An examination of the impact of diverse internationalization experience on organizational resilience and a test of the Resilience Architecture Framework

by

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Abstract

This research aims to improve our understanding of multinational enterprise (MNE) resilience by investigating potential sources of resilience and its performance implications. In particular, this dissertation focuses on two research questions that center on how processual aspects of internationalization affect MNE resilience development and the impact of MNE resilience on performance. Specifically, the research questions ask 1) *how the internationalization process contributes to the development of MNE resilience* and 2) to *what extent MNE resilience relates to performance?* In an effort to address these questions, I draw upon the organizational resilience, organizational learning, and internationalization performance literatures to develop a model of MNE resilience that hypothesizes relationships between internationalization experience, MNE resilience, and post-crisis MNE performance maintenance and performance recovery. Latent class analysis, logistic regression, and multiple analysis of covariance procedures were used to analyze data on 109 MNEs with operations in 123 countries. Results suggest that high magnitude of resilience MNEs tend to outperform low magnitude of resilience MNEs following a crisis event and that stakeholder moderate the relationship between magnitude of resilience and MNE performance. This research contributes to the literature by presenting a concept of MNE resilience, linking MNE resilience to performance, and empirically testing the Resilience Architecture Framework.

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Chapter 1. Introduction

1.1 Background

The acts of terrorism perpetrated on September 11, 2001 catalyzed a dramatic change in organizational resilience research (Linnenluecke, 2015). Despite origins in scholarly work that considered organizational responses to external threats (i.e., Staw, Sandelands, & Dutton, 1981; Meyer, 1982), the two decades prior to the attacks saw researchers largely focus on organizational responses to events originating inside the organization, such as operational disruptions and accidents (e.g., Perrow, 1984; Wildavsky, 1988). For instance, during the 1980s and 1990s, the concept of organizational resilience had the improvement of internal reliability of complex processes at its core (Linnenluecke, 2015). The attacks of September 11, however, threw the myopia of resilience research into stark relief against a backdrop of researchers' collective inattention to the deleterious impacts potentially wrought by elements external to the organization. A resultant cascade of real and perceived threats following the events of that day obliged resilience researchers to pivot away from a fixation on intra-organizational reliability and readjust their search for the keys to understanding resilience.

Having again been presented with their original thesis that consideration of externalities is a matter of consequence for understanding organizational resilience, researchers revisited the geneses of the field. Rather than forsake the gains made in

understanding internal reliability, though, researchers attempted to integrate a concept of adaptability that addressed organizational adjustment and improvement in accordance with new realities. Consequently, a central theme in the current organizational resilience research landscape seeks to synthesize the reliability and adaptability concepts (Boin & van Eeten, 2013; Kantur & Iseri-Say, 2012). This is seen in recent definitions of organizational resilience that emphasize remaining robust to threat while also adapting to environmental change (e.g., Gitell, Cameron, Lim, & Rivas, 2006; Ponomarov & Holcomb, 2009; Klibi, Martel, & Guitouni, 2010).

For the purposes of this dissertation, organizational resilience refers to the complex system responses to challenges that allow organizations to resist and recover from disruptions. Lengnick-Hall and Beck's (2005) notion of *resilience capacity* undergirds this definition of organizational resilience. Specifically, resilience capacity is an organizational level construct that describes collective behaviors and attitudes borne of "a unique blend of cognitive, behavioral, and contextual properties that increase a firm's ability to understand its current situation and to develop customized responses that reflect that understanding" (Lengnick-Hall & Beck, 2005; p. 750). The resilience capacity concept synthesizes previous definitions of resilience and posits that resilience plays a role at multiple levels within the organization (e.g., individual, interpersonal, organizational) while also considering the external environment. It recognizes that resilience is not only a function of individuals' intrinsic resilience but also of the relationships between discrete components that comprise the larger system of nested relationships (see Figure 1). For example, the resilience of interpersonal relationships is a consequence of each individual's resilience and the resilience of the routinized

Figure 1: A Nested Model of Organizational Resilience
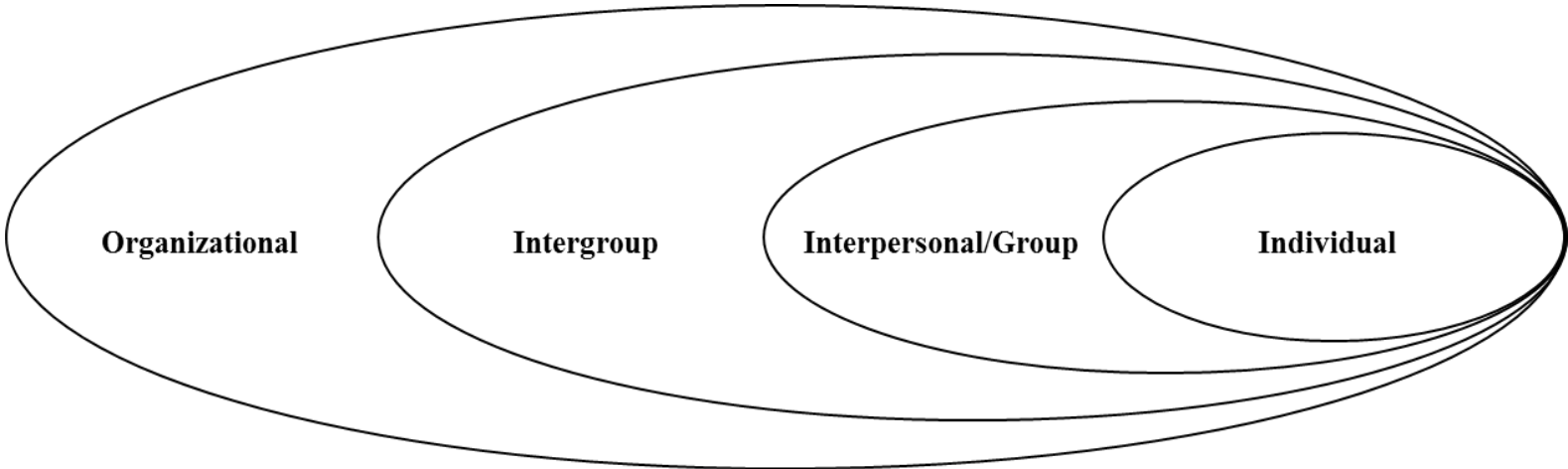
interaction between individuals. Similarly, intergroup resilience is more than the sum of each group's resilience; it is also a function of the intergroup dynamic. For instance, while an organization's executive management team may be comprised of resilient individuals that have developed resilient interpersonal routines, the ways in which the top management team interacts with other organizational groups (e.g., board of directors) may also contribute to organizational resilience.

The shift in research focus has been accompanied by calls to consider organizational resilience as an important element of organizational strategy (Annarelli & Nonino, 2015; Lampel, Bhalla, & Jha, 2014; Sheffi & Rice, 2005). The ability of an organization and its members to maintain critical functions during a threatening event (Coutu, 2002; Staw, Sandelands, & Dutton, 1981) and rebound afterward (Luthans, 2002) is critical for organizational survival (Kantur & Iseri-Say, 2012) which is the ultimate measure of organizational performance and a prerequisite for future performance. Thus, given its apparent, yet poorly understood, connection with performance, organizational resilience may be a key antecedent to the outcome variable of principal concern for strategic management scholars and management practitioners. Indeed, a recognition of its importance has helped drive a near ten-fold increase in business and management publications focused on resilience in the past decade (Linnenluecke, 2015).

Some progress has been made since the influential originating works of Staw, Sandelands, and Dutton (1981) and Meyer (1982) that highlighted the key resilience concepts of reliability and adaptability. Evidence suggests that during the last three and a half decades, organizational resilience scholars have reached consensus regarding the core foundations and characteristics of resilience (Annarelli & Nonino, 2015). There also

seems to be agreement that resilience is not only about organizational reliability or adaptability but is instead a function of both. Now in its fourth decade, organizational resilience research continues to advance in important ways. Nevertheless, important areas and key relationships remain in need of investigation.

1.2 Knowledge Gaps in Organizational Resilience Research

The long history of interest in organizational resilience notwithstanding, research in the area remains disjointed and underdeveloped (Kantur & Iseri-Say, 2012; Linnenluecke, 2015). To the first concern, synthesis of recent literature reviews suggests that scholars have established seven broad research streams which are often treated in isolation from one another: organizational preparedness, internally-focused organizational response, externally-focused organizational response, organizational reliability, organizational adaptability, supply chain operability, and employee resilience (Annarelli & Nonino, 2015; Bhamra, Dani, & Burnard, 2011; Linnenluecke, 2015). Failure to develop linkages between streams perpetuates disjointedness and forestalls advancement of a more holistic, multifaceted, integrated understanding of organizational resilience.

Two issues speak to the second concern of research remaining underdeveloped. First, organizational resilience research has been criticized for having weak, conceptually fragmented theoretical foundations (Boin & van Eeten, 2013; Linnenluecke, 2015). Extant literature is characterized by conceptual works whose incoherence leaves fundamental questions unanswered. For example, a review of the literature suggests that scholars have yet to approach a meaningful level of unanimity regarding the development

of organizational resilience (Bhamra, Dani, & Burnard, 2011) or the competitive and strategic advantages it might offer (Lampel, Bhalla, & Jha, 2014; Sheffi & Rice, 2005). Second, a distinct lack of empiricism has slowed development (Sutcliffe & Vogus, 2003). As a consequence there is scant evidence that can be leveraged to support or refute the various conceptualizations of organizational resilience, its antecedents, or its associated outcomes (Kantur & Iseri-Say, 2012). The current state of resilience research led Boin and van Eeten (2013; p. 430) to flatly state, "In fact, we do not really know what causes resilience or how it is achieved."

Such appraisals of organizational resilience research have prompted calls to address these limitations. For instance, scholars suggest that resilience be treated as a strategic concern and encourage work that establishes a clearer link between organizational resilience and strategic management (Kantur & Iseri-Say, 2012; Starr, Newfrock, & Delurey, 2003). Indeed, resilience may be a key element in organizations' competitive repertoires with the capacity to offer distinct advantages. In addition, situating organizational resilience in a strategic management context may provide the frameworks necessary to progress beyond its currently incoherent conceptualizations.

Relatedly, it is important to establish a more concrete relationship between resilience and performance (Kantur & Iseri-Say, 2012). Given the emphasis that organizations place on performance, it follows that this should be an area of primary concern. Better understanding this foundational relationship could provide the basis for considering the impact of additional intervening variables that vary the strength of the relationship between organizational resilience and performance. It may also provide a foundation for investigating the moderating or mediating role of resilience itself.

Finally, researchers should empirically test current organizational resilience perspectives with a particular focus on organizational designs that foster resilience, resilience implementation, and improvement processes that enhance resilience (Annarelli & Nonino, 2015). Allowing resilience to develop serendipitously is an ill-advised approach given its presumptive impact on organizational survival and performance. Thus, empirically testing proposed relationships concerning the development, improvement, and activation of organizational resilience is a critical step if research is to move forward.

1.3 Organizational Resilience in a Multinational Context

A primary focus of strategic management research is to understand the antecedents and outcomes of corporate-level strategy. Organizational scope is a fundamental dimension of corporate strategy, of which, the extent of internationalization is an important aspect (Fréry, 2006). Furthermore, the trend toward increased globalization often compels organizations to develop an international footprint in order to remain competitive. While operating in an international context expands opportunities it also presents organizations with unique challenges. On one hand, the access to resources offered by large networks may provide significant opportunities to build resilience beyond that afforded in a single country context. On the other hand, organizations operating across national borders are exposed to a wider range of external threats and may be more susceptible to exogenous shocks given the breadth of their relationship networks spread across multiple operating environments. Despite the implication that resilience may be of particular concern for multinational enterprises (MNEs), it does not appear to have prompted a thorough treatment of MNEs' organizational resilience in the

strategic management, international business, or organizational resilience research literatures.

Scholarly attention to internationalization developed on the heels of a wave of globalization that began in earnest in the 1980s. It was driven in large part by reductions in barriers to trade, advancements in technology, convergence in consumer spending behavior across countries, and falling transportation costs (Wiersema & Bowen, 2011). Researchers, therefore, sought to understand the extent to which increased international scope is related to performance (Hennart, 2011). Even though internationalization is associated with both increased benefits as well as increased costs, common wisdom reflects the belief that the former generally outweighs the latter (Hennart, 2011; Ruigrok & Wagner, 2003). The relationship between internationalization and performance is typically thought to be positive. Yet, among those arguing for the existence of a systematic relationship, there remains a lack of consensus as to its precise nature (Wiersema & Bowen, 2011). The present state of the discussion suggests a nonlinear, three-stage, S-curve model of internationalization (see Figure 2). In this model, performance declines at low levels of internationalization, then improves, and finally reaches a point of diminishing returns at high levels of internationalization (Hitt, Tihanyi, Miller, & Connelly, 2006; Lu & Beamish, 2004; Marano, Arregle, Hitt, Spadafora, & van Essen, 2016; Thomas & Eden, 2004). Alternatively, though, some argue that at the construct level the degree of internationalization and performance are unrelated (Hennart, 2011). Despite four decades of attention from researchers, the nature of this critical relationship remains one of the great unresolved questions in strategic management and international business research.

Figure 2: Generic S-Curve Model of Internationalization Performance
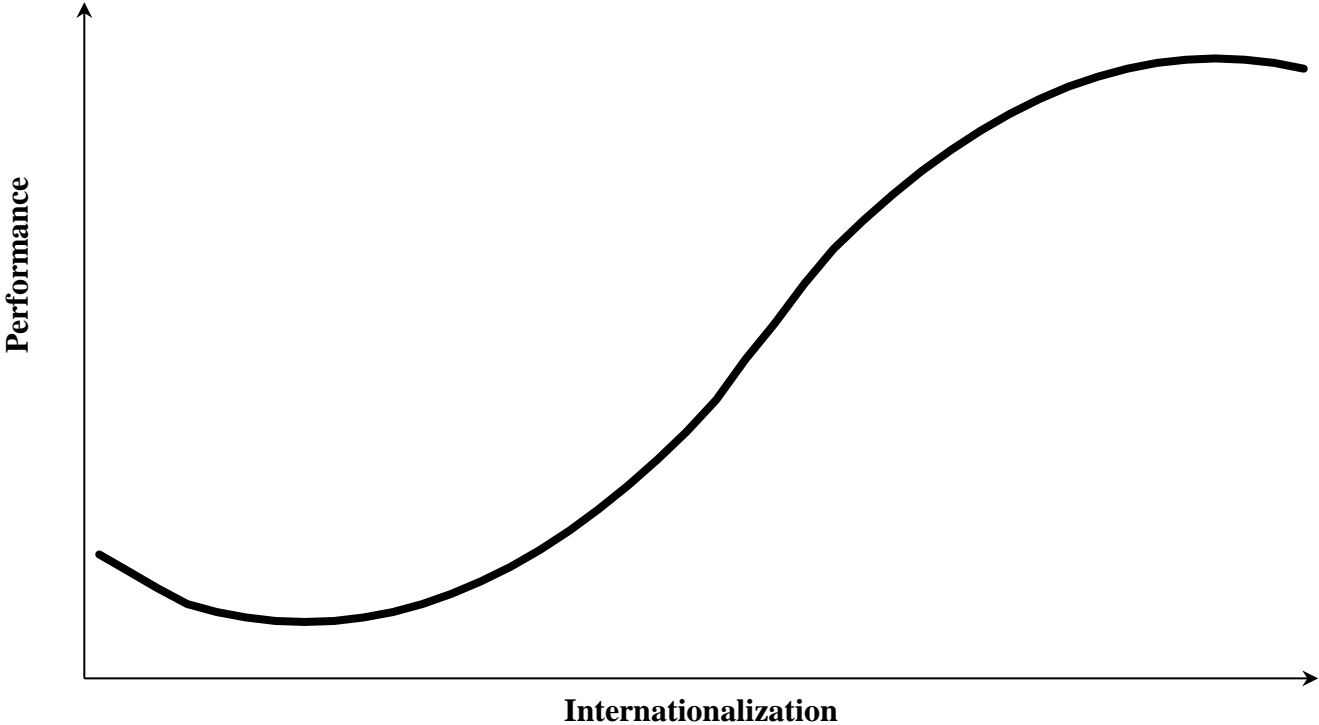
The explanatory mechanisms said to undergird the internationalization-performance relationship are varied and include economies of scope and scale, differences in market power tied to network relationship structures, degree of organization-environment fit, and influence of home country institutions (Hennart, 2011; Marano et al., 2016; Wiersema & Bowen, 2011). In addition, evidence suggests that several factors may moderate the internationalization-performance relationship including product diversification, country of origin, and slack resources (Bausch & Krist, 2007; Hsu, 2006; Yang & Driffield, 2012). Organizational learning facilitated by internationalization is also proposed as a source of superior MNE performance.

As a central feature of behavioral theories, organizational learning has developed a rich and varied research literature over the past five decades (Cyert & March, 1963; Dodgson, 1993). Organizational learning is a dynamic process that builds and organizes knowledge around organizational activities (Dodgson, 1993). Organizations learn in a variety of ways and frequently do so through the experience accumulated while carrying out organizational activities (Dodgson, 1993). Learning through experience can occur at different rates, be intentional or unintentional, and result from direct or indirect experience. Management literature generally treats learning as a goal-directed effort to develop and maintain competitiveness (Dodgson, 1993), however, learning is initiated by both internal and external factors in a complex, ongoing, and iterative dynamic. Therefore, some researchers posit that knowledge acquired through experiential learning is most often unintentional and unsystematic (Huber, 1991).

Regardless of the intentionality of knowledge acquisition, prior experience shapes the way organizations respond to subsequent experiences (Sutcliffe & Vogus, 2003). That

is, learning from past experiences shapes organizations' interpretations of, and responses to, future challenges, and by extension sets the stage for what the firm might learn from those future experiences. Lessons learned in the past form the basis for present knowledge acquisition; similarly, knowledge acquired in the present provides the basis for knowledge acquisition in the future. In essence, organizational knowledge is likely not only a function of what the organization and its members know but also when they come to know it (Eriksson, Majkgård, & Sharma, 2000). This suggests that there may be a path-dependent aspect to organizational learning such that learning from prior experiences shapes the way organizations interpret and respond to subsequent events.

The notion of path-dependency is at the heart of many behavioral models of internationalization (Forsgren, 2002). According to Sydow and Koch (2009) and Schreyögg and Sydow (2011) organizational path dependency refers to a process in which historical events have the capacity to transform into self-reinforcing dynamics that result in organizational lock-in. In this way, patterns of behavior exhibited by internationalizing organizations are likely a function of past internationalizing experiences (Eriksson, Majkgård, & Sharma, 2000). Adopting a path-dependent perspective of internationalization highlights the likelihood that, as the paths of internationalization themselves differ, so too might the outcomes associated with MNE learning during the internationalization process. By extension, applying a path-dependent experiential learning perspective to the development of organizational resilience suggests that levels, or perhaps even types of resilience, may differ between organizations. Furthermore, the frequency with which lessons are reinforced through repetition may also impact learning (Nadolska & Barkema, 2007). Thus, content is not the only important

aspect of learning; instead, learning is also influenced by the recurrence of learning opportunities. This implies that learning outcomes associated with MNEs' internationalization activity may be dependent on what is experienced and the frequency with which the organization has the experience.

Evidence suggests that learning through experience makes a substantial contribution to organizational effectiveness. Indeed, despite the lack of intentionality in a majority of instances involving experiential learning, experience consistently predicts both survival and performance (Huber, 1991). However, Huber (1991, p. 89) also notes, "Learning does not always lead to veridical knowledge." When organizations learn what they learn, as well as how frequently the lessons are revisited, each impact the outcomes of learning, including their efficacy. Consequently, to the extent that one or more of these critical aspects of learning through the internationalization experience vary, the outcomes associated with those learning experiences may also vary. Thus, learning outcomes associated with internationalization can be as diverse as the knowledge acquisition processes themselves.

The benefits of organizational learning are believed to be many and varied, if difficult to define or predict. A recurring theme in support of the benefits of learning that accrue to organizations is improved efficiency and a greater capacity to adapt (Dodgson, 1993; Ouedraogo & Boyer, 2012). Organizations survive and thrive by maintaining and becoming more proficient at leveraging some necessary organizational functions while also adapting others to better suit the constantly changing environment. This adaptation requires that organizations balance the need for growth and adaptation with the need to sufficiently develop competence in employing previously acquired knowledge in the

form of organizational activity (Penrose, 1959; Sutcliffe & Vogus, 2003). This point is particularly salient for MNEs as growth often means expanding operations to new national contexts with idiosyncratic institutional environments.

