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Attention to Competition: The Role of Managerial Cognition in Shaping the Response to Competitive Actions

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A thesis submitted in partial fulfillment of the requirements for the Doctor of Philosophy degree in Business

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Attention to Competition: The Role of Managerial Cognition in Shaping the
Response to Competitive Actions

(Thesis format: Monograph)

by

Mehdi Hossein Nejad

Graduate Program in Business Administration

A thesis submitted in partial fulfilment
of the requirements for the degree of
Doctor of Philosophy

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Abstract

The competitive dynamics literature has examined various characteristics of actions/response dyads (e.g., new product release, market entry, marketing campaigns) along with their antecedents and competitive outcomes. For the most part, the emphasis has been on objective and structural factors that influence the dynamics of competition. What is often overlooked is that organizations' actions are a result of individual level perceptions and interpretations. To gain a more comprehensive understanding of competitive dynamics, I integrate micro and macro perspectives in the study of competition. By drawing from theories in managerial cognition, organizational attention, and behavioral strategy, I examine how mental structures of decision-makers (CEOs) can influence the way competitive moves by a rival are perceived, which in turn shapes the subsequent responses to those moves. The main mechanisms linking cognition to competitive decisions are rooted in the literature on organizational attention and the processes that explain how and why managers notice and act on some competitive moves and ignore others.

I develop and test hypotheses that link managerial regulatory focus, perception of identity, and external/internal orientation to the likelihood and speed of response to competitive actions. I also examine how the salience of a competitive action within the industry can moderate these relationships. The Awareness-Motivation-Capability framework in competitive dynamics is used as a theoretical bridge between cognition and the nature of response to competitive moves by rivals. Using data from one industry, I test the proposed relationships and discuss the implications for research and management practice. The results show that while perceptions regarding identity and external/internal orientation influence the likelihood of response, regulatory focus seems to have no effect. The salience of the competitive attack also influenced likelihood of response and positively moderated the relationship between external/internal orientation and the likelihood of response. None of the hypotheses related to the speed of response dependent variable were supported.

Keywords

Competitive Dynamics, Attention to Competition, Managerial Cognition, Regulatory Focus, Organizational Identity

Dedication

Dedicated to my lovely family...

Acknowledgments

I would like to thank all the people that have supported me throughout my life and during the past years at Ivey Business School. My supervisor, Dr. Glenn Rowe, gave me the freedom to explore my interests and supported me throughout my years in the PhD program. I am forever thankful for his guidance and advice and look forward to many years of friendship.

I thank the members of my proposal committee, Dr. Jean-Louis Schaan and Dr. Jean-Philippe Vergne for their extremely helpful comments and input earlier in the dissertation process. I'd also like to acknowledge my thesis examination committee, Dr. Christine Oliver, Dr. Claus Rerup, Dr. David Sharp, and Dr. Trevor Hunter for their time, attention, and constructive feedback. I will no doubt use the scholarly advice and recommendations I received during the process in my future research endeavors.

I learned a lot during my years at Ivey. Part of the learning was through the PhD seminars and courses, and I thank all the faculty members for creating an environment where interesting discussions happened. These discussions were crucial in helping me identify my research interests. In addition to these seminars, a lot of the learning happened during conversations with fellow PhD students. I am extremely lucky to have found many good friends during my time at Ivey. I'd like to specifically mention Pouya Seifzadeh, Maziar Raz, Matthew Wong, and Michael Wood for their friendship, and for keeping me motivated during the ups and downs of my PhD journey. A special thanks also to Anna Potrawiak from the Ivey PhD program office for her incredible support and for making everything so much easier.

Finally, I'd like to thank my family. My parents have shown me the meaning of unconditional love and I am forever indebted to them for everything they have done for me throughout my life. My wife Zeinab is truly a life companion. She has given me confidence, calmed me down during tough times and has motivated me to take on life's challenges. I am blessed to have her by my side.

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Chapter 1: Introduction

Competition is a reality of life and is central to the field of strategy. For as long as we have limits on resources and opportunities, firms will have to compete and commit to actions that give them advantage over their rivals. Various streams of research in strategy have examined this phenomenon from unique angles but it is only the study of competitive dynamics that has focused on specific competitive actions and their effects on competitors, competitive advantage, and performance (Smith, Ferrier, & Ndofor, 2001). These competitive actions can take many forms including new product development, adding features to a current product or service, pricing strategies, marketing campaigns, or mergers/acquisitions. What is shared amongst these activities is that they are all aimed at gaining competitive advantage over rivals. Put differently, a firm will resort to competitive moves to gain a better position at the expense of another player within the field, industry, or group of competitors¹ (Chen, 1996).

A large body of work in the competitive dynamics literature looks at the nature and likelihood of response from firms that are impacted by a specific competitive action. If I act and initiate a competitive move against my rivals, what is the likelihood that they will respond, and if they do, what will that response look like? Generally speaking, the unit of analysis is often an action/response dyad and by definition, a firm's strategy and position are always considered in comparison to its rival or group of close competitors (Chen & Miller, 2012). Competitive actions are examined with rivals and their possible response(s) in mind and responses are counter-attacks aimed at regaining a competitive

¹ Some scholars believe that a zero-sum approach to competition lacks an understanding of positive sum possibilities through cooperation and is therefore incomplete (e.g., Lado, Boyd, & Hanlon, 1997). A holistic view of competition will also include cooperation through which the size of the pie (benefits) increases for everyone (Nielsen, 1988). But even these scholars acknowledge that zero-sum approaches are part of reality and firms sometimes do need to achieve gains at the expense of their rivals. These two approaches seem complimentary as opposed to contradictory. In this study, my focus is mainly on the zero-sum aspect of competition although this does not imply that the gains of one player need to be exactly the same as the losses incurred by another firm.

edge over rivals. This dyadic approach is a key element in the competitive dynamics literature.

In addition to this critical aspect of competitive dynamics, it is also important to note two other foundational principles that have helped define and develop the field. The first principle is that human agency and decision-making matter and are consequential (Chen & Miller, 2012; Chen, Su, & Tsai, 2007; Rowe, Cannella Jr, Rankin, & Gorman, 2005). This is especially important for my research as it paves the way for discussions on how individual-level factors can impact the likelihood and nature of a firm's actions in response to specific competitive stimuli. Without agency, this will be a baseless argument and a futile effort. The second principle, as initially discussed by Chen (1996), is the principle of competitive asymmetry. In its core, the principle indicates that two rivals will perceive a given competitive action or relationship in different ways (Chen & Miller, 2012). This could be due to a number of factors such as a firm's position in a wider competitive landscape, its internal organizational factors such as resources or structure, or individual level factors such as mental models and schemas.

Research conducted on the psychology of rivalry (Kilduff, Elfenbein, & Staw, 2010) reaffirms the fact that not all rivals or competitive actions are viewed equally, and depending on which rival the action is coming from or its timing, the perceived significance and subsequent interpretations may be different. The important word here is "interpretation" which as I discuss is deeply rooted in a decision-maker's cognition. In this dissertation, I examine how these interpretations shape the attentional pattern of top-managers (CEOs) and in turn influence the characteristics of competitive response. Researchers have argued that organizations do not necessarily react to competitive moves by their rivals rationally or based on traditional economic reasoning (Yu, Engleman, & Van de Ven, 2005). In essence, this implies that goals other than the maximization of economic gains, and potentially different interpretations of what desired outcomes should be, influence competitive dynamics. This approach can supplement the current conventional thinking in the competitive dynamics literature and our understanding of the determinants of action/response dyads.

Although a number of recent and older articles have called for more attention to the role of perceptions and interpretations in shaping competitive actions/responses, a review of the literature clearly shows that the domain of competitive dynamics has largely focused on structural and observable market factors and the economic modeling of actions and reactions (Chen et al., 2007). It seems that scholars have mostly overlooked the opportunity to integrate micro and macro perspectives in approaching this subject matter (Chen & Miller, 2012). What organizations and their decision makers perceive, how they interpret events, and their reactions are all influenced by individual level factors and the structural elements within the organization (Hodgkinson, 1997a; Ocasio, 1997). Given this important argument, and the significance of human agency in competitive dynamics, it seems fitting to explore the role of decision-makers' cognition in the competitive dynamics process. By drawing from theories in behavioral strategy (Powell, Lovallo, & Fox, 2011), managerial cognition (e.g., Kaplan, 2011; Nadkarni & Barr, 2008; Walsh, 1995) and organizational attention (Ocasio, 1997, 2011), I attempt to view competitive dynamics in a better light and offer an alternative model which complements our current understanding of the issues. As Hambrick (2007) elegantly puts it, "if we want to understand why organizations do the things they do, or why they perform the way they do, we must consider the biases and dispositions of their most powerful actors-their top executives" (2007, p. 334).

When a competitor initiates a competitive move with consequences for a focal organization, that organization can only respond if its decision-makers become aware of the action. It is a widely held belief that what gets noticed gets done (Hambrick, 1981; Ocasio, 1997), and no one can respond to an action that has not been detected at all. The act of noticing is an integral element in the concept of attention. Based on theoretical arguments rooted in the Carnegie School of thought, attention is a limited resource (Simon, 1947) and various environmental, structural, and individual level factors influence what a manager pays attention to and the quality of that attention. In the context of organizations, attention has been defined as "the noticing, encoding, interpreting, and focusing of time and effort by organizational decision-makers on both (a) issues: the available repertoire of categories for making sense of the environment; problems, opportunities and threats; and (b) answers: the available repertoire of action alternatives;

proposals, routines, projects, programs, and procedures” (Ocasio 1997, p. 189). There are two processes involved in how a decision maker’s focus of attention is determined. First is the bottom-up approach which deals with the characteristics of stimuli and what makes them stand out amongst a number of others. The second is the top-down approach which argues that goals, values, task demands and cognitive orientations (schemas) influence how attention is directed (Ocasio, 2011). In one of the few studies looking at cognition in competitive dynamics, Marcel, Barr, and Duhaime (2011) refer to similar processes as the cue and the processing propensity approaches in competitive dynamics. As I discuss and examine in this dissertation, these two perspectives are inter-related when discussing the links between cognition, attention, and competitive dynamics.

It is evident from the definition of attention that encoding and interpreting are important aspects of the attention construct. In industries that experience fast-paced competition, firms face a complex and demanding environment and managers need to come up with interpretations for ambiguous information (Thomas, Clark, & Gioia, 1993). Interpretation is a complex process and prior research has argued theoretically and examined empirically that when exposed to similar stimuli, decision-makers in different organizations will interpret issues differently (Daft & Weick, 1984; Thomas et al., 1993; Thomas, Shankster, & Mathieu, 1994). For example, two managers might look at a particular competitive move by a rival, with one interpreting it as an opportunity, while the other sees it as a potential threat. This is partly due to contextual factors that direct the flow of information, attention and subsequently, interpretation (Daft & Weick, 1984; Ocasio, 1997), but also the decision makers’ cognitive frames and knowledge structures (Porac & Thomas, 1994; Walsh, 1995).

Many years have passed since Hambrick and Mason (1984) initially talked of a “gulf” between disciplines such as psychology and sociology and what we examine in strategic management. But with all the research that has been conducted to date, we can still do much more to incorporate managerial perceptions and cognition in the study of competitive behavior (Marcel et al., 2011). Given the fact that it is the managers who notice, interpret, and act on cues from the competitive environment, it is important to consider their cognition as the major factor influencing competitive dynamics. In addition

to attention to external stimuli, managers hold beliefs regarding the organization's internal capabilities and resources, and these beliefs also influence if, how and when a manager will respond to external actions (Thomas et al., 1993).

In an attempt to offer a new model for inter-organizational competitive behavior, I examine decision-makers' specific cognitive orientations and their role in shaping attentional patterns. The response to a competitive action is influenced by a manager's (i.e., CEO's) interpretation of that action and his/her attention to it. When a competitive action unfolds, its size, relevance, and timing are only a few of the characteristics that determine if it can attract attention. This is consistent with the bottom-up approach in examining organizational attention and is examined quite extensively in the competitive dynamics literature. But a closer look will reveal that issues such as relevance and timing are not objective terms and one can assume that a host of individual and organizational level factors determine their subjective significance in the eyes of a decision-maker. These factors as discussed above are more in line with the top-down approach in attention and seem to be under-studied in the literature.

How an organization is structured and the configuration of its communication channels influence what a decision-maker's attention is guided towards, but in addition to this structural element emphasized strongly in the attention based view of the firm (ABV) (Ocasio, 1997), scholars have also acknowledged the importance of sensemaking (Weick, Sutcliffe, & Obstfeld, 2005; Yu et al., 2005) in shaping attentional patterns. Here, the unique emphasis on the influence of mental models and cognitive orientations in creating awareness and guiding attention adds valuable insight. Sensemaking is a "social construction process" meaning that various individuals interpret the cues that gain their attention, and these interpretations then become the reality that individuals face and use to form the basis of their attention, interpretation, and action (Yu et al., 2005). The role of mental models and schemas are highlighted in this process and are at the core of this study.

In essence, the focus of this dissertation is to offer a fresh view on how responses to competitive actions unfold. More specifically, I look at the factors that shape the

characteristics of a response and the mechanisms that explain this relationship. As mentioned previously, the competitive dynamics literature has looked at a host of different objective criteria and circumstances that shape various aspects of a response. The models offered in these studies usually follow an economics-based rationale and the assumptions that accompany it. Based on arguments rooted in behavioral strategy (Powell et al., 2011), I offer an alternative model to supplement and add to this prevalent rationale (as shown in Figure 1-1). Although the current models do enrich our understanding of competitive dynamics, they offer only a partial picture. By incorporating the role of cognition in these models, a more comprehensive understanding can be gained which will help move the field forward and also help managers gain a better understanding of competition. In a general sense, my research question in this dissertation is: How do individual level cognitive factors such as mental models and schemas influence the way decision-makers respond to competitive actions by rivals?

To answer this question, it is necessary to incorporate concepts from the literature on managerial cognition and organizational attention to explain why individuals react differently to similar competitive actions or react in a way that is difficult to explain using traditional economic reasoning. Although a handful of studies have looked at the role of cognition in competition, none have examined a comprehensive set of cognitive aspects and their link to the characteristics of a response. In the only empirical study to date, Marcel et al. (2011) have looked at managers' perceptions about what actions influence organizational performance, and how these perceptions influence the response to competitive actions. Their study has made great contributions both in terms of research design and content to our understanding of cognition in competitive dynamics. Other scholars such as Kaplan (2008) and Eggers and Kaplan (2009) have examined the role of CEO cognition in adapting to important industry-wide technological changes. Although these studies provide useful insights on managerial cognition and adaptation, they do not address the role of cognition in competitive dynamics. As described briefly in this introduction, the study of competitive dynamics has unique principles that clearly set it apart from other events such as technological shocks.

In this dissertation, I examine how a specific set of managerial cognitive frames and orientations will impact their focus of attention and subsequent behavior in response to competitive moves by close rivals. I look at perceptions of organizational identity, promotion vs. prevention focus (regulatory focus), and external vs. internal orientation. Each of these cognitive frames or orientations has important implications for managerial decision-making, especially in the context of competitive dynamics. I examine identity as a concept that helps explain why managers put different degrees of emphasis on the various aspects of their business. Identity is a powerful tool in determining managers' psychological ties to specific parts of their business (Livengood & Reger, 2010). Managers' perceptions about the identity of their organizations and elements that define it can influence the way they understand and respond to competition.

Internal and external focus is another cognitive orientation examined in this dissertation. It has been discussed in a number of studies in strategic management (e.g., Barnett, 2008) and it is an important concept in trying to explain managerial attention. Since attention is a central element in my theoretical arguments, this cognitive orientation deserves a central role in this study of competitive dynamics. Additionally, most studies have so far measured this inherently cognitive concept using very objective measurements such as investment in obtaining marketing data or in R&D. In this dissertation, I use methods that measure internal and external focus as cognitive orientations which will create a closer link between the concept and its measurement.

Finally, promotion and prevention focus have been included in this study because of its role in shaping various aspects of attention and also the development of a set of possible responses after an individual has become aware of an external stimuli. Regulatory focus theory (Higgins, 1998; Higgins & Silberman, 1998) explains an important individual level orientation that can determine the pattern of a manager's attention and also the availability of a certain set of responses in his/her mind. It is an important and widely studied concept in psychology that has rarely been viewed in the strategic decision making literature. Overall, using arguments developed from research on managerial and organizational cognition, I hypothesize that each of these cognitive phenomena will

influence whether decision-makers notice, pay attention to, and/or respond to competitive moves.

In addition to the effects described above, another aspect of attention is extremely important in this context and merits further examination. Scholars (e.g., Vergne, 2012; Weick, 1995) have argued that the *salience* of a particular event has direct influence on how it is perceived and forms the basis of future mental models. In fact, decision makers tend to allocate their attention based on the relevance and salience of issues at hand (Ocasio, 1997; Rerup, 2009). The cognitive aspects mentioned in the previous paragraphs address the relevance question since what is deemed relevant is directly influenced by a decision maker's mental frames and schemas. To address the issue of salience, I develop arguments and hypotheses that explain how the salience of an issue moderates the relationship between a manager's cognitive orientations and his/her response to competitive moves. By incorporating both the relevance and salience aspects of attention in my arguments, I am in essence addressing the top-down and bottom-up aspects of attention as described by Ocasio (2011). Salience tends to be involved in bottom-up processes where the density and visibility of the target plays an important role in how attention is directed. Relevance and how I have linked it to managerial cognition tends to fall under top-down processes, since it is the mental frames and structures that determine the target of attention. This dissertation answers the call by Ocasio (2011) to address both processes in research on organizational attention.

To test my hypotheses, I use data from one industry (mobile phone manufacturers competing in North America) and employ content analysis techniques introduced and used by a number of previous studies in the area of managerial cognition (e.g., Barr, 1998; Kaplan, 2008; Kaplan, Murray, & Henderson, 2003; Marcel et al., 2011). Attention, mental structures and schemas, and interpretations are all cognitive processes which cannot be measured directly, and as a result, researchers have used behavior and written or verbal communication as indirect measurements of what goes on inside an individual's (i.e., CEO) head (Barr, 1998; Cho & Hambrick, 2006). My data are collected from company reports, published interviews, industry publications, and major news sources which contain valuable information relevant to this study. Although there are a

number of shortcomings and inaccuracies associated with this approach, prior research has shown this to be an acceptable and effective method in measuring cognitive attributes (Kaplan, 2011). Unobtrusive measures are also particularly useful in collecting data when accessing individuals such as top level managers is extremely difficult (Webb & Weick, 1979).

The contributions of this study are manifold. Firstly, I am addressing an under-studied area in the competitive dynamics literature by addressing micro individual level factors that influence the characteristics of action/response dyads. Using the literatures on managerial cognition and attention, I develop a new model to explain the nature of response to competitive actions above and beyond what was previously known through traditional economic reasoning. Examining the more subjective factors involved in explaining action/reactions and their characteristics helps explain why a particular firm attacks a particular market or reacts to an attack on one of its markets more vigorously than others. This is also in line with Walsh's (1995) call to move beyond simple studies on the content of knowledge structures and move to examine the link between cognition and behaviors that result in organizational outcomes and processes.

Secondly, I incorporate both bottom-up and top-down processes in organizational attention by addressing the relevance and salience aspects of attention. Ocasio (2011) has asked for this to be an important consideration in research on organizational attention. My study design allowed me to test the interaction between the two processes and examine the implication of this interaction for the theory on attention. Very few studies have empirically tested the interaction between the bottom-up and top-down processes and hopefully, insights gained in this dissertation will contribute to our understanding of organizational attention.

Thirdly, I am incorporating a research methodology which is only beginning to enter the competitive dynamics realm. I use methods prevalent in the behavioral strategy literature to capture the dispositions and cognitive orientations of CEOs. This provides valuable insights for future research in this body of knowledge and creates opportunities for us to explore alternative models that explain competition. And finally, my study is part of a

small but growing body of literature that has empirically tested the link between managerial cognition and competitive dynamics. Although there are a number of theoretical articles that have examined a set of cognitive phenomena, many of the proposed relationships have remained untested. By developing a theoretical model and testing its hypotheses, this study takes a step towards building a more comprehensive body of literature in this area. Figure 1-1 summarizes the study's contributions.

This study also has implications for managerial practice. It gives us a better understanding of how managers think and act. Once we know this, the knowledge can be used in hiring and promotion decisions so that individuals fit the profile needed for a competitive landscape. It also helps organizations conduct a more accurate analysis of rivals and predict behavior based on what they know about decision-makers at rival firms. The study also sheds light on the importance of organizational structures and routines that induce and activate certain cognitive orientations. By acknowledging their role, managers can design structures that reinforce desired cognitive orientations or alter those that impede proper thinking.

This dissertation is structured in the following manner: After this introduction, I provide a comprehensive review of the literatures on competitive dynamics, managerial cognition, behavioral strategy and organizational attention. Through this literature review, I highlight the gaps in the literature and build a theoretical repertoire for my subsequent hypothesis development. In the third chapter, I offer arguments to build my hypotheses that link cognition and attention to competitive dynamics. In chapter four, I present my research design and an overview of my data sources and issues surrounding reliability and validity. Chapter five includes the results of my analysis and a detailed discussion is offered in chapter six. I conclude by offering suggestions for future research based on the findings of this dissertation.

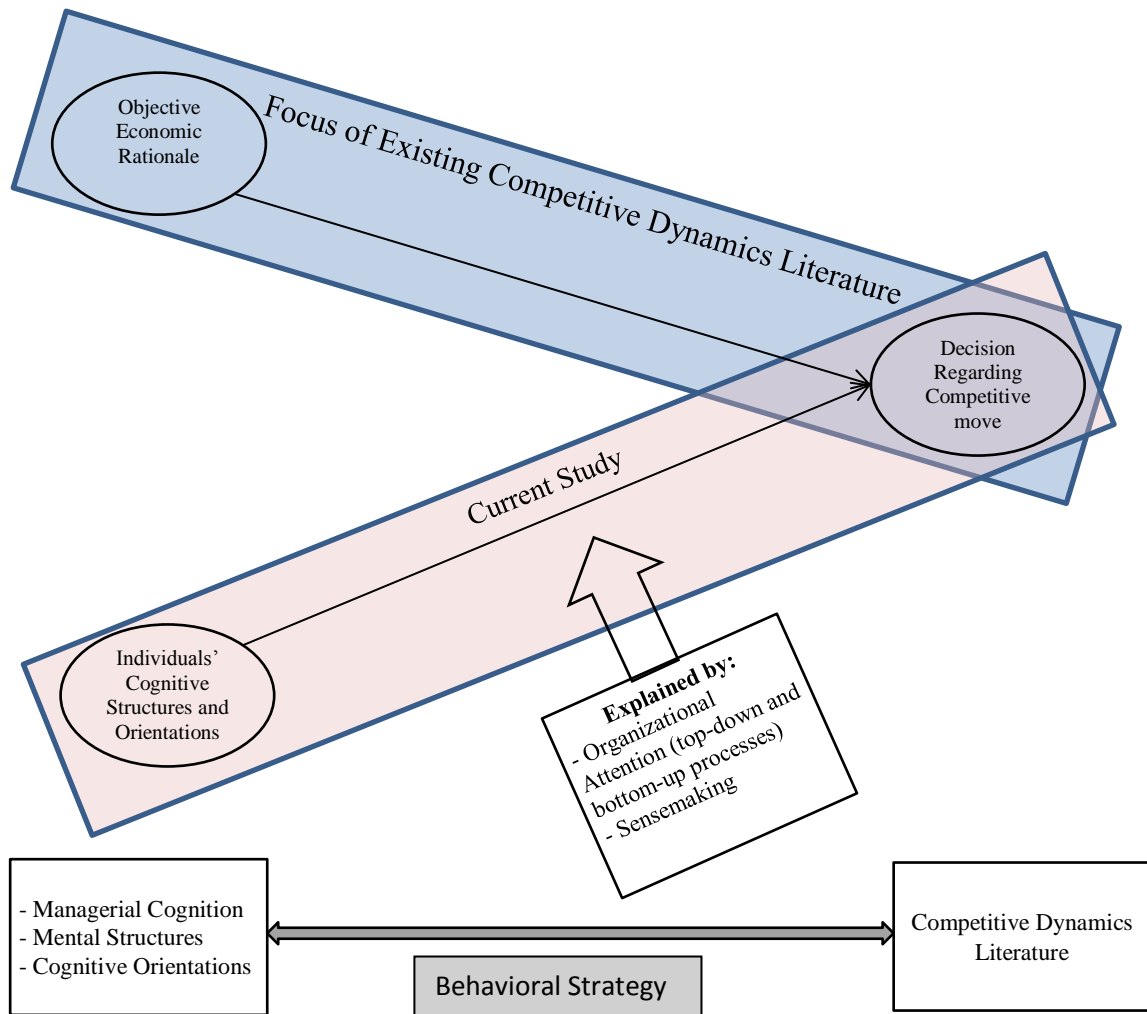


Figure 1-1 Contributions of this study

Chapter 2: Literature Review

There is an abundance of both theoretical and empirical studies in the strategy literature linking environmental events to decisions and subsequent actions. But researchers are increasingly acknowledging that the economics notion of a direct link between environmental stimuli and organizational action and heterogeneity might not be as accurate as previously asserted (Powell et al., 2011). We are being reminded that in the fuzzy front end of decision making, cognitive structures significantly influence the framing of decisions and it is this framing that actually shapes subsequent choices and actions (Narayanan, Zane, & Kemmerer, 2011). In my quest to apply this line of thinking to the realm of competitive dynamics, I rely on theoretical foundations from a number of research streams. First, I review research on competitive dynamics to understand how this line of research has evolved over the years and where it stands today. My review revealed areas in the literature that warrant further inquiry. Second, I review the literature on behavioral strategy with a strong emphasis on managerial cognition and attention. This line of inquiry has the potential to address some of the gaps identified in the competitive dynamics literature. I also examine the upper echelons literature as it directly leads to gaps addressed in the behavioral strategy research program. Finally, I discuss the literature on three specific aspects of cognition that are used in this study (regulatory focus, perceptions of identity, and external/internal orientations) to predict the nature of a firm's response to competitive moves by its rivals.

