

By integrating existing measures of established constructs with the development of dictionaries for new phenomena, this study leverages previous measurements while also extending the application of content analysis to new areas of inquiry. Using content analysis as a driving methodology provides rich insights into the attention and behaviors of organizations that would be difficult to directly ascertain with other methods. By measuring attention and action through reports of enacted behaviors and the direction of organizational attention and resources, content analysis mitigates the potential biases associated with survey research and interviews. As such, it is uniquely applicable to the proposed model that seeks to assess both implicit and explicit constructs of interest. Having provided a brief overview of content analysis, the following discussion will elaborate on the sample, measures, and proposed analytical framework to be applied.

Sample

In order to assess the research model, it is important that the sample be drawn from a context in which competition and cooperation are both present and identifiable behaviors. Also, considering the measures and nature of content analysis, it is important that the firms within the sample have the requisite text-based data available. Because publicly traded firms have stronger reporting requirements (e.g., letters to shareholders, annual reports, performance metrics), and generate more news volume than non-public firms, publicly traded firms were the focus of this study. Reports are common sources of data for strategic management researchers leveraging content analysis methods (Short & Palmer, 2007). Taking these factors into consideration, this study includes two samples: (1) 15 medical device manufacturing firms and (2) 15 oil and gas field services firms. These industries were selected based on the prevalence of publicly traded companies, and the relatively high levels of competition and cooperation within the industries. Both samples are stratified across the same 10 year window (2002-2013 with one year lags between predictor and outcome variables). Combined, these two samples provide a total sample size of 300 firm-year observations.

Measures

In this section, I describe the process of developing and applying the measures of the focal study. With content analysis, it is common to use existing measures and dictionaries; however, it is also common to develop dictionaries to assess a specific phenomenon of interest (Smith et al., 2001). Considering that measures of attention have yet to be developed but other measures have been developed in prior research, this study applies both existing and developed dictionaries. The measures are summarized in Table 4.1 and described in more detail below.

Table 4.1: Summary of Measures

Measures	Previous Literature
Attention to Competition: developed/used dictionary that references competitive elements within the annual report. References to relative positioning, competitive elements, industries, etc. coded as attention to competition	Eggers & Kaplan, 2009; Kaplan, 2008; Kabanoff & Brown, 2008
Attention to Cooperation: Developed/used dictionary that references cooperative engagements and cooperative language in the annual report	Eggers & Kaplan, 2009; Kaplan, 2008; Kabanoff & Brown, 2008
Competitive Actions: Adapted from Ferrier's dictionary that identified competitive behaviors via content analysis of news articles/headlines (7 categories: pricing, marketing, new product, capacity, legal, signaling, executive change)	Ferrier, 1999; Ferrier, 2001
Cooperative Actions: Measure of cooperative relationships, with a 5-year duration, if not specified in the SDC data	Lavie, 2007; Stuart, 2000
Balance of Competition and Cooperation: Calculated as the ratio of competitive to cooperative behaviors. Z-scores calculated to develop measures for balance relative to peer firms	Not yet studied in this context
Action Type/Diversity: Herfindahl and Blau indices calculated as a measure of action diversity. These are common measures of diversity within competition and cooperation research, and strategic management, at large. For cooperation, industry diversity is measured by SIC code similarity	Ferrier, Smith, & Grimm 1999; Ferrier, 2001; Jiang, Tao, & Santoro, 2010
Firm Performance: ROI, ROE, ROA, ROS, market share growth, and sales growth collected via Compustat database	Andrevski, Brass, & Ferrier, 2013; Ferrier, 2001; Ndofor, Sirmon, & He, 2011
Controls: firm size, TMT diversity, slack resources, performance variation collected via Compustat database	Andrevski, Brass, & Ferrier, 2013; Rindova, Ferrier, & Wiltbank, 2010; Jiang, Tao, & Santoro, 2010; Lavie, 2007

Dependent Variable

According to research in both the competitive and cooperative domains, the prime objective of both competitive and cooperative behaviors is to achieve a competitive advantage or improve firm performance (Nag et al., 2007). Independently, competition and cooperation researchers have suggested positive effects of competitive and cooperative actions in relation to firm performance (Chen & Miller, 2012; Wassmer, 2010). More recently, coopetition research that integrates both competition and cooperation has suggested that elements of both competition and cooperation may have a synergistic relationship and lead to higher levels of firm performance (Park et al., 2013).

Considering the common empirical examination of firm performance as a dependent variable of interest, a variety of metrics have been applied to accurately measure the performance implications of firm behaviors (Combs, Crook, & Shook, 2005). While there is diversity associated with the measures of firm performance, a common thread that runs through many studies is the application of financial metrics such as return on assets, return on sales, return on equity, sales growth, and market share growth (Richard, Devinney, Yip, & Johnson, 2009). In line with previous research, ROA and ROS are the performance measurements assessed in the formal hypothesis testing (Dorfus et al., 2008; Young, Smith, & Grimm, 1996). Further measurements are explored and assessed in the *post hoc* analysis as a robustness test.

Independent Variables

Attention Measures

For the measurement of attention, I developed a new dictionary by pairing existing qualitative research with a preliminary frequency analysis of keywords in the annual reports of organizations within the sample (Short, Broberg, Cogliser, & Brigham, 2009). Due to the lack of

an existing measure to assess the focus of organizational attention on competitive and cooperative factors, the research project necessitated a rigorous approach to dictionary development and validation (Short et al., 2009). By developing and applying a dictionary of attention to competition and cooperation in the annual report, this research is one of the early studies to operationalize and measure attention at the firm level. Whereas much extant research uses CEO letters to shareholders as measures of attention, measuring attention at the same level might suggest a stronger and more accurate depiction of the relationship between attention and action than was previously identified (Klein, Dansereau, & Hall, 1994).

For the development of the attention to competition and cooperation dictionary, keywords were initially drawn from prior research. These keywords were developed based on existing measurements of competitive and cooperative actions alongside existing measures of attention in letters to shareholders (Ferrier et al., 1999; Marcel et al., 2011). These keywords were the foundation for measurements that were applied and coded into the dictionary. For example, references to ‘innovation’ or ‘research and development’ were coded as attention to product competition. Second, a frequency analysis was conducted on twenty percent of the sample to identify alternative keywords that would be indicative of attention to competition or cooperation (Neuendorf, 2002). Whereas the foundational dictionary identified and assessed attention separate from the competitive and cooperative actions, this coding process provides a holistic assessment that ties the phenomena of interest (competition and cooperation) to the context of the sample (annual reports). This measurement of attention and action at the same firm level allows for linear and curvilinear statistical analysis without the confounding effects associated with regression tests when measuring variables at different levels.

After independently developing the dictionary from the existing literature and frequency analysis, the dictionary was sent to experts in the field with experience in similar research. Specifically, authors of the foundational work in developing competitive action measurements and early researchers in the field of assessing attention using qualitative measurement were contacted. This stage further validates the dictionary by having experts provide their feedback on which dictionary keywords are likely to be true assessments and measures of the phenomena of interest (Short et al., 2009). Upon receiving feedback from the expert reviewers, the dictionary was edited to add and remove keywords identified by the experts based on how well the dictionary truly measures the constructs of interest.

The dictionary was then sent to three peers for an assessment of interrater reliability. These peers have knowledge of the existing research project, but were only provided with a blank dictionary and asked to code specific keywords into the provided categories of interest within the domains of competition and cooperation. This is the suggested approach laid out by Krippendorff (2012). The interrater reliability for the attention dictionaries was .79. Traditionally, researchers suggest .80 is indicative of agreement for existing dictionaries and .70 is indicative of agreement when assessing constructs that are more exploratory in nature—such as new dictionary development contexts (Krippendorff, 2008). This level of agreement falls within the threshold of existing research to indicate agreement among coders, especially in the context of developing a new dictionary. All coding discrepancies were discussed and resolved, resulting in a finalized dictionary for attention to competition and cooperation dictionary that is summarized in Table 4.2.

Table 4.2: Attention to Competition and Cooperation

Category	Subcategory	Keywords	Example in Context
Competition	Pricing	Deductive —Discount, Price (and variants), Rate, Rebate Inductive —None added	<i>Competitors may develop superior products of similar quality at the same or lower prices.</i>
	Marketing	Deductive —Advertisement, Ads, Marketing, Promote, Campaign Inductive —Advertis*, Promot*	<i>To maintain or increase revenues from sales of our current products, we may be required to adopt new sales and marketing strategies</i>
	Product	Deductive —Innovate, Introduce, Launch, Product, Product Development, Research and Development, Unveil, Roll out Inductive —Design, Develop, Exploration, Exploratory, Patents, Quality, Research, Services, Technology	<i>Our increase in product development costs reflect our efforts to expand and enhance our product lines</i>
	Capacity	Deductive —Capacity, Efficiency, Expansion, Increase output, Growing Inductive —Consolidate, Distribution, Equipment, Expanding, Manufacturing, Production, Restructur*, Volume	<i>Our SAP implementation in July 2006 resulted in improved efficiencies that lowered COGS</i>
	Legal	Deductive —Court, Infringement, Settle, Sue, Litigate Inductive —Appeal, Audit, Legal, Litigation	<i>We instituted a legal action in Federal Court to determine the arbitrability of the claims asserted</i>
	Signaling	Deductive —Aim, Future, Goal, Objective, Vow, Promise Inductive —Award*, Brand, Change, Commitment	<i>We are also conducting clinical trials...with the goal of establishing Impella as the standard of care</i>
	Positioning	Deductive —Best, First, Industry, Lead, Leader, Relative, Position, Top Inductive —Advantage, Compet*, Gain, Increase, Largest, Maintain, Market, Peer, Position*, Second, Segment, Standard, Superior	<i>Our business position depends on our ability to maintain and defend our existing patents</i>
Cooperation	Keywords	Alliance, Contract, Cooperation, Cooperat*, Joint, Joint Venture, Partner*, Supplier, Relationship	<i>Bard markets its products through 20 subsidiaries and a joint venture in over 90 countries outside the US</i>
	Inductive Keywords	Agreement, Association, Conjunction, Distributors, Intercompany, Partnership, Team, United, Vendors, Negotiate, Collaboration	<i>We rely on distributors to market and sell our products in parts of Europe, Asia, South America, and Australia</i>

Action Measures

While the dictionary applied to the attention measures required extensive development and firsthand validation, the dictionary and measures associated with competitive and cooperative actions was applied based on previously validated and applied metrics. Competitive dynamics research has shifted from a general analysis of organizational characteristics to the measurement and analysis of tacit competitive actions as the focal unit of analysis. Derived from work by Ferrier and colleagues (1999), the competition dictionary consisted of six categories for competitive actions. One additional category was added for executive change due to the existing research that suggests organizational attention is manifested in the members of the top management team (Cho & Hambrick, 2006), and changes on this top management team represent a shift in the phenomena that are being addressed by the organization.

Consistent with the prevailing norms in competitive dynamics research, competitive action data is collected using the Lexis-Nexis database (Connelly, Tihanyi, Certo, & Hitt, 2010; Derfus et al., 2008; Ndofor et al., 2011). This database includes headlines from the top global, national, and regional outlets as well as trade journals that identify and report on industry-specific firm actions. These actions and the categories are listed in Table 4.3. While this dictionary was previously validated, interrater reliability on coding was also assessed for the coding of these actions to ensure coding was consistent with the existing literature and between coders. The interrater reliability for the actions was found to have a Krippendorff's alpha of .85 among three peers. Discrepancies and issues were again resolved to indicate a strong agreement among peers regarding competitive and cooperative actions coding.

Table 4.3: Competition Measures

Variable	Measure	Example in Context
Pricing Action	Count of headlines referencing: price, rate, discount, rebate, or related material	<i>Patterson-UTI Pumps Big Profit; Contract Oil Driller Has Jacked Up Its Day Rates</i>
Marketing Action	Count of headlines referencing: ads, spot, promote, distribute, campaign, or related material	<i>BD Highlights Social Responsibility in First Global Corporate Citizenship Report</i>
Product Action	Count of headlines referencing: introduce, launch, unveil, roll out, or related material	<i>ABIOMED Announces New Patent for Heart Wrap Technology</i>
Capacity Action	Count of headlines referencing: raises, boosts, increases, or related material	<i>Cardinal Health Doubles West Coast Sterile Manufacturing Capacity to Support Growing Biotech Industry</i>
Legal Action	Count of headlines referencing: sues, litigate, court, settles, infringement, or related material	<i>Helmerich and Payne agrees to pay \$1 million penalty to resolve allegations of foreign bribery in South America</i>
Signaling Action	Count of headlines referencing: vows, promises, says, seeks, aims, or related material	<i>Haemonetics Reaffirms Fiscal 2006 View</i>
Executive Change Action	Count of headlines referencing change in top management team or board of directors, or related material	<i>GB announces departure of directors, certain officers, election of directors, appointment of certain officers, compensatory arrangements of certain officers</i>

Cooperative actions were assessed based on prevailing measures in the existing literature, while also being supplemented by further identification of cooperation by examining news reports of cooperation that are not necessarily identified in formal joint ventures and alliances. SDC Platinum database captures formal and official cooperative agreements between firms, specifically joint ventures and alliances (Lavie, 2007; Stuart, 2000). While this captures some of the firm's cooperative activity, it fails to capture a holistic measure of a firm's portfolio of formal and informal cooperation (Wassmer, 2010). As such, news reports were also analyzed to supplement the SDC data; these reports are coded as cooperation if they referenced cooperative activity between a focal firm and another organization or group of organizations. For example, references to a distribution agreement between two firms is considered a form of cooperation. Partnerships on research and development projects are also coded as cooperation, among a variety of other situations where two or more organizations are working together. By supplementing the SDC Platinum data with the hand coded headlines, a more holistic view of a firm's cooperative activity portfolio emerges.

Competitive and Cooperative Action Diversity

Moderators of the relationships between competitive and cooperative actions were assessed using prevailing measures of diversity of competitive and cooperative action. For diversity of competitive action, a Herfindahl index was applied to determine the extent to which an organization focuses on a single type of competitive action or multiple types of competitive actions (Ferrier & Lyon, 2004; Jiang et al., 2010). A high Herfindahl index is indicative of a high level of diversity of competitive actions, whereas a low Herfindahl index suggests the firm relies on a smaller set of actions. While the Herfindahl index is an appropriate measure of

diversity for continuous variables, when the variable being assessed is categorical the Blau index is a more appropriate measure of diversity (Blau, 1977).