Challenges arising from the need to coordinate growth and adaptation with competence across national borders introduces an additional layer of complication in an already complex organizational environment (Nadolska & Barkema, 2007). As MNE's develop competence and expand their behavioral repertoires through internationalization, they likely shape themselves into organizations with the capacity to remain robust to environmental challenges while also adapting to new environmental realities. That is, while learning through internationalization may provide MNEs with raw material to increase competitiveness, resilience is a manifestation of the knowledge acquired through organizational experiences. In other words, increased resilience is a potential outcome of organizational learning. As a result, the internationalization process itself may provide MNEs with the learning opportunities necessary to develop resilience in the form of increased reliability and adaptability.

Internationalization can provide access to critical tangible resources and afford important opportunities to develop intangible knowledge and capabilities. It also allows firms to disperse risk and access a greater diversity of knowledge (Kim, Hwang, & Burgers, 1993). Learning via the internationalization process provides the basis for developing knowledge and capabilities that contribute to an organization's ability to remain robust to external threat and adapt to new environments. This provides the impetus for the first research question guiding this dissertation. Specifically, *how does the internationalization process of MNEs contribute to the development of MNE resilience?* I

address this research question by considering the role that processual aspects of internationalization play in building MNE resilience. In particular, I examine how the types of experience gained by internationalizing organizations, as well as the frequency of internationalization activity, influence the development of MNE resilience.

Calls for researchers to view organizational resilience as a strategic concern and empirically link it to performance outcomes (Lampel, Bhalla, & Jha, 2014; Sheffi & Rice, 2005) prompts the second research question addressed in this work. Specifically, *to what extent is MNE resilience related to performance?* Huber's (1991) sentiment regarding the veridicality of learning may extend to experiential learning that undergirds MNE resilience. It implies that some MNEs may develop a level or type of resilience that provides performance advantages while others may not. I approach this final research question by examining the relationship between MNE resilience and organizational performance following a crisis event. In so doing, I leverage the Resilience Architecture Framework developed by Limnios, Mazzarol, Ghadouani, and Schilizzi (2014) as a structure for assessing organizational resilience. The framework presents a two-dimensional typology of resilience that characterizes organizations as having one of four resilience archetypes labeled as rigid, adaptable, transient, or vulnerable. I also parse post-crisis performance into maintenance and recovery dimensions that may reveal meaningful insights about the ways in which resilience affects organizational performance. To summarize, the two research questions guiding the present work consider 1) how processual characteristics of internationalization contribute to the development of MNE resilience and 2) how resilience influences MNE performance (see Figure 3).

Figure 3: Conceptual Model of MNE Resilience
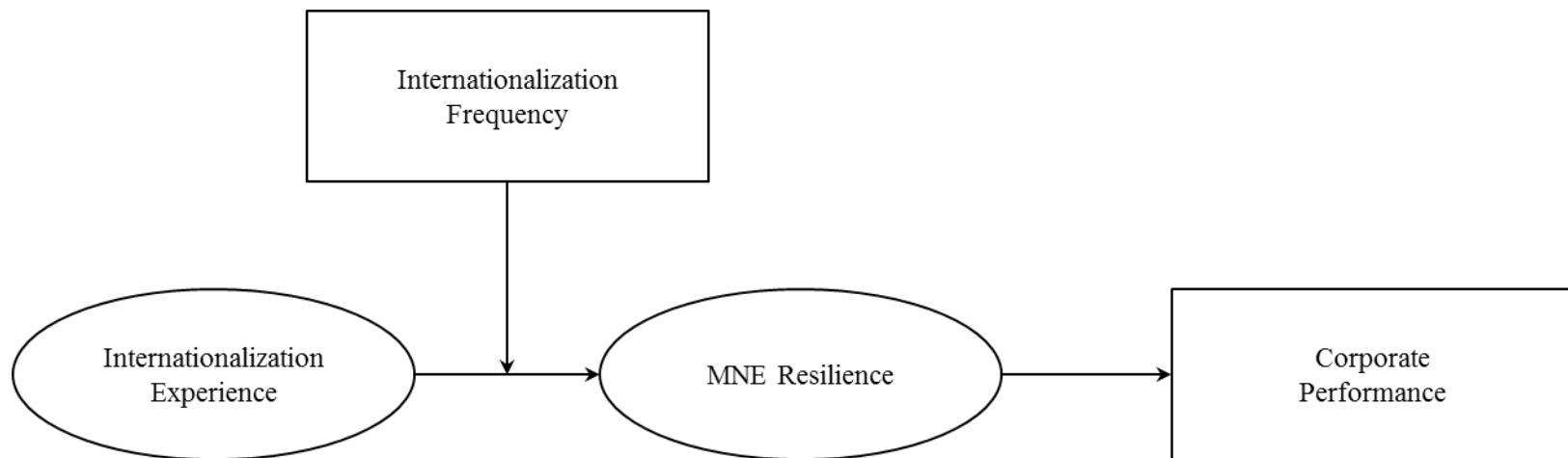
1.4 Contributions to the Literature

Addressing the two research questions presented above attempts to make several contributions to the organizational resilience literature. First, it seeks to enhance conceptual clarity regarding how MNEs develop organizational resilience during the internationalization process. By leveraging a process as fundamental to management as organizational learning to explain the development of resilience, this work grounds resilience in a well-establish, much-developed area of strategic management research. In so doing, it examines how organizational resilience develops through experiential learning that occurs during MNEs' internationalization processes. Therefore, this work moves toward addressing the concerns of Boin and van Eeten (2013) and others that note our collective ignorance regarding the antecedents of organizational resilience.

A second contribution to the organizational resilience literature is the introduction of a MNE resilience concept wherein resilience is developed through internationalization experience. As previously mentioned, despite the particular relevance of organizational resilience for MNEs, there is currently no apparent discussion of MNE resilience in the research literature. By investigating a key distinguishing feature of the MNE, its internationalization activity, this work offers a theoretical extension of the organizational resilience concept.

This research also seeks to make three empirical contributions to the organizational resilience literature. First, it empirically investigates the development of organizational resilience by capturing both content- and process-related aspects of experiential learning during the internationalization process. Second, it empirically tests a recent conceptualization of organizational resilience in a multinational context. Third, it

tests the impact of different forms of resilience on performance answering calls to do so by Kantur and Iseri-Say (2012) and others.

Finally, taken together, this dissertation makes an additional contribution to the broader organizational resilience literature. Namely, it begins to link disparate, disjointed research streams by considering, in a single work, three of the seven streams mentioned previously in this chapter. In particular, this research attempts to bring together the streams of organizational preparedness, organizational reliability, and organizational adaptability then empirically tests an integrated model. Through efforts such as this that we might combat the oft-lamented fragmentation found in the resilience research literature (Annarelli & Nonino, 2015).

1.5 Summary of Remaining Chapters

In Chapter 2 of this dissertation, I review the organizational resilience literature and research examining the internationalization-performance relationship. The review primarily focuses its attention on the theoretical perspectives leveraged, methods used to investigate phenomena of interest, and research outcomes with a primary goal of identifying central issues in organizational resilience research (Cooper, 1988). Though the concept of resilience has been leveraged in a number of different disciplines, it is important to distinguish the roots of organizational resilience from other areas of research because these beginnings play a significant role in shaping subsequent development. Thus, the chapter is organized as a historical-conceptual review (Cooper, 1988) and divided into five sections starting with the concept's origins in the field of ecology. The first section also reviews foundational elements of the concept as they were introduced to

the organization science literature. The second section traces the evolution of the organizational resilience concept as it extends beyond its conceptual core and becomes increasingly complex and nuanced. Here, the social infrastructure of resilience is examined as is the initial shift toward conceptual integration. This section concludes by highlighting work that focuses on pre- and post-disturbance periods and resilience processes. The third section summarizes the current state of the organizational resilience concept and emphasizes a trend toward more comprehensive and integrative theorizing. The fourth section provides a review of the limited empirical organizational resilience research wherein a review of antecedents, outcomes, and methods of investigation is provided to reveal gaps in the extant body of knowledge. Finally, the fifth section provides a conceptual review of the internationalization-performance relationship by selectively summarizing the most prominent perspectives and key empirical findings. The purpose of this portion of the review is to identify central concerns raised in the literature and provide a context within which organizational resilience can be examined (vom Brocke, Simons, Niehaves, Reimer, & Cleven, 2009; Cooper, 1988).

Chapter 3 develops a model of MNE resilience that moves toward addressing this dissertation's two guiding research questions. Arguing from an organizational learning perspective that differences in the diversity and frequency of MNE efforts to expand abroad underlie differences in MNE learning, the model posits that internationalization experience contributes to the development of MNE resilience. Further, the model relates the four archetypal forms of resilience presented by Limnios et al.'s (2014) Resilience Architecture Framework to performance. A series of testable hypotheses derived from the model are also presented.

Chapter 4 details the methodology used to test the proposed model. First, the overarching research strategy is presented, then data sources and the process of data collection is summarized. Next, measures used to approximate the variables and a description of the statistical analysis techniques used to test the hypothesized relationships of interest concludes the fourth chapter. Chapters 5 and 6 present and discuss the analysis results.

Chapter 2. Literature Review

More than a decade ago, Gary Hamel and Liisa Välikangas (2003) declared of organizations that "…continued success no longer hinges on momentum. Rather, it rides on resilience" (p. 53). Their declaration foreshadowed a dramatic increase in scholarly publications focused on organizational resilience that continues today (Annarelli & Nonino, 2015; Linnenluecke, 2015). The wave of interest in, and attention to, organizational resilience is driven by a need to better understand how organizations can persist in complex, unpredictable environments often characterized by non-incremental change. Challenges associated with complexity and unpredictability often arise out of the evolving realities of increased interdependence, as well as financial, technological, and socio-economic discontinuities (Linnenluecke, Griffiths, & Winn, 2012). Approaches to addressing these challenges have involved various conceptualizations of organizational resilience including those focusing on different levels of analysis, antecedents, and outcomes, as well as mechanisms for the development and activation of organizational resilience.

This chapter reviews a selection of organizational resilience literature with the primary objective of identifying the conceptual origins of the construct, explicating its evolution, and describing the current research landscape. This is done by way of a historical review of management and organization literatures that focuses narrowly on the conceptual heritage and development of organization-level resilience. In addition to the

principal objective of tracing the conceptual lineage of organizational resilience, this review fulfills a secondary goal of summarizing the small but growing body of empirical research. This is done through a review of qualitative and quantitative studies examining various aspects of organizational resilience and relating them to the conceptual elements for which they provide support. Thus, this review provides a holistic view of extant literature that recognizes gains while also revealing gaps in our collective understanding of organizational resilience. Table 1 and Table 2 provide a selective summary of the key works reviewed in this chapter.

Finally, it is important that the organizational resilience concept be appropriately situated in the research setting leveraged in this dissertation (i.e., MNE internationalization). As such, this chapter concludes with a selective review of research literature that examines the relationship between organizations' internationalization activity and associated performance outcomes. The purpose of this portion of the chapter is to more thoroughly ground the present work in a multinational context. After reviewing the most prominent internationalization-performance (I-P) perspectives, the chapter closes with a brief discussion of the potential importance of MNE internationalization for developing organizational resilience.

Table 1: Summary of Key Organizational Resilience Literature

Author (Year)	Major Findings/Contributions
Holling (1973)	Uses ecological theory and systems theory to propose that ecological systems be defined according to properties of stability and resilience; prompted shift in focus away from seeking equilibrium system states and toward persistence of relationships found in the system.
Staw, Sandelands, & Dutton (1981)	Examines the threat rigidity response of firms facing adverse circumstances; found that organizations centralize control and constrain information processing when their vital interests are threatened.
Meyer (1982)	Investigates how organizational adaptation to exogenous shock contributes to resiliency and retention; proposes that organizational response to threat stems from the interplay between organizational characteristics and the nature of threat.
Sitkin (1992)	Juxtaposes the benefits of failure with the liabilities of success and proposes that failure encourages experimentation, increases variation in organizational responses, and is essential to learning.
Weick (1993)	Proposes four organizational characteristics (i.e., improvisation and bricolage, virtual role systems, respectful interaction, attitude of wisdom) that are critical to preventing organizational collapse amid crisis situations.
Weick, Sutcliffe, & Obstfeld (1999)	Presents an emergent framework that arises out of a focus on failure rather than success and reliability rather than efficiency; the focus encourages collective mindfulness and makes it possible for the organization to remain reliable while adapting to circumstances.

Table 1 (continued): Summary of Key Organizational Resilience Literature

Author (Year)	Major Findings/Contributions
Rudolph & Repenning (2002)	Distinguishes between organizational crises borne of novel events for which the focal organization has no appropriate response and those brought about by an overwhelming quantity of mundane events; demonstrates that non-novel events can overwhelm an otherwise resilient organizational system.
Staber & Sydow (2002)	Introduces the concept of adaptive capacity which refers to a firm's ability to continuously develop and apply new knowledge in ways that are sustainable and difficult to imitate by competitors.
Kendra & Wachtendorf (2003)	Provides empirical support for the importance of experience, preparation, training, and flexibility for resilience amid crisis; suggests that both the crisis and its context are instrumental in crisis resolution.
Sutcliffe & Vogus (2003)	Introduces the developmental resilience perspective wherein organizational resilience is developed via repeatedly addressing challenges over time; define resilience as enabling positive adjustment.
Lengnick-Hall & Beck (2005)	Proposes that organizations cope with environmental instability by attempting to exploit environmental changes to create new opportunities and develop new capabilities; introduces concepts of robust transformation and resilience capacity.
Gittell, Cameron, Lim, & Rivas (2006)	One of the earliest studies to leverage archival firm-level data; results suggest that relational reserves, financial reserves, and business model viability are important for post-crisis recovery.

Table 1 (continued): Summary of Key Organizational Resilience Literature

Author (Year)	Major Findings/Contributions
Carmeli & Markman (2011)	Analyzes the Republic of Rome's establishment period to develop a strategy-tactic framework incorporating the overarching strategies of capture and governance.
Ouedraogo & Boyer (2012)	Finds that financial, management, and strategic governance are important elements for resilience.
Boin & van Eeten (2013)	Introduces concepts of precursor resilience and recovery resilience.
Limnios, Mazzarol, Ghadouani, & Schilizzi (2014)	Presents a framework of organizational resilience that explicitly distinguishes between organizational characteristics and environmental characteristics; allows for the dual manifestation of persistence.
Ortiz-de-Mandojana & Bansal (2015)	Examines the relationship between sustainable business practices and organizational resilience; organizations employing sustainable practices experience less volatility and stronger recovery.

Table 2: Summary of Key Internationalization – Performance Relationship Literature

Author (Year)	Major Findings/Contributions
Johanson & Vahlne (1977)	Introduces the Uppsala Model of internationalization which explains and predicts the mode and pattern of the internationalization process of MNEs; key characteristic is incrementalism and is built upon the interplay between knowledge development about foreign markets and gradually increasing commitments abroad.
Dunning (1988)	Presents Eclectic Model of internationalization which predicts the extent, form, and pattern of internationalization; centers on the ownership, location, and internalization advantages MNEs find and exploit in international markets.
Ruigrok & Wagner (2003)	Proposes an organizational learning perspective to explain the nature of the internationalization-performance relationship; presents meta-analytic results that suggest a non-linear U-form relationship between internationalization and performance.
Bausch & Krist (2007)	Confirms through meta-analysis that the impact of internationalization on performance is significant but small; identifies five important moderators of the internationalization-performance relationship as research and development intensity, product diversification, country of origin, firm age, and firm size.
Wiersema & Bowen (2011)	Challenges the overly simplistic approach to understanding the internationalization performance relationship and presents a more complex and nuanced perspective; highlights managers' focus on the geographical dispersion of the entire value chain.
Oesterle & Richta (2013)	Juxtaposes two prevailing views of internationalization-performance relationship (i.e., there is no systematic relationship; 3-stage general theory).

2.1 Conceptual Origins of Organizational Resilience

Perspectives on resilience have evolved since the concept was introduced into the social and organizational sciences. Resilience research in the social sciences is rooted in developmental psychology (Bonanno & Diminich, 2013) and originally focused on *individuals'* ability to remain robust to, and especially to recover from, challenging events (Rutter, 2006). Thus, research attention in the social sciences was distinctly concentrated on the resilience of the individual when exposed to a stressful environmental context (e.g., Wilson, 1985). In the organizational sciences, however, resilience research has tended to focus on the *system*, of which the individual is a part, rather than exclusively on the individual (van der Vegt, Essens, Wahlström, & George, 2015). As mentioned previously, the implication is that resilience is not only a function of the individual's intrinsic resilience but also of the relationships between discrete components that comprise the larger system of nested relationships.

Organizational resilience research can trace its roots to the study of ecological systems and the influential work of Holling (1973). Holling's research initiated a shift in focus away from seeking equilibrium system states and toward persistence of relationships found within the system. Leveraging both ecological theory and systems theory, Holling (1973) proposed that ecological systems lend themselves to definition in accordance with the distinct properties of *stability* and *resilience*. Stability refers to "the ability of a system to return to an equilibrium state after a temporary disturbance" (Holling, 1973; p. 14). A system is considered stable to the extent that it minimizes fluctuations resulting from the disturbance, as well as the rapidity with which it returns to equilibrium. Alternatively, resilience refers to the ability of a system "to absorb change

and disturbance and still maintain the same relationships between populations or state variables" (Holling, 1973; p. 14). In this case, a system exhibits resilience to the extent that it is able to maintain critical relationships during turbulent events. This perspective posits that these properties are critical determinants of system persistence in the context of a constantly changing environment when random events profoundly affect ecological systems. In the event that a system is unable to strike an appropriate balance given the changes taking place in the environment, so goes the logic, the probability of extinction increases accordingly. In this conceptualization, the properties of stability and resilience, and the balance between them, arises out of systems' evolutionary histories and the array of fluctuations faced by the systems over time (Holling, 1973).

Bibliometric analyses (e.g., Annarelli & Nonino, 2015; Linnenluecke, 2015) suggest that the concept of organizational resilience made its way into the management literature via two key works published in quick succession during the early 1980s. The works of Staw, Sandelands, and Dutton (1981) and Meyer (1982) laid down the contours of the organizational resilience concept that continue to persist today. Specifically, in the tradition of ecology research, the former leverages the concept of *stability* to examine the responses of firms threatened by adverse circumstances. Stability refers to an organization's ability to resist disturbance and maintain critical functions so as to remain effective when threatened. Adopting a multi-level lens, it is proposed that when organizations perceive that their vital interests are threatened, they will react by centralizing control and constraining information processing as they attempt to preserve those functions and relationships vital to organizational survival (Staw, Sandelands, & Dutton, 1981). Here, control refers to decision making authority while information

processing refers to the ways in which decisions are made and implemented. Constriction of control and restriction of information push the organization toward a more mechanistic, as opposed to organic, form (Zanzi, 1987). The organization subsequently becomes less flexible which the authors argue may prove to be an efficacious response provided the threat does not entail a substantial change in the organizational environment. If, on the other hand, the threat is associated with a major change in the environment, the tendency to respond rigidly may prove dysfunctional. In essence, by restricting information processing and centralizing control, organizations forgo the opportunity to seek out novel approaches to survival in the changed environment and may limit their chances for survival as a result. An important implication is that the functionality of the threat-rigidity response may depend on the nature of the threat.