2.1 Competitive Dynamics

The study of competitive dynamics is concerned with how specific competitive actions and reactions affect competitors, competitive advantage and performance (Smith et al., 2001). More specifically, this body of literature looks at how the characteristics of an action, an actor, or a responder determine the likelihood and speed of response, which

then translates into performance outcomes (Chen et al., 2007). Each of these elements have been the subject of studies over the years, with some focusing on the antecedents of competitive actions, others looking at the characteristics of the responder and others examining the link to performance. These competitive actions/responses usually take the form of new product development, new pricing scheme, an acquisition, or a change of geographic market (Derfus, Maggitti, Grimm, & Smith, 2008; Porter, 1980). There are also nonmarket moves such as lawsuits which are increasingly used as competitive actions (Shaffer, Quasney, & Grimm, 2000). The literature is not unanimous in its view of who can be labeled a rival or competitor. For example, studies rooted in I/O economics (e.g., Porter, 1980) assume that firms within an industry are automatically competitors. Others have looked at firms within a strategic group as automatic rivals. In this study, I use the definition offered by Chen (1996) which defines a competitor as any firm that has the potential to capture a resource or opportunity that a focal firm would also like to acquire. It is clear from this definition that competitors do not necessarily have to be in the same industry or field and the only thing that connects them is the fact that they are interested in the same resources or opportunity.

Although the competitive dynamics literature is comprehensive and quite diverse, it has to a large extent adhered to a set of four overarching principles that have helped define the field (Chen & Miller, 2012). Firstly, the unit of analysis is a single competitive move or more often an action/response dyad. Most studies either look at the specific objective organizational or contextual factors that predict an action or response (e.g., Ferrier, 2001; Ndofor, Sirmon, & He, 2011), or the characteristics of a particular competitive action and the likelihood and nature of a retaliatory response to that action (e.g., Chen & Miller, 1994; Smith, Grimm, Gannon, & Chen, 1991). Speed, intensity, diversity, and likelihood of response to a competitive move are all classic dependent variables in this body of research. Secondly, relativity is an essential premise and a firm's strategy and position in a market are always considered in comparison to its rival or group of competitors (Chen & Miller, 2012).

The third principle, as initially discussed by Chen (1996) is the principle of competitive asymmetry. In its core, the principle indicates that two rivals perceive a given

competitive action or relationship in different ways. This could be due to a number of reasons including a firm's position in a wider competitive landscape, its internal organizational factors such as resources or structure, or individual level factors such as mental models and prior experiences which have been rarely discussed in the literature (Chen et al., 2007). And finally, an important aspect that defines this stream of research in strategy is that human agency and decision-making matter and are a central part of the discussion (Chen & Miller, 2012). This final principle is particularly important for this study, since without agency, managerial cognition would be an irrelevant concept.

The competitive dynamics literature has focused on structural and observable market and organizational factors that influence competition (Chen et al., 2007). One stream of research has specifically looked at the characteristics of the firm that initiates an attack or the firm that is contemplating a response. These characteristics are used to predict the likelihood and speed of response by the firm that has or will be on the receiving end of an attack. In one of the earlier studies, Smith et al. (1991) examine how characteristics such as organizational slack, experience and education of top managers, and structural complexity influence likelihood and lag of response. They also include propensity to imitate the original competitive move as an extra dependent variable. Finally, the authors link these response characteristics to organizational performance. Chen and Hambrick (1995) show that small firms differ from large ones in propensity, speed and visibility of competitive actions. In this case, the authors examine the differences in responsiveness, and the speed and visibility of those responses. Other studies have looked at top management team heterogeneity (e.g., Hambrick, Cho, & Chen, 1996), resource slack (e.g., Ferrier, 2001), and current performance (e.g., Ferrier, Fhionnlaoich, Smith, & Grimm, 2002) as determinants of actions and responses.

Likelihood and speed of response have been variables of interest in competitive dynamics, because the longer an attack from a rival goes without a response, the more time that rival has to take advantage of its benefits (Livengood & Reger, 2010; Schumpeter, 1934, 1950; Smith et al., 1991). Studies have also looked at the diversity and intensity of competitive actions and responses to a focal firm's competitive moves and discussed how the nature and intensity of actions can influence competitive

advantage (e.g., Ferrier, Smith, & Grimm, 1999; Lee, Smith, Grimm, & Schomburg, 2000). For example, Ferrier et al. (1999) have examined the tendency of market leaders to be less aggressive and use a limited set of competitive moves, on top of having a slower response time.

Within the bounds of the four principles laid out previously, research on competitive dynamics has examined competition from various angles but except for a handful of mostly recent studies (e.g., Chen et al., 2007; Livengood & Reger, 2010; Marcel et al., 2011), it has paid very little attention to the cognitive antecedents of competitive behavior and what actually motivates decision-makers when they engage in a competitive action/response. This is somewhat surprising since the most foundational framework in the industry (the Awareness-Motivation-Capability model) has elements that call for these concepts to be incorporated. This framework was one of the first comprehensive attempts aimed at exploring the antecedents of competitive behavior.

In his seminal piece, Chen (1996) identified three important drivers of competitive action which is now widely referred to as the awareness-motivation-capability (AMC) framework (by action I am referring to both the initial action and the response to it). The first antecedent of competitive behavior is awareness. To respond to a threat, opportunity, or a specific competitive move, decision-makers within an organization must first be aware of it. As I discuss in later chapters, this element is closely related to concepts in the attention literature. The second antecedent is motivation. Decision-makers must be motivated to take action in the form of a competitive move or a response to a rival's attack. Finally, it is important for an actor to have the capability to act/respond in the face of threats/opportunities. An actor might be aware of a move, and be motivated to respond, but without the required capabilities, it is difficult for the actor to initiate a response.

Although the awareness-motivation-capability framework clearly has elements that call for more attention to human decision-making and cognition (especially awareness and motivation), studies have mostly used objective economics based factors to explain it. Review of the literature clearly shows that competitive dynamics research has mostly

focused on the economic modeling of actions and reactions based on rational economic criteria (Chen & Miller, 2012; Livengood & Reger, 2010). But in the AMC model for competitive action, much of the underlying factors affecting the awareness and motivation elements are rooted in cognitive phenomena. What organizations and their decision makers perceive, how they interpret, and their reactions are all influenced by individual level factors in addition to structural factors within the organization. Given this important argument, it makes sense to explore the role decision-makers' cognition plays in competition. Interestingly, only a handful of studies (e.g., Chen et al., 2007; Kilduff et al., 2010; Marcel et al., 2011) have actually attempted to address these issues in the context of competitive dynamics.

In an important and widely cited study, Chen et al. (2007) introduced the concept of competitive tension as an important cognitive concept. "Tension defines the forces that build up and tend to pull a static inter-firm relationship into dynamic behavioral interplay between rivals. It can be conceived of as a sort of energy storage agent: once there is enough build-up (perhaps as a consequence of prior battles or of managerial and industry psychology), competitive tension is likely to explode into rivalrous actions" (2007: p. 103). What sets the abovementioned study apart from the mainstream competitive dynamics literature is its inclusion of perceptual factors. Also, as highlighted in the definition of competitive tension, managerial psychology and cognition is an important element in shaping those perceptions. Based on their understanding (and that of other industry players such as consultants or financial analysts), managers perceive a particular rival as their main competitor (Chen et al., 2007).

Put differently, how managers and other industry players perceive each component of the awareness-motivation-capability framework plays an important role in the build-up of tension and the probable subsequent competitive actions that unfold between two firms. But what is missing in the Chen et al. (2007) study is attention to the underlying cognitive and psychological mechanisms that give rise to those perceptions. They have used very objective measures such as relative size of the involved firms to predict perceptions of rivalry. But there are important subjective elements that also influence these perceptions. These elements are not highlighted in Chen et al.'s (2007) study.

Nevertheless, it is important to note that this study was an important step in the move towards the incorporation of psychological factors in explaining competitive dynamics and opened the door for subsequent avenues of inquiry in this area.

In a more recent study, Marcel et al. (2011) looked at a specific cognitive element and its link to competitive dynamics. Managers have perception about what parts of their activities contribute to the firm's overall performance and based on this study, if a manager feels that a rival has attacked parts of the firm's business that are crucial for it to perform, it is more likely to respond. In addition to this cognitive factor, the authors also consider a number of "cue variables" such as actor's size and performance, organizational similarity, market commonality and attack intensity. These variables are the typical objective predictors that have been examined regularly in the competitive dynamics literature. But Marcel et al. (2011) take an additional step and examine the interaction between these cue variables and the cognitive phenomenon in their research. Additionally, their study is designed specifically to capture managerial perceptions as opposed to what is objectively crucial for their performance.

And finally, research conducted on the psychology of rivalry (Kilduff et al., 2010) has focused on managerial cognition by proposing that rivals and competitive actions are not viewed and interpreted equally. Depending on which rival the action is coming from or the timing of that action, the perceived significance and subsequent interpretations will be different. Perceptions about rivals are created through prior experiences and interactions that might have introduced emotional or other subjective factors into the equation. These perceptions then guide competitive action and influence organizational performance. The authors test their hypotheses using data from NCAA basketball teams.

My goal in this study is to build on the research discussed above and examine the perceptions and opinions of organizational decision makers and the underlying factors that influence those perceptions. These perceptions are extremely important since as psychologists have asserted for many years, cognition is what links environmental stimuli with decision-making and action. The following section reviews the literature on

cognition, attention (Ocasio, 1997), and behavioral strategy to discuss how they can help us better understand the dynamics of a competitive landscape.

2.2 Cognition, Attention, and the Emergence of Behavioral Strategy

I begin this section of my literature review with a brief overview of upper echelons theory (Hambrick & Mason, 1984). I do this because I have emphasized the role of managers' interpretations in shaping strategy, and because this dissertation inevitably draws from some concepts that fall under this theory. Based on the bounded rationality principle (Cyert & March, 1963), Hambrick and Mason (1984) lay the foundations of upper echelons theory and argue that managers are unable to process an overwhelming number of external and internal stimuli so they select and interpret a select few based on their past experiences and mental frames. They argue that decision making is often the result of "behavioral factors" rather than a clear and objective economic optimization as discussed by the vast majority of the strategy literature at the time. The theory clearly asks us to look deeper into the black box of decision-making.

As the theory states, a manager's experiences, values, personal traits, and cognitive biases influence how he/she interprets an event which in turn relates to the nature of strategic choices (Gerstner, König, Enders, & Hambrick, 2013). Hambrick and Mason (1984) argue that these characteristics form a lens through which managers view the world around them. But a quick review of the literature on upper echelons reveals that most studies have focused on a set of easily measured characteristics such as education, age, functional experience, and socioeconomic roots to understand top management's decision making process and outcomes (e.g., Bantel & Jackson, 1989; Hambrick & Mason, 1984; Tyler & Steensma, 1998). Other studies have looked at the composition of top management teams (TMTs) as a predictor of strategic decision-making and action (e.g., Chen, Lin, & Michel, 2010; Ferrier et al., 2002; Finkelstein & Hambrick, 1990; Hambrick et al., 1996). Hambrick (2007) has acknowledged that this emphasis on observable managerial characteristics (or team characteristics) has its limitations but it does provide a good starting point and relatively easily measurable variables. Having said

that, it might be problematic to draw a clear link between these measures and the psychological dimensions they are meant to represent. In rare cases, scholars have attempted to move beyond these objective characteristics to measure personality or cognition which are more nuanced determinants of behavior and much more difficult to measure.

A more recent collection of studies in the upper echelons literature has focused on one particular personality trait (i.e., narcissism) and its influence on decision-making and behavior (e.g., Chatterjee & Hambrick, 2007; Gerstner et al., 2013). In one of the latest articles, Gerstner et al. (2013) examine how major pharmaceutical firms responded to significant biotechnology developments during a 28 year period. They show that narcissistic CEOs are more aggressive in responding to technological discontinuities. As is customary in the upper echelons literature, they show a link between a personality trait and strategic decision making. Although moving beyond age, tenure, and functional background and looking at personality is a step forward, it still fails to capture a manager's cognitive orientations and mental frames that could result from personality or a host of other internal or environmental influences.

In fact, many years have passed since Hambrick and Mason (1984) initially talked of a "gulf" between disciplines such as psychology and sociology and what we examine in strategic management. And while many studies have attempted to close the gap and bring the literatures together, there is still a lot to do and to research. Hambrick (2007), in a review of his seminal article, acknowledged that his stream of research has received little attention mainly due to the difficulties associated with measuring psychological issues and the required expertise in both the micro and macro organizational phenomena. He concedes that researchers have not looked inside the black box when dealing with cognitive orientations. This line of inquiry falls within the bounds of what is today labeled as the behavioral strategy research stream.

The study of cognitive and social psychology is attracting growing attention in the strategy literature under a stream known as "behavioral strategy". By incorporating concepts from human psychology, strategy scholars hope to base their arguments on

more realistic assumptions of human cognition and decision-making (Gavetti, 2012; Powell et al., 2011). Various streams of research such as behavioral theory of the firm (Cyert & March, 1963; Simon, 1947), attention based view (Ocasio, 1997), managerial cognition (Greve, 1998; Walsh, 1995), sensemaking (Weick, 1995), mindfulness (Levinthal & Rerup, 2006), and aspiration (Greve, 2008) have a tradition of considering human cognition in exploring topics that are important for the study of strategic management. This body of research has aimed to create a link between an individual's cognitive structure and decisions that impact strategy formulation and implementation (Narayanan et al., 2011; Porac & Thomas, 2002). It views managers as information processing entities that absorb, process, and disseminate often complex and ambiguous information (Walsh, 1995).

But it seems that mainstream strategy research has largely focused on topics such as market power through barriers to entry, resources and capabilities, and technological change and innovation as sources of firm heterogeneity (Powell et al., 2011). The current resurgence in cognitive research in strategy (behavioral strategy) aims to highlight the importance of human cognition in explaining why firms behave differently in the face of environmental stimuli. To achieve this, scholars have moved away from the traditional level of analysis, which was the firm or business unit, to individuals and decision-makers within firms. By incorporating concepts from managerial cognition and attention in explaining competitive dynamics, this study fits within this stream of research. In-line with the objectives of behavioral strategy research (e.g., Powell et al., 2011), my goal is to bring theory in competitive dynamics closer to empirical facts and bridge the gap between research and practice.

Decision biases and cognitive schemas are at the heart of behavioral strategy research (Powell et al., 2011). Because of cognitive limitations and biases, decision-makers might fail to see an opportunity or threat, might not give it enough weight, may fail to consider all possible responses, and therefore may resort to suboptimal behavior. This may have positive or negative consequences for firm performance and therefore, should be of importance to strategy scholars. Prior research has argued theoretically and examined empirically that when exposed to similar stimuli, decision-makers in different

organizations will interpret the issue differently (Daft & Weick, 1984; Thomas et al., 1993; Thomas et al., 1994; Tyler & Steensma, 1998). This is partly due to both contextual and mental factors that direct the flow of information, attention and subsequently, interpretation (Daft & Weick, 1984; Ocasio, 1997).

Huff (1982) was one of the pioneers of cognitively oriented research in strategy. She and others who followed him argued that socially constructed beliefs (as opposed to pure economic efficiency) influence the actions of organizations. But it was Porac, Thomas, and Baden-Fuller (1989)'s study of competition in the Scottish knitwear industry that started an interesting and fruitful body of literature which attempted to explore and examine the role of managerial cognition in strategic outcomes and processes (Kaplan, 2011). Porac et al. (1989) and subsequently Porac, Thomas, Wilson, Paton, and Kanfer (1995) argue that transactions among rivals usually take place at two distinct levels. First is the material level where actual resources are exchanged and the traditional economic concepts such as barriers to entry, mobility and elasticity are relevant. But the second level is cognitive where competition needs to be considered through the mental models of decision-makers and the interpretations that follow. They have also pointed to four assumptions that are necessary in the study of cognition and competition. These assumptions are also significant in my study.

The first assumption identified by Porac et al. (1989) is the emphasis on the micro-momentary actions of organizational members as determinants of processes and outcomes. This is identical to the assumption regarding the role of human agency in the competitive dynamics literature (Chen & Miller, 2012). This overlapping of assumptions indicates that these two streams of research can potentially interact to explain phenomena in better light. The second assumption states that there is an information-processing sequence through which individuals attend to cues, interpret them and then act based on those interpretations. Third, individuals interpret what they attend to by linking the received cues with their mental models. And finally, it is assumed that individuals can verbalize the content of their interpretations. This has important implications on how these interpretations can be measured in research studies. Porac et al. (1989) build on these assumptions to argue for an objective-subjective-objective transformation process

which makes it possible to create a shared understanding amongst a collective entity. This shared understanding is the basis of imitations and the creation of shared beliefs about what is labeled as “marketplace”.

Their study does not however address how the mindsets of individuals specifically influence what they perceive. Put differently, it does not draw the link between specific mental models and interpretation of the environment. It is also not concerned with specific action/response dyads as highlighted in the competitive dynamics literature. Nevertheless, Porac et al.’s (1989, 1995) studies have opened the door to a whole new set of possibilities linking cognition to strategy. Kaplan (2011) has argued that although this body of research received early traction, the initial rush seemed to subside gradually. In particular, there seems to be a lack of attention to specific mental models and how they relate to organizational processes including competitive dynamics. It seems that after efforts in the 1980s and 1990s, the study of cognition gained legitimacy and acceptance and the literature has now moved towards more articulate and fine-grained discussions on the topic (Kaplan, 2011). This is encouraging since my study of cognition and competitive dynamics falls exactly within this emerging body of literature. Table 2-1 lists a number of important studies that fall under the behavioral strategy umbrella.

I now delve deeper into the topic of behavioral strategy and discuss an important concept that is crucial in our understanding of managerial cognition. As mentioned earlier, the aim of research in behavioral strategy is to highlight the importance of mental structures and cognitive processes in the explanation of strategy (Narayanan et al., 2011). Walsh (1995) has provided a detailed description of mental models and how they influence what gets noticed and interpreted in organizations. Mental models are shaped through experience and are the basis of associative thinking. In associative thinking, an individual organizes his/her knowledge and experiences into mental categories and schemes and when faced with novel situations, the individual recognizes it associatively in terms of what he/she knows through current mental models. As Gavetti (2012) has also pointed out the new situation is represented in a way that is consistent with the schemata used to make sense of it. This new experience will then become part of the available set of knowledge structures (Walsh, 1995).

An important issue to note is that the presence of mental models and schemata has both positive and negative outcomes. They facilitate thinking and decision-making in the face of limited information and analyzing capability, but on the other hand, they can mask other stimuli that can be potentially consequential (Narayanan et al., 2011). They can blind the decision-maker to other aspects of the information that do not fit the current knowledge structures (Walsh, 1995). Knowledge structures and schemas are important in our study of competitive dynamics since managers decide on their firm's competitive behavior based on how they perceive the competitive environment and their own organization (i.e. resources and capabilities) (Chen et al., 2007; Grimm, Lee, & Smith, 2006). How decision-makers respond to particular environmental events depends on how they interpret them (as threat or opportunity) (Dutton, Fahey, & Narayanan, 1983), and their interpretations are deeply rooted in their mental structures and also the way their organization has channeled attention (Ocasio, 1997).

Mental models and knowledge structures have been measured through a variety of techniques. The psychology literature has often resorted to experiments to capture the content of mental models (Walsh, 1995). While this used to be a fruitful avenue of inquiry in earlier years, scholars have now urged researchers to move beyond simple studies on the content of knowledge structures and move to examine the link between cognition and behaviors that result in organizational outcomes and processes. Studies in business on the other hand have mostly done just that and have used surveys and analysis of secondary data (e.g., Eggers & Kaplan, 2009; Nadkarni & Barr, 2008) in order to measure and test how mental models influence organizational outcomes. Clark and Mackaness's (2001) study is an example of an attempt to actually capture a manager's mental models and the cognitive maps they use in making important strategic decisions.

In another study, Thomas et al. (1993) examine firms in a highly competitive and dynamic industry. In these contexts firms face a complex and demanding environment and managers need to come up with interpretations for ambiguous information. They explain that how a manager chooses to interpret an event and how he/she chooses to label it based on mental categories, determine their behavioral response. Their findings also show that the nature of top managers' interpretations will be related to change in products

and services. In a similar article on antecedents and consequences of issue interpretation in organizations, Thomas et al. (1994) point out that both the content of the issue and the multi-level interpretive contexts within which decision-makers are placed determine how individuals interpret a given phenomenon. In addition to the studies mentioned above, a host of other studies have examined the link between interpretation and action (e.g., Ranson, Hinings, & Royston, 1980; Weick, 1995; Weick et al., 2005). These studies will help lay the foundation for my theoretical arguments linking specific aspects of managerial cognition to competitive dynamics. For example, they might help explain why two different managers might look at a particular competitive move by a rival, with one interpreting it as an opportunity, and the other seeing it as a potential problem.

To examine how mental models and knowledge schemas influence decisions and behavior, we need to understand the two interrelated concepts of attention and sensemaking. Attention can be considered a mediator between the mental structures discussed above and the decision-making process. The literature on managerial cognition and attention is quite clear in stating that managers can only make sense of and act on issues that have attracted their attention (Hambrick, 1981; Ocasio, 1997). Attention has been defined as “the noticing, encoding, interpreting, and focusing of time and effort by organizational decision-makers on both (a) issues: the available repertoire of categories for making sense of the environment; problems, opportunities and threats; and (b) answers: the available repertoire of action alternatives; proposals, routines, projects, programs, and procedures” (Ocasio, 1997, p. 189).

Table 2-1 List of important studies in behavioral strategy

Article	Topic	Method
Daft, Sormunen, and Parks (1988)	<i>Managerial perceptions regarding the importance and uncertainty of a sector influence their scanning mode and frequency.</i>	Structured interviews used to capture perceptions of managers at medium sized manufacturing companies.
Porac et al. (1989)	<i>Authors argue that mental models of managers determine perceptions of competition and the subsequent responses to competitive moves.</i>	Interviews and analysis of secondary data used to extract cognitive taxonomies of managers.
Porac and Thomas (1994)	<i>Examines the relationship between cognitive taxonomies of organizational forms and competitor definition in a local economy.</i>	Cognitive taxonomic interviews of owner/manager or non-owner/managers of small retail stores.
Hodgkinson and Johnson (1994)	<i>There is within and between organizational variances in cognitive orientation towards competitive structures.</i>	A cognitive taxonomic approach similar to Porac et al. (1994) using a sample of 23 retail managers.
Thomas et al. (1994)	<i>The identity belief held by TMT is related to managers' interpretation of organizational issues.</i>	Questionnaire used to measure beliefs about identity.
Porac et al. (1995)	<i>Authors discuss the social construction of competition in one industry.</i>	Interviews and questionnaires used to measure mental frames and perceptions.
Hodgkinson (1997b)	<i>Examines the stability and inertia of mental models in an industry that is known for high velocity. Inhibitive role of cognition in adapting to changing market conditions.</i>	Use of competitive analysis questionnaire to measure mental frames.