Following Jiang et al. (2010), cooperative agreements were assessed based on SIC code overlap at the four digit level. Agreement at the four digit level was scored as 0 for no diversity, agreement at the three digit level was scored as 1 for partial diversity, agreement at the two digit level was scored as 2 for moderate diversity, agreement at the one digit level was coded as 3 for moderate diversity, and zero overlap of SIC code was coded as 4 for high diversity. This coding of cooperative actions was then aggregated by year and a Blau index of heterogeneity was calculated to determine the diversity of cooperative engagements.

Balance of Competition and Cooperation

Finally, balance of competition and cooperation is assessed to determine the extent to which competition and cooperation are synergistically related. Having calculated the total competitive and cooperative behaviors of the firms, a ratio of competitive to cooperative behaviors is calculated to determine the balance associated with competition and cooperation of the firm. Due to the lack of cooperation from a number of firms, the ratio measure would be undefined. As such, competition and cooperation were measured separately to assess similarity to the mean of the industry. This was calculated by standardizing the scores of competition and cooperation and examining the absolute value of the difference score between the z-score and zero. Firms with a small absolute value term are close to the mean, suggesting a balanced level of competition or cooperation. To conduct linear analysis on these variables, the scores are transformed such that higher levels indicate more balanced levels of competition and cooperation. Finally, to avoid the undefined scores and lack of interpretability associated with non-linear relationships, the two scores are then run in an interaction model to examine if high

levels of both competition balance and cooperation balance yield the highest levels of performance. This allows for the assessment of (1) competition-dominated firms, (2) balanced firms, and (3) cooperation-dominated firms. By developing and applying this metric of competition and cooperation balance, it provides an initial measure of a construct that has yet to be operationalized in previous research. Further conditional analyses are conducted to examine the performance implications associated with balanced competition and cooperation at high, medium, and low levels of competition and cooperation.

Control Variables

While some of the potential confounding factors are controlled by the dual industry sample, within industry factors will still need to be controlled for in the model (Deepphouse, 2000). As a result of previously tested relationships and controls in related research, the research models control for firm specific factors that may influence the hypothesized relationships. The control variables include firm size, slack resources, performance variation, and varying forms of top management (TMT) diversity. These measures and the previous findings associated with these variables are described below.

Available resources are suggested to influence the competitive and cooperative actions of a firm (Chen & Hambrick, 1995). Two variables that are commonly measured as indicators of available resources are firm size and the availability of slack resources. At the firm level, size is measured as the log of total assets, and slack resources is measured as cash-on-hand (Andrevski et al., 2013; George, 2005). Also at the firm level, an organization's consistency in performance may influence the competitive and cooperative actions a firm implements (Ndofor et al., 2011). Performance variation is measured as the standard deviation of ROA in the previous three years.

The characteristics and prior experiences of TMT members may have an impact on how well a firm manages diverse competitive and cooperative engagements (Cho, Hambrick, & Chen, 1994). As such, TMT diversity is measured as: firm tenure, industry experience, age, and functional background heterogeneity (Rindova et al., 2010). TMT Firm tenure and TMT industry experience diversity measures are both calculated as a coefficient of variation (standard deviation divided by the mean) (Ferrier & Lyon, 2004). Due to the categorical nature of educational and functional background, a Blau index was calculated to determine the diversity of education and functional domains of TMT members. Finally, TMT Size is also measured and controlled due to the potential for larger TMTs to have more attention to devote to competition and cooperation.

Preliminary Data Analysis

In order to analyze the data applying ordinary least squares (OLS) regression, certain assumptions are necessary to ensure valid inferences are drawn from the statistical tests (Cohen, Cohen, West, & Aiken, 2013). Before testing the specific research questions, the data was analyzed for missing data, multicollinearity, normal distribution of errors, linearity, and homoscedasticity (Lewis-Beck, 1980). All of the data analysis was conducted in STATA and SPSS software packages.

Missing Data

While the data is drawn from publicly traded companies that have requirements for reporting on the variables of interest for the specific study, there are still instances where data is either not available or not reported by the databases. As such, it was necessary to resolve any missing data instances that would influence and adversely affect the analysis and results. While there are numerous ways in which to resolve missing data, one of the strongest ways of resolving

missing data is to apply multiple imputation (Rubin, 1996). This process averages the outcomes across multiple imputations of the data, and generates new values for missing scores within the data set. Further, due to the panel nature of the data set it was necessary to conduct the multiple imputation process on each individual firm to ensure a valid within subject score is calculated and applied. Within the overall sample, data were only missing in control variables or components of performance measures such as ROI and ROE: cash, stockholder's equity, and invested capital. Within these variables, none had more than 5% missing on any individual variable, and as such, multiple imputation is an appropriate method of resolving missing data issues (Schafer, 1999). Upon completing the multiple imputation process, I then tested for independence of the variables.

Multicollinearity

Multicollinearity, or the high linear correlation of two predictor variables, represents a significant confounding effect in regression (Farrar & Glauber, 1967). In order to test for the possibility of multicollinearity, I calculated and analyzed the variance inflation factors (VIFs) to further explore whether or not multicollinearity was present. A general rule of thumb suggests that any of the independent variables with a VIF over 10 represents the presence of multicollinearity (Hair, Anderson, Tatham, & William, 1998). The average VIF among independent variables was 4.4, well below the threshold outlined in current research. Also, curvilinear terms were not included in the test for multicollinearity due to the fact that the scores are calculated based on the linear independent variables.

Normal Distribution of Errors

Another assumption and condition of OLS regression is the requirement that the errors associated with the fitted model are normally distributed. Upon running the linear test between

the independent variables and the dependent variable, the error terms were identified and analyzed by creating a normality plot. A linear term is generated, and the scores for the specific variables of interest are plotting along the line. The results showed a strong fit between the actual data and the linear prediction, which strongly suggests that the error terms are normally distributed.

Linearity

While the research model tests linear and curvilinear hypotheses, the linear relationships in the model were tested for the nature of the relationship independently of the quadratic terms. After running the linear relationships, a residual-versus-fitted (RVF) plot was generated and analyzed that assess the relationship between the residual error terms and the fitted prediction terms of the model. The plot showed no signs of non-linear relationships and suggested that the relationship between the independent variables and the dependent variable is indeed linear (Cohen et al., 2013).

Homoscedasticity

In order to test for homoscedasticity, it is necessary to examine the distribution of variance across the range of values of the independent variable. Similar to the above tests, the linear regression model was calculated and postestimation tests provided the statistical assessment of the homoscedasticity of the data. For each regression model, a Cook-Weisberg test for heteroscedasticity was calculated, and each model met the assumption of homoscedasticity (Cohen et al., 2013). Having found no significant results that reject the null hypothesis of normal variance across the range of values for the independent variable, the research models suggest that the distribution of variance across values of the models are homoscedastic. Finally, to further control for potential confounding influence of

heteroscedasticity, the statistical analyses were run with robust standard errors to mitigate heteroscedasticity effects.

Conclusion

Having thoroughly tested and ensured the assumptions associated with OLS regression have been met, the following analyses appear appropriate and valid for testing the hypothesized relationships. By rigorously testing the data in pre- and post-estimation contexts, the OLS results associated with the regression tests are appropriate and accurate depictions of the relationships present in the dataset. In the following section, I will describe the analysis framework and the results associated with the statistical tests.

CHAPTER 5: ANALYSIS AND RESULTS

This section provides a thorough description of the analyses applied to test the hypothesized relationships. First, it provides an overview and summary of the analysis framework for the study. Second, the results associated with the specific hypothesis testing proposed in the research model are discussed. Third, a summary of the research findings followed by a discussion of the limitations is presented. Finally, it concludes with a thorough explanation of a variety of *post hoc* analyses that were tested to further explore the relationships among constructs in the research model.

Analysis

Considering the structure of the research model and the panel nature of the data, OLS regression provides the strongest statistical test for the research model. While the structural model appears to be appropriate for structural equation modeling (SEM), controlling for the within and between firm-year factors is not as robust as when tested with OLS regression (Wooldridge, 2010). Further, OLS regression allows for controlling firm specific factors as well as year specific factors that may confound the results. Finally, the model being tested implies an inherent two stage method of analysis—the first stage of analysis assesses the relationships between attention to competition and cooperation and the enactment of competitive and cooperative actions, while the second stage of analysis assesses the relationships between competitive and cooperative actions and subsequent firm performance.

Another note about the panel nature of the data and subsequent analysis is how the time is controlled for and analyzed in the statistical tests. Having drawn the sample from 30 firms across 10 years, the initial sample yielded a staggered sample of 300 firm-year observations. It is staggered such that the lagging of variables matches up based on the hypothesized relationships.

For example, the attention variables were collected from 2002-2011, the action variables were collected from 2003-2012, and the performance measurements were collected from 2004-2013. This allows for the analysis to be conducted on the full 300 firm-year observations with the hypothesized lag of time to (1) allow for the attention to be directed towards the actions, and (2) for the performance of the organization to be influenced by the enacted competitive and cooperative actions.

Finally, in regards to time, the analysis is not conducted applying time-series regression due to the fact that the variables of interest are not inherently time-oriented. In other words, time is not the predictor of the changes of the dependent variable, but rather the changes and variation of the independent variables are what determine the variation of the dependent variable. The only time effects of interest, in the present study, are in reference to the independent variables having delayed effects on the dependent variable. While time is not the focus of the study, year effects are controlled for to mitigate the effects associated with a specific year on the sample. Firm effects are also controlled for to minimize the potentially confounding effects of factors within the organization's scope.

Regression Results

Considering the two-stage nature of the research model, the results will be discussed in two sections. The first model will be discussed referencing the relationships between the attention devoted to competition and cooperation and the enactment of competitive and cooperative actions. The second model will then be discussed that addresses the relationships between the enactment of competitive and cooperative actions and the subsequent influence on firm performance. A further, in-depth discussion of the results will follow in the Discussion. A general overview of the descriptive statistics and correlations is provided in Table 5.1.

Table 5.1: Means, Standard Deviations, and Correlations

	Mean	S.D.	ROA	ROS	Com p Act	Coop Act	Com p Div	Coop Div	Com p Att	Coop Att	Size (log)	Slack	Perf Var	TMT Func	TMT Age	TMT Tenure	TMT Size
ROA	.06	.098	1														
ROS	-1.27	16.40	0.12	1													
Comp Act	28.82	30.83	0.1	0.01	1												
Coop Act	2.62	3.91	0.21	0.02	0.5	1											
Comp Div	.31	.19	0.12	0	0.26	0.05	1										
Coop Div	.18	.25	0.12	-0.08	0.52	0.68	0.07	1									
Comp Att	.04	.01	0.01	0.08	0.21	0.32	-0.17	0.34	1								
Coop Att	.01	.01	-0.11	-0.31	-0.05	-0.07	-0.11	-0.04	-0.02	1							
Size (log)	7.04	1.93	0.24	-0.03	0.43	0.37	-0.17	0.32	0.18	0.15	1						
Slack	356.54	604.87	0.14	0.01	0.47	0.46	-0.21	0.45	0.13	0.14	0.63	1					
Perf Var	.05	.08	-0.37	0.01	-0.09	-0.07	0.03	-0.08	-0.08	0.03	-0.33	-0.13	1				
TMT Func	.70	.09	-0.03	0.23	-0.01	0.01	-0.1	0	0.27	0.08	0.05	-0.15	-0.02	1			
TMT Age	.12	.12	-0.14	0.15	-0.21	-0.23	0.23	-0.24	0	-0.04	-0.38	-0.3	0.14	0.07	1		
TMT Tenure	.69	.36	-0.32	0.05	-0.09	-0.1	-0.1	-0.07	0.03	0.1	0.03	0.04	0.01	0.05	0.08	1	
TMT Size	5.21	1.15	-0.02	0.16	0.14	0.13	-0.22	0.14	0.23	0.13	0.24	0.14	-0.1	0.45	-0.07	0.33	1

Note: n=286, correlations above .12 are significant at the p<.05 level, correlations above .16 are significant at the p<.01 level. Firm, Year, and Industry effects are controlled, but not reported due to length.

Attention to Action

When assessing the extent to which organizational attention influences competitive and cooperative action external factors must also be included in the model because they can influence the nature of the relationships being tested. Considering the relatively new nature of examining the relationship between attention and action at the organizational level, the controls applied to the current model were drawn from the limited amount of existing empirical work regarding the topic. The presence of previously tested variables within the model, the theoretically defined lagged effects of the independent variables, and the controls for industry, firm, and year effects suggest a robust model of analysis.

Table 5.2: Competitive and Cooperative Attention leading to Subsequent Competitive Actions

	Model 1	Model 2
<i>Independent Variables:</i>		
Competitive Attention		2.83
Cooperative Attention		-3.01
<i>Controls:</i>		
Size	1.18	3.75
Slack	15.05**	15.60**
Performance Variation	.98	1.22
TMT Function	-5.60**	-6.69**
TMT Age	2.85 [†]	3.01 [†]
TMT Tenure	.68	.68
TMT Size	-1.42	-.70
R ²	.69**	.70**
F-Statistic		F=1.61

Notes: n=286. Reported betas are standardized. ** significance at the .01 level; * significance at the .05 level; [†] significance at the .10 level. Firm, Year, and Industry effects are controlled, but not reported due to length.

Tables 5.2 and 5.3 report the results for Hypotheses 1 and 2. In Hypotheses 1a, a positive relationship is predicted between prior competitive attention and current competitive action.

This hypothesis was not supported ($\beta=2.83$, $p=.21$). Similarly, Hypothesis 1b predicted a

positive relationship between prior cooperative attention and current cooperative action. This hypothesis was strongly supported ($\beta=.63, p<.01$). In Hypothesis 2a, a negative relationship between prior competitive attention and current cooperative action was proposed based on the situated nature of attention within the organization. This hypothesis was not supported. Finally, Hypothesis 2b proposed a negative relationship between prior cooperative attention and current competitive action. While the relationship was in the direction hypothesized ($\beta=-3.01, p=.15$), the effect is not significant failing to support Hypothesis 2b.

Table 5.3: Competitive and Cooperative Attention leading to Subsequent Cooperative Actions

	Model 1	Model 2
<i>Independent Variables:</i>		
Competitive Attention		.11
Cooperative Attention		.63**
<i>Controls:</i>		
Size	-.1.87**	-2.24**
Slack	-.32	-.40
Performance Variation	-.28	-.36
TMT Function	.71**	.57**
TMT Age	-.32†	-.25
TMT Tenure	.00	.04
TMT Size	-.45*	-.41*
R ²	.81**	.83**
F-Statistic		F=9.38**

Notes: n=286. Reported betas are standardized. ** significance at the .01 level; * significance at the .05 level; † significance at the .10 level. Firm, Year, and Industry effects are controlled, but not reported due to length.