Perhaps appreciating that the efficacy of an organization's response to threat stems from an interplay between organizational characteristics and the nature of the threat itself, Meyer (1982) adopted a different perspective on organizational responses to threat. Using a qualitative approach, this study examined organizational *adaptation* to exogenous shock by considering the role of critical organizational antecedents. Adaptation refers to adjustments made by organizations in an effort to accommodate environmental change. More specifically, strategic, structural, ideological, and resource-based characteristics of hospitals facing a doctors' strike were considered to investigate organizational adaptation. Meyer (1982) subsequently proposed a conceptual model that centers on adaptation through learning. The model proposes that when organizations are faced with an "environmental jolt" they select and interpret information about the changed environment in accordance with prevailing organizational strategies and

ideologies. They then respond using available resources, however, the deployment of resources to meet the challenges presented by the threat is constrained by current structures. This implies that organizations' behavioral repertoires are limited not only by available resources but also by the structures in place to leverage the resources that are available. The model outcomes are *resiliency* and *retention* where resiliency refers to organizational absorption of impacts wrought by the jolt while retention refers to positive adjustment brought about by organizational learning during the event. Importantly, this suggests that not all sudden environmental shocks should be considered threats to organizational well-being. Thus, it is instead argued that "sudden changes are ambiguous events that also benefit organizations" (Meyer, 1982; p. 535). Additionally, consideration of organizational resilience was extended to encompass the time preceding and following the shock by considering existing organizational characteristics and positive organizational adjustment, respectively.

Sitkin (1992) built upon the notion of learning as a key to organizational adaptation. Failure is more than just beneficial for learning; failure, it is argued, is absolutely essential. By juxtaposing the benefits of failing with the liabilities associated with success, Sitkin (1992) posited that failure encourages experimentation and increases variation in organizational responses. Success, on the other hand, lulls organizations into complacency, leads them toward risk-aversion, restricts their efforts to seek out new information, and encourages homogeneity. In essence, when organizations discover an approach that proves successful, they are more likely to continue leveraging that approach with a focus on learning to implement it particularly well. Thus, success fosters reliability. Alternatively, learning from failure is a more effective approach to fostering

resilience. Gaining experience in challenging situations resulting in small failures better

prepares organizations to survive novel challenges in the future (Sitkin, 1992). These

small, varied failures increase the variation in an organization's potential response

repertoire and consequently reduce the likelihood it will choose a threat-rigidity response

option of the type elucidated by Staw, Sandelands, and Dutton (1981).

Organizations must, therefore, strike a balance between developing reliability

through learning from success and developing resilience by learning from failure. This

reflects a similar sentiment articulated by Wildavsky (1988) wherein "stability signifies a

return to its original state after a system…has been subject to perturbation" (p. 112) while

"resilience is the capacity to cope with unanticipated dangers after they have become

manifest, learning to bounce back" (p. 77). Stability, which Sitkin refers to as *reliability*,

focuses on resisting disturbance-induced pressures and maintaining organizational

function; in the event that maintenance is not possible, the focus turns toward returning to

the previous state as quickly as possible. *Resilience*, on the other hand, accommodates

disturbance-induced pressures which allows the organization to persist in an altered state

(Sitkin, 1992; Meyer, 1982). *Retention* goes even further and refers to a situation in

which organizations leverage disturbance-induced pressures so as to capitalize on them

and become an improved organization (Meyer, 1982). These three outcomes, together

with organizational learning, form the foundation upon which much subsequent

organizational resilience research is built.

2.2 Evolution of the Organizational Resilience Concept

During the earliest days of organizational resilience research, the conceptual

terrain was quite navigable. A handful of initial studies conducted during the 1980s and

very early 1990s brought the key resilience concepts of *reliability*, *adaptability*, and *learning* into the organizational research literature and offered a point of departure for future studies. Although the amount of research that focused on organizational resilience remained small throughout the 1990s, scholars began to provide more and increasingly nuanced perspectives of organizational resilience (Annarelli & Nonino, 2015; Linnenluecke, 2015). While the characteristic of interest still tended to be reliability (e.g., Weick, Sutcliffe, & Obstfeld, 1999), the concept of adaptability started to feature more prominently (e.g., Weick, 1993). Research during this period seems to have foreshadowed the shift in scholarly attention that would unfold in the years that followed.

In a classic study of the relationship between resilience and sensemaking, Weick (1993) introduced four organizational characteristics argued to be integral for preventing organizational collapse amid crisis situations. In an attempt to explain what leads to organizational disintegration and how organizations might become more resilient, it is proposed that *improvisation* and *bricolage*, *virtual role systems*, maintaining *respectful interaction*, and having an *attitude of wisdom* are key to preserving organizational functions when faced with a crisis (Weick, 1993). Improvisation and bricolage refer to the need for organizations to have the creativity and expertise to cobble together solutions to problems with whatever resources are available. Of course, the more resources and experience an organization has at its disposal, the more likely it may be to fashion a solution to the challenge. However, if overcoming the challenge depends on a collective effort, coordination will be a key determinant of organizational resilience. Weick (1993) suggests that one way to overcome this potential impediment is to construct virtual role systems that enable each part of the organization to understand the behavior of all other

parts of the organization without the necessity of the various parts communicating directly with each other. If each part can anticipate the activity of the other, organizational coordination is more easily achieved when facing a crisis. Alternatively, when virtual role systems are not an option or are rendered obsolete, face-to-face communication may become necessary. In preparation for this potentiality, it is suggested that a norm of respectful interaction be maintained as it provides a space for negotiating a solution to the problem in real time. As key components of organizations' underlying social infrastructure, it is argued that organizational resilience is in part a result of interactions between organization members. Finally, it is suggested that organizations maintain a keen awareness of the limits of their own knowledge by maintaining an attitude of wisdom. This refers to remaining cognizant of cognitive limitations, avoiding being both overly cautious and overly confident: "…wisdom, which avoids extremes, improves adaptability" (p. 641).

Importantly, Weick (1993) contributes nuance and complexity to the idea that resilience is a balancing act that steers clear of extremes. Each of the four suggestions for reducing vulnerability to disruption and increasing organizational resilience includes the notion of finding the middle ground. For example, improvisation and bricolage recognizes the inherent trade-off between breadth and depth of expertise under conditions of resource scarcity. It highlights the need to have sufficient expertise about a sufficiently broad range of areas so as to patch together a solution with whatever happens to be available. Similarly, virtual role systems and respectful interaction require understanding others on their own terms implying a need to find common ground and foster mutual understanding.

Social infrastructure's role in the persistence of organizations has also been leveraged to examine high reliability organizations (HROs). Weick, Sutcliffe, and Obstfeld (1999) extended prior research by considering how the processes of HROs remain effective in exceedingly difficult circumstances. The main premise is that HRO processes offer a cognitive framework (i.e., collective mindfulness) for simultaneously enabling adaptive learning and reliability. This framework arises out of a focus on failure rather than success and reliability rather than efficiency; note that this latter point is a departure from both Staw, Sandelands, and Dutton (1981) and Sitkin (1992) which viewed reliability and efficiency as being inextricably linked. Additionally, high reliability organizing is characterized by a "reluctance to simplify interpretations, sensitivity to operations, commitment to resilience and underspecified structuring" (Weick, Sutcliffe, and Obstfeld, 1999; p. 81). Thus, by focusing on the maintenance of critical processes such as these, organizations are able to remain reliable while also adapting to circumstances.

Organizational resilience research experienced something of a reorientation during the years immediately following the turn of the 21st century. Recognizing, though perhaps not fully, that the attacks of September 11, 2001 would have a long-term impact on the organizational environment, organizational resilience researchers shifted their primary focus from *reliability* to *adaptability* (Linnenluecke, 2015). The shift in perspective is illustrated by the introduction of four key concepts that each appreciably augmented the organizational resilience concept. Specifically, *adaptive capacity* (Staber & Sydow, 2002), *developmental resilience* (Sutcliffe & Vogus, 2003), *robust transformation* (Lengnick-Hall & Beck, 2005), and *resilience capacity* (Lengnick-Hall &

Beck, 2005) concepts were brought to the fore. Critically, each of these concepts rests on the underlying assumption that environmental change is enduring, rather than fleeting, and more common, than not. They each propose ways that organizations can prepare for challenges and capitalize on disruption when it becomes manifest. Organizational resilience research thus began to trend away from a heretofore reactionary approach and instead turned toward understanding how organizations might proactively situate themselves to be resilient when the need arises.

Adaptive capacity refers to a firm's ability to "continuously develop and apply new knowledge and do so in ways that are sustainable and difficult to imitate by competitors" (Staber & Sydow, 2002; p. 408). Adaptive capacity differs from what Staber and Sydow (2002) refer to as an "adaptionist" approach that places a focus on reacting to contingencies rather than preemptively preparing for potentialities as in the case of adaptive capacity. The adaptive capacity perspective challenged much of established management and organization research which, as has been mentioned, tended to have reliability and efficiency at its core. The focus of organizational adaptation research was also fundamentally reactionary with the basic premise being that as circumstances changed, organizations efficiently altered their activities to achieve a desirable fit between themselves and the transformed environment (e.g., Lawrence & Lorsch, 1986; Pfeffer & Salancik, 1978). This seemed to assume, however, that environments move from equilibrium state to equilibrium state and failed to satisfactorily address ongoing environmental disequilibrium.

Another key difference between the adaptive capacity and "adaptionist" perspectives is their treatment of slack resources. In the view of the latter, slack resources

are seen as redundancies and constitute a form of inefficiency that runs counter to organizational objectives. The adaptive capacity perspective, on the other hand, considers slack resources valuable for supporting organizations' exploration efforts, as well as coping with ambiguity and uncertainty (Staber & Sydow, 2002). This implies that maintaining critical slack resources contributes to adaptive capacity and provides organizations more opportunity to exhibit resilience when faced with challenging circumstances.

The idea that adaptive capacity is related to organizational resilience was also explored by other researchers. It was proposed that resilience arises from processes that bolster competence, efficacy, and growth (Sutcliffe & Vogus, 2003). The developmental resilience perspective parallels the rationale presented by Sitkin (1992) wherein small, varied events encourage learning and learning from failure builds resilience. Two key departures from the "learning from failure" view that are central to the developmental resilience perspective involve the sources of learning, on one hand, and the outcomes of resilience, on the other (Sutcliffe & Vogus, 2003). First, rather than attributing effective learning to failure, the developmental perspective argues that learning occurs as a result of the organization repeatedly addressing challenges over time. Here, the focus is on repetition being a key to learning rather than failure; organizations build resilience through frequently addressing situations that result in both success and failure. Second, resilience outcomes in this perspective are more than just surviving difficulties; instead, resilience enables positive adjustment. Thus, these authors define resilience as "the maintenance of positive adjustment under challenging conditions" (Sutcliffe & Vogus, 2003; p. 94) and is closely related to the notion of retention as a learning outcome

(Meyer, 1982). Taken together, this perspective brings together and builds upon disparate conceptualizations of resilience. It recognizes the need to balance competence with growth, maintains learning as central to developing resilience, and provides for three critical resilience outcomes: reliability, adaptability, and positive adjustment.

Others were also critical of prevailing perspectives on resilience in the management and organization literatures (e.g., Lengnick-Hall & Beck, 2005). Instead of learning and outcomes, however, criticism fell on the treatment of organizations' external environments rather than on different organizational responses to a particular environmental change. The basic challenge posited that the range of environmental conditions examined in the adaptive fit literature was too narrow. Consideration of a broader range of environments revealed four limitations of extant views (Lengnick-Hall & Beck, 2005). First, environmental change need not necessarily imply a shift from one state of equilibrium to another. If it is indeed the case that change in the environment is from equilibrium to disequilibrium rather than one state of equilibrium to another state of equilibrium, organizational responses should recognize the instability inherent in the circumstances present in the new, dynamic environment. Second, organizations may not be able to anticipate the particulars of unstable environments and the uncertainty associated with them. Third, environments in constant flux require organizations to continually reassess expectations and adjust approaches to reflect immediate and emerging situations. Finally, when linked with crisis, environments may require particularly novel responses from organizations (Lengnick-Hall & Beck, 2005).

In order to cope with environmental instability, organizations respond such that they can exploit environmental change to create new opportunities and develop new

capabilities. Termed *robust transformation*, this type of response refers to "a deliberately transient, episodic response to a new, yet fluid, environmental condition" (Lengnick-Hall & Beck, 2005; p. 742). Robust transformation is an alternative response to adaptive fit (i.e., the "adaptionist" approach), either of which organizations can choose to employ. The response an organization chooses, however, is determined by its level of *resilience capacity*. Resilience capacity refers to "a unique blend of cognitive, behavioral, and contextual properties that increase a firm's ability to understand its current situation and to develop customized responses that reflect that understanding" (Lengnick-Hall & Beck, 2005; p. 750). The three components of resilience capacity are developed over time and enable the organization to recognize, analyze, and formulate responses; implement novel or functionally habitual responses; and, embed responses in a broader organizational context.

Near the middle of the 21st century's first decade, organizational resilience research began to see substantial growth in the number of publications found in a range of management outlets (Annarelli & Nonino, 2015). While addressing each of these areas in-depth would extend beyond the scope of this review, it is nevertheless important to note the increases as it seems indicative of a newly realized utility of the organizational resilience concept. In particular, organizational resilience began to proliferate in two broad research streams: one examining the relationship between employees and organizational resilience and the other investigating resilience of supply chain designs (Linnenluecke, 2015). The former examined how organizations can leverage employee characteristics to bolster organizational resilience as well as how organizations can foster resilience in employees. Illustrative examples include Youssef and Luthans (2007) and

Gittell (2008) wherein relationships between employee resilience and organizational

performance appraisals and relational coordination as a resilience response to external

threat are examined, respectively. The second area focuses on leveraging design

principles to guard against vulnerabilities inherent in highly interdependent complex

systems (e.g., Christopher & Peck, 2004; Craighead, Blackhurst, Rungtusanatham, &

Handfield, 2007).

Additionally, a third area of research continued to extend the developmental

resilience (Sutcliffe & Vogus, 2003) and robust transformation (Lengnick-Hall & Beck,

2005) perspectives, although it featured less prominently in the organizational resilience

research landscape than the two streams previously mentioned. This line of research

trains its attention on the interplay between constantly changing external environments

and organizational anticipation of, and responses to, this environmental dynamism (e.g.,

Gittell, Cameron, Lim, & Rivas, 2006). It also extends investigation into the pre- and

post-disturbance periods, places more focus on resilience processes, and seeks to provide

a foundation for empirically testing proposed relationships.

2.3 Current State of Conceptual Organizational Resilience Research

Integrative reviews of organizational resilience have recently appeared in the

literature (e.g., Linnenluecke, 2015). This work attempts to provide structure and

direction for the research domain and shape relevant discussions for those researching the

phenomenon. For example, the shortcomings of existing theory have led to calls for

scholars to develop a *theory of organizational resilience* (Vogus & Sutcliffe, 2007). In

particular, researchers are encouraged to focus on *how* organizations and their constituent

parts remain effective despite impediments to adaptation. It is further suggested that researchers explore the extent to which resilience depends on past learning, provides a basis for future learning, but is distinct from the process of learning *per se* as "resilience represents a broader store of capabilities" (Vogus & Sutcliffe, 2007; p. 3418). Taken together, recent reviews highlight several important areas that remain in need of focused research attention: processes of learning that lead to organizational resilience, comparative analysis of reliability and resilience, as well as how each is achieved, and the extent to which past events must be similar to future events for resilience to be a significant success factor.

Increasingly comprehensive frameworks that provide a conceptual basis for empirically testing key relationships have also come to the fore in recent years (e.g., Kantur & Iseri-Say, 2012; Linnenluecke, Griffiths, & Winn, 2012; Limnios et al., 2014). Many of the proposed frameworks share a number of similarities. First, each acknowledges and incorporates the notion that organizational resilience in a given situation is a product of prior organizational activity; in other words, organizational history is an important determinant of developing what Lengnick-Hall and Beck (2005) refer to as *resilience capacity*. Second, each implicitly accepts that *equifinality* is a central assumption that undergirds the development of organizational resilience. That is, the paths to resilience are many and varied. Third, they each explicitly recognize that organizational resilience involves both resistance to pressures brought on by disturbance and adaptive learning.

Recent integrative organizational resilience frameworks differ from each other in at least two key ways, however. First, Limnios et al. (2014) focuses narrowly on

organizational response during the disturbance event as opposed to considering pre- and post-event organizational activity as is the case with Kantur and Iseri-Say (2012) and Linnenluecke, Griffiths, and Winn (2012). The latter, for example, incorporates the role of past organizational experience (i.e., as facilitating anticipatory adaptation) and post-disturbance recovery. Similarly, Kantur and Iseri-Say (2012) also incorporates the post-event period by considering recovery, adaptation, and renewal.

A second, and perhaps more important distinction, is that Limnios et al. (2014) explicitly recognize that either adapting to changes wrought by disturbance or resisting them may be an efficacious response that enables organizational survival (Meyer, 1982; Staw, Sandelands, and Dutton, 1981). This perspective is critical of the management literature's failure to appropriately address the interplay between organizational resilience and environmental characteristics. The framework addresses this discrepancy by parsing resilience into two dimensions: *magnitude of resilience* and system state *desirability*. Magnitude of resilience refers to the level of disturbance an organization can tolerate and still persist while system state desirability refers to the level of organization-environment fit (Limnios et al., 2014). Dimensionalizing resilience in this way allows for consideration of the "dual manifestation of persistence" (Limnios et al., 2014; p. 106).

In summary, the early research efforts of Staw, Sandelands, and Dutton (1981), Meyer (1982), and Sitkin (1992) did much to lay the groundwork for the organizational resilience research that followed. These works brought the concepts of reliability, resilience, adaptation, and learning to the fore and have come to form the research domain's conceptual core. In subsequent years, researchers added nuance to the discussion of organizational resilience by introducing such concepts as collective

mindfulness (Weick, Sutcliffe, and Obstfeld, 1999), adaptive capacity (Staber & Sydow, 2002), robust transformation (Lengnick-Hall & Beck, 2005), and resilience capacity (Lengnick-Hall & Beck, 2005). Finally, in recent years, researchers have sought to consolidate and integrate disparate research efforts so as to counteract the disjointed development of the research domain. These recent efforts have been accompanied by calls for, among other things, increased empiricism as the notable dearth of such studies is believed to be limiting scholarly progress (Annarelli & Nonino, 2015).

2.4 Empirical Organizational Resilience Research

The conceptual evolution of organizational resilience proposes a number of antecedents to, and outcomes of organizational resilience. However, empirical examination of these variables remains rare (Boin & van Eeten, 2013; Vogus & Sutcliffe, 2007). Until recently, only a handful of published work has attempted to empiricize organizational resilience. As one might expect, early empirical studies primarily leverage qualitative approaches that employ such methods as ethnography, in-depth interviews, and case analysis. In addition to Meyer (1982), which was discussed earlier in this chapter, particularly illustrative examples include Kendra and Wachtendorf (2003) and Carmeli and Markman (2011) (also see Weick, 1993; Boin & van Eeten, 2013, Teixeira & Werther, 2013).

Analysis of the processes undertaken to re-establish the World Trade Center Emergency Operations Centre after the terrorist attacks perpetrated in New York City on September 11, 2001 provides support for several previously proposed relationships (Kendra & Wachtendorf, 2003). The study leveraged both direct observation of events, as

well as reports, information requests, internal memos, schedules, meeting minutes, and internal directives. The results underscore the importance of experience, preparation, training, and flexibility as critical for resilience amid crisis. Uniquely, however, they also provide evidence suggesting that the crisis and its context are instrumental in crisis resolution. It is argued that features of the environment can inspire innovative solutions to challenges that arise during the crisis and the process is likened to that of a craftsman finding inspiration in her or his surroundings.

Also taking a case study approach and leveraging historical data that focused primarily on the Republic of Rome's establishment period, Carmeli and Markman (2011) examined strategies and tactics that were seen as essential for the empire's resilience. Adopting a systems perspective to analyze the empire's various campaigns, the authors found that two key strategies contributed greatly to enterprise resilience. The first of the two overarching strategies was labeled *capture* by the authors and broadly refers to growth. In the case of Rome, this meant expanding its territorial influence while for organizations it translates into market expansion. The second overarching strategy was that of *governance* and refers to administrative activity. It includes establishing the capacity "to assimilate, retain, defend, and increase its dominance" over that which has been captured (Carmeli & Markman, 2011; p. 322). A strategy-tactic framework of resilience that can be applied to organizations emerges from the analysis. In explicating the framework, the authors draw connections to more traditional organizations and explain how they gain and sustain resilience. For example, given their argument that organizational resilience is a function of continuously pursuing capture and governance strategies, it is noted that organizations seeking rapid growth through merger and

acquisition will eventually face significant challenges if they ignore intra-organizational integration and harmonization. In this way, the authors provide an integrative perspective of capture and governance strategies "that shape a complex, yet highly resilient human-made system" (Carmeli & Markman, 2011; p. 339).