Barr (1998)	<i>The author demonstrates how managers' interpretations evolve as they respond to environmental events.</i>	Letters to shareholders are used to identify interpretations.
Bogner and Barr (2000)	<i>Paper discussed nature and process of sensemaking in hypercompetitive environments.</i>	Theory paper. Framework development.
Daniels, Johnson, and de Chernatony (2002)	<i>The role of competitive environment in creating divergence of managerial cognition between organizations and senior managers and the role of institutional environment in industry, strategic groups and functions.</i>	Visual card-sorting techniques and Kelly's repertory grid for ideographic mapping of mental models.
Garg, Walters, and Priem (2003)	<i>Perceived environmental dynamism influences managerial attention to internal functions or external environment.</i>	Questionnaire used to measure managerial attention to internal vs. external environment.
Cho and Hambrick (2006)	<i>Study looks at how an important event in the industry can influence manager's attention towards a more entrepreneurial orientation.</i>	Letters to shareholders and annual reports are analyzed to measure entrepreneurial attention. Automated text analysis and word search.
Yadav, Prabhu, and Chandy (2007)	<i>The effect of CEO's attention towards the future and his/her external or internal focus is related to the speed of new technology detection, development of new products and deployment of new products.</i>	Letters to shareholders are used to measure attention patterns.
Nadkarni and Narayanan (2007a)	<i>Collective assumptions and social networks shape collective strategy frames that lead to actions and practices.</i>	Content analysis of annual reports and causal mapping used to identify strategy frames.

Nadkarni and Narayanan (2007b)	<i>Authors show that the complexity and focus of strategic schemas influence strategic flexibility which in turn relates to performance.</i>	CEO letters to shareholders are analyzed to identify cognitive schemas. A test to show letters are in fact reliable.
Nadkarni and Barr (2008)	<i>The study links industry velocity to managers' attention focus and their environment-strategy causal logic. These in turn influence speed of strategic response.</i>	Letters to shareholders are used as the primary source of data. Content analysis techniques are used to extract causal maps.
Kaplan (2008)	<i>Examines the interaction of CEO cognition, organizational capabilities and organizational incentives in shaping strategy during a technological revolution.</i>	Attention to a new technology was measured by content analysis of letters to shareholders.
Eggers and Kaplan (2009)	<i>CEO attention to emerging technology is associated with earlier entry into a new product market and the opposite holds for CEO attention to existing technology.</i>	Longitudinal study of firms in one industry. CEO attention is measured through analysis of letters to shareholders.
Marcel et al. (2011)	<i>Authors argue that managers' perception of a causal link between a particular competitive action and performance outcome determine the likelihood and speed of response to that move.</i>	A structure content analysis of letter's to shareholders to identify cognitive frames.

What complicates this process is the fact that managers are faced with a myriad of issues at any given point of time and are limited in their ability to fully comprehend every single environmental stimulus around them. This is due to the fact that we as human beings are boundedly rational and have limited capacity to process information (Cyert & March, 1963; Simon, 1947). It is also possible that those issues that are of lesser importance are more readily available while those that are consequential to firm performance could be very subtle and hidden from attention (Garg et al., 2003). This statement is true for a wide range of issues including competitive actions. Those actions that are rather inconsequential to a focal organization's strategy and operations might become more salient in the process of sensemaking while those that could have a major impact remain undetected or dismissed as something insignificant.

Yu et al. (2005) have built on Ocasio's (1997) Attention Based View framework to argue that attention can be examined from both a structural and a sensemaking perspective. In the structural approach, an organization's formal and informal structures are highlighted as factors that influence the allocation of attention. This is in line with Cyert and March's (1963) work on channeling information and decisions across the organization. Structures are communication channels, roles and also the accepted norms within the organization that help channel members' attention (Ocasio, 1997). Put differently, the focus of attention is influenced by various operational and governance channels present in the firm (Ocasio & Joseph, 2005). In fact, these structural characteristics also influence what is detected from a host of stimuli (i.e. competitive moves) outside the organization. The sensemaking view on the other hand, emphasizes the role of a decision maker's mental schemes and structures in determining the target of attention. But both of these views are part of a top-down process in organizational attention.

Ocasio (2011) has identified two distinct processes in how a decision maker selects the focus of his/her attention. First, as we mentioned above, is the top-down process which argues that goals, task demands and prior cognitive orientations (schemas) select the focus of attention. The other is the bottom-up approach which deals with the characteristics of the stimuli and what makes them stand out amongst others (Ocasio,

2011). In the context of competitive dynamics, the characteristics of the competitive action and the organization that is initiating it are important factors that can be considered in a bottom-up attention process. As my review of the research on competitive dynamics revealed the majority of articles in this literature have in fact focused on these aspects of competition. Overall, in any research on organizational attention, it is absolutely important to clearly describe which of these two processes (top-down and bottom-up) are being considered.

Saliency of an environmental event is an important factor when discussing organizational attention. It can be examined using both the top-down and bottom-up approaches described above. A salient event has characteristics that make it more likely to be noticed by observers (Sutcliffe & Huber, 1998). It also directly influences how an event is perceived and forms the basis of future mental models (Weick, 1995). A large number of studies that have addressed saliency, take the bottom-up approach (e.g., Bonardi & Keim, 2005). In these studies, an external event is salient due to its own characteristics and features. Sutcliffe and Huber (1998) refer to this as the strength of the situation and Mitsuhashi (2012) labels the phenomenon as “objective saliency” in his study of biases in vicarious learning. In looking at errors in nuclear power plant operations, he argues that errors can be more salient because they have substantial negative effects for various stakeholders. In this approach, the observer’s mental structures take a back seat and saliency becomes a feature almost independent from them.

It can be assumed that more salient events are also more important but this is not necessarily accurate. Rerup (2009) argues that weak cues in the environment can contain information regarding threats or opportunities with significant consequences for the organization. He builds on concepts such as mindfulness in high reliability organizations to argue that less salient stimuli also merit attention. Rerup (2009) concludes by offering a set of recommendations on structures and processes that organizations need to implement in order to direct attention towards important weak cues. What this study also shows is that attending to weak cues requires effort and investment from the organization while more salient events capture attention more easily and effortlessly.

In addition to the bottom-up processes, the top-down approach to attention can also help us understand the concept of salience. Managerial cognition, organizational structures, and shared beliefs within an organization can also make an event more salient in the eyes of particular individuals. In contrast to the previous definition which was independent from the individual, this definition relies heavily on mental structures of the observer. For example, Mitsuhashi (2012) argued that an event becomes “contextually salient” when it is different to what individuals are used to, or have observed in prior experiences. This top-down approach has been explained extensively in both the attention and sensemaking literatures. Although most of the hypotheses in my study address the top-down processes (related to cognition), when I discuss “salience” specifically, the bottom-up definition is intended. This is closer to the concept of social salience which represents the prominence of an event in a specific social context (Hoffman & Ocasio, 2001). As I discuss in the subsequent chapter, salience (in its bottom-up form) will moderate the effect of cognition on competitive dynamics.

I conclude this section by reviewing the role of mental models in the process of sensemaking (Weick et al., 2005). How an individual makes sense of his/her surroundings and the events that are unfolding in the environment are highly influenced by the current mental models and schemas. In fact, Weick (1995) describes sensemaking as the process through which individuals compare cues extracted from the environment with their mental models based on past experiences. He also argues that in the process of making sense, individuals often enact a world that affirms their currently held mental models. Individuals store beliefs in their mental models and act as if these beliefs are reality, thus eliciting behavior from others consistent with these beliefs. The organizational sensemaking perspective provides another view on attention, describing the factors that influence how organizational members interpret the issues that gain their attention and how these interpretations affect subsequent attention (Weick, 1995). Finally, it is important to realize that based on Nigam and Ocasio’s (2010) arguments on sensemaking and attention, while attention to particular competitive moves within the industry is rooted in previous mental models, this process itself is creating new mental models that direct future sensemaking and attention.

2.3 Regulatory Focus Theory

Regulatory focus theory (RFT) is a well-established topic in the psychology literature which has looked at both the antecedents and consequences of an individual's tendency to be more achievement focused or prevention focused (Higgins, 1998). This stream of research explains that when faced with the same environmental phenomena, individuals differ in the way they cognitively frame and act on information (Wowak & Hambrick, 2010). More specifically, the theory suggests that prevention focused individuals frame environmental events as potential losses and act in a way that minimizes the chance of negative outcomes. On the contrary, promotion focused individuals frame external events as possible gains and act to maximise positive outcomes (Higgins, 1998). The fact that individuals frame the same issue in different ways is an indication that regulatory foci are in fact cognitive orientations and mental models. It is because of this feature that I find it fitting to explore its role in predicting strategic actions (i.e. competitive moves).

Regulatory focus theory was initially introduced by Higgins (1998). He based his arguments on Atkinson's (1964) hedonic principle of seeking pleasure or averting pain. Regulatory foci are broad constructs that cover a large collection of cognitive orientations and behaviors. As Van Dijk and Kluger (2011) have summarized, prevention focused individuals tend to have "minimal goals, a short-term perspective, sensitivity to social pressures, and concern with goal maintenance, conservation, keeping the status quo." Goals are also viewed as an "obligation, or something they have to do". Promotion focused individuals on the other hand tend to "strive for maximal goals, long term perspective, attunement to internal and intrinsic needs, and concerns with development, change, and ideals." In this orientation, goals are viewed as "a desire and as something that people feel that they are eager to do" (from Kluger & Ganzach, 2004: p.78). In a more fundamental sense, RFT states that an individual's behavior is guided by a need for nurturance in the case of promotion focus, and the need for security in the prevention focus mode. Additionally, prevention-focused individuals tend to frame goal pursuits and

outcomes in terms of losses versus non-losses while promotion focused individuals think in terms of gains versus non-gains (Shah, Higgins, & Friedman, 1998). Promotion focused individuals also tend to be eager to achieve a goal, while prevention oriented individuals are vigilant to avoid a disaster (Higgins, 1998). As Zhu and Meyers-Levy (2007) have put differently, because of the different views towards goals and outcomes, promotion focused individuals have a “natural tendency to approach matches to their goals” (p. 89) while prevention focused individuals have a “tendency to avoid mismatches to their goals” (p. 90).

Wowak and Hambrick (2010) compare promotion focus individuals to those who view the glass as half full and work to maximise gains in the situation at hand. These individuals also tend to take more risk and also seek novel options based on their positive framing of the event (Crowe & Higgins, 1997; Liberman, Idson, Camacho, & Higgins, 1999). Prevention focused individuals on the other hand see the glass as half empty and work to minimise or avoid losses. They also do their best to avoid mistakes and stay away from alternatives that have a higher degree of risk. Research in a variety of literatures has shown that regulatory focus has an influence on judgement and behavior.

After numerous studies in social and cognitive psychology, RFT found its way into the management literature as an important aspect of human cognition. As I discuss in this section, this presence has largely been limited to literatures in marketing (e.g., Chernev, 2004; Jain, Agrawal, & Maheswaran, 2006), entrepreneurship (e.g., Brockner, Higgins, & Low, 2004; Hmieleski & Baron, 2008), and organizational behavior (e.g., Brockner & Higgins, 2001; Crowe & Higgins, 1997) and except for a small number of studies, the strategy literature has overlooked this element of human cognition. A list of sample articles that have examined RFT is presented in Table 2-2.

Table 2-2 List of important articles that have examined regulatory focus

Author (s)	Study	Measure
Higgins, Shah, and Friedman (1997)	<i>The moderating role of regulatory focus on the relationship between goal attainment and emotional response.</i>	A new measure based on the Original Selves Questionnaire by Higgins (1989). Measuring reaction times to questions about ideal and ought selves.
Liberman et al. (1999)	<i>Promotion or prevention focus and the choice between stability and change</i>	Measure adopted from Higgins et al. (1997)
Higgins et al. (2001)	<i>A history of success with promotion or prevention orientation orients individuals to use the same approach when faced with new tasks.</i>	Development of the Regulatory Focus Questionnaire (RFQ)
Liberman, Molden, Idson, and Higgins (2001)	<i>Regulatory focus influences alternative generation and discounting.</i>	Measure adopted from Higgins et al. (1997)
Lockwood, Jordan, and Kunda (2002)	<i>The effect of regulatory focus on motivation by positive or negative role models.</i>	Individuals primed through words or asking them to explain prevention or promotion related experiences.
Shah, Brazy, and Higgins (2004)	<i>Regulatory focus and the emotional and behavioral expression of intergroup bias</i>	Indirect measurement using practical scenarios
Brockner et al. (2004)	<i>Authors argue that some aspects of</i>	Theory development paper.

	<i>entrepreneurial behavior fit prevention focus while others require promotion focus.</i>	
Chernev (2004)	<i>Promotion and prevention oriented individuals differ in their tendency to keep the status quo.</i>	Priming exercises to induce prevention/promotion orientation
Wallace and Chen (2006)	<i>Regulatory focus mediates the relationship between conscientiousness and production/safety performance</i>	Regulatory Focus at Work Scale (RWS) (Wallace & Chen, 2005).
Zhu and Meyers-Levy (2007)	<i>Promotion focus/prevention focus are linked to relational/item-specific elaboration</i>	Prevention of Promotion orientation induced through situational stimuli using (Higgins, Roney, Crowe, & Hymes, 1994) methodology
Ouschan, Boldero, Kashima, Wakimoto, and Kashima (2007)	<i>Development of a scale that measures promotion or prevention orientation for goal pursuit</i>	Development of the Regulatory Focus Strategies Scale (RFSS)
Neubert, Kacmar, Carlson, Chonko, and Roberts (2008)	<i>Regulatory focus mediates the relationship between leadership styles and follower behavior.</i>	Development of Work Regulatory Focus (WRF) Scale
Spanjol and Tam (2010)	<i>The effect of regulatory focus fit in dyadic teams on their willingness to make a decision regarding change.</i>	Regulatory Focus Questionnaire (Higgins et al., 2001)
Wowak and Hambrick (2010)	<i>Moderating effect of regulatory focus on the relationship between stock options and executive</i>	Theory article

	<i>behavior (risk-taking)</i>	
De Bock and Van Kenhove (2010)	<i>Promotion or prevention focus influence an individual's tolerance of unethical behavior.</i>	BIS/BAS scales used to measure chronic regulatory focus.
Van Dijk and Kluger (2011)	<i>Task type influences individuals' regulatory focus (effect of situational factors)</i>	Scenarios used to induce regulatory focus. Questionnaire.
Wallace, Butts, Johnson, Stevens, and Smith (2013)	<i>Employee regulatory focus is linked to innovation via thriving. Employee involvement climate moderates the relationship.</i>	Regulatory focus measured using survey developed by Wallace and Colleagues (2008). Multilevel analysis.

A study by Zhu and Meyers-Levy (2007) in marketing has looked at the underlying cognitive mechanisms for regulatory focus. Their results have important implications for my study of responses to competitive dynamics. They argue that promotion-focused individuals are inclined towards relational elaboration, meaning they form an integrated and abstract understanding of themes when faced with a body of information. Prevention focused individuals on the other hand engage in item-specific elaboration which means they give context-specific associations to each piece of information independent of others. Another important consequence drawn from prevention or promotion orientation is that promotion-focused individuals are more open to change, while prevention focused individuals prefer stability (Liberman et al., 1999). In an interesting experiment conducted in another marketing study, Chernev (2004) shows that when faced with an important investment decision (for retirement funds), prevention-focused individuals are significantly more likely to choose inaction. Interestingly, one of the alternatives was clearly superior to the other and thus the results clearly show a tendency towards inaction in individuals with prevention focus.

Individuals with different regulatory foci not only perceive their environments differently, they also react to environmental stimuli in a different manner. Promotion oriented individuals seek to avoid missing an opportunity they desire and therefore act immediately without lengthy reflective deliberation. But prevention oriented individuals seek to avoid mistakes, and to achieve this, they resort to careful assessment of the circumstances and consequences of an action (De Bock & Van Kenhove, 2010).

Researchers have also looked at the underlying causes responsible for the development of regulatory foci in individuals. Although there is debate in the psychology literature on the extent to which situational factors induce prevention or promotion orientations, there seems to be consensus that there is an important chronic individual element that is stable over time (Higgins, 1997). Individuals develop their specific orientation towards self-regulation which is engrained through childhood experiences and interactions (Higgins, 1998; Higgins & Silberman, 1998). This implies that regardless of situational factors, individuals tend to have prevention or promotion tendencies because of their life

experiences and this tendency remains relatively stable. Under these orientations, individuals are either motivated by security or growth and seek a goal because they have to or because they seek a desired outcome (Brockner & Higgins, 2001; Brockner et al., 2004; Higgins, 1997, 1998; Van Dijk & Kluger, 2011).

Both the chronic individual component and some situational elements are of importance in the study of RFT (Brockner et al., 2004). On top of chronic causes for each of these orientations that are rooted in life experiences, prevention or promotion focus can also be due to situational influences. In fact, a number of research studies (e.g., Crowe & Higgins, 1997; Liberman et al., 2001; Van Dijk & Kluger, 2011) have manipulated respondents to induce regulatory focus through scenarios and situational elements, or have assumed this to be the case. This is further evidence that the environment, structure, and situation an individual finds him or herself in can determine his or her regulatory focus. As I discuss, this could have implications for organizations since the policies, routines, and structures they adopt can influence the regulatory focus of managers and employees who work in that environment. This could also mean that individuals (e.g., managers) who work in an organization can have a different regulatory focus to those in another, because of these situational factors. For example, McMullen et al. (2009) have argued that the conduct of mid-level managers influences the regulatory focus of top decision-makers within an organization. Additionally, organizations may have institutionalized a particular regulatory orientation amongst its members. This may be a product of the organizations culture and various structures (Das & Kumar, 2011). The result of these two relatively stable influencing factors determine how an individual perceives stimuli.

Van Dijk and Kluger (2011) propose that the nature of tasks carried out by individuals in organizations induce promotion or prevention focus. They argue that tasks that require some degree of eagerness and creativity are perceived as desirable which correspond to gains and goals that a promotion oriented individual would like to obtain. On the contrary, tasks that require vigilance and conformity are those that are usually done because they are mandatory and are perceived as an obligation. An individual usually undertakes them because failure to do so will result in negative outcomes that a

prevention oriented individual seeks to avoid. This is another important study that clearly highlights how situational factors in organizations can influence the regulatory focus of those that work there. So it is completely possible to have differences in regulatory focus amongst major decision makers that work for different organizations.

A review of the literature revealed three articles that have specifically looked at regulatory foci in topics that are of interest to strategy scholars. Wowak and Hambrick's (2010) theory article looks at individual level factors that moderate the relationship between CEO compensation arrangements and risk-taking behavior. One of the individual level factors examined in this study is regulatory focus. Using general arguments from RFT, they propose that executives' risk taking behavior is not affected by stock options when they are either strongly prevention focus or strongly promotion focus oriented. But when orientation is moderate and in-between, stock options will be positively related to risk-taking by the CEO. Although this is an application of RFT to an important topic in the strategy literature, the developed propositions in their study remain untested.

Das and Kumar's (2011) study of RFT's role in determining inter-firm alliance behavior is another example of this theory's application to topics in the strategy literature. They specifically link promotion or prevention focus to a partner's tolerance of opportunism in different stages of alliance development. The authors also develop propositions linking RFT to the complexity of contracts, resolution of inter-partner conflict, and the nature of control systems. One issue that stands out in this article is that the authors have attributed regulatory orientation to organizations as opposed to individuals. They have used institutionalization and dominant coalitions as their arguments for this jump in the level of analysis.

In another study, Chiaburu (2010) has theoretically linked prevention or promotion focus to strategic processes and outcomes. Specifically, he argues that the kind of regulatory orientation determines the kind of strategy, organizational structure, tendency towards change, and interest to particular organizational functions. What is interesting in all these attempts at incorporating RFT into strategic management topics is that all are theoretical

articles. The strategy literature is lacking any empirical attempts to test the effects of regulatory focus on strategic outcomes. In this dissertation, my aim is to address this empirical gap.

2.4 Organizational Identity

When speaking of cognitive frames and mental models, organizational identity is a powerful construct that has the ability to influence an individual's attention pattern. It can also be viewed as a collective mental frame that members use to make sense of what goes on in their environment (Weick, 1995). Identity is the central, distinctive, and enduring characteristic of an organization and it defines the sense of who the members of that organization perceive themselves and the organization to be (Albert & Whetten, 1985). To put it differently, "Identity is about us—as individuals and as organization members—and it enquires into the deepest level of our sensemaking and understanding" (Gioia, 2008, p. 66). Gioia and Thomas (1996) have also defined identity as "Those features of the organization that members perceive as ostensibly central, enduring, and distinctive in character that contribute to how they define the organization and their identification with it" (p. 372).

The key word in the preceding sentences is "perceive" which points to the fact that organizational identity is a cognitive representation held by members of an organization, including its key decision-makers, such as the CEO and other high-level managers (Elsbach & Kramer, 1996). A recent study by Hsu and Elsbach (2013) offers arguments and evidence that emphasize the cognitive and perceptual nature of organizational identity. Their study shows that an individual's understanding of identity has roots in two distinct but simultaneous psychological processes—one that is related to self-enhancement, and a spontaneous cognitive element rooted in past experiences within an organization.

Another key aspect of identity is that it is also social in nature and is situated in context (Fiol, 2001). Albert, Ashforth, and Dutton (2000) have argued that identity is inherently linked to an entity's relationships with others and how they view themselves compared to

the others. A key word in the definition of identity is also the distinctive nature of it. For something to be distinctive, it needs to be compared to traits and characteristics of other individuals or organizations. Now, these distinctions might not be objectively verifiable but rather beliefs held by members of an organization (Gioia, Patvardhan, Hamilton, & Corley, 2013). This argument also emphasizes that what constitutes identity is cognitive by definition and it only rests in the minds of individuals thinking about the defining factors of themselves or other entities.

An important question we need to ask is whether identity is one *central* element that represents and describes the organization or is it made up of a number of elements with different degrees of importance. While some researchers have argued for a grand and overarching single identity (e.g., Ashforth & Mael, 1989), others believe that each organization can have multiple identities or an identity with a number of different elements (e.g., Corley, 2004; Foreman & Whetten, 2002; Pratt & Foreman, 2000). Hsu and Elsbach (2013) show that both groups of scholars can be right depending on how you define what is central and what is not. They argue that there are elements of organizational identity for which members do not share a unified understanding or do not categorize as part of their identity. But it seems that there are always core categories that are identified by almost everyone as central elements of identity which are salient and important.

“Enduring” is also a key element in the definition of organizational identity. Since identity has its roots in an organization’s history, its core features will remain unchanged even as the organization itself goes through change over time (Gioia, Schultz, & Corley, 2000). Although a growing number of researchers have suggested that there is some degree of fluidity in the conception of organizational identity (e.g., Dutton & Dukerich, 1991; Gioia & Thomas, 1996), others still hold the belief that it does not change in the short-term and a span of a few years (e.g., Brown & Starkey, 2000). Based on a review of the literature, it appears that researchers fall into one of two groups in their attempt to understand changes to organizational identity. The first group believe that changes to identity are only possible when members of an organization are faced with changes or disruptive events such as mergers, acquisitions or sudden regulatory shocks (e.g., Anteby

& Molnár, 2012; Clark, Gioia, Ketchen, & Thomas, 2010; Corley & Gioia, 2004; Dutton, Dukerich, & Harquail, 1994; Margolis & Hansen, 2002), and only under specific circumstances. The second group of researchers however agree that changes happen, but in a more subtle and gradual way that is very hard to detect, especially by those inside the organization (e.g., Gioia et al., 2000). Gioia et al. (2013) propose the term continuity instead of endurance to describe identity. They also point to an important phenomenon where members of an organization might use enduring words (same labels) to describe their identity even though the meaning of those words has changed gradually and unconsciously. Researchers have also looked at the process of identity change in organizations.