Action to Performance

Hypotheses 3a and 3b predict that the relationships between prior competition (3a) and cooperation (3b) and current firm performance are positive, but experience diminishing returns at higher levels of activity. In testing Hypothesis 3a which suggests this deteriorating effect of

competitive action on firm performance is not supported in relationship to ROA or ROS. In fact, the relationship between competitive activity and firm performance is found to have a significant curvilinear relationship between competitive action and ROS in the opposite direction than hypothesized, as indicated by the significant negative linear relationship ($\beta=-.15$, $p<.05$) and positive quadratic term ($\beta=.17$, $p<.05$). This relationship is shown in Figure 5.1. Hypothesis 3b predicts the same diminishing returns relationship between cooperative actions and firm performance. This relationship is supported in relation to ROA, with a positive linear relationship ($\beta=.07$, $p<.01$) and negative quadratic term ($\beta=-.04$, $p<.05$); however, the relationship is not supported in relation to ROS. This significant curvilinear effect is shown in Figure 5.2. These results are reported below in Tables 5.4 (ROA dependent variable) and 5.5 (ROS dependent variable).

Hypotheses 4a and 4b propose moderation of the curvilinear relationships between prior competitive and cooperative actions and current firm performance. These hypotheses suggest that as the diversity of competitive and cooperative action increases, the diminishing returns will occur at lower levels of competitive and cooperative actions—magnifying the deteriorating effects on firm performance. Hypothesis 4a, referencing the diversity of cooperative actions, is supported in Model 5 with a significant interaction term for the linear ($\beta=-.04$, $p<.05$) and curvilinear effects ($\beta=.04$, $p<.05$). As seen in the interaction plot, higher cooperative diversity is better in low cooperative activity; however, at high levels of cooperative activity, the low cooperative diversity has higher levels of performance. This significant interaction can be seen in Figure 5.3. From Hypothesis 4b, the moderation of the existing curvilinear relationship between competitive action and firm performance was not found to be significant.

Balance of Competitive and Cooperative Action in Relation to Performance

The final hypothesis proposes that a balance of competitive and cooperative actions, relative to peers, will lead to higher levels of firm performance. For example, organizations that do not have too few or too many actions will have an optimal level of actions to yield higher performance. The results of the balance model are shown in Table 5.6 below. Model 2 tests the direct effects of competitive and cooperative balance independently, and Model 3 tests the interaction of competition and cooperation. Based on the lack of significance for the direct or interaction terms, Hypothesis 5 is not supported in the model. This relationship is further explored in the *post hoc* analyses to follow.

Conclusion

The research model proposed testing a variety of direct, indirect, and non-linear relationships that have yet to be fully explored in the extant research. In terms of support, only three of the nine hypotheses are supported. Within the attention model, the only statistically significant relationship identified is the positive relationship between attention to cooperation and cooperative action. Within the action to performance model, the relationship between cooperative action and firm performance was significant and curvilinear in the direction hypothesized. In contrast, the curvilinear relationship between competitive action and firm performance was actually found to be significant in the opposite direction of the hypothesis. The moderating effect of cooperative diversity on the relationship between cooperative actions and performance is also significant. Several relationships are further explored in the following *post hoc* analyses.

Table 5.4: Competitive and Cooperative Action to Subsequent Performance (ROA)

	Model 1 (Controls)	Model 2 (Direct Linear Effects)	Model 3 (Direct Linear and Curvilinear)	Model 4 (Linear, Curvilinear, Moderators)	Model 5 (Linear Curvilinear, Moderators, Interactions)
<i>Independent Variables:</i>					
Competitive Action		.00	-.01	-.01	-.01
Competitive Action Squared			.00	.00	.00
Cooperative Action		.02**	.07**	.07**	.07**
Cooperative Action Squared			-.04*	-.04 [†]	-.05*
<i>Moderators:</i>					
Competitive Diversity				.00	.00
Cooperative Diversity				.00	.00
<i>Interactions:</i>					
Competitive Action x Competitive Diversity					.00
Competitive Action Squared x Competitive Diversity					.00
Cooperative Action x Cooperative Diversity					-.04*
Cooperative Action Squared x Cooperative Diversity					.04*
<i>Controls:</i>					
Size	-.04*	-.03	-.03	-.03	-.03 [†]
Slack	.02 [†]	.02*	.02*	.02*	.02*
Performance Variation	-.03**	-.02*	-.02*	-.02*	-.03*
TMT Function	.00	.00	.00	.00	.01
TMT Age	.01	.01	.01 [†]	.01 [†]	.01 [†]
TMT Tenure	-.01 [†]	-.01 [†]	-.01 [†]	-.01 [†]	-.01
TMT Size	.00	.01	.01	.01	.01
R ²	.59**	.61**	.62**	.62**	.63**
F-Test		F=4.85**	F=3.23*	F=.36	F=2.56 [†]

Notes: n=278. Reported betas are standardized. ** significance at the .01 level; * significance at the .05 level; [†] significance at the .10 level. Firm, Year, and Industry effects are controlled, but not reported due to length.

Table 5.5: Competitive and Cooperative Action to Subsequent Performance (ROS)

	Model 1 (Controls)	Model 2 (Direct Linear Effects)	Model 3 (Direct Linear and Curvilinear)	Model 4 (Linear, Curvilinear, Moderators)	Model 5 (Linear Curvilinear, Moderators, Interactions)
<i>Independent Variables:</i>					
Competitive Action		-.02	-.15*	-.15*	-.14*
Competitive Action Squared			.17*	.17*	.14
Cooperative Action		.01	.02	-.02	-.01
Cooperative Action Squared			-.01	.02	-.01
<i>Moderators:</i>					
Competitive Diversity				.00	-.01
Cooperative Diversity				.02	.03
<i>Interactions:</i>					
Competitive Action x Competitive Diversity					-.06
Competitive Action Squared x Competitive Diversity					.11
Cooperative Action x Cooperative Diversity					-.05
Cooperative Action Squared x Cooperative Diversity					.06
<i>Controls:</i>					
Size	-.17**	-.15*	-.12 [†]	-.13 [†]	-.12 [†]
Slack	.02	.01	.02	.02	.02
Performance Variation	-.04	-.04	-.04	-.04	-.05 [†]
TMT Function	.00	-.01	-.01	-.01	-.01
TMT Age	.00	.00	.00	.00	.00
TMT Tenure	.00	.00	-.01	.00	.00
TMT Size	.01	.01	.01	.01	.01
R ²	.71**	.71**	.72**	.72**	.72**
F-Stat for change in R ²		F=.45	F=2.63 [†]	F=.76	F=.85

Notes: n=276. Reported betas are standardized. ** significance at the .01 level; * significance at the .05 level; † significance at the .10 level. Firm, Year, and Industry effects are controlled, but not reported due to length.

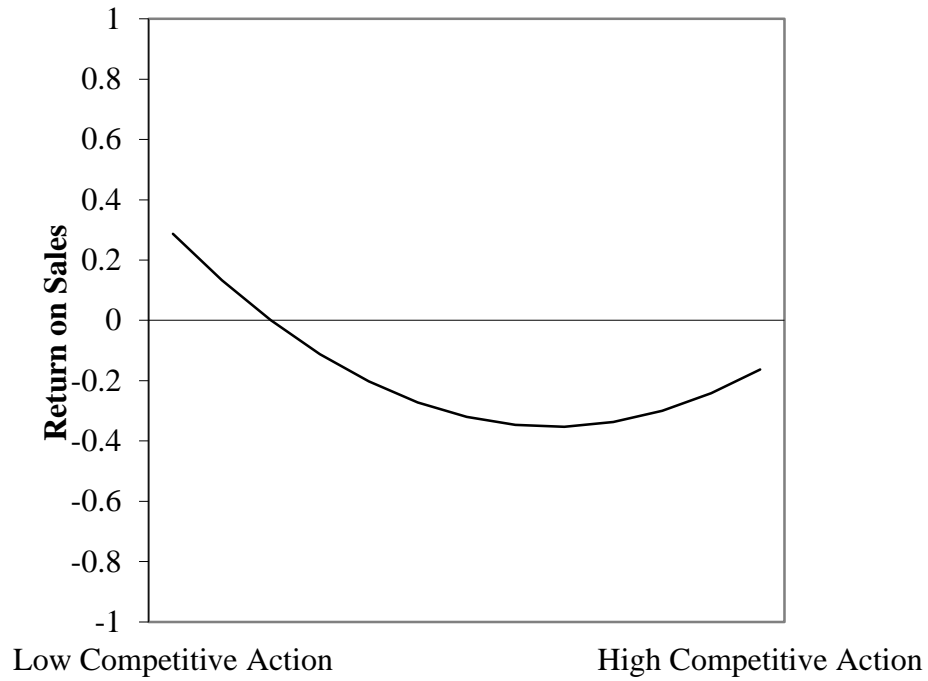


Figure 5.1: Competitive Action to ROS

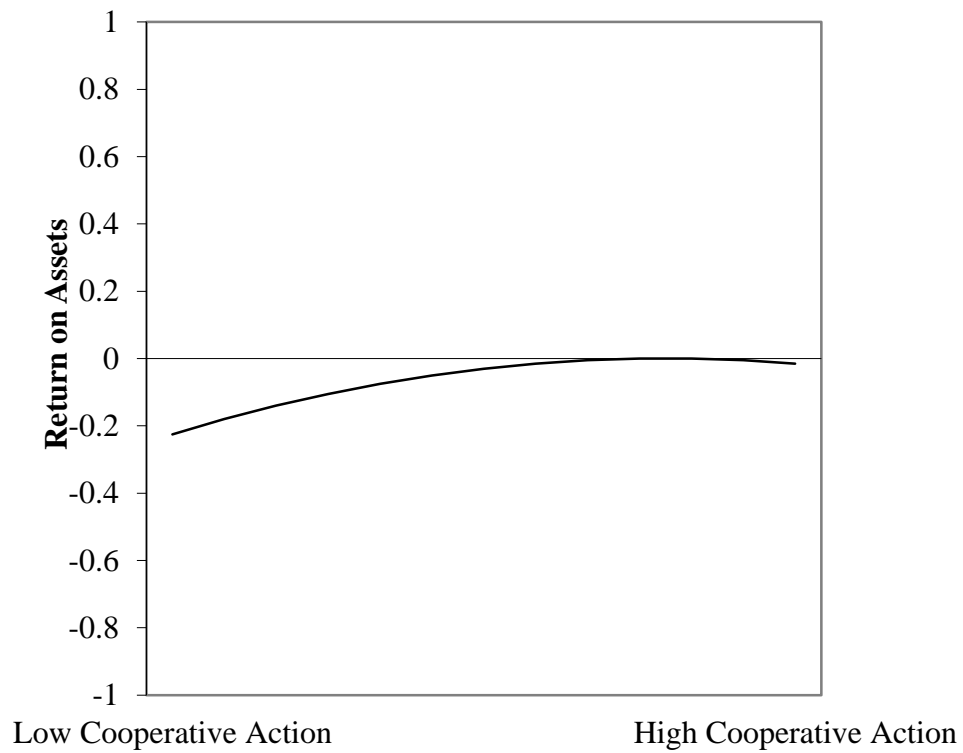


Figure 5.2: Cooperative Action to ROA

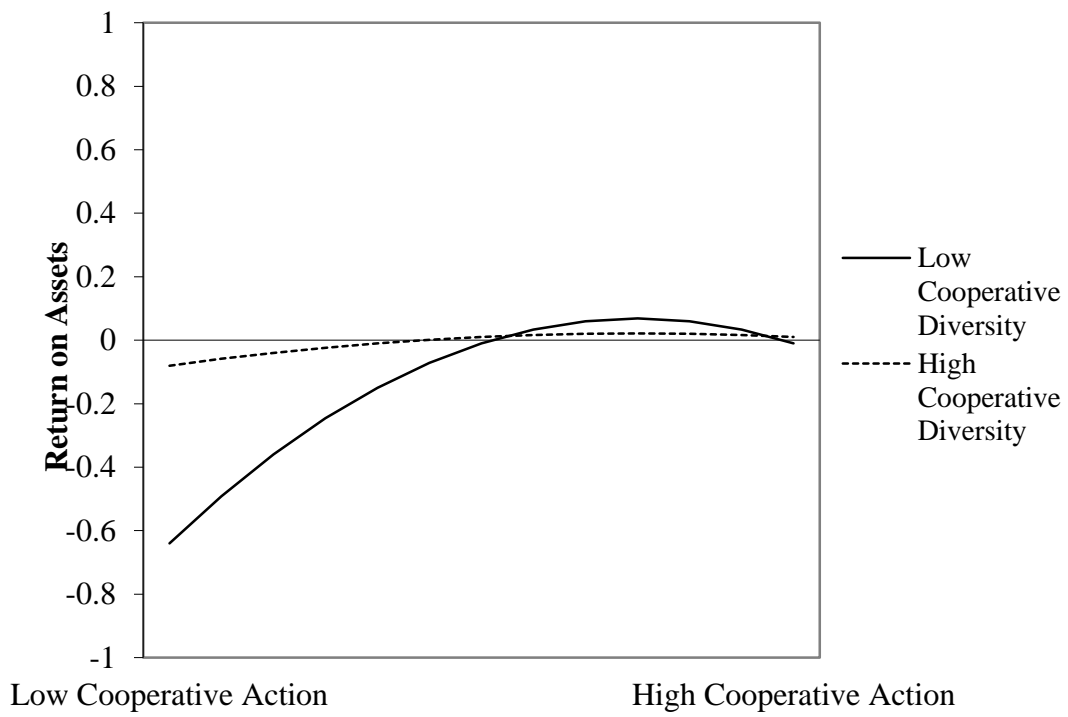


Figure 5.3: Cooperative Diversity Moderating Cooperative Action to ROA, Full Sample

Table 5.6: Competitive and Cooperative Balance Interaction to Subsequent Performance (ROA)

	Model 1 (Controls)	Model 2 (Direct Linear Effects)	Model 3 (Direct Linear and Interaction)
<i>Independent Variables:</i>			
Competitive Balance		.01	-.15
Cooperative Balance		-.03	-.26
<i>Interaction:</i>			
Competitive x Cooperative Balance			.25
<i>Controls:</i>			
Size	-.04**	-.04*	-.04*
Slack	.02*	.02*	.02**
Performance Variation	-.03***	-.02**	-.02**
TMT Function	.00	.00	.00
TMT Age	.01	.01	.01
TMT Tenure	-.01*	-.01*	-.01*
TMT Size	.00	.01	.00
R ²	.59***	.59***	.60***
F-Test		F=.49	F=.97

Notes: n=286. Reported betas are standardized. ** significance at the .01 level; * significance at the .05 level; † significance at the .10 level. Firm, Year, and Industry effects are controlled, but not reported due to length.