The instrumentality of governance for organizational resilience was also investigated (Ouedraogo & Boyer, 2012). An in-depth case study of a small technology firm revealed three types of governance as important for ensuring organizational resilience: financial, management, and strategic. Each of these types of governance are an essential part of an organization's governance structure and are thus critical elements for resilience. According to Ouedraogo and Boyer (2012), organizations are resilient to the extent that they can absorb shocks to, renew functionality of, and learn from shocks to each of these types of governance.

As has been mentioned, quantitative examinations of organizational resilience were particularly scarce until quite recently. It is only in the last half decade that the literature has seen a substantial increase in the number of quantitative studies in publication outlets that focus on management and organizations. Early examples include Rudolph and Repenning (2002) and Gittell et al. (2006) while Ortiz-de-Mandojana and Bansal (2015) is illustrative of more recent quantitative organizational resilience research.

Rudolph and Repenning's (2002) study of organizational collapse offered a particularly unique perspective for considering organizational resilience. The authors draw a distinction between organizational crises arising as a result of novel events for which the focal organization has no appropriate response in its repertoire and those that

arise as a result of the overwhelming quantity of events. In contrast with a novelty-induced crisis, "a quantity-induced crisis is created by a series of interruptions, each of which can be resolved using a known response…that overwhelms information processing capacity and creates a vicious cycle of increasing stress and declining performance" (Rudolph & Repenning, 2002; p. 25). The study examines the impact of an accumulation of non-novel events by developing a mathematical system-dynamics model. The model simulates how, if left unresolved, non-novel events can overwhelm an otherwise resilient system due to the inability of the organizational system to efficiently work through the backlog of mundane issues. In this way, organizations might reach a point at which the rate of event accumulation can exceed the rate of event resolution and tip the system toward collapse. Thus, this study highlights the possibility that quantity, too, can be a source of organizational collapse in addition to the novel event which tends to more readily garner the attention of researchers.

A potentially promising avenue for examining organizational resilience involves leveraging archival firm-level data to explore key relationships. Gittell et al. (2006) were among the first to employ such an approach when they studied the efficacy of U.S. airlines' responses to the attacks of September 11, 2001. Specifically, they considered the impact that relational reserves (i.e., employee relationships), financial reserves, and business model viability might have on performance (i.e., employee retention, stock price recovery) as sources of organizational resilience. Analysis revealed that maintaining strong relational reserves play a central role when it comes to post-crisis recovery even though financial reserves and business model viability were also found to be significant. Relational reserves are seen to positively contribute to the business model viability

which, along with financial reserves, allows firms to retain employees after a crisis rather than resort to layoffs to ensure short-term survival. It is further suggested that employee retention, in turn, relates positively to performance recovery. These findings seem to receive support from studies conducted by Amann and Jaussaud (2012) and Lampel, Bhalla, and Jha (2014) in which organizational resilience is found to be impacted by organizations' "familiness" and employee involvement, respectively. Taken together, this work lends additional support to the notion that the development and activation of organizational resilience is a multifaceted undertaking. Moreover, these findings suggest that organizational resilience may take on various forms, some of which are appropriate for recurring disturbances while others can be drawn upon to address novel challenges to organizational persistence.

The extent to which organizations are seen to be involved with various stakeholder groups and initiatives outside the organization also seem to impact organizational resilience. Ortiz-de-Mandojana and Bansal (2015), for example, longitudinally examined the relationship between sustainable business practices and organizational resilience among a sample of U.S.-based firms. Specifically, they hypothesized that organizations engaging in high levels of social and environmental practices experience less financial volatility, higher growth, higher rates of survival, and lower levels of short-term profitability than their peers. Results, which are corroborated by DesJardine, Bansal, and Yang (2015), suggest that organizations employing sustainable business practices indeed experience less volatility, as well as stronger recovery and growth (Ortiz-de-Mandojana & Bansal, 2015).

The snapshot of empirical organizational resilience presented here suggests that various aspects of previous resilience conceptualizations are beginning to receive concentrated research attention. Specifically, the importance of experience and learning (e.g., Kendra & Wachtendorf, 2003), repertoires (e.g., Rudolph & Repenning, 2002), and strategy (e.g., Carmeli & Markman, 2011; Gittell et al., 2006) in fostering organizational resilience has come into sharper focus. It also emphasizes that organizational resilience is complex and that many avenues of investigation remain open (Sutcliffe & Vogus, 2007). In particular, pre-event development of organizational resilience needs to be more intensively studied as do the performance outcomes to which it leads.

Having reviewed the focal concept of this dissertation, the final section of this review endeavors to situate organizational resilience within the context of interest. Internationalization is an important aspect of corporate strategy (Fréry, 2006) that entails unique challenges (e.g., increased exposure to, and novelty of, exogenous shocks) that MNEs must overcome if they are to realize performance gains associated with expanding abroad. However, the precise nature of the internationalization-performance (I-P) relationship remains unresolved. In the following section, I briefly review key perspectives regarding this important relationship and frame the possibility that organizational resilience might contribute to better understanding the I-P relationship.

2.5 Key Perspectives on the Internationalization-Performance Relationship

It should be stated from the outset that there is a distinct lack of consensus regarding even whether, let alone the extent to which, internationalization systematically impacts MNE performance (Hennart, 2011; Hitt et al., 2006; Oesterle & Richta, 2013;

Wiersema & Bowen, 2011; Yang & Driffield, 2012). Four decades of research attention have produced mixed findings and both the existence and form of the relationship continue to be hotly debated among international business scholars. Among those arguing for the existence of a relationship, internationalization is generally thought to have a positive net effect on performance though scholars note that the relationship is complex (Bausch & Krist, 2007; Ruigrok & Wagner, 2003, Marano et al., 2016) and that there remains much to learn. Thus, the I-P relationship has become one of the great enduring puzzles in strategic management research.

Although it has been variously defined and measured, *internationalization* broadly refers to either the process of (e.g., Johanson & Vahlne, 1977) or the degree to which (e.g., Wolf, 1977) organizations expand their activities abroad (as opposed to only maintaining domestic business activity); the latter conceptualization is most frequently referred to as *multinationality* (e.g., Grant, 1987). While researchers exploring the I-P relationship leverage various theoretical perspectives, two particular internationalization models have become especially prominent in the literature: the Uppsala Model (Johanson & Vahlne, 1977) and the Eclectic Model (Dunning, 1988). Each of these two perspectives has grown into a distinct stream of research and differs considerably from the other in its theoretical perspective.

The Uppsala model explains and predicts the mode and pattern of the internationalization process in which national firms engage to become MNEs (Johanson & Vahlne, 1990). The model is built upon the interplay between knowledge development about foreign markets and gradually increasing commitments to those markets. Thus, the model's key feature is incrementalism wherein internationalizing firms first expand to

markets that resemble their home markets using low-commitment modes before making larger commitments in more dissimilar markets. Alternatively, the Eclectic Model attempts to explain and predict the extent, form, and pattern of international production. In contrast to the Uppsala Model, the Eclectic Model centers on the ownership, location, and internalization (OLI) advantages that MNEs find and exploit (Dunning, 1988). In essence, these OLI advantages allow MNEs to exploit market imperfections to realize superior performance.

Despite their differences, however, the two models share some similarities regarding the sources of advantage that impact organizational performance. Namely, each considers knowledge, flexibility, and resource accessibility through internationalization to be related to performance (Li, 2007; Oesterle & Richta, 2013; Wiersema & Bowen, 2011). Additionally, organizational learning is identified as a common denominator among competing I-P relationship perspectives (Ruigrok & Wagner, 2003). As discussed in Chapter 1, though, the outcomes of learning are not infallibly efficacious. Learning is path-dependent and, to the extent that learning content and timing vary, learning outcomes may also vary. Furthermore, given the importance of learning to the development of resilience, it follows that examining the role of organizational resilience in the context of MNE internationalization may provide additional clarity on the nature of the I-P relationship. In order to explore this possibility, the following chapter develops a model of MNE resilience that leverages organizational learning to link internationalization experience and organizational resilience to organizational performance.

Chapter 3. Model Development

This chapter develops a model of MNE resilience that highlights its relationship to key antecedents and outcomes. The first section of this chapter, presents a selective review of organizational learning literature with the purpose of establishing a theoretical basis for examining the relationships of interest. The next section proposes that MNEs develop resilience via the opportunities presented during the internationalization process. More specifically, the model considers two aspects of learning that contribute to the development of MNEs' magnitude of resilience: learning content and frequency of event occurrence. The content of learning is examined by considering the diversity of internationalization experience while examination of the role of event recurrence is done by considering the frequency of internationalization events. The third section links internationalization experience to MNE performance by leveraging the Resilience Architecture Framework (Limnios et al., 2014). More specifically, this final section ties each of four MNE resilience archetypes to expected performance outcomes. Hypotheses concerning model relationships are presented throughout the chapter.

3.1 Organizational Learning through Direct Organizational Experience

Organizational learning has played a prominent role in organization theory for many decades and its roots can be traced to scholarly work grounded in the behavioral theory of the firm (i.e., Cyert & March, 1963; March & Simon; 1958). The perspective

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articulated by Cyert and March in their book *A Behavioral Theory of the Firm* (1963) played a significant role in laying the foundation for contemporary organization studies and continues to play a central role in a number of sub-fields (Augier, 2013). Initially recognized for endeavoring to provide a foundation for organization studies, as well as for adopting an interdisciplinary approach to developing empirically relevant theory, the behavioral theory of the firm is now among the most influential scholarly contributions to the field (Augier, 2013; Gavetti, Greve, Levinthal, & Ocasio, 2012).

Discussing the vast body of organizational learning literature that grew out of the behavioral perspective is beyond the scope of what can be accomplished in the present work (for comprehensive reviews see Dierkes, Antal, Child, & Nonaka, 2001; Levitt & March, 1988; Dodgson, 1993). As such, the summary that follows focuses narrowly on learning at the organizational level via direct experience rather than addressing various other learning-related concerns (e.g., learning via indirect experience).

"Learning takes place when organizations interact with their environments: organizations increase their understanding of reality by observing the results of their acts" (Hedberg, 1981; p. 3). This assertion captures the essence of direct experiential learning. As organizations carry out activities, the availability and analysis of feedback enhances organizational learning brought about through experience (Huber, 1991). The more and varied the collection of organizational experiences, the greater the opportunity for organizational learning as long as feedback is available and taken into consideration by the organization. Over time, these experiences accumulate and come to constitute the organization's *knowledge base* which refers to the form and focus of organizational knowledge accumulation (Dodgson, 1993, Duncan & Weiss, 1979). Knowledge bases

and the processes by which they are developed comprise the foundation of organizational uniqueness and help shape organizational performance. Furthermore, knowledge bases provide a source upon which organizations can draw to develop *routines* that guide organizational activity. Routines refer to "the forms, rules, procedures, conventions, strategies, and technologies" that organizations use to operate (Levitt & March, 1988). Changes in an organization's knowledge base may prompt the organization to develop new routines, change existing routines, or buttress the efficacy of routines already in use.

Organizational learning is reflected in both defensive and offensive organizational changes. "Organizational learning includes both the processes by which organizations adjust themselves defensively to reality and the processes by which knowledge is used offensively to improve the fits between organizations and their environments" (Hedberg, 1981; p. 3). Consequently, effective learning enables an organization to satisfactorily cope with challenges as they arise while maintaining or improving performance. Thus, for the purposes of this discussion, *organizational learning* refers to processes and outcomes of direct organizational experience whose resultant knowledge and routines contribute to improved organizational performance.

The definition of organizational learning offered above provides a useful point of departure for examining MNE learning through the process of internationalization. Operating internationally presents organizations with challenges and opportunities that go beyond that experienced by organizations that operate only within their countries of origin. The international context thus provides MNEs with a broader range of experiences through which learning can occur. The greater variety of learning opportunities in turn provides greater prospects to develop the knowledge and routines that might improve

performance. Indeed, prominent internationalization perspectives agree that knowledge

acquisition and resource accessibility are important sources of competitive advantage for

MNEs (Oesterle & Richta, 2013; Wiersema & Bowen, 2011). As MNEs engage in more

diverse international contexts they gain access to an ever-increasing pool of resources

upon which they can draw to craft solutions to challenges as they arise. As MNEs'

experiences increase in number and diversity, the organizational knowledge-base also

increases. Consequently, more resources are available to leverage toward developing new

routines or adapting those that already exist to fit the organization's evolving context.

Alternatively, new knowledge might also support existing organizational routines and

further substantiate their efficacy. The collection of both novel and recurring experiences

uniquely develops a MNE's capacity for resilience and can facilitate superior

performance as differences in contexts alter organizations' learning curves (Perkins,

2014).

3.2 Internationalization Experience and MNE Magnitude of Resilience

    3.2.1 Diverse Experiences as an Antecedent of MNE Resilience

    Recall that the concept of *resilience capacity* developed by Lengnick-Hall and

Beck (2005) underlies organizational resilience and is assumed to contribute to the

likelihood that an organization can persist when facing a disturbance. It arises as an

organization level attribute through the complex interrelationship of discrete

organizational components. The concepts' multidimensionality allows for congruence

with the dimensions of the Resilience Architecture Framework (Limnios et al., 2014). In

particular, intrafirm attributes of resilience capacity are conceptual correlates of

magnitude of resilience while the contextual component is a conceptual correlate of desirability.

When a MNE undertakes internationalization activity, it is exposed to various experiences associated with the internationalization effort. Furthermore, each subsequent internationalization event exposes the MNE to experiences that are more or less similar to prior internationalization experiences; that is, some subsequent experiences are similar to previous experiences while others are dissimilar to previous experiences. Similar experiences, though redundant, play an important role in that they reinforce the lessons learned during prior internationalization events and entrench the routines associated with the existing knowledge base. As routines become increasingly entrenched, MNEs become less likely to abandon them should circumstances change. An additional consequence of this process is increased proficiency in leveraging entrenched routines. Alternatively, subsequent experiences that are dissimilar to previous experiences introduce opportunities to change organizational routines or introduce new routines. Internationalization experiences that are dissimilar to previous MNE experiences introduce diversity to the organizational knowledge base. Increased diversity in the organizational knowledge base provides the organization with a broader range of knowledge-based resources that can be used to adapt existing routines or introduce new ones as circumstances change.

To the extent that organizational learning contributes to organizational resilience, differences in the diversity of internationalization experiences differentially impact the development of MNE resilience. Specifically, the level of diversity present in MNEs' knowledge bases built through successive internationalizing events likely contributes to

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MNEs' *magnitude of resilience*, which is the extent to which an organization can tolerate a disturbance and still persist (Limnios et al., 2014). Thus, MNEs with a high magnitude of resilience will be more able to persist when faced with disturbances, such as operational disruptions or environmental changes than MNEs with a low magnitude of resilience.

As others have noted, organizations have the capacity to react with adaptation or resistance when faced with a disturbance (Limnios et al., 2014) even though they likely have a tendency toward one or the other. Given the propensity for redundancy to reinforce existing knowledge and provide opportunities to increase proficiency, it follows that low levels of diversity in internationalization experience buttress the efficacy of existing organizational routines. This, in turn, suggests that such MNEs will tend to maintain routines unaltered when faced with a disturbance rather than adapt or replace existing routines to accommodate changes in the environment.

In contrast, high levels of diversity in internationalization experiences afford MNEs greater opportunity to find and implement novel solutions to changing environmental circumstances. The time and effort required to search for and implement an appropriate response to a disturbance, however, may detract from the organization's capacity to maintain existing routines. Diverse internationalization experience may also contribute to MNE magnitude of resilience even though MNEs' responses to a disturbance may differ between high and low diversity cases (see Figure 4).

Hypothesis 1: Diversity of internationalization experience is positively related to MNE magnitude of resilience.

Figure 4: Hypothesized Model of MNE Resilience
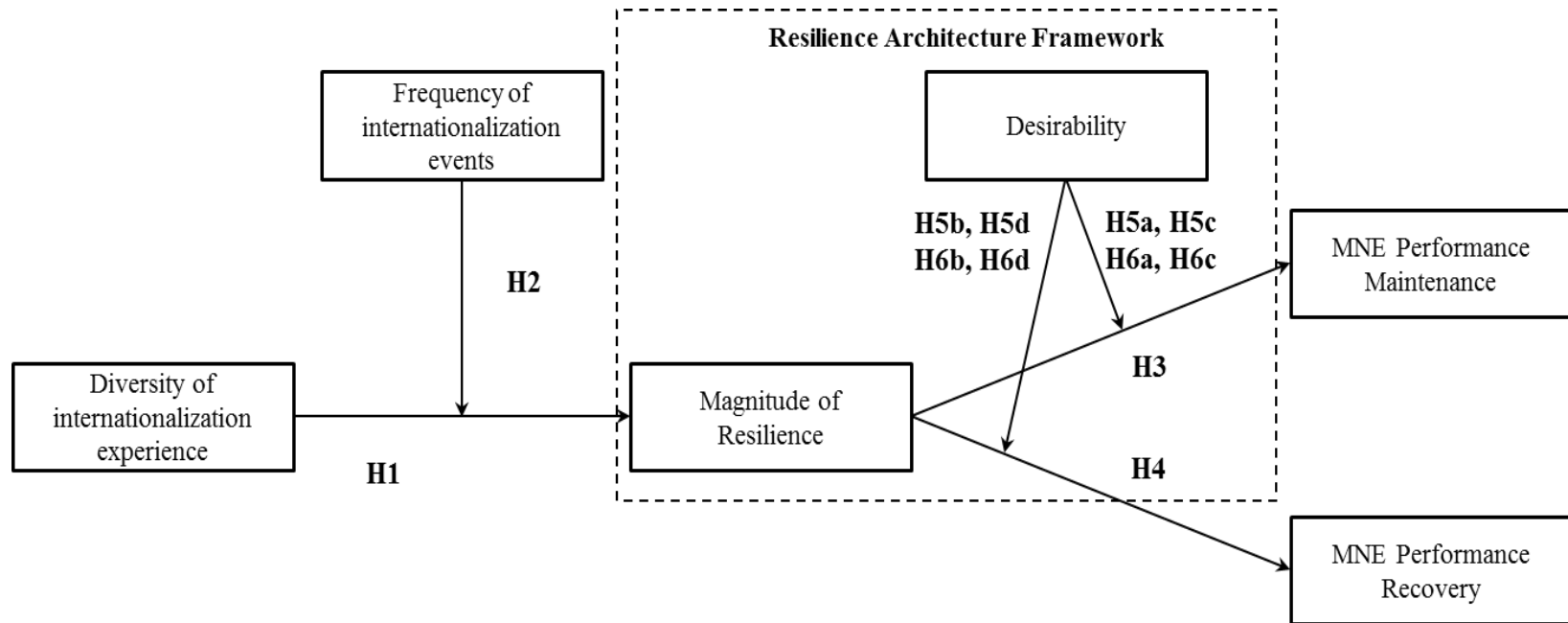
Notes: The hypothesized model originally included a second moderator: sequence of internationalization experience. Data availability issues prevented the variable from being included in the final version of the model shown here.

3.2.2 Frequency as a Moderator of the Experience – Magnitude of Resilience Relationship

Task repetition often results in improved task performance (Levinthal & March, 1993). Though internationalization is a particularly complex task, the idea that repetition of a task improves performance of the task may extend to the development of MNE resilience. Repeated internationalization events enable the organization to learn, and perhaps incorporate, the lessons gleaned through direct experience more quickly than when internationalization is undertaken only sporadically. In essence, the more internationalizing events undertaken by a MNE, the greater are the number of opportunities for learning and adjusting to evolving circumstances.

Learning is an iterative process, as well as a path-dependent one. Independent of the success realized as a result of lessons previously learned, each additional learning opportunity offers the chance to acquire knowledge that can be applied in the future. As it pertains to internationalization, each event provides MNEs the opportunity to apply past lessons to current efforts and collect information for future cross-border activities. Furthermore, mistakes from the past are more likely to be detected, understood, and corrected as the knowledge base grows with each successive attempt to expand abroad. High frequency internationalization further allows lessons learned to be implemented before they have been forgotten. Thus, as internationalization frequency increases, so too will the MNE's understanding of what went wrong in the past and its capacity to address deficiencies. Therefore, when internationalization frequency is high, MNEs have more opportunities to recognize shortcomings in, and alter, existing routines. High frequency internationalization activity strengthens the relationship between experience and magnitude of resilience as a result.