The literature has looked at the concept of identity from two rather distinct and foundational perspectives: Social actor perspective, and social constructionist perspective (Ravasi & Schultz, 2006). In the social actor perspective, organizational identity is stated through explicit institutional claims that influence individuals' perception of what defines the organization. Narratives and stories about what defines the entity reinforce the sense of collective identity (Ravasi & Schultz, 2006; Whetten & Mackey, 2002). The social constructionist perspective on the other hand does not talk about formal institutional claims, and considers identity as an evolving collective understanding of what the organization stands for and its defining characteristics (e.g., Dutton & Dukerich, 1991; Gioia & Thomas, 1996). This perspective focuses on labels and meanings used by members to define themselves and articulate who they are as an organization (Gioia et al., 2013). Although the two perspectives seem to approach identity with completely different lenses, Gioia, Price, Hamilton, and Thomas (2010) argue that they are in fact "mutually constitutive" in explaining identity formation and development. In essence, they argue that to instill a collective understanding, members need to make some overt claims to help make identity claims legitimized and this legitimization in turn helps strengthen the collective understanding.

In addition to these two key perspectives, Gioia et al. (2013) also discuss institutionalist and population ecologist approaches to identity with the first focusing on sameness due to institutional pressures and the second putting an emphasis on categories and the features

attributed to them by outside observers. But Gioia et al. (2010) downplay the central role of industrial categorization and institutional pressures and argue that they constrain, rather than define identities. Although there are many important details for each of these perspectives, our goal here is to examine why and how members react to threats aimed at their organizational identity. It seems that the first two perspectives are more relevant in our approach to measuring member's belief about organizational identity as they are more theoretically compatible with our definition and understanding of the construct.

Dutton et al. (1994) have also proposed a different but related categorization for how organizational identity is perceived. The first is *members' perceived organizational identity* which refers to what individuals believe to be the attributes that define their organization. And the second is their *construed external identity* referring to what individuals think outsiders believe is the defining attributes of their organization (Elsbach & Kramer, 1996). Although not completely the same classification, these two categories explain the differences in the definitions for image and identity. Image is defined as what external actors perceive the organization to be while identity is an organization's sense and understanding of what it stands for (Gioia et al., 2000; Gioia & Thomas, 1996). Due to this distinction, studies looking at threats to organizational image mostly explore impression management tactics as responses to those threats (e.g., Elsbach, 1994), which as I discuss, are clearly different to the strategies used in response to identity threats. In this dissertation, I consider both perspectives regarding identity since regardless of the reference point individuals feel strongly about what defines their group or organization.

When studying the concept of organizational identity, it is important to keep in mind that we are dealing with multiple levels of analysis (Foreman & Whetten, 2002). The literature is quite clear that an individual's identity or personal self is distinct from the social self which is the identity of the collective entity the individual is a part of (Brewer & Gardner, 1996). But the identity of individuals within an organization and the collective identity of the organization are closely related (Ashforth & Mael, 1989; Dutton et al., 1994; Elsbach & Kramer, 1996) and human beings are known to define themselves in terms of their relationships with collective entities such as organizations and evaluate themselves based on the social identity of these collective entities (Brewer & Gardner,

1996). Because an individual's identity can be shaped through relationships with others within a group, any change in the collective identity also invokes a change at the individual level (Brown & Starkey, 2000). It is also important to note that although identity is a predominantly cognitive concept which resides in the minds of individuals within the organization (Gioia & Chittipeddi, 1991), it can also manifest itself in the collective practices, routines and processes of an organization (Dutton & Dukerich, 1991; Nag, Corley, & Gioia, 2007).

Literature on organizational identity has suggested that individuals usually respond when they feel that what they perceive to be their organization's identity has come under threat (Dutton & Dukerich, 1991; Elsbach & Kramer, 1996; Livengood & Reger, 2010). Brown and Starkey (2000) discuss various ways through which organizations defend their identity and argue that this can restrict organizational learning and change that can be needed to respond to environmental demands. They argue that any change targeted at existing collective self-concepts is ignored or resisted and therefore, identity remains stable over time. A threat is usually perceived when the desired image, core characteristics, and defining aspects of the organization are threatened (Elsbach & Kramer, 1996). This is partly because they associate the positive identity attributed to the organization to their own social identity (Dutton et al., 1994) and as a result, if that positive image is attacked, their personal identity is also threatened. To fend off these threats, they do all they can to preserve the perceived identity (Fiol, 1991). People want to be associated with an entity that has a positive identity which usually translates to a positive image displayed to everyone outside the organization. As a result they do anything to reaffirm the positive perceptions about their organization to preserve their own positive social identity (Dutton et al., 1994).

Also, as discussed in social identity theory (Ashforth & Mael, 1989; Hogg & Abrams, 1988), the individual usually forms both affective and cognitive bonds to collective entities (Brewer & Gardner, 1996), which might explain reactions when the identity of those entities come under threat. We, as human beings, value our social identities because they are a central element in our self-image and self-esteem and any environmental stimuli that comes near them will likely lead to some form of emotional response

(Kreiner, Ashforth, & Sluss, 2006). These reactions are typically for two reasons. One is resulting from concern for the individual's self-interest and the other is from a concern for the well-being of the group (Brewer & Gardner, 1996). Additionally, it seems that self-esteem and self-consistency are also two powerful forces that lead to reaction when identity is threatened (Brown, 1997). Identity is defended "to avoid psychic pain and discomfort, allay or prevent anxiety, resolve conflicts, and generally support and increase self-esteem" (Brown & Starkey, 2000, p. 104).

A large body of research on organizational identity has focused on specific efforts by organization members aimed at aligning their perception of what they represent as a collective entity and how they would like to be perceived by others outside the organization (e.g., Elsbach & Kramer, 1996; Gioia et al., 2000). Elsbach and Kramer's (1996) empirical study of how business schools responded to rankings compiled by a reputable journal is one such example. According to the authors, members of some schools perceived the new ranking system as an attack on their organization's identity because it challenged their understanding of the attributes of the school and also the school's standing relative to competitors. The response in this case was an attempt by the school's members to highlight other categories in which the school did better.

Ravasi and Shultz (2006) have looked at another internal process aimed at responding to environmental threats. They argue and show through a longitudinal dataset that organizational culture plays an important role in supporting sensegiving and sensemaking that leads members to "re-evaluate aspects of their organizational identity" (p.433). What makes this particular study interesting is its identification of a specific form of threat to identity. While prior studies had considered external events that challenged members' perceptions of distinctive attributes of their organizations, Ravasi and Shultz (2006) turn our attention to environmental events/actions that can cast doubt on the viability of what members perceive as a central and distinctive part of their firm. This particular explanation of threat is central to our discussion on how perception of identity can predict a manager's response to competitive actions.

In the two abovementioned studies, individuals respond to threats to their identity by engaging in efforts that preserve it or activities aimed at re-evaluating the current identity. In my study of competitive dynamics, an attack by a rival firm that targets elements of the business that define the organization can lead to responses due to the same reasons mentioned above, but the nature of the response is different. When faced with a competitive move aimed at its identity, an organization might resort to defensive actions that deflect the attack, or counterattacks in response to those actions.

Identity can also act as a cognitive filter that influences what organizational members notice, and how they interpret environmental stimuli (Dutton et al., 1994; Gioia & Thomas, 1996; Livengood & Reger, 2010). In a famous study, Tripsas (2009) discusses the case of a digital photography company that failed to identify and exploit opportunities in the USB flash drive sector because it did not fit its perceived identity that emphasized digital photography. Although a cognitive phenomenon, identity is also reinforced by the organizational structures that are implemented based on what the company deems important (Nag et al., 2007). Based on what I have discussed, identity guides attention towards what is perceived to be central to the organization and naturally, routines and structures are developed to maintain that identity. These structures then lead to filtering of stimuli that falls outside the identity domain and attention is directed towards stimuli that are consistent with identity and the loop continues.

The only study in the literature looking at how organizational identity influences competitive dynamics, is a theoretical article by Livengood and Reger (2010). They argue that firms respond to some competitive actions more aggressively and in some instances, this is due to a particular subjective factor (i.e. identity) as opposed to the classic objective reasoning found in the competitive dynamics literature. As stated by the authors, their goal is to look at the antecedents to managerial behavior as opposed to just the behaviors themselves. By focusing on the awareness-motivation-capability framework, the various propositions in their study explain that firms are more likely to invest in businesses inside their identity domain, are more likely to develop a narrower range of capabilities outside their identity domain, and are more likely to respond to attacks that fall within their identity domain.

One major contribution of the Livengood and Reger (2010) article is its focus on identity domains as opposed to organizational identity. Identity is how members of an organization view themselves, but identity domain is the “competitive arena that best captures and reinforces this sense of its identity in the marketplace (p. 49). For example, this arena can include products, services, and geographic markets that are perceived to define an organizations identity. Identity domains can be products, services, geographic areas. The link between identity and what falls within identity domain is clear. Gioia et al. (2013) argue that those features that are “central” to the organization usually manifest themselves as values, labels, products, services and routines and form an organization’s definition of itself. And as Livengood and Reger (2010) have proposed, identity domain clearly casts a net around those parts of the business that help build an organizations identity.

As illustrated by Livengood and Reger (2010), examining the more subjective factors involved in explaining action/reactions and their characteristics helps explain why a particular firm attacks a particular market or reacts to an attack on one of its markets more vigorously than others. These subjective factors encompass a wide range of phenomena from individual level factors to issues at the team and society level. Livengood and Reger (2010) have looked at organizational identity as one possible subjective factor. In their theoretical arguments, they explain why a firm will defend a particular market vigorously even in the absence of economic justification. To date, there have not been any empirical studies that have tested the role of identity in predicting competitive dynamics. Perceptions of organizational identity are an important element of managerial cognition and this study aims to address this important gap in the literature.

2.5 External/Internal Orientation

Managers and organizational decision-makers are frequently faced with a host of stimuli from within and outside their organizations. External focus or orientation refers to the amount of attention to stimuli that are present outside the firm (Yadav et al., 2007). A new technological trend, competition, government regulations, and natural events are

examples of environmental stimuli that may attract the attention of decision-makers. But inside the organization, various forms of tangible and intangible resources, along with the challenges and opportunities they create also compete for the attention of the same decision-makers. Internal focus or orientation refers to the amount of attention to these stimuli inside the firm (Yadav et al., 2007). Since cognitive resources and attention are limited resources (Ocasio, 1997; Simon, 1947), an individual at any position in the organization cannot attend to everything to the same degree. Managers intentionally or automatically choose the target of their attention. But will this lead to an emphasis on either external or internal orientation? How is this orientation formed and sustained? The review of the literature provides some interesting insights.

The first stream of research argues that the characteristics of the external environment determine if attention is guided away from inside the organization to what is happening externally. Cho and Hambrick (2006) argue that an external event such as deregulation shifts the attentional focus of a top management team and creates specific cognitive orientations. In another study, Garg et al. (2003) argue and show that environmental dynamism influences a CEO's attention to external task environment. Dynamism might also guide attention towards those internal functions that deal with innovation. D'Aveni and MacMillan (1990) propose that after an external crisis hits an organization, managers of surviving and successful firms tend to develop an external orientation. Data from letters to shareholders was used to measure managerial attention to internal or external environments.

Regardless of what the actual hypotheses are in these studies, it is clear that some characteristics of the external environment influence a CEO's scanning emphasis or locus of attention. Although this is an important avenue of research, it is not the focus of this dissertation. In fact, to minimize the effect of these external events on my findings, I am using a single industry sample so that all firms deal with approximately the same set of environmental events. Under these circumstances, I am looking for other factors (discussed below) that direct attention to internal or external environments.

The second stream of research deals with what goes on inside the firm and how that impacts individuals' attention focus. This body of literature is closely tied to the Attention Based View of the firm which argues that structures and communication channels inside the organization distribute and regulate the attention of decision-makers (Ocasio, 1997). For example, Williams and Mitchell (2004) illustrated that information channels within organizations influence their managers' ability to detect and pursue opportunities in the external environment. Their research clearly draws a link between organizational characteristics and management's external orientation. In addition to this structural approach, researchers also believe that managers are cognitively oriented towards external or internal because of their prior professional and personal experiences (Cho & Hambrick, 2006). These individual level differences and the structural variations amongst firms within the same industry will create different external/internal orientations in managers.

Researchers have also examined the outcomes associated with an internal or external orientation. For example, Rust, Moorman, and Dickson (2002) link focus on elements of the external environment with aspiration to increase revenues and eventual higher performance. Alternatively, focus on the internal environment and the pursuit of efficiency is linked to lower performance. External and internal focus has also been linked to innovation. Yadav et al. (2007) show that an increase in external orientation amongst a firm's decision-makers leads to better innovation outcomes. They argue that new opportunities often emerge from outside the organization and an external focus allows for their identification. Internally focused managers on the other hand are slower at detecting new technological opportunities and worse at deploying new products (Yadav et al., 2007). Finally, Thomas et al. (1993) show that external scanning orientation in the top management of an organization leads to favorable interpretation of strategic issues and eventually, higher performance.

The competitive dynamics literature has not given this cognitive orientation the attention it deserves. In one of the earlier studies in the field, Smith et al. (1991) offered arguments to show that an external orientation amongst managers of a firm is related to its responses to competitive moves. Although the study does offer good theoretical insights, it falls

short when it comes to measuring the construct. Although the authors view this as a cognitive orientation, they use measures such as the number of VPs a firm has in marketing and customer relation roles. It seems that there is a gap between the construct and its highly objective measures. My study addresses this gap by looking at this cognitive orientation in the context of competition amongst a set of rivals and also measuring the construct using a more recent approach in behavioral strategy.

Chapter 3: Hypothesis Development

The general purpose of this dissertation is to explore why managers sometimes react to competition in ways that are not explainable by traditional economic reasoning. To achieve this goal, I highlight a set of more subjective factors that influence a manager's decision to respond to competitive moves by rivals. Chen, Su, and Tsai (2007) have suggested that theories in psychology and managerial cognition might help shed light on the dynamics of this process. While the competitive dynamics literature has widely used the awareness-motivation-capability (AMC) framework in examining competitive dynamics from an economics-based approach, I follow Livengood and Reger (2010) and link concepts from managerial cognition and attention to the same framework in a quest to address my research question: How do individual level cognitive factors such as mental models and schemas influence the way decision-makers respond to competitive actions by rivals?

Over the years, the AMC model has emerged as a theoretical framework with potential to connect a wide range of topics in competition and strategy (Chen & Miller, 2012). Applying human psychology to the AMC model helps explain why firms react differently to the same competitive move. Because of varying mental models and schemas, managers notice and attend to external stimuli in different ways. My focus is on three specific aspects of decision-makers' cognition and their role in determining if a particular manager is aware of a move by rivals and motivated to respond to it. Although I briefly address the capability aspect of the AMC model, my main focus is on the awareness and motivation elements, since they are more closely related to the cognitive orientations discussed in this dissertation.

Chen (1996) formally introduced the AMC framework and linked the awareness and motivation elements of the model to market relationships. These market relationships have often been measured using objective factors in subsequent studies that have used the

framework (e.g., Lee et al., 2000; Young, Smith, Grimm, & Simon, 2000). Chen (1996) himself has examined market commonality and resource similarity as factors that increase awareness and motivation. But the AMC model itself and each of its elements have important perceptual components (Chen & Miller, 2012) and interestingly, the model has an almost identical counterpart in the managerial cognition literature: Individuals only respond to environmental stimuli they are aware of, motivated by, and able to react to (Walsh, 1995).

The “A” or awareness element of the model basically implies that visible attacks have the highest probability of inciting retaliation, and attacks on the periphery often go without response. Although there are objective ways to determine when an action is visible or on the periphery, the mental models and cognitive orientations of decision makers play an important role here. Research on organizational attention for example, has pointed to both the characteristics of the stimuli (e.g., a rival’s competitive move) and structures, procedures and mental models that guide attention. The motivation element has also been looked at from an economical and rational perspective. Again, what is important to note is that motivation is a function of both cognitive orientations and perceptions. To summarize, each individual’s reality is based on *what* that person perceives and cognition determines *how* something is perceived (Porac et al., 1995).

Looking at human cognition and perceptions is an interesting avenue of inquiry in competitive dynamics because it allows us to get into the black box of competitive decision-making and link micro and macro perspectives. In essence, this study examines how a manager’s regulatory focus (prevention vs. promotion), perceptions of identity domain, and internal/external orientation shape decisions that form competitive strategy at the firm level. This is an extension of a tradition initiated by the Carnegie School of Thought which has discussed cognitive biases, limitations, and orientations in the context of organizational decision-making. Although the focus here is on micro phenomena and their link to competitive moves, I explain how macro-level concepts such as organizational structures, norms, and identity shape and direct the abovementioned cognitive frames and orientations of decision-makers. These factors can be considered as the contexts that shape perceptions.

The concept of organizational attention plays a very important role in the arguments I present in this chapter. Although it is not a variable in my model, it is a key construct that sheds light on the mechanisms that link each of the cognitive orientations to competitive decisions. The literature on organizational attention explains why and how we notice/interpret events and consider a list of viable options that could serve as a response to that event (Ocasio & Joseph, 2005). In the following sections, I discuss specific cognitive orientations that influence the likelihood and speed of response to competitive moves. I argue that a competitive action's salience is an important factor in the organizational attention process and in addition to its direct relationship with the nature of response it also moderates the hypothesized relationships between cognition and action.

3-1 Identity

As discussed in my review of the literature, identity is the shared understanding amongst organizational members on what defines them as an entity (Albert & Whetten, 1985; Whetten, 2006). This sense of who they are as a collective also incorporates features, elements, competitive arenas, and characteristics that fall within that cognitive definition. These features and elements create what is defined as an organization's identity domain. As Livengood and Reger (2010) have explained, identity domain is the top management's consensual understanding of what features represent the organization and form its identity. So just like identity itself, identity domain, is an "understanding" and therefore a cognitive phenomenon. A domain includes elements such as particular products or product features, services, geographic markets, or technologies. Any of these elements can be perceived as defining factors in an organization's identity. For example, management at Blackberry (formerly Research in Motion), a top global mobile phone producer, has always pointed to data security as a feature that defines their company. For Blackberry, data security and technologies related to it are parts of their identity domain. It is important to reiterate that what managers perceive as their identity is not necessarily connected to any objective economics-based reasoning. Although economic factors might form part of the equation, management's cognitive schemata and perceptions shape,

capture, and define identity domains and their elements. This is achieved through a process of interpretations and enactments based on prior experiences (history) that define shared beliefs (Anteby & Molnár, 2012). These shared beliefs form an identity for each firm, which incorporates much of what defines that firm and what is expected of it.

The discussions I present in this section help create a theoretical link between the awareness and motivation elements of the AMC model, and the concept of identity. Inspired by a similar line of reasoning by Livengood and Reger (2010), my fundamental argument is that managers pay more attention to competitive moves that fall within the identity domain of the organization. Anything that falls within this domain is visible and salient to decision-makers. The underlying logic for why managers are more aware of attacks to their identity domain and are also motivated to respond to them is explained by two related mechanisms:

- Psychological and emotional ties to the identity domain.
- *Perception* that what defines the organization is also tightly related to performance.

What is crucial in the first mechanism is that individuals tend to form strong psychological ties to the identity of their organization (Elsbach & Kramer, 1996). It contains features that members perceive to be central and distinctive in defining who they are as a collective entity (Gioia & Thomas, 1996). Their understanding of what constitutes organizational identity becomes the lens through which they view the external environment and make sense of it. They also feel that identity represents the way others outside the organization view them (Gioia et al., 2000). As a result, elements of the organization's activities that fall within the identity domain tend to be more important in managers' minds. Competitive actions that target the identity domain become visible not because of the characteristics of the actions themselves, but because specific mental models and perceptions categorize them as more significant. The action can take any form but because it is targeting an element of the organization's identity, managers pay more attention to it. In other words, the top-down processes of organizational attention

(Ocasio, 2011) are triggered in determining the importance of moves that fall within the identity domain.

As previously discussed in my literature review, identity serves as a filter that influences what members of an organization notice in the environment and how they interpret stimuli (Dutton et al., 1994; Gioia & Thomas, 1996; Livengood & Reger, 2010). Tripsas (2009) showed that organizations can overlook environmental events (i.e. opportunities and threats) if they fall outside of its perceived identity domain. So attention is directed towards what is deemed central to the organization and away from what falls outside that definition. Organizations tend to create structures and routines that reinforce their perceived identity (Nag et al., 2007). These structures and routines create an added filter that directs managerial attention towards activities and events that fall within the identity domain.

In addition to awareness, decision-makers are motivated to react when faced with a threat to their identity domain. Individuals that work in organizations with positive identities, feel that they acquire positive social identity through association with that organization (Dutton et al., 1994). In other words, positive attributes trickle down to all members of the organization and a threat to that identity is a threat to an individual's own social identity. To preserve their identity domain and what is perceived to define their organizations and themselves, decision-makers are motivated to respond to actions that threaten identity or question it. Human beings value their social identities because they are linked to self-esteem and self-image. Threats aimed at these highly personal factors trigger an emotional response (Brown, 1997). Individuals are motivated to respond to identity threats in order to avoid psychic pain and anxiety that result from them (Brown & Starkey, 2000).

Another mechanism linking identity to awareness and motivation is perceptions of a close relationship between elements within a firm's identity domain and its performance. Top managers within an organization might believe that what is integral to their identity is the most consequential for performance. It is important to emphasize that this is what the top management perceives and is not necessarily true. One explanation for this can be that at

some point the organization might have been good at doing something and that has become a part of their identity. But circumstances change and those elements might not have any significant consequences for performance any more. It is often the case that management's perceptions lag the realities of the market when it comes to what contributes to organizational performance and identity.

Marcel et al. (2011) argued that what is related to performance is perceived to be strategically important for the organization and those issues that are perceived to be strategically important are more likely to be interpreted by decision-makers (Thomas et al., 1994). Because managers perceive factors inside the identity domain to be consequential for organizational performance, they are more likely to attend to competitive actions that target that domain. Paying more attention to these moves leads to interpretations and sensemaking that result in a higher likelihood of response. Decision-makers are also more motivated to respond to moves that target their identity domain since they believe there is a link to performance. The fact that decision-makers perceive identity domain as a determinant of performance, their subsequent interpretations and sensemaking are judged based on this pre-existing conception (Fiske & Taylor, 1991). So if managers detect an attack on an aspect of their identity domain, they automatically link that to performance outcomes and are motivated to respond. Additionally, the identity filter might cause managers to interpret a competitive move as a specific attack on them rather than a general competitive action by a rival. This perception of a direct attack will motivate managers to respond and minimize the negative outcomes (both emotional and objective) associated with it.

In addition to awareness and motivation, managers might believe they have the necessary capability to respond to attacks that target elements within the identity domain. Because of what is deemed central to their organization, managers dedicate resources and create structures and routines that reinforce those elements of the business (Nag et al., 2007). These investments create an understanding that the organization is capable of defending its turf when the core is attacked. Livengood and Reger (2010) create a link between the awareness and motivation elements of the AMC model with capability by arguing that

the presence of those two first elements will result in more resources allocated to parts of the business that fall within the identity domain.

Based on the arguments above, I conclude that competitive actions that target parts of a business that are within an organizations identity domain are more likely to be noticed and interpreted. In fact, managers will be aware of such moves, motivated to respond, and they will perceive that they have the capability to do so. This is due to both psychological consequences and perceptions regarding links to organizational performance. Although these may be viewed as irrational by an outside observer, it is consistent with the mental models and understandings of internal decision-makers. As a result, it seems logical to conclude that actions linked to the identity domain are more likely to be met with a competitive response by the focal organization. Because attention is a limited resource, if the identity domain is receiving a proportionally higher amount of cognitive resources, it is safe to assume that competitive attacks targeting the firm outside its identity domain will receive less attention.

H1: Competitive moves that target a firm's perceived identity domain will face a higher likelihood of response.