Post Hoc Analyses

The proposed relationships and hypotheses in the research model focus on understanding (1) if attention to competition and cooperation influence the enactment of competitive and cooperative action and (2) if these competitive and cooperative actions shape performance. Inherent in the model and proposed analyses is a focus on time—for instance, when are the outcome variables influenced by the attention and actions of the independent variables? As tested in the formal hypotheses, the effects are lagged one year to allow for the firm to implement the actions referenced in the annual reports (attention), and also to allow for the value to be captured and the market to react to the competitive and cooperative actions of the firm. As tested, the varying effects on different performance variables provides potentially interesting implications for what actions influence different measures of firm performance. Beyond ROA

and ROS which were used as performance measures for hypothesis testing, other measures of performance were analyzed to assess the impact of competitive and cooperative action. Also, the results were tested in separate industry samples to assess the extent to which the results vary within the different industry contexts. Finally, the hypothesis regarding balance of competitive and cooperative actions is further explored leveraging ANOVA to determine where group differences exist in regards to firm performance.

The longitudinal analysis of the panel data was conducted such that the reactions to the independent variables would be manifested in subsequent years. For example, attention in prior years (t-1) would influence the current year's actions (t), and current actions would not lead to higher levels of performance until the firm captures the value associated with the market's reaction to the competitive and cooperative actions in subsequent years (t+1). As a *post hoc* analysis, the same models tested in the formal hypotheses were examined as cross-sectional data without the lag of the independent variables. This was conducted to assess the extent to which organizational attention and actions occur simultaneously, rather than with delayed effects that were tested in the lagged models.

For the attention leading to action, the analysis suggests that organizational attention influences actions in the present, as well. As indicated in Tables 5.7 and 5.8, the relationship between competitive attention and competitive action becomes marginally significant ($\beta=4.28$, $p<.10$). In addition, the magnitude of the relationship between cooperative attention and competitive action is negative ($\beta=-2.14$), but not significant. Second, the positive relationship between cooperative attention and cooperative action remains significant when tested without lagged independent variables ($\beta=.40$, $p<.05$). The effect of competitive attention on cooperative action, however, remains insignificant.

Table 5.7: Competitive and Cooperative Attention leading to Competitive Actions

	Model 3 (non-lagged IVs)	Model 4 (non-lagged IVs)
<i>Independent Variables:</i>		
Competitive Attention		4.28 [†]
Cooperative Attention		-2.14
<i>Controls:</i>		
Size	1.18	.71
Slack	15.05**	15.93**
Performance Variation	.98	1.18
TMT Function	-5.60**	-6.08**
TMT Age	2.85 [†]	2.63
TMT Tenure	.68	.80
TMT Size	-1.42	-1.47
R ²	.69**	.70**
F-Statistic		F=3.56 [†]

Notes: n=286. Reported betas are standardized

** significance at the .01 level; * significance at the .05 level; [†] significance at the .10 level

Firm, Year, and Industry effects are controlled, but not reported due to length

Table 5.8: Competitive and Cooperative Attention leading to Cooperative Actions

	Model 3 (non-lagged IVs)	Model 4 (non-lagged IVs)
<i>Independent Variables:</i>		
Competitive Attention		.10
Cooperative Attention		.40*
<i>Controls:</i>		
Size	-1.87**	-1.95**
Slack	-.32	-.30
Performance Variation	-.28	-.28
TMT Function	.71**	.695**
TMT Age	-.32 [†]	-.24
TMT Tenure	.00	-.08
TMT Size	-.45*	-.41*
R ²	.81**	.82**
F-Statistic		F=3.85*

Notes: n=286. Reported betas are standardized

** significance at the .01 level; * significance at the .05 level; [†] significance at the .10 level

Firm, Year, and Industry effects are controlled, but not reported due to length

A similar cross-sectional analysis was conducted on the relationship between competitive and cooperative actions and firm performance. The same tests were run as in previous models; however, the measures of competitive and cooperative actions were drawn from the same year as the firm's performance. This analysis was conducted to examine the extent to which actions in the present have an immediate influence on firm performance. As indicated in Table 5.9, the relationship between competitive and cooperative actions and ROA are similar to the results found in the lagged models. The results indicate similar findings with cooperative action having a significant linear relationship with ROA ($\beta=.02, p<.05$), but the curvilinear effect is not found to be significant. These relationships, however, are significant in the final full model. Similar to the earlier results, the relationship between competitive action and ROA was found to be insignificant. Consistent with the earlier analysis of both measures of performance, the tests were regressed on ROS, as well. The direct effects remain insignificant; however, the indirect effects present in model 5 represent significant differences at high and low levels of competitive diversity. These results are presented in Table 5.10. While these effects are significant, the model does not significantly improve the fit of the estimated model. As such, the differences are only reported for descriptive purposes. The moderation can be seen in Figure 5.4.

While measures such as ROA and ROS are holistic measures of firm performance (Richard et al., 2009), some scholars in related research streams focus attention on a more market-based approach to assess measures such as sales or market growth (Ferrier et al., 1999). As such *post hoc* analyses assessed the same relationships as hypothesized in the model, but measuring performance as sales growth and market share growth.

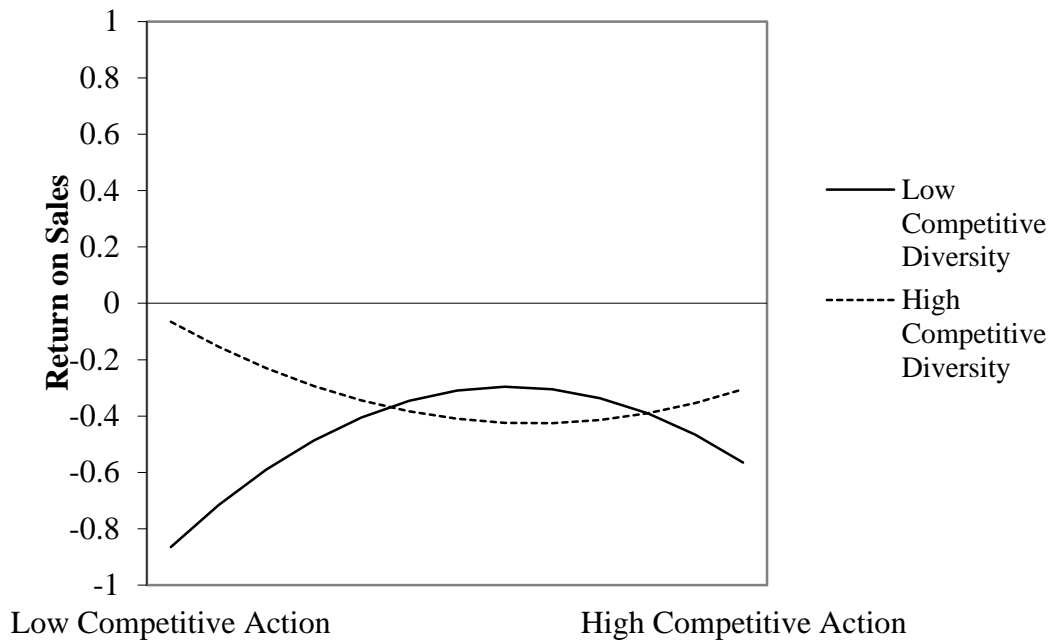


Figure 5.4: Competitive Diversity Moderating Competitive Action to ROS, Non-Lagged

The first alternative measure of firm performance that was examined was the relationship between firm actions and sales growth. Measuring sales growth assesses performance from a market-based approach, rather than a returns-based approach when measured as ROA or ROS. The measure of sales growth controls for size by calculating percentage growth as opposed to simply measuring aggregate growth. Considering the inherent lag in calculating sales growth as a difference score, the independent variables in the models are not lagged. When examining the same relationships as analyzed before, none of the relationships indicate a significant relationship between competitive and cooperative actions and sales growth.

Table 5.9: Non-Lagged Competitive and Cooperative Action to Performance (ROA)

	Model 1 (Controls)	Model 2 (Direct Linear Effects)	Model 3 (Direct Linear and Curvilinear)	Model 4 (Linear, Curvilinear, Moderators)	Model 5 (Linear Curvilinear, Moderators, Interactions)
<i>Independent Variables:</i>					
Competitive Action		.00	-.02	-.02	-.01
Competitive Action Squared			.01	.01	.00
Cooperative Action		.02*	.05*	.06*	.07*
Cooperative Action Squared			-.02	-.03 [†]	-.04*
<i>Moderators:</i>					
Competitive Diversity				-.01	-.01
Cooperative Diversity				-.01	.00
<i>Interactions:</i>					
Competitive Action x Competitive Diversity					-.01
Competitive Action Squared x Competitive Diversity					.02
Cooperative Action x Cooperative Diversity					-.03
Cooperative Action Squared x Cooperative Diversity					.03
<i>Controls:</i>					
Size	.00	.02	.02	.02	.02
Slack	.00	.00	.00	.01	.01
Performance Variation	-.01	-.01	.00	.00	-.01
TMT Function	.00	.00	.00	.00	.00
TMT Age	.00	.00	.00	.00	.00
TMT Tenure	-.02*	-.02**	-.02**	-.02**	-.02**
TMT Size	.00	.01	.01	.01	.00
R ²	.60**	.61**	.61**	.62**	.62**
F-Test		F=3.39*	F=1.48	F=1.47	F=1.50

Notes: n=276. Reported betas are standardized. ** significance at the .01 level; * significance at the .05 level; [†] significance at the .10 level. Firm, Year, and Industry effects are controlled, but not reported due to length.

Table 5.10: Non-Lagged Competitive and Cooperative Action to Performance (ROS)

	Model 1 (Controls)	Model 2 (Direct Linear Effects)	Model 3 (Direct Linear and Curvilinear)	Model 4 (Linear, Curvilinear, Moderators)	Model 5 (Linear Curvilinear, Moderators, Interactions)
<i>Independent Variables:</i>					
Competitive Action		.00	-.01	-.02	.01
Competitive Action Squared			.01	.03	-.04
Cooperative Action		.00	.02	.03	.04
Cooperative Action Squared			-.02	-.02	-.04
<i>Moderators:</i>					
Competitive Diversity				-.03**	-.05**
Cooperative Diversity				-.01	.00
<i>Interactions:</i>					
Competitive Action x Competitive Diversity					-.09*
Competitive Action Squared x Competitive Diversity					.14*
Cooperative Action x Cooperative Diversity					-.02
Cooperative Action Squared x Cooperative Diversity					.03
<i>Controls:</i>					
Size	-.09 [†]	-.09 [†]	-.09	-.08	-.07
Slack	.02	.02	.02	.02	.02
Performance Variation	-.07**	-.07**	-.07**	-.07**	-.07**
TMT Function	-.01	-.01	-.01	-.02	-.01
TMT Age	.01	.01	.01	.01	.01
TMT Tenure	-.01	-.01	-.01	-.01	-.01
TMT Size	.01	.01	.01	.00	.00
R ²	.76**	.76**	.76**	.77**	.77**
F-Test		F=.01	F=.18	F=3.53*	F=2.07

Notes: n=276. Reported betas are standardized. ** significance at the .01 level; * significance at the .05 level; † significance at the .10 level. Firm, Year, and Industry effects are controlled, but not reported due to length.

Another performance measure that was examined is market share growth. Considering the focus of the present study directs attention at the competitive actions of the organization, it is important to determine if the enactment of these competitive and cooperative actions influences an organization's performance relative to competitors. As such, market share growth provides a test of how competitive and cooperative actions alter the competitive landscape of a specific industry based on firm behaviors. The models again do not lag the independent variables due to the inherent effects of time in the calculation of the dependent variable as a measure of growth year over year. In the analysis of these relationships, none of the relationships between the independent actions of the organization and firm performance were found to be significant. The results associated with market share growth are to be interpreted with caution, however. Due to the diversified nature of organizations in both of the industries within the sample, some organizations engage in competitive and cooperative actions focused on growing markets beyond the scope of the sample industry. For example, an organization that manufactures medical devices may direct competitive and cooperative actions at increasing market share in a secondary market like the medical services industry. In other words, the actions that organizations enact may not be directly linked to the growth within the specific market that is calculated within the sample.

To further examine the results in the proposed research model, I conducted an independent analysis of each industry. As such, I tested the hypothesized lagged models that assess the relationships proposed in the research model. The analyses were conducted on the holistic measures of performance, ROA and ROS. Significant results will be further discussed below.

In terms of the medical devices industry, the results are largely consistent with the overall results presented in the combined sample. These relationships are reported in Tables 5.11 and 5.12. The curvilinear relationships between cooperative action and firm performance is again found to be significantly related to ROA (linear $\beta=.10$, $p<.01$, quadratic $\beta=-.06$, $p<.01$). While the curvilinear relationship in the overall model was not significant in relation to ROS, the medical devices subsample has a significant curvilinear relationship with ROS (linear $\beta=.12$, $p<.01$, quadratic $\beta=-.08$, $p<.05$). The moderating effect of competitive action diversity was again found to be nonsignificant. In the cooperative diversity moderation, however, the significant moderating effects are consistent across both ROA and ROS. These results are consistent with the results presented in the full estimated model. Figures 5.5 and 5.6 show these moderating effects.