Hypothesis 2: Frequency of internationalization events positively moderates the relationship between diverse internationalization experience and MNE magnitude of resilience.

3.3 MNE Resilience, Resilience Archetypes, and MNE Performance

3.3.1 The Resilience Architecture Framework

In order to consider the potential impact of MNE resilience on performance, it is important to more thoroughly examine the Resilience Architecture Framework developed by Limnios et al. (2014). The framework goes beyond describing the importance of magnitude of resilience, as previous research has done, and accounts for the role that context plays in shaping the impact of resilience. In its description, the framework explicitly recognizes that the desirability of a particular organizational resilience state is context-dependent; that is, whether an organizational resilience state is desirable or undesirable depends on the broader context within which the focal organization is embedded. What follows summarizes key elements of the Resilience Architecture Framework and provides the basis for subsequently hypothesizing the ways in which resilience impacts MNE performance.

The Resilience Architecture Framework integrates findings from various research areas (i.e., socio-ecological systems, organizations) to present a conceptualization and typology of organizational resilience (Limnios et al., 2014). The authors argue that extant approaches to resilience do not adequately consider the "dual manifestation of persistence as either capacity for adaptive learning or resistance to change" (p. 105). More

specifically, persistence can be a result of the organization's ability to adapt to change or as a result of its ability to resist it. As a consequence, whether adaptation or resistance is most desirable is partly dependent on context.

The Resilience Architecture Framework addresses the challenge of considering the joint influence of organizations and their contexts by partitioning resilience into a *magnitude* dimension and a *desirability* dimension. As noted previously, magnitude of resilience refers to the extent to which an organization can tolerate a disturbance and still persist. Thus, the magnitude dimension refers to an organization's level of resilience and is primarily dependent on organizational characteristics that allow it to effectively interact with its environment (Limnios et al., 2014). The desirability dimension, however, introduces a stakeholder perspective (i.e., Freeman, 1984) by considering the extent to which internal and external actors view the organization as having acceptable fit with its environment. In other words, desirability refers to the extent to which the organization is satisfying the expectations of stakeholders.

According to the framework, highly resilient organizations (i.e., high magnitude of resilience) exist in one of two types of resilience states depending on the extent to which they meet stakeholder expectations: organizations in the low desirability case resist change and resilience stems from their rigidity while organizations in the high desirability case adapt to change and resilience is a result of their adaptability (see Figure 5). Limnios et al. (2014) describe the *rigid* state of resilience as reflective of organizational denial of negative stakeholder perceptions. As a result, organizations with this resilience type exhibit an inability or unwillingness to change. Alternatively, the *adaptive* state of organizational resilience reflects recognition of stakeholders' shifting perceptions, as well

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Figure 5: Resilience Architecture Framework following Limnios et al. (2014)
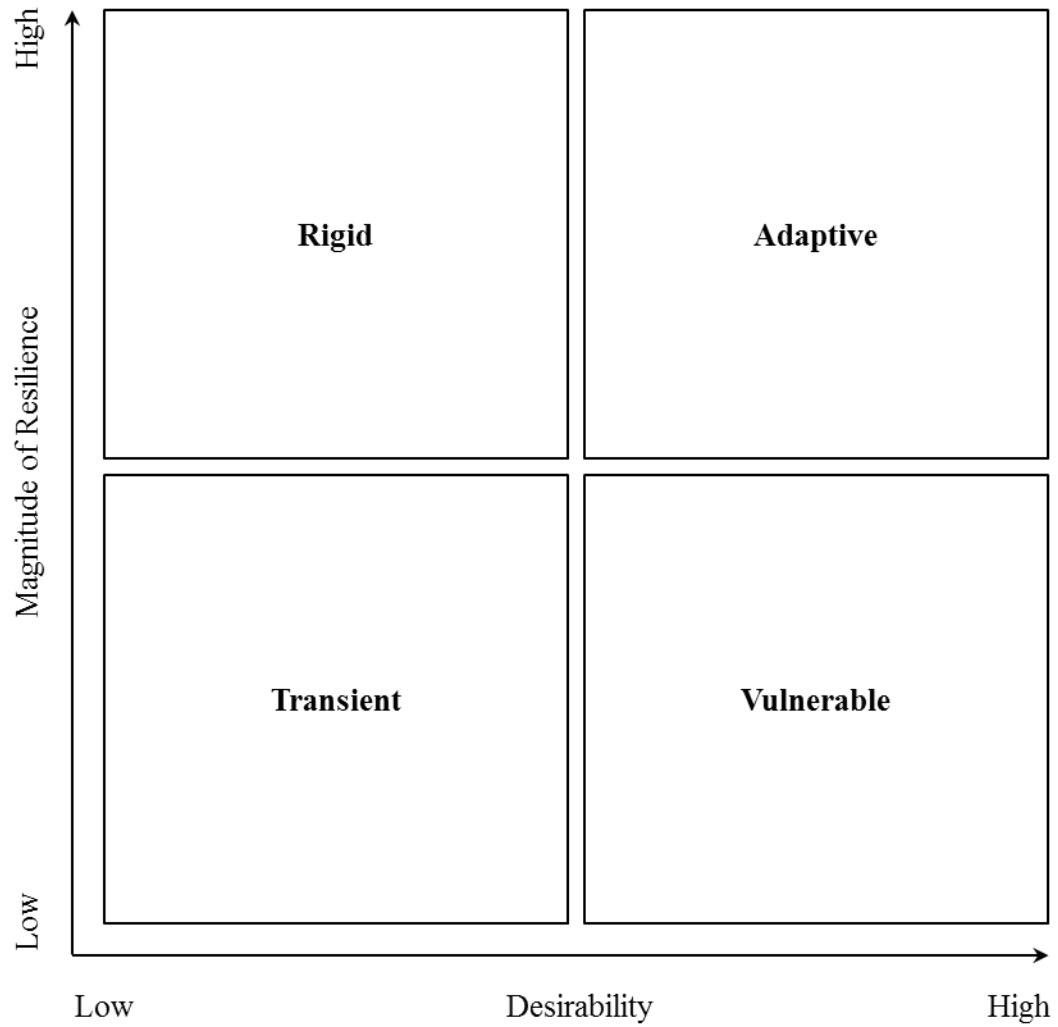
as a capability and willingness to change in accordance with the organization's changing environment.

The Resilience Architecture Framework also presents two low magnitude of resilience cases: transience and vulnerability. Although each case exhibits a low magnitude of resilience, the source of this lack of resilience differs. The state of organizational resilience described as *transient* reflects a propensity for perpetual adaptation to the point of instability. Unlike a rigid resilience state as described above, organizational resilience states described as transient recognize and accept negative stakeholder perceptions. Their perpetual quest to improve stakeholder perceptions through frequent structural or procedural adaptations render these organizations unstable and successful adaptation may become a matter of happenstance. Organizational resilience described as *vulnerable*, on the other hand, reflects situational dependence such that the organization is only resilient under a specific set of conditions. Though stakeholders view this arrangement as satisfactory, dependence on such specific conditions makes the organization's ability to persist particularly susceptible to environmental change.

The four resilience archetypes (i.e., rigid, adaptive, transient, vulnerable) described above provide a basis for considering the ways in which experience-borne MNE resilience may impact MNE performance. In the remainder of this chapter, I build upon the relationship between internationalization experience and MNE magnitude of resilience to hypothesize resultant impacts on MNE performance. More specifically, I first posit a direct relationship between magnitude of resilience and MNE performance.

Then, I incorporate the desirability dimension to hypothesize performance differences between the four resilience archetypes.

3.3.2 The Magnitude of Resilience – MNE Performance Relationship

Empirically examining the relationship between organizational resilience and performance has been somewhat problematic for resilience researchers. First, given that resilience is often defined in terms of persistence, which is inextricably linked to performance, a unidimensional conceptualization of organizational resilience presents a tautology. Specifically, this arrangement suggests that the ability to persist (i.e., resilience) explains performance at the same time that performance justifies the claim of resilience. Indeed, on occasion resilience has been offered as a post hoc explanation for superior performance whose presence is made apparent by the superior performance itself. A second complicating issue facing empirical investigations of resilience concerns the difficulty of addressing the volatility often associated with post-disturbance performance.

The Resilience Architecture Framework affords an opportunity to address the first of these challenges by offering a two-dimensional conceptualization of organizational resilience that includes both magnitude and desirability as discussed above. This conceptualization suggests that magnitude of resilience and stakeholder perceptions of organizational fit with the environment may interact to influence organizational performance. In other words, an organization's magnitude of resilience directly influences performance but how it does so depends on the extent to which the organization is perceived to be fulfilling stakeholder expectations.

The second challenge noted above, which concerns the treatment of organizational performance, can be addressed by conceptualizing two distinct phases in the post-disturbance period. Performance often declines following a disruptive event as organizations assess the immediate impact of the disturbance and make decisions regarding the most appropriate path forward. During this period, organizations seek to mitigate the impact of the disruption and minimize performance declines; that is, they attempt to stifle the performance decline and maintain performance levels to the greatest extent possible. Once a viable path forward is found, organizations move into a phase of performance recovery with a focus on returning to, and perhaps exceeding, previous performance levels. An important element of this performance recovery phase is the extent to which the organization is able to beneficially fit with the post-disturbance environment. Moreover, organizations are likely to pursue performance recovery over a longer period of time than performance maintenance although this is likely to differ from one disturbance to the next. In some cases, the environment changes substantially and requires organizations to adapt in significant ways. In other instances, the environment might return to a state similar to the pre-disturbance environment.

The above discussion can be extended to consider the ways in which magnitude of resilience relates to MNE performance maintenance and recovery following a disruptive event. MNEs with high magnitude of resilience levels are likely able to either resist change or adapt to change such that post-disturbance performance declines more slowly than is the case with MNEs that have low magnitude of resilience levels. In effect, MNEs' high magnitude of resilience better allows them to maintain their performance as they assess the post-disturbance environment and orchestrate the steps to be taken next.

Similarly, this resilience allows them to better position themselves to return to pre-event levels of performance more quickly than is the case for MNEs characterized as having low magnitude of resilience levels.

Hypothesis 3: High magnitude of resilience MNEs outperform low magnitude of resilience MNEs in performance maintenance.

Hypothesis 4: High magnitude of resilience MNEs outperform low magnitude of resilience MNEs in performance recovery.

3.3.3 Desirability as a Moderator of the Magnitude of Resilience – MNE Performance Relationship

The resilience archetypes associated with the Resilience Architecture Framework may also have implications for understanding MNE performance. By considering key characteristics of the four resilience archetypes, this concluding section of the chapter presents hypotheses concerning each archetype's expected performance maintenance and recovery outcomes. In so doing, the post-disturbance performance benefits and hindrances of each resilience archetype can be more readily juxtaposed.

As previously noted, a MNE whose experience has allowed it to develop a high magnitude of resilience but finds itself in denial of stakeholders' negative perceptions of its performance after a disruptive event is indicative of a rigid state of organizational resilience. Adopting such a defensive posture implies that the organization will resist pressures to adapt and continue utilizing existing organizational routines. In essence, its ability to resist change and proficiency in existing routines contradicts stakeholders'

perceptions of what constitutes desirable organization-environment fit. This negative perception of fit interacts with MNE magnitude of resilience. Thus, while the MNE's magnitude of resilience is high, its unwillingness or inability to adapt shapes the way its magnitude of resilience impacts performance.

The MNE's rigidity may impact each of the two post-disturbance performance phases differently. Post-disturbance performance maintenance may be positively impacted because the organization reinforces existing routines. Such an approach provides the organization with an opportunity to maintain high levels of efficiency and slow post-event performance declines; the high level of proficiency with existing routines and lack of resource expenditure to finding alternative paths forward allow for greater focus on mitigating the impact of the disturbance. This suggests that a rigid organizational resilience state is likely beneficial for post-disturbance performance maintenance.

Hypothesis 5a: Low desirability positively moderates the relationship between high magnitude of resilience and MNE performance maintenance.

However, the same rigidity may negatively impact performance recovery because the organization has left efforts to create an acceptable level of fit in the new, post-disturbance environment under-resourced. This suggests that a rigid organizational resilience state is likely detrimental to post-disturbance performance recovery.

Hypothesis 5b*: Low desirability negatively moderates the relationship between high magnitude of resilience and MNE performance recovery.*

A MNE whose experience has allowed it to develop a high magnitude of resilience but, in contrast to the low desirability condition just discussed, enjoys favorable stakeholder perceptions of the extent to which it is fulfilling expectations indicates an adaptive state of organizational resilience. This particular resilience archetype is characterized by both a willingness and capability to integrate new information and adapt routines in accordance with stakeholders' perceptions and the shifting environment. Thus, MNEs that exhibit this resilience type are less likely to resist pressures to alter routines and instead search for ways to accommodate stakeholder expectations in the post-disturbance environmental context. Here, again, desirability impacts the relationship between MNEs high magnitude of resilience and performance; however, it may do so much differently. In this case, the MNE's adaptability may impede its efforts toward performance maintenance as it develops and implements alternative routines that enable it to meet the expectations of stakeholders in the new environment. Thus, post-disturbance performance maintenance may suffer. This suggests that an adaptive organizational resilience state may be harmful to post-disturbance performance maintenance.

Hypothesis 5c*: High desirability negatively moderates the relationship between high magnitude of resilience and MNE performance maintenance.*

While performance maintenance falters, however, performance recovery may be bolstered as resources are allocated toward finding an appropriate fit amid new environmental circumstances. This suggests that an adaptive organizational resilience state likely contributes to post-disturbance performance recovery

Hypothesis 5d*: High desirability positively moderates the relationship between high magnitude of resilience and MNE performance recovery.*

Having addressed the two high magnitude of resilience cases (i.e., rigid, adaptive) above, the following addresses the two low magnitude of resilience cases (i.e., transient, vulnerable). As noted earlier in this chapter, MNEs whose resilience states are categorized as transient face stakeholder perceptions similar to those faced by MNEs with rigid resilience states. The key distinction between rigid and transient resilience states, aside from the magnitude of resilience itself, is that organizations with the latter resilience state recognize and accept stakeholders' negative perceptions of them. As a result, instead of adopting a defensive posture and allocating more resources to existing routines, these organizations attempt to adapt to environmental changes so that they might better address the expectations of stakeholders. However, due to the organizations low magnitude of resilience, the ensuing scramble to satisfy stakeholders after a disturbance results in organizational instability. Although the organization may, in fact, manage to effectively adapt, doing so is largely a matter of chance and its future is highly uncertain.

Performance is likely to suffer profoundly from such uncertainty and instability. When magnitude of resilience is low at the same time that structures and routines are in perpetual flux, MNEs' ability to slow the decline in performance after a disturbance is greatly diminished. Without sufficient rigidity or sufficient adaptability to engender a high magnitude of resilience, MNEs in this category find themselves in the unenviable situation of being neither resilient nor satisfactorily meeting the expectations of stakeholders. As a result, they cannot adhere to existing routines to buoy post-disturbance performance. This suggests that a transient organizational resilience state is detrimental to performance maintenance.

Hypothesis 6a: *Low desirability positively moderates the relationship between low magnitude of resilience and MNE performance maintenance.*

In the absence of reliable existing routines, organizations exhibiting a transient state of resilience must instead focus attention on finding an appropriate fit with the altered environment so that performance might recover. Thus, while this state of organizational resilience may diminish the ability for the organization to maintain performance levels following a disturbance, it may be beneficial for post-disturbance performance recovery.

Hypothesis 6b: *Low desirability negatively moderates the relationship between low magnitude of resilience and MNE performance recovery.*

Lastly, the low magnitude of resilience case that also satisfies the expectations of stakeholders is categorized as vulnerable. MNEs that find themselves in this organizational resilience state are highly dependent on specific situational conditions and are only resilient when those conditions are met. Their situational dependence renders them particularly susceptible to environmental change and they are thus interested in maintaining routines unchanged. This defensive posture, similar to that of MNEs falling into the rigid resilience state category, coincides with stakeholder perceptions of what is needed to create desirable organization-environment fit rather than contradicting them as is the case with rigid resilience states. The implications for post-disturbance performance are that performance maintenance may be strengthened due to proficiency in use of existing routines and a strong preference for the situation to remain unchanged.

Hypothesis 6c: *High desirability negatively moderates the relationship between low magnitude of resilience and MNE performance maintenance.*

Conversely, the vulnerable organizational resilience state may result in weakened post-disturbance performance recovery. As the organization stifles attempts to find alternative routines to improve fit with the altered environment, it may struggle to find a viable route to recovery in the event that the specific conditions upon which the MNE is dependent change.

Hypothesis 6d: *High desirability positively moderates the relationship between low magnitude of resilience and MNE performance recovery.*

This chapter argued that internationalization experience and the MNE resilience it develops have a substantive role to play in determining post-disturbance performance. It proposes that the content of learning, as well as the frequency with which internationalization events occur each contribute to the development of MNE resilience. Specifically, it is hypothesized that diverse internationalization experiences develop a high magnitude of resilience by affording MNEs greater opportunity to find and implement novel solutions to new challenges.

Frequency is also proposed to impact the relationship between experience and magnitude of resilience. Specifically, it is hypothesized that a higher frequency of internationalization events gives MNEs greater opportunity to troubleshoot and make adjustments going forward; thus, higher frequency internationalization positively moderates the relationship between experience and magnitude of resilience.

Finally, leveraging the Resilience Architecture Framework developed by Limnios et al. (2014), it is argued that each of the four types of organizational resilience profiles would result in different post-disturbance performance outcomes. In particular, desirability of the resilience state as seen by stakeholders is hypothesized to interact with magnitude of resilience to differentially impact performance maintenance and performance recovery in the wake of an environmental disturbance. Each of the hypotheses presented in this chapter is included in Table 3.

Table 3: Summary of Hypothesized Relationships

H1	*Diversity of internationalization experience is positively related to MNE magnitude of resilience.*
H2	*Frequency of internationalization events positively moderates the relationship between diverse internationalization experience and MNE magnitude of resilience.*
H3	*High magnitude of resilience MNEs outperform low magnitude of resilience MNEs in performance maintenance.*
H4	*High magnitude of resilience MNEs outperform low magnitude of resilience MNEs in performance recovery.*
H5a	*Low desirability positively moderates the relationship between high magnitude of resilience and MNE performance maintenance.*
H5b	*Low desirability negatively moderates the relationship between high magnitude of resilience and MNE performance recovery.*
H5c	*High desirability negatively moderates the relationship between high magnitude of resilience and MNE performance maintenance.*
H5d	*High desirability positively moderates the relationship between high magnitude of resilience and MNE performance recovery.*
H6a	*Low desirability positively moderates the relationship between low magnitude of resilience and MNE performance maintenance.*
H6b	*Low desirability negatively moderates the relationship between low magnitude of resilience and MNE performance recovery.*
H6c	*High desirability negatively moderates the relationship between low magnitude of resilience and MNE performance maintenance.*
H6d	*High desirability positively moderates the relationship between low magnitude of resilience and MNE performance recovery.*

Chapter 4. Methods

4.1 Research Strategy

This chapter details the methodology used to test the hypothesized model. It first summarizes the overarching approach to addressing the research questions presented in Chapter 1. The second section describes the sources from which data were collected. The third section describes the measures to be used to capture each of the model constructs.

4.1.1 Categorizing Internationalization Experience According to Host Country Context

The primary aim of this research is to improve our understanding of MNE resilience by investigating potential sources of resilience and its performance implications. In particular, this dissertation focuses on two research questions which were first presented in Chapter 1. The research questions center on how processual aspects of internationalization affect MNE resilience development and the impact of MNE resilience on performance:

1. How does the internationalization process of MNEs contribute to the development of MNE resilience?

2. To what extent is MNE resilience related to performance?

The first research question focuses on the extent to which different internationalization experiences contribute to MNEs' magnitude of resilience. Because learning opportunities may vary from one internationalization experience to the next,

resultant knowledge acquisition and its contribution to MNE resilience may also vary. In other words, as learning opportunities differ so too may the knowledge content developed during the internationalization experience. For example, when an organization internationalizes to a context that is similar to one with which it already has experience, the knowledge content acquired will be largely redundant. Alternatively, internationalizing to a dissimilar context will offer an opportunity to acquire a more diverse array of knowledge. Thus, I endeavor to examine whether differences between internationalization contexts might imbue MNEs with different bases of knowledge that variously contribute to the magnitude of resilience. I also investigate whether the frequency of internationalization events impact the relationship between experience and magnitude of resilience.