A similar line of reasoning is used to argue that managers react to threats against their identity domain faster than moves that fall outside it. Under the psychological mechanism explained above, a threat against the identity domain is a threat against what the organization stands for and, subsequently, what defines individuals within that organization. As a move to reinforce that identity and to repel the current and future attacks on it, managers respond as quickly as possible to send a signal about their determination to defend this identity. I argue that decision-makers are more motivated to respond quickly to achieve the maximum results in this regard. A quick response reinforces this image and identity in the eyes of external observers. Additionally, if a manager perceives a link between factors within the identity domain and performance, he/she is motivated to respond as quickly as possible to minimize negative influences on performance. Any delays in response can lead to more benefits for the attacking firm (Schumpeter, 1934, 1950).

Based on these arguments, I conclude that when a competitive action targets parts of a business that fall within its identity domain, that organization responds to that action as quickly as possible to (a) send a reinforcing message regarding its identity, and (b) minimize the perceived negative impact on performance and (c) minimize the psychological distress caused by threats to identity. It is important to note that the type of action and its intensity can also send an important message. Each type of response (e.g., lawsuit, new product, marketing move) requires a different degree of effort and could potentially send a different kind of message when the identity is under attack. Having acknowledged this, the speed of response regardless of its nature clearly sends the message that what is attacked is considered important for the organization. Even if it is a less intense response, its speed shows the importance of the issue for the focal organization. This easier response can be followed by a more intense and comprehensive action, but that is outside the scope of our discussion and this study.

H2: Competitive moves that target a firm's perceived identity domain will face a quicker response.

3-2 Regulatory Focus

Regulatory focus is a cognitive orientation toward promotion or prevention (Higgins & Silberman, 1998). The theory states that promotion oriented individuals are motivated to act in order to achieve a desirable outcome, and prevention oriented individuals act to prevent a loss or undesired outcome. In essence, the former is acting to gain pleasure while the latter acts to deter pain (Higgins, 1997). These orientations have important implications for how individuals make sense of and react to external stimuli. Prevention focused individuals are guided by the need for security, usually frame events as threats, are interested in keeping the status quo, and view goals as obligations. Promotion focused individuals on the other hand are guided by a need for nurturance, have a long term perspective, seek development and change, and are eager to achieve maximal goals (Van Dijk & Kluger, 2011).

Amongst the characteristics and orientations mentioned here and in the review of the literature, there are specific elements that directly influence a decision-maker's awareness and motivation regarding environmental stimuli (i.e. competitive actions). The most important of these is attitude towards change in the face of environmental circumstances and demands. As Hmieleski and Baron (2008) have argued, prevention focused individuals tend to view change as a risky endeavor and are more inclined to continue with the current course of action. They also find it difficult to reverse course or admit previous error. On the other hand, promotion-oriented individuals have greater flexibility and are more open to various options in responding to environmental demands. When faced with a decision, individuals with a promotion focus consider a wider range of alternatives and exhibit more creativity (Spanjol & Tam, 2010).

Decision-makers make sense of events according to their specific regulatory orientation. McMullen et al. (2009) attempted to link managerial attention and regulatory foci by proposing that decision-makers who are prevention oriented, see threats as more important in their decision-making. Promotion oriented decision-makers are more likely to process opportunities or even perceive events as opportunities rather than threats. When a decision-maker is faced with competitive moves by rivals, regulatory focus determines how that move is cognitively framed and the likelihood of response. Based on the arguments above, it is safe to say that because of relational elaboration (Zhu & Meyers-Levy, 2007), promotion focused individuals are more likely to view a competitive move in a wider context and are also more likely to modify the organization's course of action by engaging in competitive responses. Prevention focused individuals perceive competitive moves in isolation (Zhu & Meyers-Levy, 2007) and are more inclined to sustain the status quo.

As a counter-argument, it is possible that because prevention oriented individuals frame competitive moves as threats and a possible force that disrupts the status quo, they might be more inclined to respond. Their aim is to return the situation to where it was before the attack was detected. One might also argue that individuals are more likely to respond to a threat rather than an opportunity. But a clear resistance to change in prevention oriented individuals and their failure to see the wider implications of a rival's competitive action

clearly outweigh these counter-arguments. Additionally, prevention focused individuals are more likely to choose inaction in the face of important decisions even when there is a clear superior alternative (Chernev, 2004). The arguments presented here clearly point to the conclusion that when faced with competitive moves by rivals, managers who have a dominant prevention orientation are less likely to respond.

H3: Managers with a higher prevention focus are less likely to respond to competitive moves by rivals.

As a general rule, prevention focused individuals are inclined to prevent change to the current strategy and even if there is a change, it is normally manifested as small modifications to current processes. Additionally, prevention focused individuals tend to be slower in responding to opportunities and threats because of their detail oriented approach (Hmieleski & Baron, 2008). When faced with a competitive move by a rival, it is argued that prevention-focused decision-makers respond much slower than their promotion-focused counterparts because of the time they dedicate to the analysis of all possible aspects of an issue and analyzing all that might go wrong. Promotion-focused decision-makers have no difficulty altering current strategies in order to capture opportunities and capitalize on potential gains in the industry (Hmieleski & Baron, 2008). But prevention oriented individuals seek to avoid mistakes, and as a result, they resort to careful and lengthy assessment of all possible consequences of any action (De Bock & Van Kenhove, 2010). Spanjol and Tam (2010) point to prior studies (e.g., Higgins, Kruglanski, & Pierro, 2003; Kruglanski et al., 2000) and argue that promotion focus individuals are quicker in making decisions and pay less attention to details. In contrast, prevention oriented individuals emphasize accuracy over speed and take more time to fully evaluate the options at hand (to avoid errors). Some might argue that perceiving a move as a threat might create greater urgency and a faster response by prevention oriented individuals. But due to the arguments mentioned above and the fact that prevention oriented individuals spend more time considering all possible options and the risks associated with them, they respond more slowly to prevent mistakes.

H4: Managers with a higher prevention focus are slower in responding to competitive moves by rivals.

3-3 External/Internal Orientation

Prior research has shown that certain environmental and organizational factors determine if decision-makers develop an internal or external focus (e.g., Cho & Hambrick, 2006; Yu et al., 2005). My focus here is on individual level mental models and the characteristics of the organization that direct members' attention towards the external environment or the internal workings of the firm. There are two distinct explanations for why a manager focuses on internal or external stimuli. One is his/her experiences and education that provide certain mental schemata resulting in an external or internal orientation. It is safe to assume that this certain aspect, like other mental models are relatively stable over time. The second is attention structures and procedural channels that guide decision-makers toward a certain orientation (Ocasio, 1997). Although this might not be as stable as other cognitive structures, it is reasonable to assume a relative amount of stability since these structural elements take time to change. Particularly, attention structures that are defined as "the social, economic, and cultural structures that govern the allocation of time, effort, and attentional focus of organizational decision-makers" (Ocasio, 1997, p. 195) are stable and influence behavior in a longer period of time. These attention structures are the socially accepted norms within the organization that guide various aspects of activities. In addition to the mental structures that are instilled in a decision-maker's mind, these situational factors also help create cognitive schemas that influence attention and subsequent decisions.

In applying the principles of ABV to real option theory, Barnett (2008) argued that attentional structures within an organization influence decision-makers' orientation towards either external or internal stimuli. This is then linked to the likelihood of noticing options in new markets or existing markets. These two elements (mental models and attention structures), taken together, give managers a stable orientation towards either external factors outside the organization, or internal elements within. These are

independent from the characteristics of the environment that more or less change attentional patterns for all those involved. For example, Cho and Hambrick (2006) showed that when there is a significant environmental shock such as deregulation, managers pay more attention to external opportunities. Although this is a useful avenue for research on organizational attention, the focus of my arguments are on internal attention structures that result in either an external or internal orientation in organizational members.

In applying the AMC model to this particular aspect of managerial cognition, I focus on awareness, motivation and capability elements to link external/internal orientation to the characteristics of response to competitive moves. Managers with an external orientation spend more of their time scanning the competitive landscape, technological changes, and institutional characteristics. They tend to be more oriented towards positioning their business in a particular space after considering environmental events such as customer demands, competitor actions and changes in technology. Because of this focus on external developments, it is logical to argue that these managers are more likely to notice competitive moves by their rivals. One other important aspect of organizational attention is the identification of issues and answers (Ocasio, 1997). More attention to external factors means more resources are dedicated to activities that gather information from the environment (Durand, 2003) and this abundance of information allows managers to make better sense of competitive moves and have more options in responding to them. To summarize, managers with an external orientation are able to notice competitive actions, make sense of them, and consider more options for response.

Externally oriented managers are also more motivated to respond to competitive moves. They are likely to assume that the antecedents for their organization's performance mostly lie in the external environment. This is in line with the strategizing process often discussed in I/O economics and the strategic positioning school of thought (e.g., Porter, 1980). For these decision-makers, how the firm is positioned in the industry and the characteristics of the environment such as consumer demands and competitor actions determine organizational performance. In this approach, managers are motivated to respond to environmental changes because of the apparent link to performance. On the

other hand, internally focused individuals focus on resources and processes inside the organization as the factors that influence performance and are therefore relatively less sensitive to every single environmental development.

Finally, prior research offers insights that help establish a link between external orientation and capability to respond when faced with competitive actions. Alderich (1979) argues that managers with an external orientation often tend to collect more useful information and are thus more confident in their ability to respond to environmental demands. Also, more information allows managers to detect environmental stimuli earlier which in turn leads to more confidence and time to think about a possible response (Thomas et al., 1993; White, Dittrich, & Lang, 1980). Based on these arguments, it is safe to conclude that when faced with a competitive action by a rival, firms that have externally oriented decision-makers are more likely to respond. This is not to say that internally oriented managers ignore environmental contingencies and changes. But one can argue that they are less sensitive to what goes on externally, including moves by rivals.

H5: Organizations whose top management has a higher external orientation are more likely to respond to competitive moves by rivals.

In addition to the discussion presented regarding external/internal orientation and its link to the likelihood of response, I argue that this cognitive orientation can influence the speed of response to environmental stimuli, and competitive moves in particular. For externally oriented decision-makers, the link between what goes on in the environment and organization performance is very salient. As a result, competitive moves by rivals may be seen as impacting the performance of the organization. Internally focused individuals may not view the same competitive move as a direct threat to performance because of their focus on internal factors. For them, performance relies more on what is inside the organization as opposed to external forces. Because of the perception that competitive moves impact performance, externally oriented managers are likely to

respond more quickly to these actions in order to minimize negative outcomes. There is an increasing sense of urgency when the link to performance is more important.

H6: Organizations whose top management has a higher external orientation are quicker to respond to competitive moves by rivals.

3-4 Salience

The concept of salience discussed here is similar to the construct discussed in the social cognition literature (e.g., Fiske & Taylor, 1991). In this stream of research, the salience of particular stimuli interacts with current mental models to shape an individual's attention (Hoffman & Ocasio, 2001; Nigam & Ocasio, 2010). An event is salient when it has properties that make it likely to be noticed by observers despite individual level differences (Sutcliffe & Huber, 1998). Salience is what causes some environmental cues to draw more attention than others and is an important element in the concept of selective attention. Selective attention implies that individuals and organizations will selectively attend to certain external stimuli while ignoring other events (Hoffman & Ocasio, 2001). Those events that are considered non-salient are often referred to as weak-cues and have been the subject of a growing number of studies in the organizational attention literature (e.g., Rerup, 2009). These studies often explore how organizations can attend to weak cues that might contain very important and consequential information. It is up to the organization to set up processes that make these weak cues more salient to its members.

There are two processes involved in determining the salience of an event. First is the top-down process in which the mental models of decision-makers, organizational structures and channels, and shared norms and beliefs make some stimuli more salient. The cognitive aspect which focuses on mental models and schemata has been addressed extensively in this study and is covered by the first six hypotheses. I also discussed how organizational norms and structures can induce a particular form of cognitive orientation: external/internal focus. Weick's (1979) notion of enactment also falls within this top

down process. He explains that managers construct, rearrange and alter the objective meaning of the objective features of their environments.

Mental models play an important role in enactment and how managers enact various events around them determines their salience (Hoffman & Ocasio, 2001). Research on cognition, including cognition in organizations, demonstrates that the level of salience of any given social cue is linked to the degree to which it is novel in the context, deviates from expectations, or is goal relevant (Nadkarni & Barr, 2008; Sutcliffe & Huber, 1998). This is in line with Ocasio's (2011) bottom-up approach which emphasizes the characteristics of the stimuli in capturing the attention of observers. One of these characteristics can be the social salience which is defined as the prominence and importance of an event to a particular social context (i.e. industry) (Hoffman & Ocasio, 2001). Social salience, influences whether an event attracts attention or not. It can be due to a significant negative event with consequences for a large number of entities (Mitsuhashi, 2012). When a particular event is salient, it is talked about often and reflected in the media which create stronger cues for others inside the particular social context. The media coverage creates greater awareness through the availability of information (Mitsuhashi, 2012). Based on the presented discussion, I argue that an external event such as a competitive move by a rival will receive more attention from various stakeholders when it is more salient. This salience is the result of the bottom up attention process since it is the stimulus itself and not the actor that is making it easier to notice. And because what gets noticed is also more likely to get done, I argue that managers are more likely to respond to salient competitive moves. Salience also causes managers to notice a competitive move much faster than competitive moves that are less visible. The sooner a competitive move is noticed, the faster it will be attended to. Managers will respond to salient stimuli more quickly than non-salient ones.

H7a: Higher levels of salience will result in higher likelihood of response to competitive moves by rivals.

H7b: Higher levels of salience will result in quicker response to competitive moves by rivals.

In addition to the main effect of salience on the likelihood and speed of response, this variable also influences the nature of the relationship between my cognitive predictors and the dependent variables. Sutcliffe and Huber (1998) have discussed the strength of a situation which as they have noted, is very close to the concept of salience in the attention and sensemaking literatures. They argue that strong situations have clear meaning and lead everyone to construe particular events the same way. On the other hand, weak situations are often vague and do not result in uniform expectancies regarding appropriate behaviors. In these situations people notice, perceive, and interpret the event based on their mental models and cognitive orientations. This has important implications for the hypothesized relationships discussed in this study. When a particular competitive action becomes socially salient, it is widely talked about in the industry, and is noticed by a majority of observers (Bonardi & Keim, 2005) regardless of their individual mental models or the structures within their organizations. It is hard to miss an event that is covered extensively by the media and higher social salience can also signal that a particular competitive move is of high importance and is thus more likely to be perceived as consequential for performance. If everyone is talking about it, then it must be something important. In ways, the concept is similar to what Gerstner et al. (2013) have introduced as audience engagement which is in essence, the degree to which the general public is interested in a particular event. So, in this case, a higher salience for the event weakens the proposed relationship between cognitive orientations discussed so far in this study, and the characteristics of response to competitive moves by rivals.

I predict that when we have very high levels of salience, managers notice, interpret and act on these actions regardless of their cognitive orientations. On the other hand, when we have weak salience, the role of individual's cognitive schemata and/or organizational structures and norms become significant again. Attention is selective and it is up to these factors to determine which element of the environment becomes salient. So in instances when the competitive move is receiving less coverage in the industry and is less "socially salient" the influence of cognitive orientations on the characteristics of response to competitive moves becomes important again. Put differently, in cases of high salience,

the bottom-up processes of attention are at work, while in instances of low salience, the top-down processes become prevalent. The following hypotheses summarize this discussion:

H8a: Salience of a competitive move moderates the relationship between perceptions of identity and the likelihood of response in a way that for more salient events, the relationship is weaker.

H8b: Salience of a competitive move moderates the relationship between perceptions of identity and the speed of response in a way that for more salient events, the relationship is weaker.

H8c: Salience of a competitive move moderates the relationship between prevention focus and the likelihood of response in a way that for more salient events, the relationship is weaker.

H8d: Salience of a competitive move moderates the relationship between prevention focus and the speed of response in a way that for more salient events, the relationship is weaker.

H8e: Salience of a competitive move moderates the relationship between external orientation and the likelihood of response in a way that for more salient events, the relationship is weaker.

H8f: Salience of a competitive move moderates the relationship between external orientation and the speed of response in a way that for more salient events, the relationship is weaker.

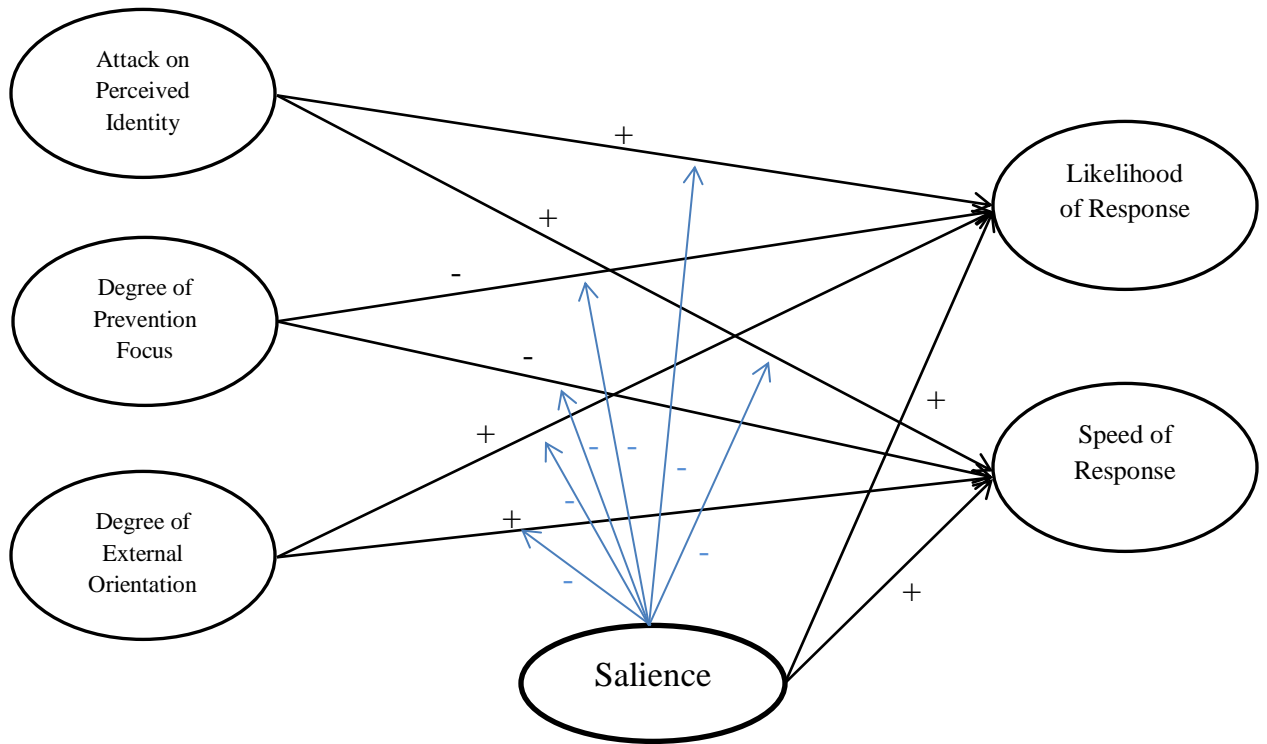


Figure 3-1 Summary of Hypotheses

Chapter 4: Methodology

The hypotheses I have developed in this study, link aspects of managerial cognition to the likelihood and speed of response to competitive actions. In this chapter, I describe my study design aimed at testing the theoretical arguments (hypotheses) developed in chapter 3. I use data from one specific industry: mobile phone manufacturers that compete in the North American market. This definition ensures that we focus on the major global companies. This industry is known for its high level of competitiveness which makes it an excellent candidate for my study. It has been the focus of prior studies (e.g., Gaba & Joseph, 2013), but not in the context of action/response analysis in competitive dynamics. An industry with very few players or very few competitive moves would not include enough information for a quantitative analysis such as the one employed in this dissertation. However, as I mention in the discussion chapter, future studies can look into companies in lower-paced industries using qualitative methods and examine more nuanced aspects of the process and also develop new theoretical arguments. One more reason for choosing to focus on mobile phone manufacturers is the availability of publicly available data on the major players and their competitive actions. This industry has historically received a lot of attention in the media because its products are used by a large percentage of the population and on a daily basis.

I have collected and examined multi-year data from the beginning of 2006 to October of 2013. In this timespan, the composition of the industry has remained largely unchanged (8 companies) with no player entering or exiting the industry completely. While acknowledging the limits of single industry studies, it was necessary to do so in this dissertation in order to minimize the effects of confounding factors. Since my goal is to measure cognitive orientations, major environmental factors such as a new revolutionary technology or change in regulation can have an important impact (Kaplan, 2008). Therefore, it is extremely difficult to do a multi-industry study since firms are impacted non-uniformly by industry specific events. It is also close to impossible to examine

action-response dyads in firms from multiple industries if they are not competing against each other. Action-response analysis is only viable in a single industry sample and all studies in this body of literature have in fact used single industry data (e.g., Chen & Hambrick, 1995; Marcel et al., 2011; Smith et al., 1991).

Because of the nature of my study, the methodology is rooted in two different streams of research with unique approaches to measurement and testing. To measure the dependent variables (likelihood of response and speed of response) I use techniques that are prevalent in the competitive dynamics literature. I follow the footsteps of established scholars (e.g., Marcel et al., 2011; Smith et al., 1991) and employ a methodology that has been tested and re-tested over the past two decades. The independent variables on the other hand, are measured using a mix of emerging and established techniques in the managerial cognition and attention literatures. One major contribution of this dissertation is this cross-disciplinary approach which is also reflected in the methodologies used to capture the constructs. In this chapter, I offer a detailed description of my research design and methodology.

4-1 Competitive dynamics: Identifying action/response dyads

To measure my dependent variables, I used a widely cited “structured content analysis” methodology introduced by Smith et al. (1991) that captures competitive actions and direct responses to those actions. Traditionally, most studies have applied this approach to data from the US airline industry (e.g., Chen & Hambrick, 1995; Hambrick et al., 1996; Lee et al., 2000; Marcel et al., 2011), but there is no reason why it could not be extended to other industries that are also competitive in nature. This dissertation contributes to the literature by introducing data from an industry that has rarely been examined in this context. In this particular procedure, news archives are searched systematically using specific search terms to identify competitive actions and responses to those actions. Generally, a competitive action is any move that aims to erode a rival’s market share or impact its performance in one way or another (Chen & Hambrick, 1995).

As discussed in the review of the literature, these action-response dyads can take many forms such as the introduction of a new product or feature, change in prices, a new alliance, entry into a market, or a lawsuit. Using specific connector words, I searched in media sources to identify reports of instances where a firm has responded to an attack. Initial attacks are identified by searching back in the media reports to see what the original attack looked like (Marcel et al., 2011). It is important to note that not all firms have noticed or responded to an attack which is the basis of my arguments in this study. I take an additional step beyond what is customary in most studies. Through the analysis of the documents and by widening the search with less restrictive terms, I delve deeper to identify a larger number of reported responses to an identified attack. Some of these responses might have been filtered out in the initial search.

My sources of data for the purposes of this study are major newspapers and industry specific news websites. Following the procedure outlined by Vergne (2012) and Durand and Vergne (2014), I conducted a systematic search of Factiva, Proquest, and Lexis Nexis databases. Industry specific websites such as *cnet.com* cover most of the developments in the tech sector including those in the mobile and smartphone industries. Major international and national newspapers all have a technology expert (or group of experts) and offer comprehensive information that is valuable for this study. Following prior research (e.g., Chen & Hambrick, 1995; Marcel et al., 2011; Smith et al., 1991) I searched the databases for articles containing the names of any of the companies in the industry and any number of “connector words”. These connector words help identify articles that discuss an event in which a response has occurred for a competitive actions. They also reduce the number of articles in the results (from tens of thousands) to a manageable amount that can be analyzed. Additionally, the articles also had to include the keywords “smartphone” or “mobile”. As previously mentioned, the time frame was set to the 2006 to 2013 period.