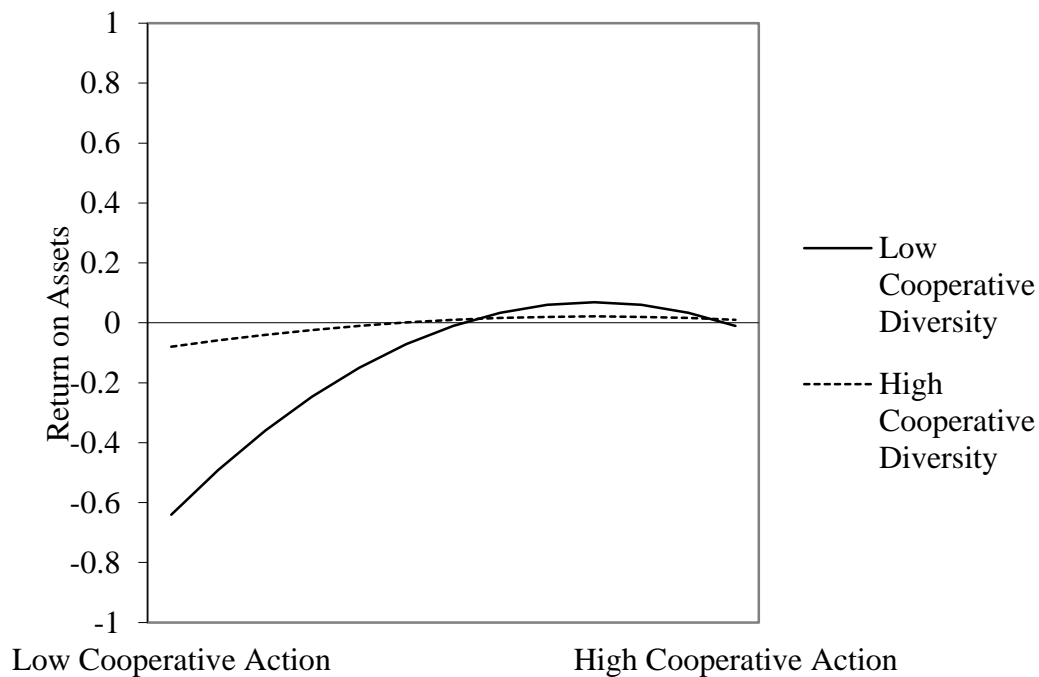


Figure 5.5: Cooperative Diversity Moderating Cooperative Action to ROA, Medical Devices

Table 5.11: Lagged Competitive and Cooperative Action to Performance (ROA), Medical Devices

	Model 1 (Controls)	Model 2 (Direct Linear Effects)	Model 3 (Direct Linear and Curvilinear)	Model 4 (Linear, Curvilinear, Moderators)	Model 5 (Linear Curvilinear, Moderators, Interactions)
<i>Independent Variables:</i>					
Competitive Action		-.01	-.02	-.03	-.05 [†]
Competitive Action Squared			.01	.01	.03
Cooperative Action		.02 [†]	.10**	.11**	.12**
Cooperative Action Squared			-.06**	-.07**	-.08**
<i>Moderators:</i>					
Competitive Diversity				.01	.01
Cooperative Diversity				-.01	.01
<i>Interactions:</i>					
Competitive Action x Competitive Diversity					.02
Competitive Action Squared x Competitive Diversity					-.02
Cooperative Action x Cooperative Diversity					-.09**
Cooperative Action Squared x Cooperative Diversity					.06**
<i>Controls:</i>					
Size	-.02	-.01	.00	.01	.01
Slack	-.01	.00	-.01	-.01	.02
Performance Variation	-.03*	-.03 [†]	-.03*	-.03*	-.02 [†]
TMT Function	.02	.01	.01	.00	.00
TMT Age	.02	.02 [†]	.02	.02	.02
TMT Tenure	-.02	-.02	-.02	-.02	-.01
TMT Size	.00	-.01	.00	.00	.00
R ²	.66**	.68**	.71**	.72**	.76**
F-Test		F=2.4 [†]	F=6.88**	F=.75	F=5.14**

Notes: n=137. Reported betas are standardized. ** significance at the .01 level; * significance at the .05 level; † significance at the .10 level. Firm, Year, and Industry effects are controlled, but not reported due to length.

Table 5.12: Lagged Competitive and Cooperative Action to Performance (ROS), Medical Devices

	Model 1 (Controls)	Model 2 (Direct Linear Effects)	Model 3 (Direct Linear and Curvilinear)	Model 4 (Linear, Curvilinear, Moderators)	Model 5 (Linear Curvilinear, Moderators, Interactions)
<i>Independent Variables:</i>					
Competitive Action		-.01	-.09	-.09	-.07
Competitive Action Squared			.10	.10	.04
Cooperative Action		.03	.12**	.16**	.20**
Cooperative Action Squared			-.08*	-.10**	-.12**
<i>Moderators:</i>					
Competitive Diversity				.01	.02
Cooperative Diversity				-.02	.01
<i>Interactions:</i>					
Competitive Action x Competitive Diversity					-.09
Competitive Action Squared x Competitive Diversity					.14
Cooperative Action x Cooperative Diversity					-.16**
Cooperative Action Squared x Cooperative Diversity					.11**
<i>Controls:</i>					
Size	-.11 [†]	-.09	-.07	-.06	-.04
Slack	-.01	.00	-.01	-.01	-.01
Performance Variation	-.03	-.02	-.03	-.03	-.02
TMT Function	.01	.01	-.01	-.01	-.01
TMT Age	.02	.02	.01	.00	.01
TMT Tenure	-.03	-.03	-.04	-.04	-.03
TMT Size	-.01	.00	.00	.00	.00
R ²	.65**	.66**	.69**	.69**	.74**
F-Test		F=1.24	F=4.87**	F=.66	F=5.32**

Notes: n=132. Reported betas are standardized. ** significance at the .01 level; * significance at the .05 level; † significance at the .10 level. Firm, Year, and Industry effects are controlled, but not reported due to length.

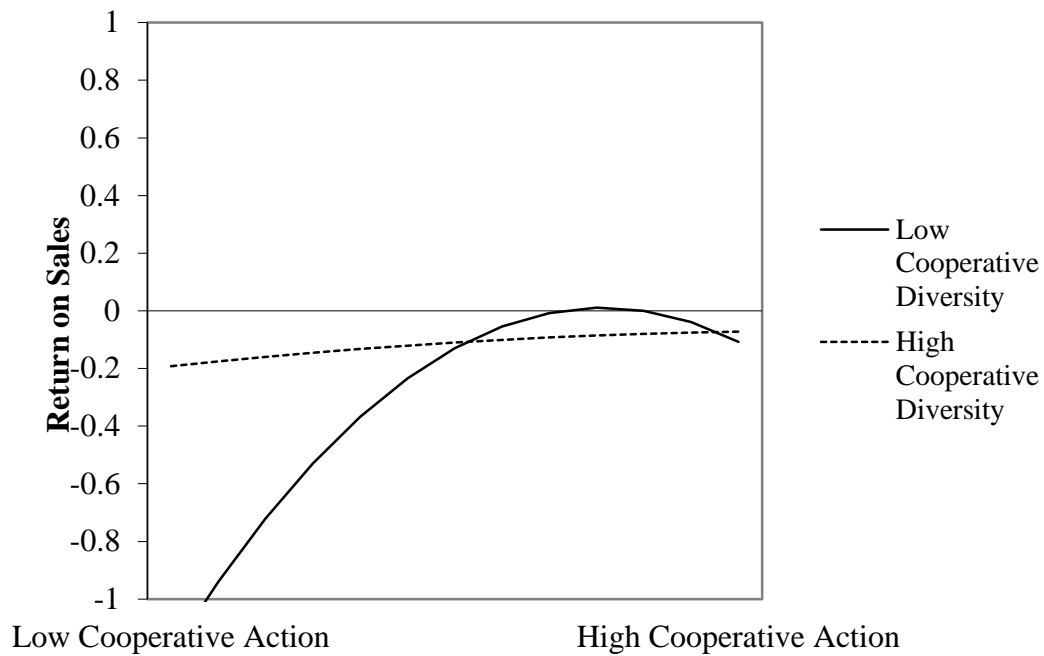


Figure 5.6: Cooperative Diversity Moderating Cooperative Action to ROS, Medical Devices

There are a few differences in the results when the analysis is run independently on the oil and gas field services subsample. First, when the model is analyzed with ROA as the firm performance measure, none of the relationships are significant. While the relationships are not significant, the directionality of the relationships between competition and cooperation and firm performance are largely consistent with the results found in the full sample. The previously significant relationships in the full model for cooperative action is not found to be supported in this model. The oil and gas field services results are reported in Tables 5.13 and 5.14.

The most notable difference in the oil and gas field services subsample is the presence of interactions in the ROS model. Model 5, which includes all of the direct and indirect effects, provides a significantly better fit when compared to the previous model with only the direct effects ($F=4.83$, $p<.01$). In both competitive and cooperative diversity, the results suggest

significant moderation of the curvilinear direct effects. First, the curvilinear relationship between competition and performance is found to be moderated by competitive action diversity ($\beta=-1.78$, $p<.01$). This relationship is graphically depicted in Figure 5.7. Likewise, the curvilinear relationship between cooperation and performance is also found to be moderated by cooperative diversity ($\beta=1.06$, $p<.01$). This relationship is graphically depicted in Figure 5.8. Lastly, the relationship between cooperation and firm performance is negative when firm performance is measured as ROS (linear $\beta=-.21$, $p<.10$; quadratic $\beta=.21$, $p<.05$), whereas in the overall sample and the medical devices subsample, the results suggest a positive curvilinear effect. The fit of the direct curvilinear model, however, is only marginally better than the previous linear model. As such, these effects should be interpreted with caution.

Finally, additional analyses were conducted to examine the balance associated with competition and cooperation and how this balance influences firm performance. While the interaction between moderate levels of competition and cooperation was not significant, this relationship was further explored by creating ordinal values associated with high, medium, and low levels of competition and cooperation. The sample was split into three levels of competition and cooperation based on an assessment of the distribution across the sample (Ketchen & Shook, 1996). This categorization of the data generated a 3x3 matrix with observations in each cell determined by the level of competition and cooperation. Calculating and testing the significance of differences based on levels of competition and cooperation allows for a more nuanced analysis of how competition and cooperation integratively influence firm performance.

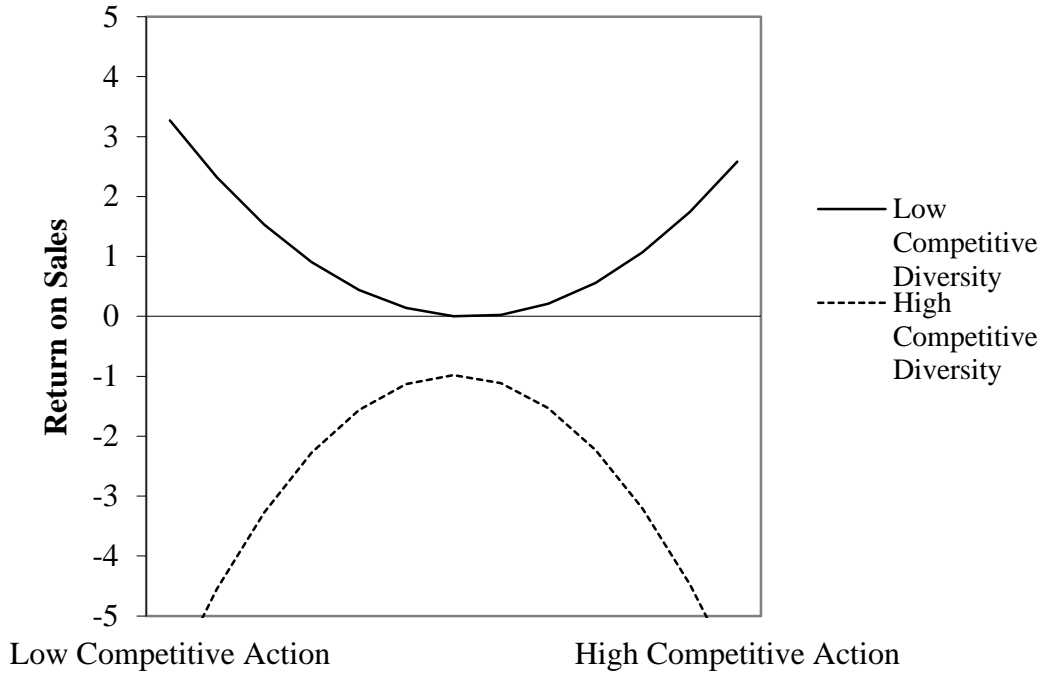


Figure 5.7: Competitive Diversity Moderating Competitive Action to ROS, Oil and Gas

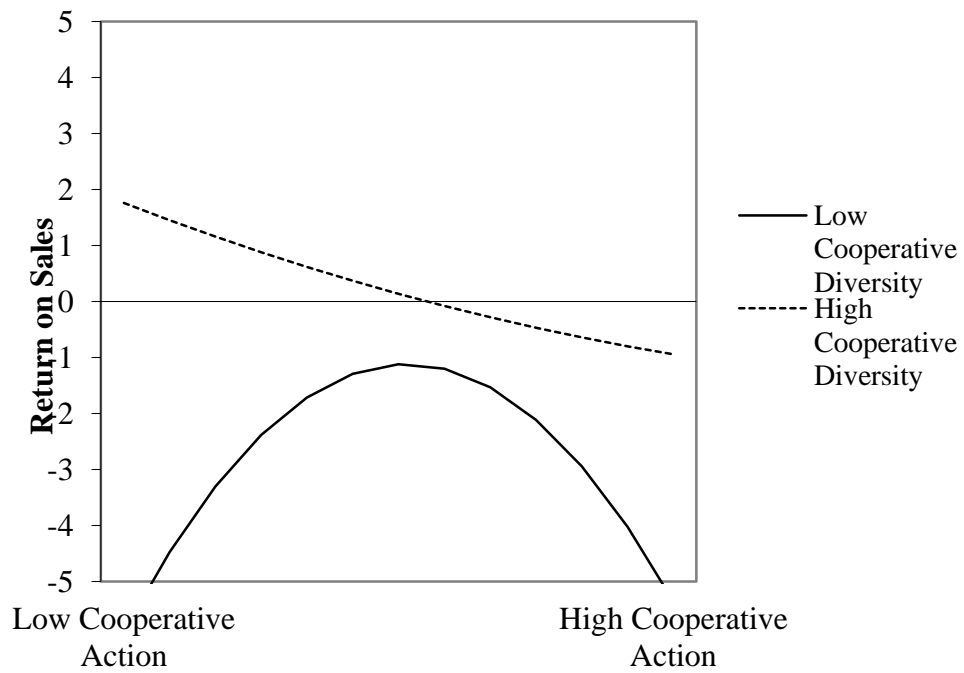


Figure 5.8: Cooperative Diversity Moderating Cooperative Action to ROS, Oil and Gas

Table 5.13: Lagged Competitive and Cooperative Action to Performance (ROA), Oil and Gas Field Services

	Model 1 (Controls)	Model 2 (Direct Linear Effects)	Model 3 (Direct Linear and Curvilinear)	Model 4 (Linear, Curvilinear, Moderators)	Model 5 (Linear Curvilinear, Moderators, Interactions)
<i>Independent Variables:</i>					
Competitive Action		.00	-.05	-.05	-.07
Competitive Action Squared			.11	.13	.18
Cooperative Action		.03	-.02	.01	.07
Cooperative Action Squared			.05	.03	-.23
<i>Moderators:</i>					
Competitive Diversity				-.01 [†]	-.03
Cooperative Diversity				-.02	.02
<i>Interactions:</i>					
Competitive Action x Competitive Diversity					-.07
Competitive Action Squared x Competitive Diversity					.12
Cooperative Action x Cooperative Diversity					.01
Cooperative Action Squared x Cooperative Diversity					.11
<i>Controls:</i>					
Size	-.05*	-.05 [†]	-.04 [†]	-.04 [†]	-.03
Slack	.02*	.02 [†]	.02	.02	.01
Performance Variation	.00	.00	-.01	-.01	-.01
TMT Function	.00	.01	-.02 [†]	-.02*	-.02*
TMT Age	.01 [†]	.01*	.01*	.01*	.02*
TMT Tenure	.00	.00	.00	.00	.00
TMT Size	.00	.00	.01	.00	.00
R ²	.67**	.68**	.69**	.71**	.73**
F-Test		F=1.27	F=1.75	F=2.85 [†]	F=1.2

Notes: n=141. Reported betas are standardized. ** significance at the .01 level; * significance at the .05 level; † significance at the .10 level. Firm, Year, and Industry effects are controlled, but not reported due to length.