Examining these relationships necessitates that a distinction be made between various international contexts on important dimensions so that MNEs' experiences can be subsequently categorized according to the level of diversity. This will be done by evaluating the most significant challenges for establishment efforts in MNEs' home country contexts (i.e., contexts in which MNEs were founded) and comparing them with the most significant challenges for establishment in host country contexts (i.e., contexts to which MNEs internationalize). In this way, it is possible to determine which internationalization events are likely to offer redundant internationalization experiences (i.e., those with challenges similar to the home country or a previously entered host country) and which are likely to offer diverse internationalization experiences (i.e., those with challenges dissimilar to the home country or a previously entered host country). Once each internationalization event is categorized, the relationship between diversity of

internationalization experience and magnitude of resilience will be tested. The moderating impact of frequency of event occurrence will subsequently be examined.

4.1.2 The 2007 - 2008 Global Financial Crisis as a Resilience-activating Event

After investigating the role of internationalization experience in developing MNE resilience, I will address the second research question by examining the impact of resilience on MNE performance. As previously discussed, two phases of performance will be assessed: performance maintenance and performance recovery. In order to evaluate the impact of magnitude of resilience on these two performance phases, a supra-firm event likely to trigger widespread organizational response and induce resilience-related activity must first be identified. In other words, it is necessary to examine organizational activity preceding and following an event likely to activate resilience as a response.

Resilience activation refers to the process by which resilience emerges when organizations are beset by difficulties (Powley, 2009). It involves triggering the latent capacity of an organization to positively adapt during a crisis and occurs through the mechanisms of *liminal suspension*, *compassionate witnessing*, and *relational redundancy* (Powley, 2009). *Liminal suspension* refers to the deferment and alteration of existing relational structures. Suspending existing relational structures provides an opportunity for new relational structures to emerge that are capable of satisfactorily addressing the evolving crisis. The second mechanism, *compassionate witnessing*, refers to recognizing and empathizing with others in the organization. These behaviors increase the likelihood that colleagues will reach out to each other and offer assistance. Thus, organizational members endeavor to develop responses to the crisis that benefit more than just

themselves. Finally, *relational redundancy*, the third mechanism through which resilience is activated, refers to the interconnectedness and scope of interpersonal relationships. It describes the broad-based impact that information and action can have when it spreads through a network of relationships that extend beyond the "immediate social reference group" of organization members (Powley, 2009; p. 1310). To a greater or lesser extent, these three mechanisms activate resilience during the critical crisis period and provide the basis for persisting through difficulty. That is to say, some organizations might leverage one or more of these mechanisms to a greater or lesser extent than other organizations. Furthermore, it is possible that an organization fails to activate resilience altogether (i.e., leverages none of the mechanisms that enable resilience activation).

In this dissertation, the financial crisis of 2007 - 2008 will serve as the supra-firm triggering event that activated MNE resilience. The subprime mortgage crisis in the United States served as a catalyst for the so-called Global Financial Crisis (GFC) which, in turn, ushered in a recession of intensity, scale, and scope not seen since the Great Depression of the early 1930s (Aliouche, 2015; Forbes, Frankel, & Engel, 2012). A cascade of GFC-related effects was widely felt and included reduced consumer spending, large-scale layoffs, cutbacks in business investments, and declines in corporate wealth. Though most countries, and by extension the MNEs operating in them, were affected by the crisis, the impact was uneven. Many countries in Europe, for example, eventually fell into their worst recessions since World War II while China's economy continued to grow, albeit, at a slower pace (Aliouche, 2015).

An event such as the GFC whose tremendous impact was felt so broadly over a relatively short period of time offers a unique opportunity to examine organizational

resilience, in general, and MNE resilience, in particular. It is reasonable to assume that the disruption wrought by the onset of the sub-prime mortgage crisis that led into the financial crisis was felt by MNEs and encouraged attempts at firm-level change (Boyle & McDonnell, 2013). As the crisis deepened, MNEs sought to determine how they might best persist through the crisis. Some MNEs sought novel approaches to the shifting conditions while others retrenched in an effort to wait out the crisis. As previously discussed, organizations whose reaction was to reinforce existing routines, rather than seek novel ways forward, may exhibit stronger performance maintenance than organizations that sought novel paths toward adaptation. Alternatively, organizations that oriented their efforts toward adaptation may exhibit strong performance recovery.

In summary, the GFC provides a suitable opportunity to examine the performance effects of MNE resilience for three primary reasons. First, the effects of the GFC were widely felt and thus allow for a broad-based investigation of MNEs operating in various industries, as well as a variety of home and host country contexts. An event of such unusually wide-ranging impact enables examination of a global sample of MNEs. Second, it is reasonable to assume that the GFC was sufficiently disruptive so as to prompt activity focused on organizational persistence. Whether resilience through adaptation is activated or survival is sought through retrenchment, MNEs were forced to consider how they might best persist when faced with particularly difficult circumstances. Third, the intensity and duration of the GFC allows for examination of two phases of performance. Given the depth of the crisis and its multi-year impact on MNE performance, it is possible to investigate both MNE performance maintenance and performance recovery.

4.2 Data Sources

4.2.1 World Bank Group Enterprise Surveys

Enterprise Surveys are firm-level surveys administered in a representative sample of companies and have been conducted by the World Bank Group since 2002. Data are collected through face-to-face interviews with managers and business owners on such business environment topics as access to finance, corruption, and competition. Data span 155,000 companies operating in 148 economies. Emerging economies are the primary focus though some developed countries are included in the survey program for comparison. Surveys are conducted approximately every three years. Surveys focus on select International Standard Industrial Classification (ISIC) of All Economic Activities manufacturing and service sectors in each country and exclude 100% state-owned firms. Only registered companies employing five or more people are surveyed. Table 4 provides a summary of ISIC industries surveyed as maintained by the United Nations Statistics Division (ISIC Rev. 3.1).

Table 4: International Standard Industry Classification (ISIC) of All Economic Activities included in Enterprise Surveys

Division Number	Division Label	Division Description
15	Manufacture of food products and beverages	The food industry processes the products of agriculture, animal husbandry and fishing into food and drink for humans or animals, and includes the production of various intermediate products that are not directly food products. The activity often generates associated products of greater or lesser value (for example, hides from slaughtering, or oilcake from oil production).
16	Manufacture of tobacco products	This division includes the processing of an agricultural product, tobacco, into a form suitable for final consumption.
17	Manufacture of textiles	This division includes preparation and spinning of textile fibres as well as textile weaving, finishing of textiles and wearing apparel, manufacture of made-up textile articles, except apparel (e.g., household linen, blankets, rugs, cordage etc.) and manufacture of knitted and crocheted fabrics and articles thereof (e.g., socks and pullovers).
18	Manufacture of wearing apparel; dressing and dyeing of fur	The clothing industry covers all tailoring (ready-to-wear or made-to-measure), in all materials (e.g., leather, fabric, knitted and crocheted fabrics, etc.), of all items of clothing (e.g., outerwear, underwear for men, women or children; work, city or casual clothing, etc.) and accessories from materials not made in the same unit. There is no distinction made between clothing for adults or children, or between modern and traditional clothing. Division 18 also includes the fur industry (fur skins and wearing apparel).

Table 4 (continued): ISIC of All Economic Activities included in Enterprise Surveys

Division Number	Division Label	Division Description
19	Tanning and dressing of leather; manufacture of luggage, handbags, saddlery, harness and footwear	This division includes the transformation of hides into leather by tanning or curing and fabricating the leather into products for final consumption. It also includes the manufacture of similar products from other materials (imitation leathers or leather substitutes), such as rubber footwear, textile luggage etc. The products made from leather substitutes are included here, since they are made in ways similar to those in which leather products are made (e.g., luggage) and are often produced in the same unit.
20	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	This division includes manufacture of wood products, such as lumber, plywood, veneers, wood containers, wood flooring, wood trusses, and prefabricated wood buildings. The production processes include sawing, planing, shaping, laminating, and assembling of wood products starting from logs that are cut into bolts, or lumber that may then be cut further, or shaped by lathes or other shaping tools. The lumber or other transformed wood shapes may also be subsequently planed or smoothed, and assembled into finished products, such as wood containers.
21	Manufacture of paper and paper products	This division includes manufacture of pulp, paper, or converted paper products. The manufacturing of these products is grouped together because they constitute a series of vertically connected processes. More than one is often carried out in a single unit. There are essentially three activities. The manufacturing of pulp involves separating the cellulose fibers from other impurities in wood or used paper. The manufacturing of paper involves matting these fibers into a sheet. Converted paper products are made from paper and other materials by various cutting and shaping techniques and includes coating and laminating activities.

Table 4 (continued): ISIC of All Economic Activities included in Enterprise Surveys

Division Number	Division Label	Division Description
22	Publishing, printing and reproduction of recorded media	This division includes printing and publishing whether or not connected with printing. Publishing involves financial, technical, artistic, legal and marketing activities, among others, but not predominantly.
23	Manufacture of coke, refined petroleum products and nuclear fuel	This division is based on the transformation of crude petroleum and coal into usable products and also includes the nuclear industries. It is the manufacturing part of the energy sector which begins in section C (extraction) and is also present in section E (electricity, gas and water supply). The dominant process is petroleum refining that involves the separation of crude petroleum into component products through such techniques as cracking and distillation. This division also covers the manufacture for own account of characteristic products (e.g., coke, butane, propane, petrol, kerosene, fuel oil, nuclear fuel, etc.) as well as processing services (e.g., custom refining, treatment of nuclear waste). This division includes the manufacture of gases such as ethane, propane and butane as products of petroleum refineries.
24	Manufacture of chemicals and chemical products	This division is based on the transformation of organic and inorganic raw materials by a chemical process and the formulation of products. It distinguishes the production of basic chemicals that comprise the first industry group from the production of intermediate and end products produced by further processing of basic chemicals that make up the remaining industry classes.
25	Manufacture of rubber and plastics products	The rubber and plastic industries are characterized by the raw materials used. However, this does not mean that all products made of these materials necessarily fall under this activity.

Table 4 (continued): ISIC of All Economic Activities included in Enterprise Surveys

Division Number	Division Label	Division Description
26	Manufacture of other non-metallic mineral products	This division groups different areas which are all related to a single substance of mineral origin. This division includes glass and glass products (e.g., flat glass, hollow glass, fibres, technical glassware, etc.); ceramic products, tiles and baked clay products, and cement and plaster, from raw materials to finished articles. Shaped and finished stone and other mineral products complete the division.
27	Manufacture of basic metals	This division includes the activities of smelting and/or refining ferrous and non-ferrous metals from ore, pig or scrap, using electrometallurgic and other process metallurgic techniques. Units in this division also manufacture metal alloys and super-alloys by introducing other chemical elements to pure metals. The output of smelting and refining, usually in ingot form, is used in rolling, drawing and extruding operations to make sheet, strip, bar, rod or wire, and in molten form to make castings and other basic metal products.
28	Manufacture of fabricated metal products, except machinery and equipment	[This division] deals with the manufacture of "pure" metal products (such as parts, containers and structures), usually with a static, immovable function.
29	Manufacture of machinery and equipment n.e.c.	This division covers the manufacture of machinery and equipment that act independently on materials either mechanically or thermally or perform operations on materials (such as handling, spraying, weighing or packing), including their mechanical components that produce and apply force, and any specially manufactured primary parts. This category includes fixed and mobile or hand-held devices, regardless of whether they are designed for industrial, building and civil engineering, agricultural, military or home use.

Table 4 (continued): ISIC of All Economic Activities included in Enterprise Surveys

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Division Number	Division Label	Division Description
30	Manufacture of office, accounting and computing machinery	The manufacture of office machinery (e.g., photocopiers, cash registers etc.) and computer equipment (e.g., computers, word processors and peripherals) is considered to include installation.
31	Manufacture of electrical machinery and apparatus n.e.c.	This division includes the manufacture of products that generate, distribute and store electrical power. Also included is the manufacture of electrical lighting and signaling equipment.
32	Manufacture of radio, television and communication equipment and apparatus	This division covers the manufacture of electronic equipment for broadcasting and transmission, data communications equipment, receivers, recorders and reproduction equipment. The division covers all intermediate products from professional equipment to that for the general public. It should be pointed out that the installation and repair of professional equipment are also covered by this division.
33	Manufacture of medical, precision and optical instruments, watches and clocks	This division covers not only scientific and technical instruments (e.g., electro-diagnostic apparatus, avionic equipment, etc.) but also photographic and cinematographic equipment, industrial process control equipment, and personal goods (e.g., watches, spectacles, etc.). This division also includes the installation and repair of such industrial equipment.
34	Manufacture of motor vehicles, trailers and semi-trailers	This [division] includes the manufacture of motor vehicles for transporting people or goods. The manufacture of various parts and accessories, as well as manufacture of trailers and semi-trailers is included here.
35	Manufacture of other transport equipment	(no division description provided)

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Table 4 (continued): ISIC of All Economic Activities included in Enterprise Surveys

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Division Number	Division Label	Division Description
36	Manufacture of furniture; manufacturing n.e.c.	(no division description provided)
37	Recycling	This division includes processing of waste and scrap and other articles, whether used or not, into secondary raw material. A transformation process is required, either mechanical or chemical. Typical is that in terms of commodities, input consists of waste and scrap, the input being sorted or unsorted but normally unfit for further direct use in an industrial process whereas the output is made fit for direct use in an industrial manufacturing process. The resulting secondary raw material is to be considered as an intermediate good, with a value but is not a final new product.
45	Construction	This division includes general construction and special trade construction for buildings and civil engineering, building installation and building completion. It includes new work, repair, additions and alterations, the erection of prefabricated buildings or structures on the site and also construction of a temporary nature.
50	Sale, maintenance and repair of motor vehicles and motorcycles; retail sale of automotive fuel	This division includes all activities (except manufacture and renting) related to motor vehicles and motorcycles, including lorries and trucks; wholesale and retail sale of new and second-hand vehicles; maintenance and repair; wholesale and retail sale of parts and accessories; activities of commission agents involved in wholesale or retail sale of vehicles; washing, polishing and towing of vehicles etc. This division also includes retail sale of automotive fuel and lubricating or cooling products.

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Table 4 (continued): ISIC of All Economic Activities included in Enterprise Surveys

Division Number	Division Label	Division Description
51	Wholesale trade and commission trade, except of motor vehicles and motorcycles	This division includes resale (sale without transformation) of new and used goods to retailers, to industrial, commercial, institutional or professional users, or to other wholesalers; or acting as agent in buying merchandise for, or selling merchandise to, such persons or companies; activities of wholesale merchants, jobbers, industrial distributors, exporters, importers, co-operative buying associations, merchandise and commodity brokers, commission merchants and agents and assemblers, buyers and cooperative associations engaged in the marketing of farm products. This division also includes the usual manipulations involved in wholesale such as assembling, sorting and grading of goods in large lots, breaking bulk, repacking and bottling, redistribution in smaller lots, e.g., pharmaceuticals; storage, refrigeration, delivery and installation of goods on own account; packing of solid goods and bottling of liquid or gaseous goods, including blending and filtering on own account.
52	Retail trade, except of motor vehicles and motorcycles; repair of personal and household goods	This division includes the resale (sale without transformation) of new and used goods mainly to the general public for personal or household consumption or utilization, by shops, department stores, stalls, mail-order houses, hawkers and peddlers, consumer cooperatives etc.
55	Hotels and restaurants	[This division] comprises units providing customers with short-term lodging and/or preparing meals, snacks, and beverages for immediate consumption. The section includes both accommodation and food services because the two activities are often combined at the same unit.
60	Land transport; transport via pipelines	This division includes the transport of passengers and freight via road and rail, as well as freight transport via pipelines.

Table 4 (continued): ISIC of All Economic Activities included in Enterprise Surveys

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Division Number	Division Label	Division Description
61	Water transport	This division includes the transport of passengers or freight over water, whether scheduled or not. Also included are the operation of towing or pushing boats, excursion, cruise or sightseeing boats, ferries, water taxis etc.
62	Air transport	This division includes transport of passengers or freight by air or via space.
63	Supporting and auxiliary transport activities; activities of travel agencies	This division includes activities related to handling freight immediately before or after transport or between transport segments. The operation and maintenance of all transport facilities are included. This division also includes activities assisting passengers, such as those of travel agencies.
64	Post and telecommunications	(no division description provided)
72	Computer and related activities	This division includes activities related to the design, set-up, operation and maintenance of computer systems and networks, as well as custom software development and software publishing. Included are data-processing activities of various kinds and the storage and online distribution of electronic content. Also included are the maintenance and repair of other office, accounting and computing machinery.

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4.2.2 International Directory of Company Histories

The *International Directory of Company Histories* is a multi-volume publication that details the histories of more than 8000 companies. The entries are a synthesis of information gathered from periodicals, books, company filings, and company archives. Each company history includes information such as company founders, key historical dates, subsidiaries, competitors, and company expansion activities. The information is arranged alphabetically by company name and includes cumulative company, key personnel, and industry indexes, as well as a geographical index to countries sorted by the country in which the head office is located.

4.2.3 Compustat Database

The Compustat database contains more than 500 pieces of company information (e.g., financials) for approximately 84,000 active and inactive companies. Data span nearly 40 years going back to 1979 and is primarily collected from companies' SEC filings.

4.2.4 Bloomberg Database

The Bloomberg database contains financial and economic data on a range of markets. It includes company financial data and news reports, as well as more than one million biographies of company leaders. Data are collected from a range of sources and integrated with historical information as it is collected in real time.

4.2.5 Hoover's Online, Business Insights Essentials, and Mergent Online

Three additional sources were used to collect data when the sources mentioned above did not contain the data required. Each of these web-based data sources offer a wealth of company information including histories, executives, and subsidiaries.

4.3 Description of Study Variables and Measures

4.3.1 Internationalization Experience

Internationalization experience represents the sum of a MNE's firsthand knowledge about extending operations beyond its domestic market. As discussed in Chapter 3, this dissertation focuses narrowly on knowledge developed through direct experience and, thus, assumes that all knowledge about expanding operations abroad was gained through experiential learning. Internationalization experience is treated herein as a two-dimensional construct comprised of diversity of experience and frequency of event occurrence (see Table 5). Each MNE's internationalization experience was assessed during the years from 1980 – 2006, one year prior to the onset of the GFC (see Figure 6).

Table 5: Model Constructs, Measures, and Data Sources

Construct	Dimension	Measure	Data Source
Internationalization Experience	Diversity	Ratio of number of years in dissimilar environment to total number of years operating abroad	International Directory of Company Histories; Bloomberg database; company websites
	Frequency of internationalization events	Ratio of number of internationalization events undertaken to total number of years operating abroad	International Directory of Company Histories; Bloomberg database; company websites
Magnitude of Resilience	Organizational	Aggregate Bankruptcy Index	Compustat database; Bloomberg database
Desirability	Environmental	Credit rating; Change in market capitalization	Compustat database; Bloomberg database
Post-event MNE Performance	Profitability	ROS; ROE	Compustat database; Bloomberg database
Controls	Firm age	Total years since founding	Compustat database; Bloomberg database
	Firm size	2006 total revenue	Compustat database; Bloomberg database
	Industry	Global Industry Classification Standard (GICS) code	Compustat database; Bloomberg database
Magnitude of Resilience	Organizational	Aggregate Bankruptcy Index	Compustat database; Bloomberg database

Notes: Credit rating and change in market capitalization were replaced by Bloomberg Default Risk as a measure of Desirability; growth as a dimension of performance was removed due to measure overlap with the Aggregate Bankruptcy Index.