Previous studies have used “in response to”, “reacted to”, “under pressure from”, “retaliate” and “retaliation” as connector words and I included them in my search command. I also added “supplant”, “hit back”, “defend”, “defended”, “battle”, and “rival” to the list in order to cast a wider net and increase the chance of capturing a larger

number of reported action/responses. In this method, I rely on media reporting of competitive moves and the link they report between a response and an attack. The connector words help identify these linkages within articles in the media sources. My aim was to use a list of connector words that balance accuracy and efficiency so that I have a comprehensive search but also a manageable number of results. I manually browsed all articles that resulted from the search to identify instances where the media reported a response to a competitive move. The initial action was also recorded in this process to measure the response lag and also help identify other potential responses. I moved a step beyond this to include the action/responses identified in the process in another less restrictive search to identify any possible missed responses from other firms. Here, because the inclusion of the action restricts the number of results to a smaller number, I dropped the connector words from the search to capture responses that may have been reported using language that did not include those words. This new search included the names of all firms and the identified competitive move to get a list of articles that may point to a response by any of the competitors.

Since I am focusing on smartphone manufacturers that compete in the North American market, most of the news sources are national newspaper/websites in Canada and the United States. But these firms also engage in competition in a global scale with implications for the North American market and to capture data from those moves, I have added one major English language newspaper/websites from Europe, Asia, Australia, and South America to capture a complete picture. Vergne (2011) and Durand and Vergne (2014) have emphasized the importance of using data sources from various regions. Table 4-1 lists the media outlets used in this dissertation.

Table 4-1 Media outlets used for this study

Media Outlet¹	Country
<i>The New York Times</i>	<i>United States</i>
<i>Wall Street Journal</i>	<i>United States</i>
<i>Cnet.com</i>	<i>United States</i>
<i>Business Insider</i>	<i>United States</i>
<i>Bloomberg (Business Week)</i>	<i>United States</i>
<i>Wall Street Journal Asia</i>	<i>US/Asia</i>
<i>International Herald Tribune</i>	<i>US/Asia</i>
<i>The Globe and Mail</i>	<i>Canada</i>
<i>National Post/Financial Post</i>	<i>Canada</i>
<i>Toronto Star</i>	<i>Canada</i>
<i>Financial Times</i>	<i>UK</i>
<i>China Daily</i>	<i>China</i>
<i>The Times of India</i>	<i>India</i>
<i>The Australian</i>	<i>Australia</i>
<i>Business News Americas</i>	<i>Latin America</i>

This comprehensive search process resulted in 55 identified initial competitive actions and a total of 385 response/non-responses (N=385) to those competitive moves. If one firm had two separate responses to a competitive move (a new product and a lawsuit), only the first response was considered. The number of times one firm responded to a specific competitive action is not relevant to this study. To measure the speed of response (response lag), I recorded the date of the initial action and the date of response. Table 4-2

¹ In this study, I used a collection of North American, international and regional news outlets. My observation is that the major North American and international outlets capture most of the competitive activity and the regional sources added little to the data. These regional sources contain useful local information which was not the focus of this study. Also, I added a number of other regional sources on top of this list to test if additional action/response dyads are identified but a quick observation showed that the results were mostly regional events with very little added value for the study.

presents an overview of the types of actions and responses identified along with their frequency.

Table 4-2 Types of competitive moves and their frequency

Type of Action	Number of attacks	Number of responses
New Product	26	101
New Feature/Technology	16	51
New Service	7	20
Legal Action (lawsuit) ¹	-	2
Merger/Acquisition/Partnership	2	6
Market Entry	3	5
Marketing Action	1	1

* The table lists the number of competitive actions in each category during the period of study and also the responses to competitive moves and the numbers for each type of response.

4-2 Capturing Cognition

Action/response dyads were identified using a systematic approach. Attention, mental structures and schemas, and interpretations on the other hand are all cognitive processes that cannot be measured directly. Although advances in technology now allow us to scan brain activity, results obtained through these techniques are still quite limited and not many studies in management have seriously considered this technique. As a result, researchers measure cognition through behavior and verbal communication as indirect measurements of what goes on inside an individual's head (Barr, 1998). This is rooted in the notion that analysis of texts can give us a clear understanding of human cognition and allow us to make inferences regarding intentions and values (Duriau, Reger, & Pfarrer,

¹ There were a very small number of instances where a firm launched a legal action (lawsuit) against a rival. But these legal actions are targeted towards one specific firm and that rival will always have a legal response. These few legal action/responses were not included since they are targeted and response reflects legal obligations rather than competition. Instances where a legal action was used as a response to another type of competitive move are included in the data.

2007; Huff, 1990; Morris, 1994). Although there is obvious room for errors and inaccuracies in this approach, prior research has shown this to be an acceptable method in measuring cognitive phenomena (Kaplan, 2011).

In this study, my main goal is to examine the cognitive processes of those individuals that influence the strategic actions of the firm. Therefore, it seems logical to focus on the firm's top managers (i.e. CEO) and decision-makers (Chatterjee & Hambrick, 2007; Hambrick & Mason, 1984). This is not to say that others inside the firm do not have a say in major decisions on competitive actions, but such decisions are approved and decided largely by the top managers within the firm. In addition to the direct link between CEO decisions and competitive actions, there is also an indirect link through the structures and rules that are put in place. These structures, processes and rules influence decisions and actions by other members of the organization.

A large number of studies in the upper echelons literature used demographics as a proxy measurement for managerial cognition (e.g., Finkelstein & Hambrick, 1990; Hambrick & Mason, 1984). My study on the other hand, draws from the cognition literature and examines direct communication material and statements by top managers to measure mental schemata and cognitive orientations (e.g., Barr, 1998; Kaplan, 2008). Documents such as letters to shareholders and other text have been extensively used in the literature to capture decision-makers' knowledge structures and schemas (e.g., Barr, 1998; Cho & Hambrick, 2006; Eggers & Kaplan, 2009; Kaplan, 2008; Marcel et al., 2011; Nadkarni & Barr, 2008). Annual reports and in particular, letters to shareholders and speeches/presentations to investors outline the performance and activities of the firm in the past year and lay out its plans and activities for the future. Prior research has shown them to be a rich source for identifying mental models, interpretations, and causal statements (Barr, 1998; Eggers & Kaplan, 2009; Kaplan et al., 2003). For example, Barr (1998) used ten years of data from letters to shareholders of 6 major pharmaceutical firms to form a longitudinal dataset of causal relationships in those documents. These causal relationships were subsequently categorized to form cause maps and changes in these cause maps over time were attributed to changes in interpretations of external events. Finally, to answer the research questions, the author linked changes in interpretations to

changes in strategic actions. The abovementioned study is a great example of how official documents can be used to capture cognitive phenomena. What is missing in the study however is a more detailed discussion on knowledge structures and mental schemas that give rise to these interpretations.

In another study, Kaplan et al. (2003), used 23 years of data on 15 pharmaceutical companies in the US and UK in an attempt to link managers' mental models to strategic choice in the face of dynamic and discontinuous events. Using a measure of managerial recognition extracted from documents, the authors show that management's recognition of biotechnology advances are related to strategic actions when controlling for other factors. What is different in this particular study is that they have a relatively larger sample size which made it difficult to develop causal maps. The process for capturing a manager's cognitive causal maps involves time and labor intensive steps. Instead the authors used a normalized word count to devise a measure of recognition. Short and Palmer (2003) used letters to shareholders to collect and develop data on a CEO's reference points in decision-making. Their study linked organizational size to CEOs' internal or external referents and their sensemaking of organizational performance.

No one can doubt the prevalence of text analysis in the cognition literature but one criticism towards the analysis of these texts has been that these documents are mostly written with a tone that pleases stakeholders and may suffer from impression management (Barr, 1998; Marcel et al., 2011). In order to address some of these concerns, Fiol (1995) compared management's private (internal documents) and public (annual reports) communications and showed that although the results pointed to some extent of bias, the overall conclusion was that public documents such as annual reports and letters to shareholders are in fact a good measure of managerial beliefs. Although much of the public documents are prepared by the communications department in each firm, prior researchers have suggested that the top executive is closely involved in writing the letter to shareholders and that these letters along with annual reports contain valuable information (Clapham & Schwenk, 1991; Huff, 1990; Kohut & Segars, 1992). This concern is less significant in interviews in which the manager is expressing his/her opinions more directly. Other studies have also shown that measures obtained from

annual reports and text sources are related to other measures of the same construct collected through other more direct methods (Abrahamson & Hambrick, 1997).

There are also strengths associated with the analysis of these documents. For example, Kaplan et al. (2003) have noted that because these documents are prepared *ex ante*, they are not susceptible to retrospective bias. This is not the case with most surveys or interviews. Researchers have argued that once an individual is asked to reveal their thoughts and beliefs, the mental information changes (Nadkarni & Barr, 2008). By recalling past thoughts and linking them to outcomes that are now available and apparent, the described phenomenon becomes distorted. Interviews and surveys also require access to respondents which in this case are top managers of very large companies. Official statements in the form of letters, speeches or interviews are examples of unobtrusive measures that have been shown useful when dealing with less articulate populations who might not have the time or interest to take part in experiments or self-report studies (Webb & Weick, 1979).

Another major advantage of these text sources is that they are also directly comparable across firms and time (after sufficient normalization). More importantly, D'Aveni and MacMillan (1990) have shown that data captured through content analysis are consistent with data obtained from other sources. By relying on secondary data, I am able to capture aspects of managers' cognition and decision-making which are extremely difficult (both technically and logistically) to capture through surveys or experiments.

The use of archival sources in measuring CEO cognition has also found its way into the psychology literature which is known for its rigour. A study by Peterson, Smith, Martorana, and Owens (2003) used data from first-order sources such as biographies and interviews to measure CEO's personality traits. Although I am not dealing with personalities in my study, their approach to measurement is similar to mine in capturing some of the cognitive orientations that influence decision-making in the context of competitive dynamics. Overall, it seems that content analysis techniques that are at the intersection of qualitative and quantitative traditions, are becoming more and more established in the management literature (Duriiau et al., 2007).

In my text analysis approach, documents such as letters to shareholders, earnings report transcripts and speeches/interviews to a professional audience were analyzed and coded to determine a CEO's internal or external orientation, promotion or prevention focus, and perceptions about identity. I examined one text source for each company/year for the majority of cases. By using company/year data, I am also able to account for changes in CEOs, and managerial cognition is measured by analyzing texts associated with the CEO in charge in each particular year. For the rare cases that no document was available for a company in one specific year, data from the adjacent year with the same CEO was used. From the total of 64 company/years, data was found for 56 cases. For the majority of cases (53), letters to shareholders or shareholder/investor report transcripts were used to measure the constructs. For the remaining 3 company/years, transcripts from comprehensive interviews were used as a source. I controlled for the document type in the analysis to make sure the effect of their possible difference is considered when discussing the results.

When reading the documents, sentences that corresponded to each of these constructs were coded accordingly. To establish inter-reliability, a second qualified rater was asked to code a sub-sample (just over 10%) of the data. I explained each construct, discussed the procedure, and reminded the coder that sentences are the unit of analysis in the coding of these texts. I had good inter-rater agreement for external and internal orientation ($Kappa > 0.70$) and promotion and prevention focus ($Kappa \sim 0.7$), but lower for the identity construct ($Kappa = 0.61$). After examining the differences and resolving the obvious mistakes and unintended errors the agreement coefficients improved slightly. Although identity was in the substantial agreement range ($0.6 < Kappa < 0.8$) based on Landis and Koch (1977)'s categorization, I examined this construct more closely to ensure a clear understanding moving forward. Serious cases of disagreement were discussed with the second coder and it seems that the main source of confusion was rooted in distinguishing and identifying the interaction between identity, identity domain, values, and image. Insights from this process were used in the subsequent coding and extra care was taken to focus on the more apparent references to identity. Table 4-3 lists sample excerpts from the documents for each of the constructs measured in this process.

The process of measuring the three cognitive variables includes some important details. For regulatory focus, I follow Brockner (1994) in highlighting the role of language and symbols in reflecting a manager's prevention or promotion orientation. As he put it, if the rhetoric and verbal communication are focused on ideals, goals, opportunities and change, the CEO has a high promotion focus. Conversely, if the manager's words are related to responsibilities, avoidance, stability, preserving the status quo, and vigilance, he/she is more likely to have an orientation towards prevention. Based on what was presented in the literature review chapter, promotion oriented individuals also tend to frame events in terms of goals and gains, while prevention oriented individuals view the same events as obligations and losses (Higgins & Silberman, 1998; Shah et al., 1998). I also used insights from questionnaire items used by Ouschan et al. (2007) to identify this cognitive orientation. Items in their questionnaire summarize many of the aspects described for this construct in the literature and were a good added source of information for what I should look for in the text. I also shared these insights with the second coder so that we had a shared understanding of the concepts. I extracted sentences and excerpts within letters to shareholders and speeches/reports to stakeholders that corresponded to prevention or promotion focus. The percentage of sentences belonging to each orientation was used to create the measure for a CEO's prevention/promotion focus.

Internal/external orientation was measured using a similar approach. Previous studies that have looked at internal or external orientation tend to fall into three broad categories when it comes to measurement. The first group have measured the construct using proxy variables. For example, Smith et al. (1991) used the number of vice presidents in marketing and customer relations as an indicator for the externality of the firm's orientation. Others like Garg et al. (2003) have used questionnaires to determine the degree of a manager's attention to internal or external environments. The third group which this study falls into, analyzes verbal communications to determine the degree of external/internal orientation. Yadav et al. (2007) have developed a list of approximately 20 words for internal and external and have counted them in CEOs' verbal communications to measure internal/external focus. This list includes words such as customer, buyer, marketplace, competition, and position as indicators for external orientation and words such as organization, director, subsidiary, manager, and employee

for internal orientation. Although this is a much faster method to calculate this cognitive orientation, it is very limited in its ability to accurately capture a manager's mental frame. Therefore, I use a similar approach to the one I used to measure prevention/promotion focus and look at sentences and quotes that point to external phenomena or things that happen inside the organization. If the manager is using sentences that emphasize the environment, competitors, and positioning of the company, he/she is more likely to have an external orientation. On the other hand, sentences that emphasize products, processes, development of capabilities such as training of employees, and structure related issues are indicators of an internal focus. This is a more accurate (but at the same time more time consuming) way to measure this construct. Once again, percentage of the total document dedicated to sentences corresponding to an internal or external focus was used to measure this cognitive orientation.

The process involved in identifying a manager's perception of identity domain and linking a particular competitive move to that domain is complex. Researchers have measured identity using various methodologies ranging from case study analysis (e.g., Dutton & Dukerich, 1991), to quantitative survey tools that ask respondents to rate the extent to which their organization possesses a particular identity trait (e.g., Gioia & Thomas, 1996) and open-ended qualitative measures (e.g., Brickson, 2005). Each of these methods has strengths and weaknesses. For example, the case study analysis approach offers extremely rich data due to researchers' prolonged and close involvement with an organization. But these studies usually focus on a single organization and also require a lot of time to conduct. Quantitative data on the other hand is easier and quicker to conduct but because of pre-determined questions, they might fail to capture all aspects of identity (Brickson, 2005).

Table 4-3 Excerpts from the documents for each of the constructs

Construct	Sample quote
External Orientation	<p>- Even though I've said that the competitive picture in the second quarter was relatively easy, it's very, very clear that the competitors we do have in the marketplace continue to be there ...</p> <p>- But I don't think that we are yet clear as to how the dynamic between RIM OS, iPhone, Windows Mobile and Android will play out in fourth quarter to each OS providers will put behind that. I think that that's creating some uncertainty. It will be a very competitive marketplace.</p> <p>- ... the smartphone market has always been competitive. The names have been changed. The names of competitors have changed. In the beginning, RIM was sort of the very strongest player, because the smartphone as you know really got going into the enterprise area. And of course, today, our tough competitor from a hardware point of view would be Samsung and married to Google on the operating system side.</p> <p>- Competitors are scrambling to copy our App Store but it's not as easy as it looks ...</p> <p>- ... we know that software developers they're not going to deal real well with all these different size products, when they have to redo their software, every time a screen size changes. And they're not going to deal well with products where they can't put enough elements on the screen to build the kind of apps they want to build.</p>
Internal Orientation	<p>- We increased R&D investments and created some of our best new products and businesses.</p> <p>- I think this simply will be more intuitive, more fun and faster and definitely can, in my opinion, meet the market best. Now I'm talking about Symbian 3 here.</p> <p>- Our priorities will include a more focused product portfolio of devices and cloud-based experiences, strengthening our brand and</p>

	<p><i>improving operational efficiency.</i></p> <ul style="list-style-type: none"> - <i>We're not just a service company, we run a network, we run services and we run devices and we can create formidable integrated solutions.</i> - <i>We are now in the final stage of the business transformation program started in the mid-2008, and are confident on delivering on the target promised by the end of 2010</i>
<p>Promotion Focus</p>	<ul style="list-style-type: none"> - <i>We may get buffeted around by the waves a little bit but we will be fine and stronger than ever when the water is calm in the future.</i> - <i>I think that we'd like to continue to keep our powder dry because we do feel that there are one or more strategic opportunities in the future.</i> - <i>If there are opportunities, we will look. Acquisitions and stake investments have been part of [company name]'s strategy for several years and we're always open to working with companies that want to work with us.</i> - <i>reinforced my determination to re-establish our company's dominant place in the global market by bolstering our core competencies and achieving greater competitiveness. With your continuing support, we will make this happen together.</i> - <i>We have the best ecosystem by far, and we're just going to keep augmenting it, and making it better and better and that shows up in both our royalty ratings and our customer stat and I feel very good about our competitive position.</i> - <i>... as well as the interesting opportunities that will surely arise for us to evaluate and attain.</i>
<p>Prevention Focus</p>	<ul style="list-style-type: none"> - <i>We assure you that we will do so carefully, applying the [company name] discipline and conservative approach you are used to.</i> - <i>That being said, earlier this year, we outlined a new strategy because of our fundamental concerns about the competitiveness of</i>

our product portfolio.

- As we navigate through this downturn, we will continuously assess our cost structure and take action, so that we maintain the financial strength.

- really we just want to be careful on this, and we don't want to overstate the case.

- however we believe it is prudent to turn our attention to making sure that the operations are as streamlined as possible in case of further deterioration in the broader economy.

- we are deliberately careful about where we are going to strengthen our positioning not only the portfolio and sometime features and sometime regions

Identity

- We're all about making the best products at aggressive prices ...

- We don't know how to make a \$500 computer that's not a piece of junk, and our DNA will not let us ship that.

- We do a great deal of work with different treatments of photography that we think really sets ourselves apart.

- ...the key element, the design...

- being a company whose products and services are always unique and differentiated

- And we are investing and reinvigorating our enterprise heritage with [product name].

In this study, to identify what managers' perceive to be their organization's identity, I follow Elsbach and Kramer (1996)'s methodology to systematically analyze their verbal communications for evidence pointing to the construct. Following prior studies with a cognitive approach to competition (e.g., Anand, Joshi, & O'Leary-Kelley, 2013; Livengood & Reger, 2010; Reger & Huff, 1993), I focus on perceptions of organizational identity from the perspective of top level managers and not the lower level employees within the organization. Based on definitions offered for the construct, I looked for specific managerial statements that pointed to an individual's belief about organizational identity. Albert and Whetten (1985) stated that identity defines the sense of who the members of that organization perceive themselves to be and is their statement of who they are as an entity. To capture this, I looked for evidence within the data for sentences that point to this element in instances where the manager is describing the key and enduring attributes of the organization. Sentences like "we are known for...", "... is who we are as a company" and "we have always been a ... company". I was also vigilant for words such as "define", "differentiate", "represent", "integral", "iconic", and "DNA" that can point to elements inside the identity domain. Table 4-4 lists a sample list of identity domain elements and a few corresponding excerpts from the content.

Following Livengood and Reger (2010)'s definition of identity domain, I looked for instances where the manager pointed to products or services as a key element of the company's identity. Sentences like "product A tells the world who we are" or "People like us because of product B", or references to *iconic* products or services offer insights into what people in an organization perceive as features that define who they are. For the final measure of identity, I look for instances where a manager is discussing a major threat to the organization. Dutton and Dukerich (1991) have argued that environmental or internal issues that receive the most amount of attention are those that are linked to an organization's identity. Based on this notion, when a manager focuses on a particular threat to the organization, it could be that it is targeting the organization's identity or elements within its identity domain.

Table 4-4 Sample identity domain elements and sample corresponding content

Company	Identity Domain Elements	Sample content
Company A	<ul style="list-style-type: none"> - Integrated Ecosystem - Design - Premium products 	<p><i>“Our DNA is as a consumer company -- for that individual customer who's voting thumbs up or thumbs down. That's who we think about. And we think that our job is to take responsibility for the complete user experience.”</i></p> <p><i>“We want to make great products, and that’s what we’re about.”</i></p>
Company B	<ul style="list-style-type: none"> -Security - Focus on Enterprise 	<p><i>“... we are investing and reinvigorating our enterprise heritage with [product name], where we plan to bring control to IT managers with strong, secure, multi-device management solutions.”</i></p> <p><i>“... bringing security, control and a great user experience [company name] is known for, including real-time push data, industry-leading security and back-end integration.”</i></p>
Company C	<ul style="list-style-type: none"> - Product Design - Premium products 	<p><i>“[company name] upholds a consumer-focused design philosophy”</i></p> <p><i>“Innovation is encoded into [company name]'s corporate DNA</i></p> <p><i>the company's uncompromising commitment to and passion for innovation”</i></p> <p><i>“... highlight [company name]'s success in bridging multiple disciplines to deliver aesthetic designs and innovation”</i></p>
Company D	<ul style="list-style-type: none"> - Design - Premium Products 	<p><i>“being a company whose products and services are always unique and differentiated”</i></p> <p><i>“... global leadership in creating stylish products consumers clamor to own.”</i></p> <p><i>“... a brand consumers are passionate about and willing to pay a premium for.”</i></p>
Company E	<ul style="list-style-type: none"> - specific product line - Mass market 	<p><i>“[product name], which marked the reintroduction of an <u>iconic</u> brand”</i></p> <p><i>“... We think a big mission for us ... [is] empowering everybody and not leaving anyone out, for us is driving affordability and driving the mobile internet for much lower price points, and making it much more affordable for people.”</i></p>

Company	Identity Domain Elements	Sample content
Company F	<ul style="list-style-type: none"> - Photography - Mass market - Location services 	<p><i>“We do a great deal of work with different treatments of photography that we think really set ourselves apart...”</i></p> <p><i>“...our unique capability to bring the benefits of smartphones to the mass market globally”</i></p> <p>(also, emphasis on the “next billion” initiative)</p>
Company G	<ul style="list-style-type: none"> - Premium Differentiated Products - Innovation 	<p><i>“...innovation that inspires the world and shapes new futures”</i></p> <p><i>“... differentiated premium product lines”</i></p> <p><i>“We are elevating our status as a premium brand”</i></p> <p>(Repeated emphasis on premium products and innovation)</p>
Company H	<ul style="list-style-type: none"> - Entertainment including music, games, video - Innovation 	<p><i>“delivering in our promise to make it a most entertaining Smartphone”</i></p> <p><i>“...exceed their expectations and create some of the most iconic products and content of all time”</i></p> <p><i>“We must return to the core of [company name]’s promise to the consumer, great products, innovative service and applications, great design, and being one step in front of the consumer knowing what the consumer wants even before they do.”</i></p> <p>(emphasis on iconic brands such as Walkman, Playstation and Cybershot)</p>

After identifying the identity domain for each of the companies in my sample, I drew connections between competitive actions and elements within this domain. Through this process, it was determined if a competitive action targeted part of the business that is part of its perceived identity. Although I acknowledge that an organization’s identity may change over time, I have assumed it has remained constant for the time period examined in this study. Unlike the other two cognitive orientations which were measured on a company/year basis, identity was measured for the duration of the whole period. I did this mostly due to data restrictions but it is also rooted in arguments in the identity literature that view identity as a relatively stable concept.

4-3 Measures

Dependent Variables

Likelihood of response: Action/response dyads are identified using the detailed mythology described in this chapter. I use a binary variable to show the likelihood of response to a competitive action. When a firm responded to an action, it was coded as “1” and if a competitive action was left without a response, it was coded as “0”. Since this is a binary variable, a logistic regression is used to analyze the hypotheses related to the likelihood of response.

Speed of Response: Speed of response is a continuous variable measuring the weeks after the initial action is reported by the media until the response is recorded. As previously discussed, when a response was detected in an article, I looked back to identify the initial attack and when it occurred. Naturally, this variable only measures the speed of response when a response has actually occurred. The dataset for this dependent variable is a subset of the original data.