Table 5.14: Lagged Competitive and Cooperative Action to Performance (ROS), Oil and Gas Field Services

	Model 1 (Controls)	Model 2 (Direct Linear Effects)	Model 3 (Direct Linear and Curvilinear)	Model 4 (Linear, Curvilinear, Moderators)	Model 5 (Linear Curvilinear, Moderators, Interactions)
<i>Independent Variables:</i>					
Competitive Action		-.18**	-.34*	-.34*	-.10
Competitive Action Squared			.37	.32	-.48
Cooperative Action		-.01	-.21 [†]	-.35*	-.36*
Cooperative Action Squared			.21*	.28*	-.94
<i>Moderators:</i>					
Competitive Diversity				-.01	-.49**
Cooperative Diversity				.12 [†]	.63**
<i>Interactions:</i>					
Competitive Action x Competitive Diversity					.13
Competitive Action Squared x Competitive Diversity					-1.78**
Cooperative Action x Cooperative Diversity					-.54**
Cooperative Action Squared x Cooperative Diversity					1.06**
<i>Controls:</i>					
Size	-.29*	-.23 [†]	-.21	-.17	-.10
Slack	.01	.03	.01	.02	.01
Performance Variation	-.04	-.04	-.05	-.04	-.02
TMT Function	-.02	-.02	-.04	-.04	-.03
TMT Age	.01	.01	.01	.02	.03
TMT Tenure	.04	.03	.04	.03	.01
TMT Size	.00	.00	.01	.01	.00
R ²	.76**	.78**	.80**	.80**	.83**
F-Test		F=4.01*	F=2.78 [†]	F=1.82	F=4.83**

Notes: n=135. Reported betas are standardized. ** significance at the .01 level; * significance at the .05 level; [†] significance at the .10 level. Firm, Year, and Industry effects are controlled, but not reported due to length.

To test for significant differences among the groups, a 3x3 ANOVA test was conducted. The results provided a comparison and statistical test for significant differences in performance based on the level of both competition and cooperation of a firm. For example, it allows for an analysis of how an organization with high competition and moderate cooperation relates to an organization with moderate competition and low cooperation. This analysis was conducted on both of the original measures of performance in the previous analysis, ROA and ROS. The results are similar across measures. Interestingly, neither sample has organizations with low competition and high cooperation. This may be indicative of organizational behavior regarding how cooperative behaviors are leveraged for competitive actions. In essence, organizations that are highly engaged in cooperative relationships might use these cooperative engagements to initiate competitive actions. As such, there are no organizations that are highly cooperative with low levels of competition. The specific analyses and results are summarized below.

Table 5.15: 3x3 ANOVA Sample, with ROA

	Low Coop	Medium Coop	High Coop
Low Comp	Mean=.06, n=49	Mean=-.06, n=9	
Medium Comp	Mean=.05, n=82	Mean=.03, n=71	Mean=.09, n=31
High Comp	Mean=.05, n=2	Mean=.06, n=16	Mean=.09, n=37

Reported means are measured as ROA

In the ROA sample, the relationships are largely consistent across groups within the ANOVA. The means are generally consistent across levels of competition and cooperation; however, contrary to hypotheses, the middle cell indicating balance of competition and cooperation has the lowest level of performance. While these relationships show some differentiation among levels, the only statistically significant group difference is found between the high competition, medium cooperation group and the medium competition, medium cooperation group. As shown in the square line in the plot below, the results suggest that

organizations with high levels of competition and medium cooperation outperform organizations with medium levels of both competition and cooperation. This relationship may be indicative of higher performance of organizations that maximize the resources and synergies from cooperative engagements by simultaneously engaging in higher levels of competition as a result of the value derived from cooperation. In essence, firms that leverage the cooperative engagements through competitive actions yield higher levels of performance as a result. Finally, the group of organizations with high levels of competition and cooperation also have higher levels of performance; however, the difference between groups is nonsignificant. Below is the interaction plot that shows the differences of the 3x3 interaction.

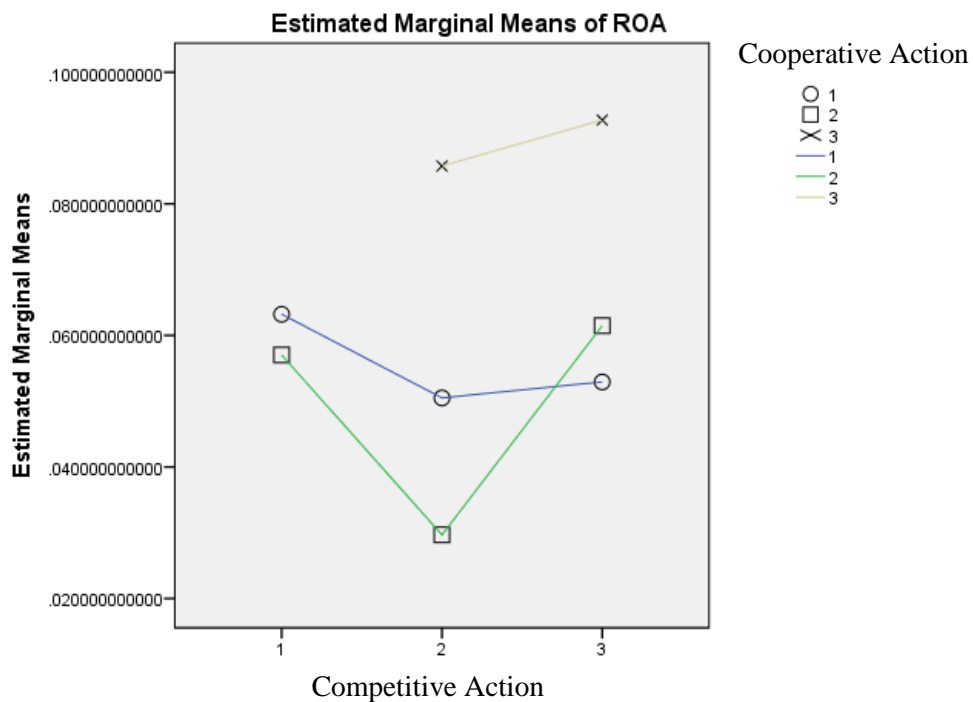


Figure 5.9: 3x3 ANOVA of Competition and Cooperation to ROA

When the data are run with ROS as the measure of performance, the results are similar with one unique difference. While there was one group with significant differences in the ROA

analyses, none of the groups are significantly different in the ROS sample; however, the results are still shown to identify the similarity and differences between the ROS and ROA samples.

Table 5.16: 3x3 ANOVA Sample, with ROS

	Low Coop	Medium Coop	High Coop
Low Comp	Mean=.11, n=50	Mean=-.02, n=11	
Medium Comp	Mean=.06, n=86	Mean=.05, n=68	Mean=.09, n=33
High Comp	Mean=.05, n=2	Mean=-.01, n=17	Mean=.11, n=37

Reported means are measured as ROS

While the means across the ROA sample were largely similar, there is a broader variation of means when the firm's performance is measured with ROS. None of the group differences were found to be significant, but the plot below shows interesting differences among the groups. Most distinctly, the highest group mean for performance as found at low levels of competition and cooperation. This result may be influenced by the high number of organizations with a lack of substantial cooperative action reported. At medium levels of cooperation, there is a distinctly higher level of performance when competitive action is also medium within the medium cooperation groups. While this difference is not statistically significant, it still suggests that the relationship may be curvilinear in regards to balance leading to optimal levels of performance in medium cooperation contexts. In general, however, the highest level of performance in this sample was again found when organizations had higher levels of cooperative activity. Finally, the performance at moderate levels of competition tends to be more consistent, whereas the performance of low and high competition groups has a wider spread of means. While none of the differences were significant, the analysis provides a starting point for further analysis in the future.

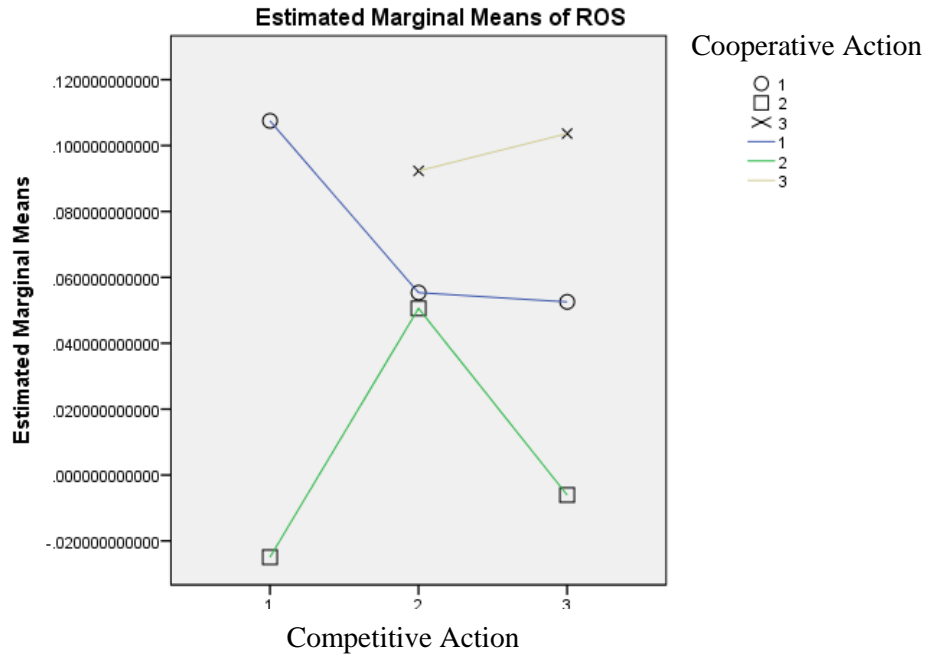


Figure 5.10: 3x3 ANOVA of Competition and Cooperation to ROS

Limitations

While this research model provides a unique perspective of integrating micro and macro factors in the context of competition and cooperation, it is not without its limitations. The first limitation is the small sample size of the current study. From a pragmatic perspective, the labor-intensive nature of developing dictionaries, independently coding and analyzing thousands of headlines, and developing new measurement tools for competition and cooperation limited the size and scope of the sample that could be tested in the present study. While a sample size of 300 firm-year observations may be considered small compared to the strategic management literature at large, it is consistent with the norms and samples of similar research integrating competition and cooperation and applying a content analysis framework of data collection and coding (Marcel et al., 2011).

Second, the dual industry sample may limit the generalizability of the results found in the present study. The sample was limited to two industries for a variety of reasons. First, to truly assess the nature of competition and cooperation within industries, the best way of analyzing the phenomena of interest was to capture data that analyzes and assesses a holistic picture of the industry. The stratified industry sample contains firms of all sizes within specific competitive domains. Second, by limiting the sample to two industries, it allowed for controlling broader macro factors that may influence the nature of competition and cooperation within the industries. Although firm and year specific events were controlled for independently of industry, the dual industry sample implicitly controls for other external environmental factors that may confound the research model.

A third limitation associated with the present study is the nature of the measures and content analysis, at large. The definition of content analysis, and the methodology itself, is limited to the extent that content is reported and available to be analyzed (Durliau et al., 2007). As such, content analysis is limited by the data available in the form of public reports, news reports, press releases, and other mediums of communication. This research study followed the existing norms associated with identifying news sources, collecting news reports, and coding the content of these reports to ensure that the results and inferences made are valid and consistent with the expectations of rigor in the existing content analysis literature (Neuendorf, 2002).

Beyond the empirical limitations, there are also inherent theoretical and conceptual limitations associated with the present study. First, the predictive assumptions and relationships tested are limited to the scope of the theoretical frameworks applied. In other words, the relationships were defined and limited by the extent to which ABV and the ambidexterity shed light on the influence of attention on firm actions and the subsequent performance implications

associated with these actions. While other theories such as signaling theory may lend insight into how organizations engage in actions to develop a position and identity within an industry (Connelly, Certo, Ireland, & Reutzel, 2011), the focus of the present study is to understand the nature and management of attention in relation to firm actions (Ocasio & Joseph, 2005). Further, signaling theory focuses more on the external motivations for competitive and cooperative action (Connelly et al., 2010), whereas ABV lends itself to a deeper understanding of the internal conflict associated with competition and cooperation (Bengtsson & Kock, 2014).

Finally, there are also conceptual or structural limitations associated with the present study. While the present study operationalizes firm performance based on existing research practices in both competitive dynamics and the broader strategic management literature, other research suggests a need for focusing on more direct and related measures rather than using global measures of firm performance (Ray, Barney, & Muhanna, 2004). The lack of findings in some of the relationships may be a result of firm performance being too far removed from the actions of the organization. By assessing performance using returns based metrics which are inherently internally derived, the model may fail to fully capture the market dynamics that influence the relationships between market actions and firm performance (Richard et al., 2009). Considering the multidimensional nature of firm performance (Combs et al., 2005), future conceptualizations of the relationship between actions and firm performance should leverage more nuanced and focused measures of firm performance that align with the predictions and assumptions of existing theory.