Figure 6: Data Collection Timeframes
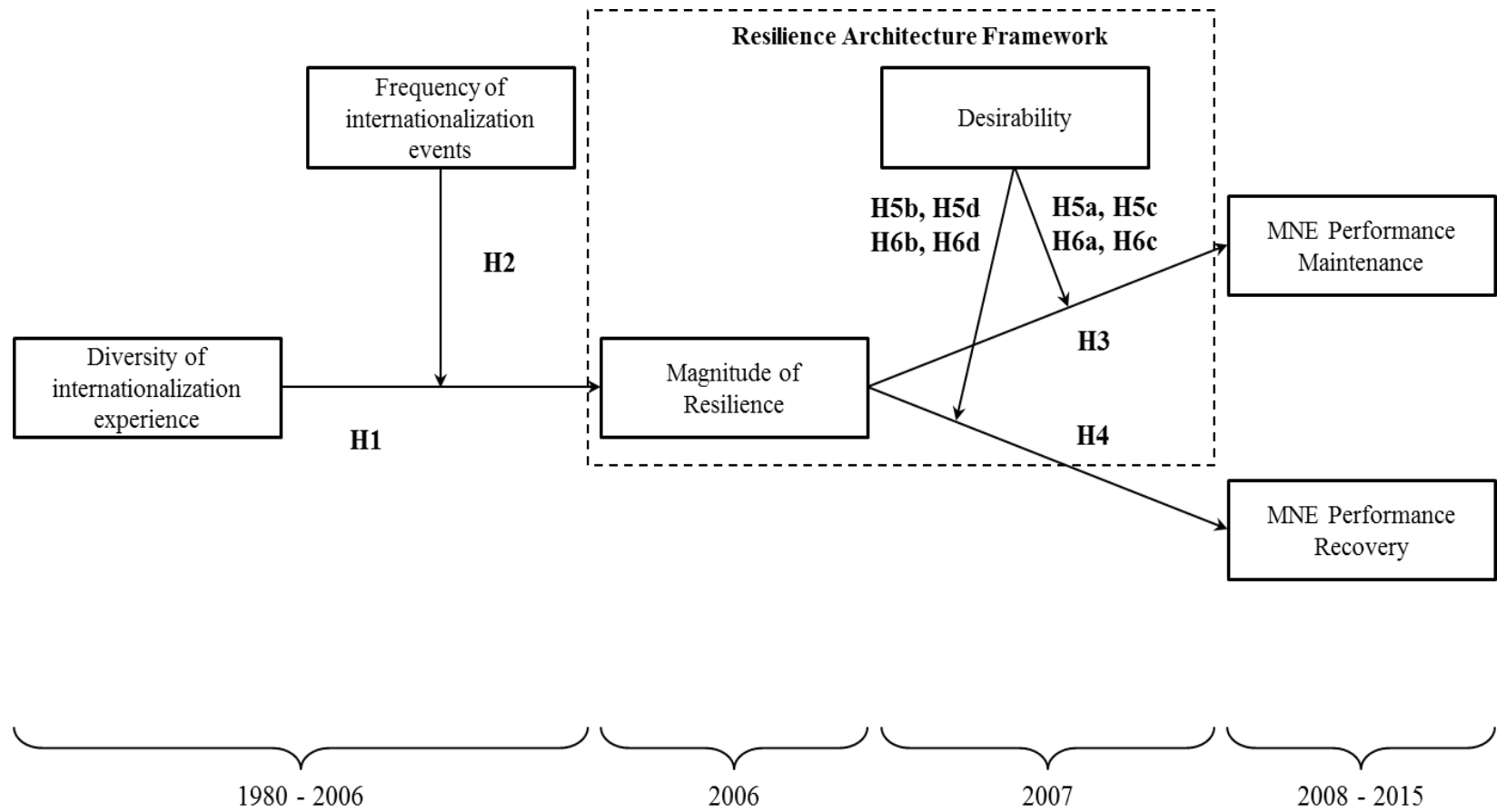
4.3.2 Diversity of Internationalization Experience

Diversity of internationalization experience refers to the proportion of a MNE's expansion history that is comprised of internationalization experiences dissimilar to past experiences and is comparable to the *breadth* variable used by Perkins (2014). This dimension of internationalization experience is intended to capture the extent to which recent experience is likely to broaden existing organizational knowledge about international expansion. It was measured as the number of years operating in a host country environment dissimilar to the MNE's home country environment or a previously entered host country environment divided by the total number of years the MNE operated abroad. This variable is continuous and values range from 0 to 1. Data were collected from the International Directory of Company Histories and supplemented with additional information from the Bloomberg database and company websites as necessary.

4.3.3 Frequency of Internationalization Events

Frequency of internationalization events refers to the MNE's average number of international expansions per year. This dimension of internationalization experience is intended to capture the accumulation of organizational knowledge about international expansion gained through successive iterations of internationalization activity. It was measured as the number of internationalization events undertaken by the MNE throughout its history divided by the total number of years the MNE has been active outside its home country. This is a continuous variable. Data were collected from the International Directory of Company Histories and supplemented with additional information from the Bloomberg database and company websites as necessary.

4.3.4 Magnitude of Resilience

Magnitude of resilience refers to the extent to which an organization can tolerate a disturbance and still persist (Limnios et al., 2014). It is intended to capture the likelihood that a MNE will be able to continue operating during and after a disturbance. It was measured using the Aggregate Bankruptcy Index (Liao & Mehdian, 2016). The index can be used to predict the extent to which a firm is susceptible to financial failure and corporate bankruptcy. It is a within sample measure that ranks firms according to their relative financial distress and is calculated using a set of financial ratios; index values range from 0 to 1. Index values above the mean comprise the high magnitude of resilience case while index values below the mean comprise the low magnitude of resilience case. Thus, this is a categorical variable. Data were collected for the year 2006 from the Compustat and Bloomberg databases. The five following ratios are used as inputs to the Aggregate Bankruptcy Index (ABI5): working capital to total assets, retained earnings to total assets, earnings before interest and taxes to total assets, market value of equity to book value of total debt, and sales to total assets.

4.3.5 Desirability

Desirability refers to the extent to which the organization is satisfying the expectations of stakeholders (Limnios, et al., 2014). It is intended to capture stakeholder perceptions regarding a MNE's level of fit with its environment. It was measured using the Bloomberg Default Risk which approximates the likelihood that a particular firm will default within a one year period based on company data, market data, and quantitative modeling. Data were collected from the Bloomberg databases.

4.3.6 MNE Performance Maintenance

MNE performance maintenance refers to the extent to which the organization is able to mitigate the impact of a disturbance and minimize performance declines. It is intended to capture the degree to which a MNE is able to sustain its level of performance in the period immediately following the disruption wrought by the GFC. Profitability was used to assess MNE performance in the period following the GFC. Profitability was measured as net income divided by total sales (ROS) and net income divided by stockholders equity (ROE). All performance measures are continuous and data were collected for the years 2008, 2009, and 2010 from the Compustat and Bloomberg databases. The period from 2008 – 2010 is chosen to assess MNE performance maintenance because it begins after the onset of the GFC and includes the point at which most economies began to show initial signs of recovery.

4.3.7 MNE Performance Recovery

MNE performance recovery refers to the extent to which the organization is able to persist through the impact of disturbance and bounce back from performance declines. It is intended to capture the degree to which a MNE is able to return to an acceptable level of performance in the period following decline. As with MNE performance maintenance, profitability was used to assess MNE performance in the period following the GFC. Profitability was measured as net income divided by total sales (ROS) and net income divided by stockholders equity (ROE). All performance measures are continuous and data were collected for the years 2011, 2012, 2013, 2014 and 2015 from the Compustat and Bloomberg databases. The period from 2011 – 2015 is chosen to assess

MNE performance recovery because it begins after the point at which most economies
began to show initial signs of recovery.

4.3.8 Control Variables

Control variables include *firm age*, *firm size*, and *industry sector*. Firm age was
measured as the total number of years since the firm's founding. Firm size was measured
as the total sales at the end of the year 2006. Both firm age and firm size are continuous
variables. Industry sector is a categorical variable and is assessed using the MNEs Global
Industry Classification Standard (GICS) sector codes at the end of the year 2006. Data
were collected from the Compustat and Bloomberg databases.

4.4 Analytical Treatment of Data

4.4.1 Determining Home and Host Country Context Clusters

As noted previously in this chapter, assessing the extent to which experience in
different types of host country environments might contribute to developing MNE
resilience requires that home and host country contexts be distinguished from one another
along important dimensions. In so doing, it becomes possible to assess similarity between
contexts and distinguish between the types of knowledge content likely acquired by the
internationalizing MNE. The dimensions considered for this study focus on the most
challenging obstacles faced by business owners and managers when attempting to
establish operations in the country of interest. More specifically, the data collected from
the *World Bank Group Enterprise Surveys* reflect the percentage of business owners and
managers in a particular country that indicated a particular dimension to be the biggest
obstacle to establishing operations in that country. There are fifteen dimensions along

which latent class analysis (LCA) is used to cluster MNE operating environments: access to finance, access to land, business licensing/permits, corruption, courts, crime/theft/disorder, customs/trade regulations, electricity, inadequately educated workforce, labor regulations, political instability, practices of competitors in the informal sector, tax administration, tax rates, and transport.

Latent class models link observed variables to unobserved (i.e., latent) variables of interest where the latter is assumed to have discrete categories (McCollam, 1998; Vermunt & Magidson, 2004). This characteristic of latent class modeling distinguishes it from latent trait modeling which alternatively assumes that latent variables are continuous. As a consequence, rather than observed variables reflecting a modeled relationship with the latent variable as in the case of latent trait modeling, latent class modeling explains differences in observed variables in terms of unobserved classes, or categories. Thus, LCA will allow business owner and manager responses regarding the greatest obstacles to establishment to be used to categorize contexts into discrete national context clusters.

Latent class methodologies are used extensively in fields of research characterized by investigation of theoretical concepts (McCollam, 1998). In particular, the social and behavioral sciences, but also the organizational sciences, have increasingly leveraged these approaches in recent years. As their popularity has grown, so too have the number of statistical packages capable of LCA (e.g., MPlus, R, SAS). Indeed, recent international business literature incorporates latent class analysis to examine patterns of internationalization (e.g., Baum, Schwens, & Kabst, 2015). Moreover, latent class approaches to clustering, such as LCA are considered more efficacious than a number of

other methods (e.g., hierarchical cluster analysis) and tends to more correctly classify cases across a range of data types (Fonseca, 2013).

4.4.2 Empirically Testing Hypothesized Main and Indirect Effects

Given the presence of both continuous and categorical variables of interest, a combination of logistic regression and multivariate analysis of covariance (MANCOVA) were used to test the hypothesized model. Each of these methods of empirical testing is common in the organizational sciences literature and have been used widely in a range of study designs over the decades. Hypotheses 1 and 2, which examine the relationship between various dimensions of internationalization experience and magnitude of resilience, were tested using logistic regression due to the dichotomous dependent variable (i.e., high magnitude of resilience, low magnitude of resilience). Logistic regression estimates parameters using the method of maximum likelihood estimation and is appropriate to use when the dependent variable is binary (Kutner, Nachtsheim, Neter, & Li, 2005). Hypotheses 3 – 5 investigate the relationship between magnitude of resilience and MNE performance maintenance. MANCOVA is an appropriate analytical technique in this case due to the presence of a dichotomous predictor variable (i.e., magnitude of resilience) and multiple continuous outcome variables.

This chapter set forth the analytical approach used to examine the relationships of interest and test the Resilience Architecture Framework. In the chapter that follows, results of the empirical analysis conducted and support for the hypotheses presented in Chapter 3 are reported and summarized.

Chapter 5. Results of Empirical Analysis

The previous chapter detailed the methodology employed in this study.

Specifically, it set forth the research strategy, described the data sources leveraged, and

detailed the measures and methods used to examine the relationships of interest. The

present chapter describes the methodological adjustments made during the course of the

study's execution, reports the analysis results, and interprets the results in the context of

this study. In particular, the first section describes variable adjustments that were made to

facilitate empirically testing the hypothesized model. The second section presents the

latent class analysis results before reporting descriptive statistics and the hypothesis

testing results in the third and fourth sections. The final sections of this chapter report on

a series of post hoc analyses before summarizing the analysis results.

5.1 Variable Adjustments

As is sometimes necessary when conducting empirical studies that utilize

secondary data, variable adjustments were undertaken to facilitate analysis. In several

instances during the data collection effort, data required for analysis could not be

gathered using available data sources. When this was the case, appropriate adjustments

(e.g., selecting an alternative proxy) were made to allow for data collection and

subsequent analysis to continue. In two instances the variable was excluded from the

primary analysis as a consequence of missing data issues (i.e., employees as a proxy for

firm size, sequence of acquisition). The remainder of this section describes each of the variable adjustments made in turn.

5.1.1 Diversity of Internationalization Experience

As originally formulated, diversity of internationalization was to be calculated as the ratio of the number of years of MNE activity in operating environments dissimilar to the home environment to the total number of years the MNE was operating abroad. However, the absence of uniform data about the operating environment of each country to which all MNEs in the sample internationalized prevented this original formulation from being used. In an effort to compensate for this shortcoming, the available data were weighted in accordance with the number of country operating environments included in the World Bank Enterprise Survey as compared to the total number of country operating environments. For example, a MNE that internationalized to two countries, only one of which was included in the World Bank Enterprise Surveys, would have its diversity ratio assigned a weight of 0.5. The "weighted diversity ratio" thus serves as an approximation of the original formulation of the variable of interest.

5.1.2 Desirability

Multinational enterprise desirability was intended to capture the perceptions that stakeholders hold of the particular organization's degree of fit with its environment. In the initial conceptualization put forth in Chapter 4 it was to be measured via credit rating and percent change in market capitalization. However, the incongruity of credit rating reporting between sampled MNEs prevented this measure from being used as originally formulated. Instead, the Bloomberg Default Risk (BDR) was used as a proxy for desirability. Bloomberg's one year default probability approximates the likelihood that a

particular firm will default within a one year period based on company data, market data, and quantitative modeling. Market capitalization was excluded as a measure for desirability due to its inclusion as part of the magnitude of resilience variable calculation.

5.1.3 Firm Size

The number of firm employees at the end 2006 was originally meant to serve as a proxy for firm size. However, less than half of the firms in the sample reported the required data. As such, revenue for 2006 was used as an alternative proxy for firm size.

5.2 Results of Latent Class Analysis

Latent class analysis was used to cluster MNE operating environments along 15 dimensions included in the World Bank Enterprise Surveys: access to finance, access to land, business licensing/permits, corruption, courts, crime/theft/disorder, customs/trade regulations, electricity, inadequately educated workforce, labor regulations, political instability, practices of competitors in the informal sector, tax administration, tax rates, and transport. The survey data reported on all 15 dimensions for 139 countries spread across six regions of the world: 1) East Asia and Pacific, 2) Europe and Central Asia, 3) Latin American and the Caribbean, 4) Middle East and North Africa, 5) South Asia, and 6) Sub-Saharan Africa.

As a first step toward determining the underlying structure of the Enterprise Survey data with regards to biggest obstacles to establishment, the overall mean was calculated for each of the 15 dimensions (i.e., the dimension mean across all 139 countries) and subsequently compared with each of the 2085 country-dimension values (i.e., dimension values within each country) to determine whether each country-

dimension mean was higher or lower than the overall mean on each of the 15 dimensions. Countries that had higher than average values were considered to exhibit high obstacle difficulty on the dimension of interest. The cases in which the country-dimension was higher than the overall mean were coded "1" and all other cases were coded "2".

The coded data were subjected to 8 iterations of latent class analysis. Each of the iterations examined the extent to which the data fit a structure that assumed a particular number of latent classes, or clusters, ranging from 3 to 10. A primary consideration in this phase of analysis was the probability that a country was incorrectly assigned to a group. Other considerations included the change in probability of incorrect assignment between iterations and the number of countries assigned to each cluster. The results of this analysis suggested that the most parsimonious solution (i.e., the greatest accuracy of cluster assignment with the fewest number of groups) was 5 clusters. Table 6 lists the countries included in each of the clusters.

Across all clusters, access to finance, electricity, and tax rates were most frequently reported to be the issues most difficult to overcome with an average of 15.3%, 14.8%, and 11.2% of respondents reporting these as the biggest obstacles to establishing operations, respectively. The greatest within-dimension variance was seen with electricity that had a reported high of 26.6% and a low of 4.6%. Other notable within-dimension differences were seen with practices of competitors in the informal sector, access to finance, and corruption that showed differences between the highest and lowest reported values of 8.2%, 7.1%, and 6.4%, respectively. The fewest respondents reported the courts system (1.1%) and labor regulations (2.4%) as being the biggest obstacles to establishment.

Respondents in the first cluster (i.e., Group 1) reported corruption (9.3%), the courts system (1.8%), an inadequately educated workforce (10.3%), the practices of competitors in the informal sector (14.9%), and tax rates (13.6%) as the biggest obstacles to establishment more frequently than any other group. Group 2 respondents most frequently reported that business licensing and permits (4.9%), labor regulations (4.6%), political instability (10.6%), and transportation (5.6%) were the biggest obstacles to starting operations. Group 3 respondents reported access to finance (19.4%) and tax administration (6.4%) as being the biggest obstacles more frequently than any other group while among Group 4 respondents this was the case for access to land (5.1%) and crime, theft, and disorder (6.2%). Group 5 respondents reported customs and trade regulations (4.2%) and electricity (26.6%) as the biggest obstacles to establishment more frequently than any other group. Complete results are reported in Table 7.

In summary, access to finance and tax rates were commonly referred to as the biggest challenges to establishment across all groups. In addition, countries in Group 1 were perceived as primarily facing the obstacles of corruption, inadequately educated workforce, political instability, and the practices of competitors in the informal sector. Group 2 countries were perceived similarly to Group 1 countries but less frequently reported corruption as the biggest obstacle to establishing operations. Countries in Group 3 closely reflect the overall average trend of significant challenges associated with access to finance, electricity, and tax rates. Results of Groups 4 and 5 are quite similar with the main distinctions coming in the relatively high percentage of respondents in Group 4 reporting access to land and crime/theft/disorder as the biggest obstacles to establishment while Group 5 countries overwhelmingly reported electricity to be the biggest obstacle.

Table 6: Results of Latent Class Analysis

Group 1 (N = 41)	Argentina	Egypt	Romania
	Azerbaijan	El Salvador	Russian Federation
	Bahamas	Ethiopia	Serbia
	Belarus	Guatemala	Slovak Republic
	Bolivia	Guyana	Solomon Islands
	Bosnia and Herzegovina	Kazakhstan	Syrian Arab Republic
	Brazil	Lithuania	Trinidad and Tobago
	Bulgaria	Mexico	Tunisia
	Colombia	Morocco	Turkey
	Costa Rica	Papua New Guinea	Ukraine
	Croatia	Paraguay	Uruguay
	Czech Republic	Peru	Uzbekistan
	Dominican Republic	Philippines	Venezuela
	Ecuador	Poland	
Group 2 (N = 25)	Bhutan	Lebanon	St. Lucia
	Chile	Macedonia	Swaziland
	Eritrea	Malawi	Sweden
	Estonia	Mauritius	Vanuatu
	Fed. States of Micronesia	Mozambique	Vietnam
	Fiji	Samoa	West Bank and Gaza
	Indonesia	Slovenia	Zambia
	Iraq	South Sudan	
	Jordan	Sri Lanka	
Group 3 (N = 12)	Barbados	Cote d'Ivoire	Malaysia
	Botswana	Gabon	Mali
	Burkina Faso	Hungary	Togo
	Cameroon	Latvia	Uganda

Table 6 (continued): Results of Latent Class Analysis

Group 4 (N = 20)	Cambodia	India	Nicaragua
	Cape Verde	Mauritania	Panama
	China	Moldova	Sierra Leone
	Djibouti	Mongolia	South Africa
	Georgia	Montenegro	Tajikistan
	Grenada	Myanmar	Yemen
	Honduras	Namibia	
Group 5 (N = 41)	Afghanistan	Ghana	Nigeria
	Albania	Guinea	Pakistan
	Angola	Guinea-Bissau	Republic of Congo
	Antigua and Barbuda	Israel	Rwanda
	Armenia	Jamaica	Senegal
	Bangladesh	Kenya	St. Kitts and Nevis
	Belize	Kosovo	St. Vincent and the
	Benin	Kyrgyz Republic	Grenadines
	Burundi	Lao People's Dem. Republic	Sudan
	Central African Republic	Lesotho	Suriname
	Chad	Liberia	Tanzania
	Democratic Rep. of the	Madagascar	Timor-Leste
	Congo	Nepal	Tonga
	Dominica	Niger	Zimbabwe
	The Gambia		

Table 7: Percentage of Respondents Reporting Dimension as Biggest Obstacle to Establishment

Dimension	Group 1	Group 2	Group 3	Group 4	Group 5
Access to finance	12.3%	17.2%	19.4%	14.8%	16.2%
Access to land	2.4%	4.7%	2.5%	5.1%	2.9%
Business licensing/permits	3.6%	4.9%	3.4%	2.6%	1.4%
Corruption	9.3%	2.8%	6.1%	8.6%	6.3%
Courts	1.8%	0.9%	0.7%	1.1%	0.6%
Crime/theft/disorder	5.6%	5.5%	2.3%	6.2%	4.8%
Customs and trade regulations	3.3%	2.4%	2.1%	2.6%	4.2%
Electricity	4.6%	8.8%	15.8%	18.2%	26.6%
Inadequately educated workforce	10.3%	9.1%	7.0%	7.0%	4.6%
Labor regulations	3.3%	4.6%	1.9%	1.9%	0.6%
Political instability	10.0%	10.6%	7.8%	6.3%	8.5%
Practices of competitors in the informal sector	14.9%	12.3%	7.8%	8.2%	6.8%
Tax administration	3.7%	2.5%	6.4%	3.4%	2.6%
Tax rates	13.6%	8.1%	12.8%	11.5%	10.0%
Transport	1.3%	5.6%	4.0%	2.6%	3.8%

5.3 Descriptive Statistics

The sample for this study is comprised of 109 firms headquartered in 21 countries in the year 2006. All 6 of the regions for which The World Bank Enterprise Surveys report data are represented in the sample, though that is not the case at the country level. Table 8 summarizes the regions and countries in which sample firms were headquartered. One hundred twenty-three of the 139 countries for which the World Bank Enterprise Surveys provide data are represented in the sample used in this study. The average age of firms in this sample is 24 years and the firms were active in the following GICS sectors: consumer discretionary, consumer staples, energy, health care, industrials, information technology, materials, telecommunication services, and utilities. Table 9 presents means, standard deviations, and bivariate correlations for the variables contained in the hypothesized model presented in Chapter 3.