Independent Variables

Salience: In this study, salience was measured using the amount of coverage a particular competitive move receives in the media. As discussed previously, if a competitive action received widespread attention in the industry it should become more salient for observers, including managers of other firms. Following an established tradition in management research (Kennedy, 2008; Petkova, Rindova, & Gupta, 2012; Pollock, Rindova, & Maggitti, 2008), I use the number of articles mentioning the competitive action as a measure of media coverage and salience. Search was conducted in the trades journals, journals and magazines, and newspapers databases in ABI/INFORMS for the period of my study. For example, if a company introduced a new product or a service, the number of times this action is covered by these outlets (within a reasonable timeframe) is my measure of salience for that particular competitive move. The number of articles ranged

from a handful to many hundreds for some cases with a mean of 146 articles. It was clear that some competitive actions received considerably more attention compared to others.

Identity related attack: I described the procedure that I used to draw a connection between a particular competitive move and a firm's identity domain. Using a binary classification, if in-fact there is a link, I code it as "1". On the other hand, if a competitive action is targeting part of the business that falls outside the identity domain, it is coded as "0". What is important to note here is that the link between an action and identity is drawn by identifying identity domains and competitive actions separately and linking them together when they pointed to the same features, characteristics or elements.

Regulatory focus: A manager's degree of prevention/promotion focus was measured by the percentage of text dedicated to each in the documents. A ratio term is calculated to determine the percentage of prevention focused material compared to promotion focused content. This shows how dominant one focus is compared to the other. Numbers close to one indicate an equal orientation and as the number gets larger, it indicates that a manager has a stronger prevention focus. Lower numbers on the other hand point to a weaker prevention focus. I used a ratio term here to capture the orientation towards one or the other construct. There may be instances where a given CEO could potentially be higher on both prevention and promotion compared to another CEO. But what is important in this study is that manager's orientation towards one or the other. So even this CEO which is high on both scales has a leaning towards one of these orientations and that is important for my study. I will examine this further in the discussion chapter.

External/Internal Orientation: Similar to the procedure for regulatory focus, external and internal focus was measured by percentage of words dedicated to each orientation. Again a ratio term is used to compare a manager's external orientation vs. internal orientation with higher numbers pointing to a higher external orientation. Numbers closer to one indicate that a manager is not leaning towards any one orientation more than the other and lower numbers are an indication of internal orientation. Once again, the ratio measure allows me to measure a CEOs leaning towards one or the other orientation even if he/she is high on both in absolute terms when compared to another CEO.

Control Variables

I included a number of control variables that have traditionally been used as objective predictors in the competitive dynamics literature. These variables are included so that I can be confident my results are still valid when controlling for economics-based factors previously used in and tested in studies. The first control variable is *size*. Prior research has discussed the effect of organizational size on the nature of competitive actions and responses. I have included the size of both the attacker and the responders since both have been shown to influence competitive dynamics. I measure size using the number of employees (divided by 1000 to get meaningful coefficients) in a company for any given year. *Performance* is also included in the model as a control variable. It is measured by ROA in any given year and the value for the prior year (t-1) is used to control for effects of performance on subsequent competitive actions. I also included *R&D focus* in the model to control for a company's emphasis on new technologies and products development. This variable is measured using the percentage of R&D expenditure compared to total sales for any given year. Finally, I added dummy variables for source document type to control for the potential effect it can have on the results. This is a categorical variable with three values corresponding to letters to shareholders, report to investors, and interviews.

4-4 Validity and Reliability

When dealing with content analysis in social science research, reliability issues arise due to the fact that many words of a text are classified into categories under specific labels in order to reduce the vast amount of information (Weber, 1990). This coding can be done by a human being or by using a computer algorithm. Due to the subjective nature of the process, reliability needs to be addressed in any content analysis research. Following Weber's (1990) recommendations, I adhered to specific guidelines to address stability and inter-coder reliability. For stability, I used clear coding rules and definitions regarding the measured constructs so that cognitive variations in the same coder do not

significantly affect the coding process. I also explained these rules to the second coder to achieve consistency. For reliability, I asked a second coder to code a sub-sample (just over 10%) of my data. To be reliable, the various coders need to be correlated in the categories and labels they identify and produce (Morris, 1994). As previously discussed, satisfactory inter-rater reliability was achieved in this study and more importantly, insights from the process were used in the subsequent coding.

External validity and generalizability of the results is another important issue that needs attention in any research. The hypotheses developed in this study were tested using data from a single industry (i.e. mobile phone manufacturing). Therefore, the extent to which these results can be generalized to other industries is limited. But it is important to note that in research on competitive dynamics, often there is no choice other than to use a single industry. Using data from multiple industries introduces a host of confounding factors that are impossible to identify and control for (Smith et al., 1991). Single industry studies are frequent in the literature and prior research has for example looked at the airline (e.g., Cho & Hambrick, 2006; Hambrick et al., 1996), communications technology (e.g., Eggers & Kaplan, 2009), and pharmaceutical (e.g., Kaplan et al., 2003) industries extensively. I acknowledge that generalizability to other contexts is a limitation of this study but my findings nevertheless help our understanding of the way managerial cognition influences competitive dynamics. Following other researchers (e.g., Berkowitz & Donnerstein, 1982; Rowe et al., 2005), I argue that these results are generalizable to theory (as opposed to other populations) and/or across time and are therefore an important contribution. Future studies conducted in other industries will contribute to building a substantive body of literature in this area.

Chapter 5: Analysis and Results

The hypotheses I developed in this dissertation link a set cognitive orientations and one external characteristic of competitive actions to two different dependent variables (DVs). Due to the differences in the nature of these two DVs, I use a dedicated analysis for each one with a suitable analysis technique. The first dependent variable is likelihood of response which is a binary variable with 1 for an instance of response and 0 for non-response to a competitive action. The second variable is the speed of response which measures the time between an initial attack and the time a focal firm responds to that move. This is a continuous variable measured in weeks. Before I discuss the results of the two regression analyses, I present the correlation table and descriptive statistics for the model variables. These are presented in Table 5-1. As mentioned in the methodology chapter of the dissertation, the total number of action-response observations is 385. The number is lower only for the lag variable (N=186) since it only captures data for instances where a firm has responded to a competitive move by a rival. In essence, the analysis with the speed of response DV only considers a subset of our initial sample and as will be seen, this has implications for the results. A similar approach has been used in previous studies examining the speed of response outcome variable (e.g., Marcel et al., 2011). The correlation table does not show extremely high correlations between the variables in the model. Although there are a few significant correlations in the table, none of the correlations are large enough to be a source of major concern for multicollinearity. The table also shows the means for each of the variables used in the study.

Table 5-1 Variable Correlations and Means

<i>Variable</i>	<i>Mean</i>	<i>S.D.</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>11</i>
<i>1- Size</i>	64.029	59.91	1										
<i>2- Attacker Size</i>	78.296	77.71	-0.092	1									
<i>3- R&D expenditure</i>	6.783	3.10	-0.240**	0.071	1								
<i>4- Performance (t-1)</i>	10.750	14.27	-0.237**	-0.131**	-0.427**	1							
<i>5- Document DUMMY</i>	1.59	0.600	-0.099	0.208**	0.099	-0.159**	1						
<i>6- Link to identity</i>	0.150	0.35	0.049	0.101*	-0.086	0.020	0.053	1					
<i>7- Prevention/promotion Focus</i>	1.188	1.24	0.179**	-0.108*	0.128*	-0.212**	-0.084	0.010	1				
<i>8- External/Internal Orientation</i>	0.372	0.19	-0.072	-0.032	-0.258**	0.115*	0.444**	0.082	-0.214**	1			
<i>9- Saliency</i>	146.364	143.19	0.018	0.010	0.042	-0.001	-0.023	0.128*	0.036	-0.057	1		
<i>10- Response</i>	0.48	0.50	0.119*	-0.067	0.0001	0.041	0.037	0.212**	0.074	0.150**	0.285**	1	
<i>11- Response Lag</i>	38.94	38.04	-0.104	-0.098	-0.092	0.134	0.044	-0.095	0.020	-0.019	-0.105	-0.018	1

* $p < 0.05$

** $p < 0.01$

N= 385 for all variables except “Response Lag”. A reduced sample size of N=186 considered for that variable.

For likelihood of response as a dependent variable, I use a hierarchical logistic regression approach to test the study's hypotheses. This allows for a step-by-step inclusion of variables to the model in order to test the significance of the relationships and also the marginal explained variation. As a general rule, the base model includes the control variables. In the second model, I add the main effects to the equation and in the third model I include the moderator variables to test the hypothesized moderation effects. The third, fourth and fifth models each include one of the hypothesized interaction effects which are included individually. The final model adds all IVs and the moderators all together. The complete model also illustrates the overall explained variance by the proposed predictors in the equation. Since this is a binary dependent variable, I am dealing with logit models that require extra considerations especially when interpreting the results (Hoetker, 2007). I follow Hoetker's (2007) recommendations when running and analyzing models with the likelihood of response as my dependent variable.

For the speed of response, I use hierarchical ordinary least squares regression since the dependent variable is continuous. It measures the time lag between the competitive move, and the time each competitor responds. This is a relatively simpler model to interpret compared to the logit model. For both models, I include the size of the focal firm, size of the initiator of the competitive move, R&D expenditure for the firm, and its performance in the previous year as controls in the first step of the model. I also include a DUMMY variable for document type as discussed in the methodology section. This initial model gives me a baseline R^2 . In the second step, the predictors are added to the model to determine if they are significant and to examine the added explanatory power of the new model. Finally, I add the moderators to test for interaction effects. To protect the results from the negative effects of multicollinearity, I centred all the continuous independent variables before testing the moderator. Tables 5-2 and 5-3 present the results for the two analyses.

Table 5-2 Results for hierarchical logistic regression with likelihood of response as the DV

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
<i>Control Variables</i>						
Document DUMMY (1) ^a	0.525*	0.155	0.131	0.155	0.120	0.096
Document DUMMY (2) ^a	-0.267	-1.043	-1.084	-1.042	-1.205 [†]	-1.255 [†]
Size (responder)	0.006**	0.006*	0.006*	0.006*	0.006*	0.005*
Size (initial actor)	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
R&D expenditure	0.060	0.109*	0.97*	0.109*	0.111*	0.096*
Performance (t-1)	0.011	0.011	0.011	0.011	0.10	0.010
<i>Predictors</i>						
Identity link		1.151**	1.093**	1.151**	1.209**	1.136**
Prevention/promotion		0.128	0.132	0.129	0.129	0.141
External/Internal		2.573**	2.567**	2.571**	3.138**	3.148**
Salience		0.004**	0.005**	0.004**	0.005**	0.006**
<i>Moderators</i>						
Identity link x salience			-0.003			-0.003
Prevention/promotion x salience				0.0001		0.0001
External/Internal x salience					0.015**	0.017**
	N=385	N=385	N=385	N=385	N=385	N=385
Cox & Snell R square	0.044	0.181	0.185	0.181	0.198	0.202

[†] $p < 0.10$

* $p < 0.05$

** $p < 0.01$

^a Categorical variable for document type has three values. Overall DUMMY variable not significant and pairwise comparison between values presented here.

Table 5-3 Result for hierarchical OLS regression with response lag as DV

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
<i>Control Variables</i>						
Document DUMMY	0.072	0.145	0.151	0.143	0.130	0.134
Size (responder)	-0.103	-0.119	-0.109	-0.119	-0.119	-0.110
Size (initial actor)	-0.108	-0.100	-0.098	-0.104	-0.095	-0.096
R&D expenditure	-0.090	-0.157	-0.145	-0.154	-0.160	-0.148
Performance (t-1)	0.066	0.062	0.063	0.061	0.058	0.058
<i>Predictors</i>						
Identity link		-0.101	-0.101	-0.102	-0.086	-0.087
Prevention/promotion		0.041	0.041	0.048	0.041	0.045
External/Internal		-0.127	-0.126	-0.124	-0.141	-0.139
Saliency		-0.100	-0.121	-0.100	-0.108	-0.127
<i>Moderators</i>						
Identity link x saliency			0.046			0.041
Prevention/promotion x saliency				-0.031		-0.014
External/Internal x saliency					0.103	0.100
	N=186	N=186	N=186	N=186	N=186	N=186
R square	0.042	0.075	0.076	0.076	0.084	0.086
Adjusted R square	0.015	0.027	0.023	0.023	0.032	0.022

[†] $p < 0.10$

* $p < 0.05$

** $p < 0.01$

Standardized coefficients reported

The results of the analyses show mixed support for my hypotheses. In general, it seems that the reduced number of cases in the OLS model resulted in a lack of results for the hypotheses corresponding to my speed of response dependent variable. The logit model on the other hand produced a number of interesting and significant results. My aim was to link a set of cognitive orientations to competitive responses and some of the proposed relationships are supported. I also hypothesized a link between salience and response in addition to a set of moderator effects on the cognitive links.

The first model in both regression analyses includes the control variables only. As previously discussed, most of these controls are objective factors that may influence the likelihood and speed of response. The link between the size of the responder and likelihood of response was significant in the logit models. Larger organizations have more available resources and are therefore more likely to notice and respond to a wider variety of actions. The size of the attack initiator was not significantly linked to response, although previous studies have argued that firms are less likely to respond to larger, more powerful rivals. The link between R&D expenditure and the likelihood of response was significant in most of the logit models. Firms that emphasize R&D are more likely to have responses ready for a wider variety of attacks. Prior year performance was not significant in any of the logit models. Finally, the dummy variable for document type was not statistically significant in most of the logit models. Since this is a categorical variable in a logistic regression, it is included in the model first as an overall variable and then a pairwise comparison of each category with the reference category. The overall dummy variable was not significant (not in the table since it has no coefficient), and the pairwise dummy variables are also not significant in most cases. The document type control is kept in the model to ensure results hold regardless of their effect. Consistent with the pattern seen in the OLS analysis for other variables, none of the controls were linked to the speed of response.

In hypothesis 1, I predicted that companies are more likely to respond to competitive moves if their top managers perceive that move as a threat to an element of their identity domain. For example, if a manager perceives a feature or technology as a central defining

element of who they are as an organization, he/she is more likely to respond to that competitive move. Results show that this proposed relationship (H1) is supported ($p < 0.01$) and the effect of identity link to the likelihood of response is significant. Interpreting the coefficient requires additional steps in this logit model. For this binary predictor, I determine the probability of a response happening for instances of an identity link, over instances with no link to an organization's identity. This can be achieved by calculating the "exp" of the coefficient. For identity link, the odds ratio is equal to $\exp(1.151) = 3.16$. So if an attack is directed at an element of an organization's identity domain, the probability of a response is more than three times versus when there is no link. My second hypothesis (H2) described a relationship between link to identity and the speed of response. Despite the strong theoretical argument, the relationship was not significant.

The third hypothesis (H3) explored the relationship between managers' regulatory focus and their tendency to respond to competitive moves. Based on my arguments, companies with CEOs that have a higher orientation towards prevention focus, are reluctant to act in the face of external events and are thus less likely to respond to competitive moves by rivals. The relationship was not significant and thus the hypothesis is not supported. Based on the results, it seems that a higher orientation towards prevention focus does not influence the probability of a response happening. The fourth hypothesis (H4) linking regulatory focus to the speed of response also failed to yield significant results. It seems that some of the counter arguments I presented in the hypothesis development section might also have a role to play when considering regulatory focus and response to competitive actions. As I explain in the discussion chapter, these non-significant results can also add to our understanding of the relationship between regulatory focus and competitive action.

I also proposed that a manager who has a higher external orientation compared to an internal one is more likely to respond to competitive actions (H5). These managers pay more attention to the competitive landscape, and also view the source of success to be in managing the external environment. This relationship was significant ($p < 0.01$) and thus received support in my results. Managers with a higher external orientation are more

likely to respond to competitive moves initiated by rivals. Following the previous procedure, I use the “*exp*” mathematical function to calculate the increase in the probability of response, for every one unit of increase in a manager’s external orientation compared to internal. For this relationship, $\exp(2.573)=13.10$. So for every one unit increase in a manager’s external/internal orientation ratio (keep in mind that a unit increase in a ratio is a substantial amount), the probability of response is 13 times higher. To put this into context, the mean for external/internal variable is 0.37 with a standard deviation of 0.19. Variations in this ratio are much smaller than one unit and as a result the likelihood change also increases by a much smaller amount than the number 13 indicated above. My sixth hypothesis (H6) used the same arguments to propose a link between external/internal orientation and the speed of response. Managers with a higher tendency towards external orientation were predicted to respond quicker to competitive moves by rivals. The results of the OLS regression did not support this hypothesis.

Hypotheses H7a and H7b predicted that a competitive action’s salience is positively associated with a higher likelihood and quicker response respectively. These two hypotheses link a characteristic of the competitive action itself (as opposed to a viewer’s cognitive orientations) to the nature of response. The proposed relationship in H7a is significant ($p<0.01$) and results show that more salient events are associated with a higher likelihood of response. For every unit increase in salience, the probability of a response is $\exp(0.004)=1.005$ times higher. This number seems low but understandable, given the large numbers associated with salience (Mean=146) in the data. Given the large variance in the number of articles reporting competitive moves, the increase in likelihood of response is also more than the 1.005 multiplier indicated above for most cases. H7b proposed that salience also leads to quicker response to competitive moves. The proposed relationship was not significant and salience did not influence the speed of response.

My final set of hypotheses (H8a,b,c,d,e,f) argued that salience moderated the proposed relationships between cognitive orientations and likelihood/speed of response. This was an attempt to integrate the top-down and bottom-up approaches in the attention literature and illustrate that a characteristic of the stimuli (salience) interacts with cognitive factors to influence attention and action. In the presence of higher salience, the effect of

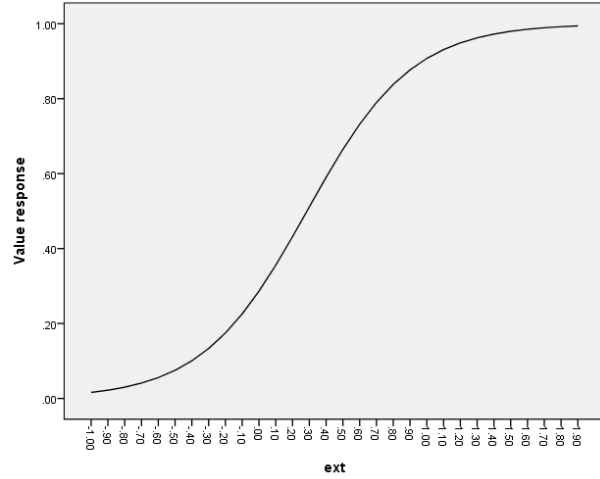
cognitive factors on competitive response was argued to be weaker. Only one moderating effect was significant ($p < 0.01$) and it was in the opposite direction to the one hypothesized. Based on the results, salience moderates the relationship between a manager's degree of external orientation and the likelihood of response (H8e). Opposite to what was proposed, salience seems to strengthen this relationship such that for higher levels of salience, the effect of this cognitive orientation on the likelihood of response is stronger. Hoetker (2007) has recommended that researchers observe and evaluate the graph for interaction effects in logistic regression since the magnitude and sign of the coefficient might be misleading by themselves. To follow that recommendation, I present the interaction effect diagram in Figure 5-1. The first figure is for salience at -1 Standard deviation, figure two has salience at the mean and the third figure is drawn with salience at +1 standard deviation. A few possible explanations are presented in the discussion chapter but as evident in the regression table and diagrams, this result is against the theoretical arguments for the moderation effect. None of the other proposed moderator hypotheses were supported in the results. Table 5-4 offers a complete picture of the results obtained from the analysis.

Finally, it might be fruitful to take a second look at the results of my OLS regression that tested hypotheses related to the speed of response variable. Speed was measured using a lag variable with a reduced subset of the data that includes cases where a response was coded. Higher lag corresponds to lower speed of response and vice versa. Although the OLS model did not yield significant results, a quick look at the coefficients reveals that most of the directions are correct and in line with my hypotheses. Although we cannot draw any conclusions in the absence of significant results, this brief observation might be further evidence that the lower number of cases for this model made it difficult to extract statistical significance. In the next chapter, I discuss the implications of these results, and the contributions to theory and methodology.

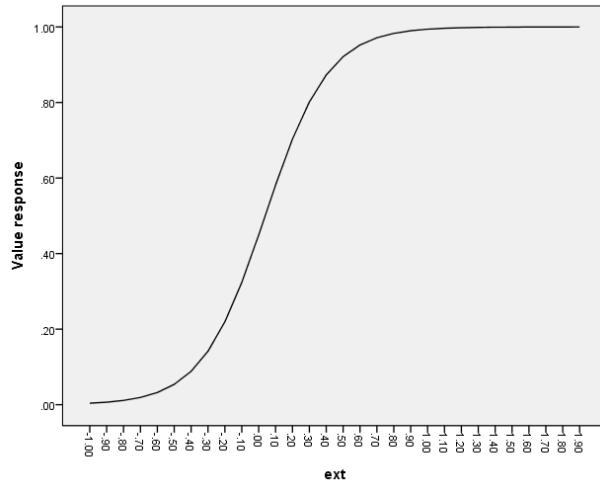
Table 5-4 Summary of results

Hypothesis	Proposed Relationship	Significant?	Result
<i>H1: Action link to identity → likelihood of response</i>	+	<i>P<0.01</i>	<i>Supported</i>
<i>H2: Action link to identity → speed of response</i>	+	<i>No</i>	<i>Not supported</i>
<i>H3: Prevention focus → likelihood of response</i>	-	<i>No</i>	<i>Not supported</i>
<i>H4: Prevention focus → speed of response</i>	-	<i>No</i>	<i>Not supported</i>
<i>H5: External orientation → likelihood of response</i>	+	<i>P<0.01</i>	<i>Supported</i>
<i>H6: External orientation → speed of response</i>	+	<i>No</i>	<i>Not supported</i>
<i>H7a: Salience → likelihood of response</i>	+	<i>P<0.01</i>	<i>Supported</i>
<i>H7b: Salience → speed of response</i>	+	<i>No</i>	<i>Not supported</i>
<i>H8a: Salience moderates the relationship between identity link and likelihood of response</i>	-	<i>No</i>	<i>Not supported</i>
<i>H8b: Salience moderates the relationship between identity link and speed of response</i>	-	<i>No</i>	<i>Not supported</i>
<i>H8c: Salience moderates the relationship between regulatory focus and likelihood of response</i>	-	<i>No</i>	<i>Not supported</i>
<i>H8d: Salience moderates the relationship between regulatory focus and speed of response</i>	-	<i>No</i>	<i>Not Supported</i>
<i>H8e: Salience moderates the relationship between external orientation and likelihood of response</i>	-	<i>P<0.01</i>	<i>Opposite direction</i>
<i>H8f: Salience moderates the relationship between external orientation and speed of response</i>	-	<i>No</i>	<i>Not supported</i>

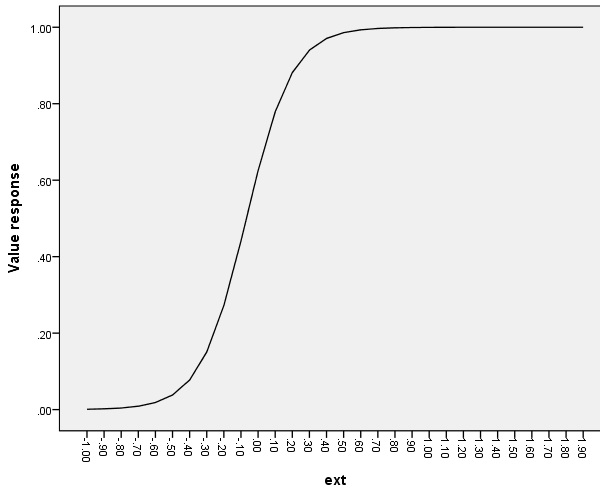
Figure 5-1 Moderator effect in logit model



Salience at -1 SD



Salience at mean



Salience at +1 SD

Chapter 6: Discussion, Limitations, and Future Research

6-1 Discussion

Using concepts from two streams of literature, I have endeavored to provide insights on an important question in the strategic management literature: Why do competitors respond to each other's competitive actions. Researchers have looked at a wide variety of factors such as attacker or responder's size, resource slack, multimarket commonality, intensity or size of the attack, and availability of technology resources amongst others. They have attempted to link these characteristics of the actor, responder, or the action itself to a variety of competitive outcomes. Within strategy, one body of research specifically looks at how factors such as the ones listed above influence a firm's propensity to attack or respond in retaliation to a move by rivals. The competitive dynamics literature has for many years looked at the action-response dyad from various angles with some very interesting results. But in a recent review of the literature, Chen and Miller (2012) look back at what has been achieved and find areas that require further inquiry. Specifically, they argue that research has largely overlooked the opportunity to integrate the micro and macro perspectives in competitive dynamics. Although this dissertation is the product of my passion for cross-disciplinary research, it is encouraging to see that it is also answering an invitation to address the more overlooked corners of the literature.