CHAPTER 6: DISCUSSION

Results of a research project in isolation provide little value or contribution to the field of strategic management without being tied to and integrated with the extant research. The purpose of this discussion chapter is to identify how the results of the present research project relate to the theory and findings of related research in strategic management. To recall, the research questions of this research can be summarized as:

- (1) Does the attention-based view of the firm predict competitive and cooperative actions?
- (2) Does the independent *level* of competition and cooperation influence firm performance?
- (3) Does type of competitive or cooperative action influence the relationship between competition/cooperation and performance?
- (4) Does the integrative *balance* of competitive and cooperative actions influence a firm's performance?

This chapter provides a discussion of my research findings, with a specific focus on understanding how these results are consistent with and distinct from extant research. Specifically, the chapter starts with an overview of the theories that are the focus of the research. I then discuss the findings from the current research project in reference to the theoretical and conceptual domains. Third, I review the contributions of the research project, along with opportunities for future research. Fourth, I discuss the managerial implications of the results. Finally, I conclude with a summary of the results and outcomes associated with the research study.

Overview

The study draws on theoretical insights from the attention-based view of the firm (ABV) and from research on organizational ambidexterity. Critical to the understanding of the research

model, organizational attention is an important, but limited, resource (Simon, 1947). Thus, organizational action is engaged as members of an organization direct their limited individual and collective attention (Ocasio, 1997). From the ambidexterity perspective, it is suggested that organizations must simultaneously engage in sometimes conflicting arenas of action. In the traditional definition of ambidexterity, this balance is considered in the context of exploration and exploitation (Gupta et al., 2006; Raisch et al., 2009). I extend this conceptualization of balance and the ambidexterity logic to how organizations collectively address and manage the seemingly conflicting demands associated with competition and cooperation.

The phenomena of competition and cooperation also represent research domains with strong conceptual underpinnings in the competitive dynamics and alliance portfolio research streams. Competitive dynamics research has shed light on how competitive action influences firm performance, and has tested a variety of direct and indirect effects to generate a large body of literature to support the importance of competitive action to firm performance (Chen & Miller, 2012). Similarly, cooperation research has contributed to the strategic management literature by identifying and analyzing characteristics of cooperation primarily within dyads that contribute to higher levels of individual and collaborative performance (Das & Teng, 1998). While competition and cooperation researchers have independently contributed to the strategic management literature, research integrating these two phenomena simultaneously is still a relatively nascent stream of inquiry.

Having provided a brief overview of the relevant research streams, the following section focuses on identifying the similarities and differences between the dissertation and existing research. Structurally, the sections are discussed based on their theoretical and contextual domain—ABV and ambidexterity are discussed as the theoretical foundations, and competitive

dynamics and cooperation research are discussed in reference to their contextual foundations. The results of the hypothesis testing and *post hoc* analyses are discussed in reference to the direct and indirect effects hypothesized in the model, as well a discussion of how the control relationships compare and contrast with the existing literature.

Attention Based View of the Firm

At the core of ABV are three concepts: (1) the focus of attention within organizations, (2) the situated nature of attention, and (3) the structural distribution of attention (Ocasio, 1997). The directed nature of attention implies that actions will likely be engaged where an individual or organization devotes attention (Eggers & Kaplan, 2009). The situated nature of attention implies that attention is relative (Dutton, Ashford, O'Neill, & Lawrence, 2001). Bounded rationality suggests that attention is a finite resource, and as such, limits and determines how attention is directed and applied to multiple stimuli (Simon, 1947). The structural distribution of attention addresses the structural attributes of attention. Managers within the firm develop and structure organizations based on the existing strategies and objectives of the organization, and provide insight into the structural distribution of organizational attention (Kabanoff & Brown, 2008). While most research has focused on individual pillars of ABV independently of one another, this research addresses two of the pillars simultaneously (Ocasio & Joseph, 2008).

Organizational attention, or the aggregation and application of attention of organizational members, has yet to be fully conceptualized or empirically explored in the existing ABV literature (Ocasio, 2011). This research focuses on understanding how an organization positions and self-identifies phenomena and issues that are important for the organization to address at the organization level. By linking the firm-reported attention to competition and cooperation at the

organizational level in annual reports to the enactment of competitive and cooperative action, this research takes a step toward extending ABV to a new level of analysis.

The findings of the attention-based relationships in the research model align well with the existing research while also adding to the field with new constructs and measures. Prior research has analyzed the effects of executive attention on the enactment of specific actions of the organization (Kaplan, 2008; Marcel et al., 2011); however, the present model assesses the relationships between attention to competition and cooperation and subsequent competitive and cooperative action at the firm level. Testing the direct relationships between competitive and cooperative actions provides an empirical analysis of the focus of attention and also the situated nature of attention proposed by ABV.

First, ABV was leveraged to theorize that competitive actions are positively influenced by competitive attention (H1a), and negatively influenced by cooperative attention (H2b). While these results were not found to be significant, the relationships were both in the direction suggested by the theory and the hypotheses. These results may have been found for a few reasons. First, competitive actions are not likely to be explicated *ex ante* due to the nature of the information being shared. Organizations may not choose to willingly identify and disclose the competitive factors deemed most important to the organization for fear of giving away valuable information that can be readily accessed by competitors in publicly available documents (Midgley, Marks, & Cooper, 1997). In other words, organizations may not address competitive factors in annual reports to avoid the potential dangers associated with “showing their next move” to competitors (Chen, 1996). Second, competitive actions are not all equal in magnitude. An organization’s decision to invest heavily in research in development and an organization’s small donation to a non-profit are weighted equally in the present study. This measurement of

competitive action is consistent with the extant competitive dynamics research, and suggests a need for a deeper analysis in regards to competitive action weighting (Chen & Miller, 2012). Annual reports are likely to predict the larger types of competitive actions due to their scope, but some of the smaller competitive actions may not be referenced or addressed in the organization's report.

In the control relationships, slack was found to be strongly and significantly related to the enactment of competitive activity ($\beta=15.6$, $p<.01$). This is consistent with the research that suggests liquid assets offer organizations opportunities to leverage these resources with relatively short lead times for competitive actions (George, 2005). In other words, organizations with available liquid assets are more readily able to leverage these resources to enact competitive actions. A second significant finding in the controls relationships is the negative effect of TMT functional diversity and the enactment of competitive actions ($\beta=-5.60$, $p<.01$). This negative relationship suggests that organizations with more diverse top management teams enact fewer competitive actions. This finding supports the notion that too much diversity on a top management team may lead to organizational rigidity and an inability to develop consensus and enact competitive actions in the market (Smith et al., 1994).

Second, the relationships were tested in relation to the enactment of cooperative actions. The positive relationship between cooperative attention and cooperative action (H1b) was found to be significant ($\beta=.63$, $p<.01$); however, the negative relationship between competitive attention and cooperative action was not found to be significant (H2a). The nonfindings for the negative relationship may again be attributed to the nature of competitive attention. Organizations may choose to speak vaguely in terms of competitive attention in order to avoid showing competitors their future actions and strategies. As such, a strong direct correlation may

not be found due to the broad scope of the annual report (Huselid, 1995). The positive relationship partially supports the ABV notion of focused attention, in that organizational attention as measured by annual reports is positively associated with the subsequent enactment of cooperative activity. This finding extends the existing research leveraging letters to shareholders by testing this relationship at the organizational level (Marcel et al., 2011).

Size was also found to be negatively and significantly related to the enactment of cooperative actions ($\beta=-2.24$, $p<.01$). This negative relationship suggests that larger firms have fewer cooperative engagements relative to their smaller counterparts. This finding suggests that larger organizations are not as dependent on other organizations, and as such require fewer relationships to be competitive (Gomes-Casseres, 1997). This supports recent research suggesting that smaller, more entrepreneurial firms are more reliant on cooperative relationships (Kellermanns, Walter, Crook, Kemmerer, & Narayanan, 2014).

TMT characteristics were also found to be significant in relation to competitive and cooperative action, and these results largely support the extant research on upper echelons (Hambrick & Mason, 1984). First, TMT functional diversity is found to be positively related to cooperative action ($\beta=.57$, $p<.01$). This finding suggests that more diverse top management teams identify cooperative engagements as a unique way to integrate knowledge and other resources into the organization through cooperative engagements. The findings in regards to size and TMT functional diversity aligns well with research examining the relationship between TMT characteristics, the interdependence of organizations, and the performance implications of functional diversity within firms. with varying degrees of interdependence with other organizations (Michel & Hambrick, 1992). While existing research has addressed TMT characteristics as an indirect determinant of competitive actions (Ferrier & Lyon, 2004; Miller &

Chen, 1996), the present findings suggest further exploration of attention as a direct effect may provide valuable insights into the antecedents of competitive and cooperative actions. Finally, TMT size was negatively related to cooperative engagements ($\beta = -.41, p < .05$). This finding may be indicative of smaller top management teams reaching consensus about cooperative activities than larger top management teams, possibly as a result of lower conflict within the TMT (Amason & Sapienza, 1997).

The relationships tested in the attention side of the model provide an intriguing starting point for future research leveraging ABV. While only one of the hypothesis was statistically significant (H1b), the relationships in the model suggest a need for further exploration into the situated nature of attention in regards to potentially conflicting phenomena within the organizational context. Competitive attention may require a deeper analysis leveraging qualitative methodology to further explore if and how organizations address competitive factors at the organizational level. This type of analysis would align well with existing studies assessing attention (Eggers & Kaplan, 2009; Marcel et al., 2011), but would also extend this research by analyzing attention as an organizational phenomenon. Considering these intriguing findings, future research addressing organizational level manifestations of attention are likely to contribute and extend both the ABV literature and the strategic management literature.

The implied paradox associated with the attention to competition and cooperation as a result of bounded rationality and the finite nature of attention within the organization was not supported by the findings. While only one of the four hypotheses is supported in the analysis, the directionality of the results generally support the implicit paradox of competition and cooperation within the firm. This interdependence of attention to competition and cooperation suggests further exploration into how organizations and top management teams enact optimal

levels of competitive and cooperative activity. Considering the finite nature of attention within the firm and the implicit paradox associated with competition and cooperation, I also hope to contribute to the domain of ambidexterity.

Ambidexterity

The second theoretical framework for the research is found in the conceptual foundations in the ambidexterity literature. At the core of ambidexterity is the concept of paradox and the necessary balance and potential complementarity associated with paradoxical actions (March, 1991; Raisch et al., 2009). While this framework has largely been limited to the discussion of exploration and exploitation (He & Wong, 2004), the logical tenets are not conceptualized such that they are contextually bounded. As such, this research takes an early step towards leveraging the ambidexterity logic in a paradoxical context outside of the exploration and exploitation domain.

The conflicting interests between competition and cooperation are largely implicit, and the true nature of these two behaviors has yet to be fully explored at the organization level. Research integrating these two paradoxical behaviors has largely been assessed at the dyad level, specifically assessing the pure competition between two organizations (Bengtsson & Kock, 2014; Park et al., 2013). While this perspective provides unique insight into the relationship between competition and cooperation within a dyadic relationship, it ignores an organization's overall competitive and cooperative orientation. The present research suggests that competition and cooperation do not occur in a vacuum, and the actions associated with competition and cooperation attention have interdependent characteristics that must be managed appropriately at the organizational level.

Integrating ideas from ambidexterity research with the concept of bounded rationality, a better understanding of the finite nature of attention emerges. In particular, the need for simultaneous attention toward both competitive and cooperative actions becomes clearer. As discussed above, only a few of these relationships were identified as significant. However, the inherent conflict between the competitive and cooperative attention can be seen in the positive effects from attention to competition and cooperation to their respective actions (H1a and H1b), and the negative crossover effect of cooperative attention on competitive action (H2b). While the relationships were not found to be significant, the direction of the relationships suggest that attention to one action is inherently relative to the attention devoted to another action. More broadly, this suggests an inherent conflict that warrants further empirical exploration.

While ambidexterity research provides conceptual implications for the balance of competitive and cooperative attention, it also applies to identifying optimal levels of competitive and cooperative actions (Park et al., 2013). The preliminary findings from the *post hoc* analyses suggest that higher levels of both competition and cooperation yield higher levels of firm performance. The initial operationalization of balance by generating an industry adjusted level of competition and cooperation yielded nonsignificant findings (H5). However, when taking a more granular look using the 3x3 ANOVA analysis of the multiple groups at low, medium, and high levels of competition and cooperation, it suggests that the highest performing firms, when assessed in relation to both competition and cooperation, were the firms with high levels of cooperation and high levels of competition. These results are consistent with the results found in the independent competition and cooperation literature (Das & Teng, 1998; Ferrier et al., 1999); however, by assessing these relationships simultaneously, it suggests that competition and cooperation integratively yield higher levels of firm performance. Considering the highest

performance was generally found at high levels of competition and cooperation, the findings suggest a synergistic relationship between two paradoxical actions as conceptualized in the ambidexterity research.

A key implication and contribution of the study is that balance is not necessarily defined as 50/50. In other words, balance is not assessed based on a 1:1 relationship of competitive and cooperative actions. It is balance relative to the peers within the industry. Balance is found to be positively related to firm performance at high levels of both competition and cooperation, partially supported at moderate levels of competition and cooperation, and unassessed at low levels of competition and cooperation as a result of a lack of firms with low levels of both competition and cooperation. Again, the strong performance of organizations with high levels of competition and cooperation suggest the balance of these actions yields better performance (Park et al., 2013). These preliminary findings suggest a need for further exploration into the potentially synergistic relationship between the implicitly interdependent actions of competition and cooperation.

Competitive Dynamics

Competitive dynamics research has focused on identifying antecedents and outcomes associated with the enactment of competitive actions of organizations (Ketchen et al., 2004). To date, researchers have been able to identify organizational actions that contribute to competitive advantages and higher firm performance (Smith et al., 2001), direct and indirect effects of competitive activity, types of competitive activity, and firm characteristics to further extend the domain of competitive dynamics (Chen & Miller, 2012). The results from the present study align well with this focus on dynamic actions of organizations (Rindova & Kotha, 2001), and

extend the empirical frontiers of competitive dynamics by conceptualizing and testing curvilinear and indirect effects of competition antecedents and outcomes at the organization level.

Often lacking in competitive dynamics research is the simultaneous assessment of antecedents and outcomes associated with competitive activity in an integrative model (Smith et al., 2001). Research often examines antecedents of competitive actions and outcomes of competitive actions as largely independent of one another (Chen & Miller, 2012). This research focuses on understanding how attention shapes competitive actions, and the subsequent performance implications of these actions in an integrative model. While attention is not found to be significantly related to competitive action in the original model, the *post hoc* analysis of a non-lagged relationship suggest marginal support that competitive attention (as shown within the annual report) is positively related to the enactment of competitive actions (H1a). This may suggest that the decision making processes associated with competition are more immediate than the decision making processes associated with cooperative actions (Georgiou, Becchio, Glover, & Castiello, 2007). Further research exploring an integrative assessment of organizational level attention in relation to competitive activity may yield intriguing results regarding how and when organizations engage in competitive action. A potentially important implication is that a closer examination of the temporal effects of attention on actions appears needed.

In strategic management and competitive dynamics research, the vast majority of the studies assume and analyze linear relationships (Chen & Miller, 2012). This research posits that the linear assumptions and predictions are not necessarily always the case. The relationships in the research model proposed a curvilinear effect of competitive action on firm performance, such that competitive actions yield diminishing returns at higher levels of activity (H3b). When performance is measured as ROS the results actually suggest a negative relationship with a

positive curvilinear effect, resulting in a U-shaped relationship between competitive actions and firm performance. In other words, as organizations increase competitive activity, the returns become increasingly larger.

This finding may suggest that organizations improve in their ability to capitalize on competitive actions as they engage in more competitive activity overall (Ingram & Baum, 1997). These learning effects might translate into higher levels of performance for the organization (Garvin, 2000). Although this finding does not align with the existing competitive dynamics research that suggests a positive linear effect of competitive activity on firm performance, the models are analyzed in the presence of cooperative actions. Previous research that treated and analyzed competitive and cooperative actions as independent only provides a partial representation of how these actions influence firm performance. When competitive and cooperative action are analyzed simultaneously, the effects associated with competition and cooperation become more evident. These results from the integrative models warrant further exploration.

Third, in the *post hoc* analysis of the oil and gas field services industry, although the main effects of the curvilinear and linear relationships of competitive actions and performance are not significant, the significant moderation of these relationships—or the difference between the slopes—at low and high levels of diversity of competitive actions suggests interesting results (H4b). When competitive diversity is low, the relationship is convex (U-shape); however, at high competitive action diversity the relationship is concave (inverted U-shape). This moderation suggests that when actions are largely similar, organizations are able to increase performance through repetition of these behaviors. This is consistent with the development and application of heuristics (Bingham et al., 2007). On one hand, low levels of diversity allow for

organizational learning to be applied to improve firm performance (Miller, 1993a). On the other hand, the results are also consistent with research on misappropriation of heuristics when competitive diversity is high. The results suggest that at high levels of competitive diversity, organizations may be overlooking discrepancies between actions and fail to apply the necessary due diligence to ensure the competitive actions are appropriate (Miller & Chen, 1996). These intriguing results in the subsample warrant further exploration of the moderating effects of diversity of competitive activity on the relationship between competitive actions and firm performance.

Cooperation

Traditionally, cooperation research has leveraged a structural or relational perspective to understanding the challenges and benefits of cooperation. On one hand, network theory has been applied to understand how a firm's relative position within a structural network of peers can lead to competitive advantages (Provan et al., 2007). On the other hand, research on dyadic relationships has provided rich insight into the nature of cooperation within specific cooperative engagements (Dyer & Singh, 1998). Research on cooperation at the organization level has been limited, although research addressing alliance portfolios has provided an initial conceptualization of how organizations manage cooperative engagements holistically (Wassmer, 2010). The research presented here extends the alliance portfolio literature by simultaneously assessing the organization level cooperation and competition in the same research model.

Alliance portfolio research has largely focused on performance implications of different cooperative actions (Jiang et al., 2010; Lavie, 2007). This research is consistent with the existing research by examining outcomes of cooperative action, but it simultaneously analyzes the antecedents of cooperative action, as well. The results suggest that the attention devoted to

cooperation at the firm level is associated with of the enactment of subsequent cooperative activity (H1b). This extends the existing literature by examining the presence and effect of a theoretically grounded measure of attention as an antecedent of cooperative action of the firm.

In terms of outcomes associated with cooperative action, the results provide interesting contributions to the literature—namely the significance of the curvilinear relationship between cooperation and firm performance (H3a). As hypothesized, the results support the notion of diminishing returns as cooperative actions increase. Challenging the existing linear analyses present in extant research, this research suggests that cooperation is beneficial to the organization, to a point. The curvilinear findings are consistent with the misappropriation of heuristics, while also supporting the notion of organizational learning at low to moderate levels of cooperative action (Haleblian & Finkelstein, 1999; Rothaermel, 2001).

Also of interest to cooperation research are the moderation effects of cooperative action diversity in the proposed model and the *post hoc* robustness tests. Supporting the hypothesized moderating effects, organizations with higher levels of diversity in cooperative engagements have lower levels of performance when overall cooperative action is high (H4a). However, higher levels of cooperative diversity are beneficial at low levels of cooperative actions. This may support the notion that organizations seek out and contract companies with unrelated expertise to increase firm performance rather than incur the costs associated with conducting these unrelated actions within the organization (Jones & Hill, 1988; Williamson, 1981).

Also, the interaction of volume and diversity of cooperative actions further supports the misappropriation of heuristics outlined above. In other words, the increase in number and type of cooperative actions provides more opportunities for managers to not only engage in too many cooperative actions but also engaging in the wrong types of cooperative engagements (Gulati et

al., 2012). While these relationships are beneficial at low levels of overall cooperation, the danger of misappropriated heuristics appears to become even greater when the cooperative actions are highly diverse and unrelated (Jiang et al., 2010). Considering the presence of the moderating effect in the full model and several robustness tests, further research integrating both quantity and diversity of cooperative actions is likely to provide valuable contributions to the cooperation literature. In particular, there is still a need to further explore the effects of cooperative actions in the presence of competition to fully understand how organizations leverage cooperative engagements through competitive actions.

Summary of Contributions

By developing and testing a theoretically grounded research model that addresses both antecedents and outcomes of competitive and cooperative actions of organizations, this research makes the following contributions. First, this research represents some of the earliest operationalization and empirical analysis of attention at the organizational level. The assessment of attention, action, and performance at the organizational level extends the existing ABV literature by developing and applying a dictionary and framework of analysis that can be applied in future research. By developing and validating this dictionary, it offers future researchers the opportunity to analyze an organization's holistic application of attention and how this direction of attention is manifested in actions. In terms of results of the present study, I found significant positive effects of attention to cooperation to cooperative actions. I also found significance in non-lagged models of attention to competition in relation to competitive actions. These results suggest the presence of organizational attention and the direct effects of this attention on the enactment of competitive and cooperative actions.

Second, the model proposed and tested curvilinear relationships to challenge the existing linear assumptions in both competition and cooperation literatures. The curvilinear effects of cooperation on firm performance were largely supported (H3a), however the curvilinear relationship between competition and firm performance was found to be nonsignificant (H3b). These direct effects suggest that the theories applied and analyses conducted should consider the diminishing returns associated with organizations' actions. Rather than assuming and analyzing relationships as purely linear in nature, future theory development should consider the potentially curvilinear effects associated with organizational actions.

Third, the model moved beyond studying merely quantity of organizational actions and simultaneously assessed the nature of actions, as well. Rather than simply assessing relationships based solely on volume of competitive or cooperative activity, this research tests the moderating effects of type or diversity of competitive and cooperative actions on the existing curvilinear relationships. These moderating effects were found to be significant in the cooperative action relationships (H4a), and also in some of the *post hoc* analyses on the competition to performance relationship (H4b). This research is an early attempt to test and find significant moderating effects of action diversity on the curvilinear relationships between competitive and cooperative actions and subsequent firm performance.

Fourth, the timing of performance outcomes represents an interesting opportunity for future research. The results suggest differential effects on firm performance depending on how and when performance is assessed. For example, cooperative actions' influence on firm performance is largely realized when measured as ROA—suggesting a longer term commitment of resources for a more holistic and long term positive effect on firm performance. When measured as ROS, however, the relationship between competition and performance is significant.

The window of opportunity, and the time needed to effectively develop competitive and cooperative actions, may be different based on the type of action being performed by the organization. Further research exploring the timing and even sequencing of competitive and cooperative actions would provide deeper insights into the dynamic nature of competitive and cooperative actions.

Fifth, this research describes and tests the importance of balanced competition and cooperation. Leveraging conceptual tenets from the ambidexterity logic (March, 1991), the model assesses the interdependent relationship between competition and cooperation in both the attention and action contexts. From the attention perspective, the relationship between attention to competition and cooperation is implied to be a zero sum relationship such that attention to one is at the expense of another. This is seen in the significant positive linear effects, and implied by the negative, though nonsignificant, effects of attention to cooperation on competitive actions (H1 and H2).

In terms of balance of actions, a firm's ability to effectively leverage competitive and cooperative actions are likely limited by the extent to which organizational members are able to devote the necessary time and effort to these actions. While firms can engage in high levels of competition or cooperation, ambidexterity posits that an inherent balance of potentially synergistic actions like competition and cooperation is necessary (Park et al., 2013). While I hypothesized balance based on moderate levels of both competition and cooperation (H5), the results generally support the positive effects of high levels of competition and cooperation rather than moderate levels of both. This does not rule out the synergistic effects, but rather suggests a potentially stronger synergistic effect than previously assumed. This analysis of balance and interdependence of competition and cooperation provides a starting point for futures research

simultaneously assessing the effects of competition and cooperation on firm performance at the organization level.

In terms of theoretical contribution, this research further explores the boundary conditions associated with ABV. In the extant research, attention is measured solely at the individual level (Kaplan, 2008; Marcel et al., 2011). This research posits that an organization's attention is a product of the managers' and members' attention within the organization and examines how this composite attention influences an organization's actions. By extending ABV to another level, developing and testing a new measure of attention, and assessing the focused and situated tenets of attention in congruence with ambidexterity, this research extends ABV theory while also providing measurement tools for future research in this domain.

While this research does not fit the pure definition of cooptation as indicated by simultaneous competition and cooperation within a dyad (Bengtsson & Kock, 2014), it does provide results that explore the interdependence of these two actions at the firm level. Rather than focusing on the relationship level of analysis, this research takes an organizational approach to understand how firms leverage competitive and cooperative actions simultaneously. While cooptation is defined by the dyad, the present study approaches the integration of competition and cooperation as a firm level phenomenon. In other words, this study suggests that a firm's cooptative orientation provides an assessment of how firms simultaneously manage and leverage the potential synergies associated with competition and cooperation. By taking an early step towards assessing firm level competition and cooperation integratively, this research extends cooptation beyond the limited scope of individual relationships and offers a firm level operationalization of cooptation. This approach of assessing firm level actions may yield a strong connection and contribution to the broader strategic management literature.

Managerial Implications

For results to be translated and applied to real world contexts, it is important to identify the tangible outcomes associated with a given research project. At the core of the present research is the inherent paradox associated with the ever present actions of competition and cooperation. All organizations engage in competitive and cooperative action, and how organizations and individuals manage these seemingly contradictory actions have performance implications. The results of the present study can be broken down based on the relationships being tested: (1) the relationships between competitive and cooperative attention to actions and (2) the relationships between competitive and cooperative actions and firm performance.

In terms of attention leading to action, the results provide evidence that attention of individuals and organizations is limited. The results and relationships suggest that where an organization directs the attention of its members is likely to be related to subsequent actions by the organization. Specifically, the results suggest that attention to cooperation is positively related to cooperative action. The results also suggest partial support for attention to competitive factors leading to the enactment of competitive actions. While nonsignificant, the results also suggest a relative nature of attention. In other words, the direction of attention to one factor may be at the expense of directing that attention to another. From a managerial perspective, these results suggest a need for direction and management of organizational members' attention on the types of actions an organization hopes to enact. By explicitly addressing, directing, and managing attention within the organization, managers will likely be able to more effectively address the important and relevant factors the organization faces.

Second, the results provide interesting implications for the relationship between firm actions and firm performance. As a result of the analysis of high, medium, and low levels of

competition and cooperation, these results suggest an obvious need for both competitive and cooperative actions for higher levels of firm performance. Considering the strong levels of performance when competitive and cooperative action are high, the results suggest that these two actions are potentially interdependent and provide synergistic performance implications for a firm. While the results suggest a need for both competitive and cooperative actions, these actions must be carefully managed and applied. When the results are analyzed based on volume and type of actions, the implications suggest caution regarding engaging in too many or too diverse competitive or cooperative actions. For instance cooperative actions have diminishing returns at high levels, and further these diminishing returns are magnified when the cooperative actions are highly diverse.

In regards to competitive actions, the results suggest that the highest performance occurs at low and high levels of competitive activity. In terms of volume of actions, moderate competitive action is found to have the lowest level of performance. On one hand, low levels of competitive activity may indicate a focus on a small but effective repertoire of competitive actions. On the other hand, it might suggest that organizations that engage in higher levels of competitive actions become more effective at leveraging these actions due to learning effects and repetition. Considering these findings, organizational managers need to focus on competitive actions that the firm leverages effectively and identify opportunities to apply these actions when and where appropriate.

Conclusion

The focus of my dissertation is to extend the strategic management literature by examining the nature of relationships among competition and cooperation, and how these relationships influence firm performance. By integrating the conceptual implications of the

attention based view of the firm with ambidexterity in the context of competitive and cooperative actions of organizations, this dissertation provides conceptual and empirical contributions to the strategic management literature. It conceptually defines and empirically tests a sequential model that links internal factors of the organization with the subsequent actions of the organizations. It also analyzes how these actions influence subsequent firm performance. The present research suggests that, while existing research largely treats competition and cooperation independently of one another, an interdependent conceptualization of these two phenomena may be more appropriate. From an attention perspective, cooperative attention was found to be significantly related to the enactment of cooperative action. Second, the relationship between cooperative action and firm performance was found to be significant and with the hypothesized diminishing returns. Finally, the moderating effect of cooperative diversity on the existing curvilinear relationship between cooperative action and performance was found to be significant, such that higher diversity increased the diminishing returns at lower levels of cooperative activity. Broadly speaking, this research will hopefully stimulate and encourage future research to address the unique relationships among competition and cooperation, and to further explore how these relationships influence organizational performance.

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