The fact that the competitive dynamics literature has emphasized the role of human agency in competitive decisions (Chen & Miller, 2012) makes it even more critical to delve deeper into the micro elements of that decision-making process. In fact, one of the most important frameworks developed for competitive dynamics argues that to respond to competitive actions, decision makers have to be aware of an attack, be motivated to respond, and have the necessary capabilities to do so (A-M-C framework)(Chen, 1996; Chen et al., 2007). The first two elements of the framework (awareness and motivation) are directly influenced by cognitive factors, and one can also draw indirect links to the

third element (capability). Due to individual differences amongst decision-makers, what they are aware of and their motivation to respond can vary from company to company. These factors go above and beyond the economics-based objective predictors that the literature has covered extensively. This is important since it allows us to get into the black box of competitive decision-making. Even when dealing with objective factors that influence the various aspects of competitive action or response, it is crucial to know how these factors are noticed and interpreted by the individuals that need to decide on initiating an attack or response. By looking at cognitive orientations and mental models of these decision-makers, I can go a layer beneath the surface to find and test additional factors that help explain why and how firms respond to competitive actions.

To achieve this important goal, I have looked at a set of specific cognitive factors that play a role in this decision. My goal was to incorporate aspects of human psychology in an attempt to explain strategic actions. As a result, this dissertation also falls within the behavioral strategy (Powell et al., 2011) stream. As evident from my study, the manager's role is highlighted as an information processing entity that makes decisions in the face of complex signals from the environment (Walsh, 1995). The first cognitive phenomenon examined is managers' perceptions regarding their organization's identity. I argued and found that managers are more likely to respond to competitive moves that target their firm's identity, or elements within their firm's identity domain. The strong support for this hypothesis could indicate that managers pay more attention to moves against their firm's identity. In essence, it acts as a reinforcing filter for incoming information and amplifies stimuli that target elements within an organization's identity domain (Gioia & Thomas, 1996). As a result, it is more likely for managers to be aware of competitive moves that fall within this domain.

Although attention and awareness offer a viable mechanism, my results show that managers are also more motivated to respond when the identity domain comes under fire. The likelihood of response was significantly higher when an attack was aimed at an organization's identity. This could be due to emotional ties with the identity, and the negative feelings associated with any attack targeted at it. The results are in line with what Elsbach and Kramer (1996) found in their study of how members of business

schools reacted to perceived attacks on their identity. The results also offer support for some of the arguments presented by Livengood and Reger (2010) in their theoretical study of identity and competitive dynamics. Managers might also be more inclined to respond if a move is against their organization's identity because they perceive elements of the identity domain to be closely tied to performance. Of course, the identity-performance link is only a perception and not necessarily an objective reality.

I also hypothesized that firms respond more quickly to competitive moves targeted at their perceived identity domain. The results did not support this predicted relationship. Although this could be attributed to a lack of power due to the reduced sample size, there are also possible theoretical explanations. One possibility is that although managers will eventually respond to competitive moves that target their identity, they might not be capable of doing so quickly. So while the awareness and motivation elements of the AMC framework are highlighted by identity, the capability element is not as apparent. Most of the previous studies in the competitive dynamics literature have looked at the airline industry and the competitive moves there are different in nature from those in an industry where technology plays an important role. If an airline wants to enter a route, it can do so more easily, but if a tech company wants to add a technical feature or acquire another company, the process can take time regardless of the motivation. Although a counter argument to this is the fact that managers will invest more resources in elements that they perceive to be central to their identity (Livengood & Reger, 2010), which could mean the ability to respond faster compared to other parts of the business. Additionally, managers can develop an initial response that is easier to design and implement and follow that with a more advanced and comprehensive response at a later date. But overall, it seems that more elements are involved in the speed of response compared to the probability of a response happening at all. This lack of significant result is in itself a fruitful discovery that paves the way for interesting subsequent theoretical arguments and further empirical inquiry. Establishing a link between the link to perceived identity and the likelihood of response is also major contribution to the competitive dynamics and behavioral strategy literatures.

The results for my second cognitive predictor were surprising. I had hypothesized that as a manager's orientation towards prevention focus increases, a response becomes less probable. This was rooted in the argument that individuals with a higher leaning towards prevention focus are reluctant to change and will stick to the status quo. They are also more risk averse which also reduces the likelihood of actions. Those who are more tilted towards promotion orientation on the other hand see actions as part of a wider context and are more willing to respond to capture available opportunities. The results did not support my hypothesis and the relationship between prevention focus orientation and the likelihood of response was not significant. A possible explanation for this result may be found in the counter-arguments I provided in the hypothesis development chapter. It is true that managers with a higher prevention focus are reluctant to change the status quo. But at the same time, these individuals view events (i.e. competitive actions) as potential threats rather than opportunities. One can argue that human beings are more likely to respond to a threat and deflect imminent trouble compared to when faced with an opportunity. This might create a situation where we have two opposing forces one for action and one for inaction working at the same time. If this is true, the non-significant result can actually indicate that regulatory focus does not influence the response to competitive actions. But the lack of significant results can also be attributed to a number of other possible factors. One is that the constructs are difficult to measure and using verbal communications cannot capture the full extent of the orientation. The literature in psychology has used priming experiments or questionnaires to test this construct but studies have pointed to limitations with those particular measures. I discuss this further in the limitations section. Another possible explanation could be the sample size. One might argue that a larger sample size might have been able to extract significant results. This remains speculation at this point. The link between regulatory focus and the speed of response also was not significant and the hypothesized relationship did not receive support. Again, this could be due to data restrictions and reduced sample size or the weaker link between regulatory focus and capability compared to awareness and motivation.

My results also confirmed that managers with a higher external orientation are more likely to respond to competitive moves. These managers naturally pay more attention to

the external environment and are more likely to notice an event such as a new technological feature, acquisition, or product. As I discussed previously, noticing is the first step towards possible action. Based on arguments from the attention based view of the firm (Ocasio, 1997), attention involves noticing an event, interpreting it, and considering a set of alternatives for a response. Managers with an external orientation also attribute their success or failure to elements in the external environment and are therefore more motivated to respond to those events. Although a few studies in the competitive dynamics literature had argued for the importance of this cognitive orientation, most had measured it using proxy variables such as the number of executives in external focused departments. I incorporated a form of measurement more prevalent in the cognition literature to test the effects of this mental phenomenon on strategic action.

Despite strong theoretical arguments, external orientation was not related to a faster speed of response to competitive moves. Once again this could be due to the reduced sample size which makes it more difficult to extract significant results if the relationships are not very strong. But the lack of support for the hypothesized relationship can also have theoretical reasons. Managers with a higher external orientation will notice competitive actions better than those with a lower external orientation. They might also be more motivated to respond since they view the source of success or failure in the external environment. But the link to capability is not as strong as this might cause practical issues when they actually decide to respond. So even with that decision, it might take considerable time and effort to actually put that to practice.

Finally, my results showed that one specific characteristic of a competitive action has an effect on the likelihood of response. I discussed salience as the amount of attention a competitive move received within the industry. This was captured through the media coverage for any particular action. This is a factor that is independent from the managers' cognition as the characteristics of the action itself have made it more socially salient in the industry. As I will discuss in the next section, including this variable has important implications for research on organizational attention. The more salient a competitive action, the more likely it was for it to receive a response. I also hypothesized that salience moderates the relationship between the cognitive orientations and the likelihood of

response. When managers are faced with a highly salient event, they are more likely to respond regardless of their cognitive orientations. So in essence, salience negatively moderates that relationship and makes it weaker.

Results showed support for only one of the interaction effects and it was in the opposite direction. Salience positively moderated the relationship between the degree of external orientation and the likelihood of response such that for higher levels of salience, the effect was stronger. The moderation effect in its current direction implies that when managers are faced with a highly salient competitive action, those that are more externally oriented are even more likely to notice and respond to it compared to those that are less externally oriented. Salience is in fact amplifying the relationship between external/internal orientation and the likelihood of response, contrary to my theoretical arguments. This interaction between a cognitive factor and salience has important implications for research on attention.

6-2 Implications for Research

This study has a number of contributions and implications for both the competitive dynamics and organizational attention literatures. Until recently, most of the studies in competitive dynamics focused only on the objective economics-based predictors of action-response dyads. By focusing on these factors, researchers offered good insights on when and how firms respond to moves by rivals and the characteristics of that response. While I acknowledge these important contributions, I step beyond the objective factors and explore and test the subjective side of human decision making and its impact on competitive decisions. So far, only a handful of studies have attempted this (e.g., Marcel et al., 2011) and hopefully the growing body of literature will examine and test more aspects of cognition and their influence on competitive dynamics. Human decision-making is a complex process and because of our limited cognitive abilities, we selectively notice and interpret events. Our mental models and cognitive orientations help us filter and process the vast amount of incoming data from the environment. This process is unique to each individual and can create variations in strategic action amongst firms.

Difference in competitive response may now be attributed to individual level thinking and orientations such as the ones discussed and tested in this study. I contribute to the literature by theoretically linking a set of cognitive orientations to the likelihood and speed of response and finding results that help our understanding of behavioral strategy.

The study also contributes to the literature by testing cognitive variables in a way that is relatively new to strategy and competitive dynamics. Identity is a heavily studied organizational phenomenon and the strategy literature has also seen its fair share of research on identity. Studies have looked at how identity influences performance (e.g., Voss, Cable, & Voss, 2006), its role in achieving sustained competitive advantage (e.g., Fiol, 2001), and how it shapes the relationships with various organizational stakeholders (e.g., Brickson, 2005). Many more studies have looked at how identity is formed (e.g., Schultz & Hernes, 2013), if and how it changes (e.g., Clark et al., 2010; Gioia et al., 2013), and the way individual and organizations react when this identity is challenged (e.g., Elsbach & Kramer, 1996). Studies have rarely looked at identity in the context of competitive dynamics and specifically its role in explaining the nature of response to competitive moves by rivals. In one of the very few articles, Livengood and Reger (2010) offer theoretical arguments linking identity to the likelihood and the nature of response to competitive actions. Additionally, their emphasis on identity domain and the elements that fall within it offered good theoretical and methodological insights for my dissertation. My study contributes to the literature by testing one of their propositions that linked attacks on identity domain to the likelihood of response. This was possible because I incorporated methods from the behavioral strategy and cognition literatures into the study of competitive dynamics. Future empirical studies can focus on other parts of their theoretical paper and explore the role of identity on other aspects of competitive dynamics.

I tested another cognitive orientation that is under-examined in the strategy literature. The concept of regulatory focus has been studied extensively in psychology and has bridged over to research on organizational behavior and leadership. Organizational scholars have looked at the role of regulatory focus on innovation (e.g., Wallace et al., 2013), new venture performance and entrepreneurship (e.g., Hmieleski & Baron, 2008), creativity

(e.g., Friedman & Förster, 2001), and executive compensation (e.g., Wowak & Hambrick, 2010). In an interesting article, McMullen et al. (2009) offer theoretical arguments that link a middle managers' prevention focus to detection of environmental cues (threats). This theoretical work is a great attempt at incorporating this concept from the psychology literature in explaining decision-making and attention to external cues. My study extends this line of inquiry by developing theory on how this construct influences (or does not influence) competitive dynamics. I also used a measurement method that is useful when access to top CEOs in the form of experiments or detailed questionnaires is extremely difficult. Future studies can build on these results and incorporate the concept of regulatory focus in additional contexts and circumstances where managerial decision making is of interest. It is also important to note that non-significant results for this hypothesized relationship do not make the study itself meaningless. As discussed in the file drawer phenomenon (Rosenthal, 1979), studies with non-significant results also add to our understanding. As I discussed, the lack of significant result can be due to opposing mechanisms that explain the link between regulatory focus and the response variables. It can also be due to moderators that are not identified in this study. This finding can help future researchers look into the construct more deeply and explore other possible explanations for the relationship between regulatory focus and competitive decision-making.

Out of the three cognitive phenomena examined in this study, external/internal orientation has received the most attention in the strategy literature. Researchers have looked at the quantity and quality of managers' attention to the external environment and have argued that this orientation influences various organizational outcomes including performance (e.g., Garg et al., 2003; Thomas et al., 1993). It has also been examined in the competitive dynamics literature by Smith et al. (1991) as a predictor for the nature of response to competitive actions. But studies that have used external orientation in this context resort to measures such as number of VPs in external roles as an indirect way of capturing this cognitive phenomena. My dissertation contributes to the strategy literature by using measurement techniques prevalent in the behavioral strategy and cognition literatures to gain a more accurate understanding of the extent of a manager's leaning towards external or internal orientation.

Finally, this study has implications for the organizational attention literature. Although I do not measure attention directly, it is the overarching meta-theory that explains the mechanism for many of my hypotheses. Ocasio (2011) has described two distinct processes for organizational attention. In one which he labels as the top-down (or schema driven) process, mental structures and cognitive orientations of observers influence what is attended to and what is ignored. He points to two main meta-theories, managerial cognition and institutional theory (institutional logics) as the most used perspectives to explore attention in the top-down process. The first three predictors in my dissertation fall under the managerial cognition meta-theory and are part of the top-down process of attention. How top managers think and their mental models determine if they notice a rival's action and how they interpret and act on it. Ocasio (2011) also describes what he labels as the bottom-up in which the characteristics of the environment or the events/stimuli influence the attention directed towards them. This process is also discussed extensively in the attention based view (ABV) of the firm (Ocasio, 1997).

To address the bottom-up process of attention, I added the salience variable to test whether this characteristic of the action influences the attention it receives which as I argued manifests itself in the competitive response. I argued that more salient events are more likely to receive a response and the results supported the theoretical arguments. But a more interesting insight that came out of the results was the interaction between external orientation and salience. Although the direction of the interaction was opposite to what was predicted, it is still a step in the right direction in trying to combine the top-bottom and bottom-up processes. The significant interaction between salience and external orientation shows that characteristics of the stimuli influence the relationship between cognition and action and a concurrent consideration of top-down and bottom-up approaches. A major contribution of this study is the empirical testing of this interaction between the two processes. I am now able to show that cognition and salience interact to explain strategic decision-making and action. Future studies can delve deeper into the role of attention in competitive dynamics by exploring it as part of a wider set of cognitive factors in combination with a more diverse set of external factors linked to salience. Human agency, cognition, and decision-making are important factors in

competitive dynamics and organizational attention can help explain many of the linkages that explain why and how firms respond to competitive moves.

6-3 Implications for Managers

This dissertation also has implications for management practice. First, it offers insights for companies in developing structures, routines and processes. As I discussed, organizational structures and processes are an important contributing factor in activating and reinforcing some of these cognitive orientations. This is an important tenet of the attention based view of the firm (Ocasio, 1997). The fact that many studies in the psychology literature use techniques to prime individuals with prevention or promotion focus is an indication that they are to some degree dependent on the situation and environment. This is of course on top of the natural tendencies that are instilled through childhood and life experiences. By knowing the outcomes of promotion or prevention focus, companies can design structures and processes that strengthen one or the other. This is also true about external or internal orientation and organizations can use structures to emphasize one over the other. The results also illustrate the importance of organizational identity in the competitive dynamics process, specifically with regard to the likelihood of response. Based on the theoretical arguments presented in this dissertation and my results, firms are more likely to respond when they feel their perceived identity is under attack. This can be a double edged sword depending on whether elements of the identity domain are objectively related to performance or just perceived to be. Without an actual link to short and long-term performance, the organization might end up spending time and resources defending something that has nothing to do with performance.

The findings can also help organizations gain a better understanding of rivals and their actions. More importantly, managers might be able to predict a response or lack of response based on their knowledge of managers at competing firms. Anticipating the likelihood and speed of response is valuable knowledge that can help organizations plan and time their competitive moves. Finally, the findings can help organizations in hiring

and promotion decisions. By gaining a better understanding of cognitive orientations and mental models, they can hire or promote individuals that fit their competitive goals and objectives. This is also in line with Eggers and Kaplan (2009)'s argument that managerial cognition is a dynamics capability that can influence strategy and action. Hopefully, this study helps managers and decision makers gain a better appreciation for the role cognition and individual level differences play in competitive dynamics. It is necessary to conduct a detailed objective analysis of competition but the role of more subjective factors should also be anticipated when contemplating an action or response.

6-4 Limitations and Future Research

Before discussing the limitations, I would like to highlight a potential avenue for future research regarding some of the cognitive variables I used in this study. I conceptualized external/internal focus and prevention/promotion focus as cognitive orientations and argued that managers lean towards one or the other when the two are compared. As a result, I measure these orientations using ratio terms. Using this conceptualization and measurement, the manager's leaning (captured through comparison) towards one orientation, and not the absolute number for each orientation has been discussed and captured. A manager may potentially be low on both external and internal or high on both and have the same ratio since his/her orientation and leaning towards one compared to the other was important for my study. This does not mean the absolute number for each focus is not important. If a manager can be high on both internal and external or high on both promotion and prevention (more difficult) then he/she may act differently than a manager who is low on both. An important first step is to theoretically and methodologically determine if this is possible and what it means. This will determine if we can have a manager that is both promotion focus and prevention focus at the same time (as discussed by Lanaj, Chang, and Johnson (2012) and Scholer and Higgins (2008)) or pay a lot of attention to both the external and internal environments. Future research can look at these cognitive orientations in the absolute terms and also look at how they interact in explaining strategic outcomes.

Like any other research study, this dissertation has a number of limitations. Some of these limitations can form the basis of future research within this body of literature. The first limitation in this study is the absence of firm performance in the hypothesized model. Although studies in the competitive dynamics literature have shown that the characteristics of actions/responses do have performance implications (e.g., Ferrier, 2001; Hambrick et al., 1996; Smith et al., 1991), the link to performance is not present in all studies in this area. Since a large number of articles in strategic management use some measure of performance as the ultimate DV, future studies in competitive dynamics may consider looking at this multi-faceted variable in the context of behavioral strategy and competitive dynamics.

The second limitation of this dissertation lies in the fact that only two characteristics of competitive response have been discussed and tested. The likelihood and speed of response are two very important and widely examined dependent variables in the competitive dynamics literature but they do not capture all aspects of a response. Some other features such as the nature of response (the specific kind of action), intensity, and different combinations of actions are other possible dependent variables. Response intensity and type are particularly important since each category of competitive action requires a different level of effort, investment or time. The independent variables discussed in this dissertation and other potential factors can influence the intensity of a response to an attack. For example, if managers believe that a move is against their perceived identity, the type and intensity of response may be different compared to when the move falls outside their perceived identity domain. I invite researchers to incorporate other aspects of competitive actions in future studies to explore the role cognition plays in shaping those variables. Additionally, we can move beyond response and explore the role of cognitive orientation on initial competitive attacks and their characteristics.

This dissertation examines three specific cognitive orientations and their role in shaping the response to competitive actions. This is by no means an exhaustive list and there are numerous other idiosyncratic cognitive factors that may influence competitive dynamics. The psychology area looks at a variety of these cognitive orientations and by bringing them into the strategy field, there are endless opportunities for cross-disciplinary research

in behavioral strategy. Additionally, my study considers the three cognitive orientations as independent concepts. It is possible that perceptions of identity, regulatory focus, and internal/external orientation may have some degree of influence on each other. This requires further theoretical development and future research can explore this in more detail and examine hypotheses with this fact in mind.

The fourth limitation is related to how a response is associated with an initial action. Following the accepted procedure in the competitive dynamics literature (e.g., Hambrick et al., 1996; Marcel et al., 2011; Smith et al., 1991), I relied on media articles regarding the action/response dyad to identify which action is associated with an initial competitive move. Most of the original actions were identified by going backwards from the response. I also added a step by doing a less restrictive search for other possible responses to a specific action by other industry players which might have been missed in the original search. This procedure is based on a number of assumptions that might not necessarily reflect the reality of the situation and as a result, there might be doubts regarding the causal relationship between an action and subsequent response. For example, an action which is reported as or might seem to be a response to a specific competitive move might in fact be intended to serve another purpose. One can argue that it might be a case of simple technological advancement and adaptation which was planned regardless of the move by rivals. Although I used some judgement to minimize this effect, it still remains a possibility. I acknowledge this limitation but the methodology is largely similar to what has been done in prior competitive dynamics studies. Future research can look into finding ways to somehow clarify the true motives behind the responses and establish with better confidence if the move was in fact a response rather than a natural progression of activities. Interviews or questionnaires can gather information from industry experts or employees of the companies involved in the industry (not necessarily top level managers) and shed more light on this process. Additional industry specific sources such as World Cellular Information Service and Strategy Analytics SpecTRAX database used by Gaba and Joseph (2013) can also be used as additional sources to supplement the data and increase accuracy.

The fifth limitation of this study is that I assumed a degree of homogeneity within the TMT regarding decisions and perceptions of identity. Although arguments can be made for this assumption, there are also arguments against it. It is possible that top decision-makers have varying views regarding any issue. But in keeping with the assumptions of other studies in behavioral strategy, I emphasize the role of the top manager as the ultimate decision-maker. Numerous other researchers have analyzed the role of top executive cognition and the link to competitive and organizational outcomes. Although the CEO might not be directly involved in every single decision, the strong influence is present and studies have shown that decision-making can be attributed to the CEO (Chatterjee & Hambrick, 2007). Future studies can look into the differences among the top management team members' cognition and how that can influence the process of responding to competitive actions by rivals.

Future research can also look into how managerial cognition at various levels of the organization can influence competitive dynamics. For example, Gaba and Joseph (2013) have examined both the business level and corporate level aspiration gaps and how they influence the rate of new product introduction. Some of the decisions that lead to competitive actions might be made or at least initiated at the lower levels of the organization. Research can examine cognitive orientations of managers at various levels and their role in explaining actions and/or responses. This becomes even more interesting when there are differences between the levels and how these differences influence how strategic decisions are made. McMullen et al. (2009) have developed a conceptual model that looks at how differences in the regulatory focus between middle managers and top managers influence threat detection. Empirical studies in this area can deepen our understanding of the effects of cognitive orientations at various levels within the organization.

Finally, as mentioned in the section on generalizability, the results of this study can only be generalized to theory and/or across time and extending them to other industries can be problematic. I used data from the mobile phone manufacturing industry with its own unique set of characteristics that might be different to the dynamics of another industry. For example, slow moving industries with a very limited number of competitive moves

can also provide valuable information regarding the role of cognition in competitive dynamics. In these contexts, researchers can seek rich and in-depth data using qualitative techniques such as ethnographies to capture many nuances of the process. Results from these studies will be an invaluable addition to the behavioral strategy literature.

Future studies can also focus on developing new methodology and tools to measure cognitive orientations. The method used in this dissertation is time consuming and becomes extremely difficult when dealing with bigger datasets. In depth interviews are another viable option but they require access and effort from the respondents which becomes difficult when studying CEOs and senior managers. For example, if a study needs to evaluate the cognitive orientation of a few hundred CEOs, both the method used in this study and in depth interviews will not be feasible. Recent developments in artificial intelligence and sentiment analysis have produced tools that allow detection of moods, feelings, and thoughts in verbal communications. Computer programs can now scan vast amounts of text and measure emotional, cognitive and personality factors in a very short amount of time. There are numerous opportunities for this technology to be used in the study of cognition and managerial decision-making. By using intelligent search algorithms, researchers can detect and measure a wide variety of cognitive orientations in a large number of senior managers. This significantly increases our ability to test interesting hypotheses within behavioral strategy and competitive dynamics. Certainly something to look forward to.

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