Table 8: Regions and Countries in which Sample Firms are Headquartered

Region	Countries	Number of firms in sample
East Asia and Pacific	China	5
	Malaysia	20
	Philippines	1
Europe and Central Asia	Czech Republic	3
	Estonia	1
	Croatia	1
	Hungary	1
	Poland	3
	Russian Federation	4
	Sweden	19
	Turkey	3
Latin America and Caribbean	Argentina	1
	Chile	2
	Mexico	4
	Peru	1
Middle East and North Africa	Egypt	2
	Israel	9
South Asia	India	18
Sub-Saharan Africa	Mauritius	1
	South Africa	9
	Zimbabwe	1

Table 9: Means, Standard Deviations, and Bivariate Correlations

Variable	M	SD	N	1	2[2]	3[1]	4	5[1]	6
1. Diversity of Internationalization Experience	.60	.47	109						
2. Frequency of Internationalization Events[2]	-1.55	1.04	109	-.16					
3. Magnitude of Resilience[1]			109	.07	.03				
4. Aggregate Bankruptcy Index (ABI5)	.55	.16	109	.13	.17	.85**			
5. Desirability[1]			96	.08	-.30**	-.39**	-.41**		
6. Bloomberg Default Risk	.38	.87	96	-.10	-.22*	-.34**	-.34**	.85**	
7. Resilience Architecture[1]			96	-.02	.20	.90**	.79**	-.75**	-.64**
8. 2007 Return on Sales[2]	-2.34	1.33	95	-.10	.19	.10	.07	-.37**	-.29**
9. 2008 Return on Sales[2]	-2.72	1.33	85	.05	.11	.08	.15	-.44**	-.22
10. 2009 Return on Sales[2]	-2.68	1.06	83	.06	.03	.13	.12	-.26*	-.30*
11. 2010 Return on Sales[2]	-2.78	1.02	92	-.07	.08	.05	.11	-.29**	-.09
12. 2011 Return on Sales[2]	-2.79	1.03	86	-.14	.27**	.06	.17	-.29*	-.13
13. 2012 Return on Sales[2]	-2.92	1.34	82	.10	.17	.25*	.20	-.44**	-.16
14. 2013 Return on Sales[2]	-2.89	1.56	87	.15	-.03	.18	.07	-.32**	-.20
15. 2014 Return on Sales[2]	-2.73	1.32	84	.13	-.07	.19	.17	-.26*	-.38**
16. 2015 Return on Sales[2]	-2.82	.97	84	-.09	-.01	.16	.19	-.34**	-.28*
17. 2007 Return on Equity[2]	-1.82	1.03	95	-.01	.23*	.23*	.17	-.28**	-.29**
18. 2008 Return on Equity[2]	-2.12	1.05	85	.11	.20	.24*	.24*	-.33**	-.18
19. 2009 Return on Equity[2]	-2.21	.88	83	.10	.05	.29**	.29**	-.14	-.28*
20. 2010 Return on Equity[2]	-2.24	.88	92	.02	.09	.25*	.28**	-.16	-.03
21. 2011 Return on Equity[2]	-2.19	.95	86	-.08	.29**	.18	.25*	-.22	.03
22. 2012 Return on Equity[2]	-2.33	1.33	83	.17	.10	.40**	.22*	-.41**	-.09
23. 2013 Return on Equity[2]	-2.42	1.25	87	.19	.08	.32**	.16	-.33**	-.13
24. 2014 Return on Equity[2]	-2.16	1.26	87	.14	-.09	.11	.16	.00	-.21
25. 2015 Return on Equity[2]	-2.25	.91	86	-.09	.00	.16	.15	-.16	-.18
26. 2006 Revenue[2]	7.99	2.62	109	.01	.04	-.06	.06	-.14	-.16
27. Firm Age	23.72	6.64	109	.20*	-.31**	.10	.05	.00	.06
28. Global Industry Classification Standard (GICS) Sector[1]			109	-.01	.07	-.02	.01	-.07	-.12

*. p ≤ .05 (2-tailed); **. p ≤ .01 (2-tailed).
[1]. Variables are categorical, correlations are Spearman correlations; [2]. Variables were transformed using the natural logarithm.

Table 9 (continued): Means, Standard Deviations, and Bivariate Correlations

Variable	7[1]	8[2]	9[2]	10[2]	11[2]	12[2]	13[2]	14[2]	15[2]
1. Diversity of Internationalization Experience									
2. Frequency of Internationalization Events[2]									
3. Magnitude of Resilience[1]									
4. Aggregate Bankruptcy Index (ABI5)									
5. Desirability[1]									
6. Bloomberg Default Risk									
7. Resilience Architecture[1]									
8. 2007 Return on Sales[2]	.26*								
9. 2008 Return on Sales[2]	.26*	.59**							
10. 2009 Return on Sales[2]	.25*	.59**	.55**						
11. 2010 Return on Sales[2]	.17	.49**	.54**	.61					
12. 2011 Return on Sales[2]	.16	.31**	.48**	.41**	.60**				
13. 2012 Return on Sales[2]	.36**	.50**	.48**	.63**	.54**	.55**			
14. 2013 Return on Sales[2]	.25*	.22	.32**	.61**	.35**	.48**	.93**		
15. 2014 Return on Sales[2]	.30**	.14	.40**	.53**	.12	.41**	.57**	.70**	
16. 2015 Return on Sales[2]	.30*	.39**	.21	.45**	.42**	.48**	.66**	.59**	.75**
17. 2007 Return on Equity[2]	.34**	.79**	.30**	.36**	.18	.00	.27*	.07	.20
18. 2008 Return on Equity[2]	.34**	.33**	.82**	.29**	.32**	.31**	.30*	.03	.28*
19. 2009 Return on Equity[2]	.28*	.27*	.15	.76**	.28*	.09	.37**	.43**	.32**
20. 2010 Return on Equity[2]	.28**	.14	.24*	.16	.71**	.31**	.35**	.33**	.26*
21. 2011 Return on Equity[2]	.20	.03	.19	.01	.29**	.74**	.34**	.26*	.21
22. 2012 Return on Equity[2]	.45**	.22	.16	.26*	.33**	.28*	.86**	.79**	.45**
23. 2013 Return on Equity[2]	.36**	.23*	.08	.26*	.34**	.22	.79**	.75**	.28*
24. 2014 Return on Equity[2]	.10	.12	.07	.11	.08	.09	.33**	.07	.61**
25. 2015 Return on Equity[2]	.22	.10	-.10	.10	-.05	.10	.30*	.19	.43**
26. 2006 Revenue[2]	.00	-.07	.01	.14	.17	.11	.19	.31**	.13
27. Firm Age	.07	-.18	.09	-.09	.10	.04	-.06	-.01	.05
28. Global Industry Classification Standard (GICS) Sector[1]	.01	.23*	.24*	.23*	.15	.10	.24*	.22*	.24*

*. p ≤ .05 (2-tailed); **. p ≤ .01 (2-tailed).
[1]. Variables are categorical, correlations are Spearman correlations; [2]. Variables were transformed using the natural logarithm.

Table 9 (continued): Means, Standard Deviations, and Bivariate Correlations

Variable	16[2]	17[2]	18[2]	19[2]	20[2]	21[2]	22[2]	23[2]	24[2]
1. Diversity of Internationalization Experience									
2. Frequency of Internationalization Events[2]									
3. Magnitude of Resilience[1]									
4. Aggregate Bankruptcy Index (ABI5)									
5. Desirability[1]									
6. Bloomberg Default Risk									
7. Resilience Architecture[1]									
8. 2007 Return on Sales[2]									
9. 2008 Return on Sales[2]									
10. 2009 Return on Sales[2]									
11. 2010 Return on Sales[2]									
12. 2011 Return on Sales[2]									
13. 2012 Return on Sales[2]									
14. 2013 Return on Sales[2]									
15. 2014 Return on Sales[2]									
16. 2015 Return on Sales[2]									
17. 2007 Return on Equity[2]	.10								
18. 2008 Return on Equity[2]	.03	.45**							
19. 2009 Return on Equity[2]	.24*	.51**	.28*						
20. 2010 Return on Equity[2]	.21	.32**	.36**	.41**					
21. 2011 Return on Equity[2]	.18	.13	.38**	.18	.52**				
22. 2012 Return on Equity[2]	.42**	.30**	.20	.47**	.48**	.47**			
23. 2013 Return on Equity[2]	.33**	.30**	.11	.53**	.49**	.38**	.94**		
24. 2014 Return on Equity[2]	.46**	.30**	.23	.32**	.31**	.31**	.54**	.39**	
25. 2015 Return on Equity[2]	.74**	.22	.02	.29*	.15	.30**	.52**	.44**	.71**
26. 2006 Revenue[2]	-.01	.04	.03	.27*	.29**	.11	.21	.24*	-.07
27. Firm Age	.13	-.16	.08	-.07	.16	.07	-.02	-.02	.07
28. Global Industry Classification Standard (GICS) Sector[1]	.17	.02	.09	.02	.01	.02	.15	.15	.12

*. p ≤ .05 (2-tailed); **. p ≤ .01 (2-tailed).

[1]. Variables are categorical, correlations are Spearman correlations; [2]. Variables were transformed using the natural logarithm.

Table 9 (continued): Means, Standard Deviations, and Bivariate Correlations

Variable	25^2	26^2	27
1. Diversity of Internationalization Experience			
2. Frequency of Internationalization Events[2]			
3. Magnitude of Resilience[1]			
4. Aggregate Bankruptcy Index (ABI5)			
5. Desirability[1]			
6. Bloomberg Default Risk			
7. Resilience Architecture[1]			
8. 2007 Return on Sales[2]			
9. 2008 Return on Sales[2]			
10. 2009 Return on Sales[2]			
11. 2010 Return on Sales[2]			
12. 2011 Return on Sales[2]			
13. 2012 Return on Sales[2]			
14. 2013 Return on Sales[2]			
15. 2014 Return on Sales[2]			
16. 2015 Return on Sales[2]			
17. 2007 Return on Equity[2]			
18. 2008 Return on Equity[2]			
19. 2009 Return on Equity[2]			
20. 2010 Return on Equity[2]			
21. 2011 Return on Equity[2]			
22. 2012 Return on Equity[2]			
23. 2013 Return on Equity[2]			
24. 2014 Return on Equity[2]			
25. 2015 Return on Equity[2]			
26. 2006 Revenue[2]	-.04		
27. Firm Age	.07	.06	
28. Global Industry Classification Standard (GICS) Sector[1]	.05	.00	.02

*. p ≤ .05 (2-tailed); **. p ≤ .01 (2-tailed).
[1]. Variables are categorical, correlations are Spearman correlations; [2]. Variables were transformed using the natural logarithm.

5.4 Results of Hypothesis Testing

5.4.1 Internationalization Experience and MNE Magnitude of Resilience

Recall that the first hypothesis presented in Chapter 3 posited that diversity of internationalization experience is positively related to magnitude of resilience. Logistic regression was used to test the hypothesized relationship given the binary, categorical nature of the response variable in this case. Raw magnitude of resilience data ranged in value from 0 to 1 and cases with values greater than or equal to 0.50 were labeled "high" and coded "1" while cases with values less than 0.50 were labeled "low" and coded "0". The statistical treatment regressed magnitude of resilience on diversity of internationalization experience and three control variables: 2006 revenue was a proxy for firm size, firm age, and industry sector. The results are shown in Table 10 as Model 1. There was no evidence to suggest a significant main effect of diversity of internationalization experience on magnitude of resilience ($p = .54$). Thus, there was no support for H1.

The aim of the second hypothesis was to examine the impact of frequency of internationalization events on the relationship between the diversity of internationalization experience and magnitude of resilience. Specifically, frequency was hypothesized to positively moderate the main effect tested in the first hypothesis. The results are shown in Table 10 as Model 2. Again, there was no evidence to suggest a significant interaction effect of diversity of internationalization experience and frequency of internationalization events on magnitude of resilience ($p = .35$). Therefore, there was no support for H2.

Table 10: Logistic Regression Model 1 and Model 2 Results

Model 1	b	S.E.	Wald's Chi-square	df	p	Odds ratio
Constant	-1.81	1.39	1.70	1	0.19	0.16
Controls						
Firm age	0.03	0.03	0.81	1	0.37	1.03
Firm size[1]	-0.02	0.09	0.07	1	0.79	0.98
Antecedents						
Diversity of internationalization experience	0.30	0.50	0.37	1	0.54	1.35
Overall model evaluation	Cox & Snell R^2	Nagelkerke R^2	Chi-square	df	p	Log likelihood
Likelihood ratio tests	0.11	0.15	12.46	11	0.33	134.57

Model 2	b	S.E.	Wald's Chi-square	df	p	Odds ratio
Constant	-1.96	1.40	1.95	1	0.16	0.14
Controls						
Firm age	0.04	0.03	1.15	1	0.29	1.04
Firm size[1]	-0.03	0.09	0.08	1	0.78	0.98
Antecedents						
Diversity of internationalization experience	0.72	0.70	1.07	1	0.30	2.06
Diversity of internationalization experience*Frequency of internationalization events	0.27	0.28	0.89	1	0.35	1.31
Overall model evaluation	Cox & Snell R^2	Nagelkerke R^2	Chi-square	df	p	Log likelihood
Likelihood ratio tests	0.12	0.16	13.40	12	0.34	133.64

Notes: N = 109; Industry dummies included for analysis; [1]. Variable was transformed using the natural logarithm.

5.4.2 MNE Magnitude of Resilience and MNE Performance

The remaining hypotheses sought to test relationships between magnitude of resilience, desirability, and firm performance. This was done through a series of one-way MANCOVA, two-way MANCOVA, univariate ANCOVA, and estimated marginal mean comparison procedures. As was the case previously when carrying out the logistic regression analysis, firm size, firm age, and industry sector were included as control variables. As discussed in the previous chapter, performance maintenance refers to firm performance in years 2008, 2009, 2010 while performance recovery refers to firm performance in years 2011, 2012, 2013, 2014, and 2015. Results of these analyses are presented in Table 11 – Table 18.

5.4.2.1   Magnitude of resilience and performance maintenance

One-way MANCOVA procedures were used to examine whether there was a difference between the effect of high magnitude of resilience and low magnitude of resilience on MNE performance maintenance. Results suggest that there was a statistically significant difference between the effect of high magnitude of resilience and low magnitude of resilience on MNE performance maintenance in the year 2008 [$F(2, 77)$ = 3.734, p < .05, Wilks' Λ = .912, partial η^2 = .088]. There was also a significant difference in the year 2009 [$F(2, 77)$ = 4.721, p < .05, Wilks' Λ = .891, partial η^2 = .109]. Results further suggest that, overall, there was no statistically significant difference between the effect of high and low magnitude of resilience on MNE performance maintenance in the year 2010 [$F(2, 86)$ = 2.175, p = .12, Wilks' Λ = .952].

A series of post hoc univariate ANCOVA procedures were conducted to test between-subjects effects and determine whether magnitude of resilience is significantly

Table 11: One-way MANCOVA Results for MNE Performance Maintenance

Dependent Variable	F	df	Error df	p	Wilks' Lambda	Partial Eta Squared	Observed Power
2008 Performance	3.73	2	77	0.03	0.91	0.09	0.67
2009 Performance	4.72	2	77	0.01	0.89	0.11	0.78
2010 Performance	2.18	2	86	0.12	0.95	0.05	0.43

Notes: 2006 revenue, firm age, and industry sector included in analysis as covariates.

Table 12: Univariate ANCOVA and Marginal Mean Results for MNE Performance Maintenance

Dependent Variable	F	df	Error df	Magnitude of Resilience	Marginal Mean	p	Partial Eta Squared	Observed Power
2008 ROS	2.93	1	78	High	0.09	0.09	0.04	0.39
				Low	0.06			
2008 ROE	7.56	1	78	High	0.16	0.01	0.09	0.78
				Low	0.10			
2009 ROS	3.64	1	78	High	0.08	0.06	0.05	0.47
				Low	0.05			
2009 ROE	9.18	1	78	High	0.14	0.00	0.11	0.85
				Low	0.08			
2010 ROS	0.53	1	87	High	0.07	0.47	0.01	0.11
				Low	0.06			
2010 ROE	3.65	1	87	High	0.12	0.06	0.04	0.47
				Low	0.09			

Notes: 2006 revenue, firm age, and industry sector included in analysis as covariates.

related to one or both performance measures (i.e., ROS and ROE). Results of this analysis indicate that magnitude of resilience had a statistically significant effect on both ROS [$F(1, 78) = 2.931$, $p < .10$, partial $\eta^2 = .036$] and ROE [$F(1, 78) = 7.564$, $p < .01$, partial $\eta^2 = .088$] in the year 2008. The results also suggest that magnitude of resilience had a significant effect on ROS [$F(1, 78) = 3.635$, $p < .10$, partial $\eta^2 = .045$] and ROE [$F(1, 78) = 9.176$, $p < .01$, partial $\eta^2 = .105$] in the year 2009. There was no evidence to suggest a statistically significant effect of magnitude of resilience on ROS [$F(1, 87) = .525$, $p = .471$, partial $\eta^2 = .006$] in the year 2010. However, the results indicate a statistically significant relationship between magnitude of resilience and ROE [$F(1, 87) = 3.653$, $p < .10$, partial $\eta^2 = .040$] in the year 2010.

A subsequent series of post hoc analyses of estimated marginal means were conducted to determine whether high magnitude of resilience MNEs performed better than low magnitude MNEs. Results of the analysis for 2008 indicate that MNEs with a high magnitude of resilience had a higher adjusted mean ROS (M = .087, S.E. = .130) than MNEs with a low magnitude of resilience (M = .060, S.E. = .170). Analysis of ROE in the same year revealed a similar difference between high (M = .159, S.E. = .095) and low (M = .103, S.E. = .124) magnitude of resilience firms. Analysis of 2009 data showed a similar pattern for both ROS and ROE. High magnitude of resilience MNEs had a higher adjusted mean ROS (M = .082, S.E. = .147) than low magnitude of resilience MNEs (M = .052, S.E. = .182). Results also indicate that high magnitude of resilience resulted in higher mean ROE (M = .137, S.E. = .117) than low magnitude of resilience (M = .077, S.E. = .145). Finally, though univariate ANCOVA procedures yielded no evidence to suggest a significant relationship for ROS in the year 2010, analysis of the

relationship between magnitude of resilience and ROE indicate that high magnitude of resilience MNEs (M = .121, S.E. = .109) outperform low magnitude of resilience MNEs (M = .085, S.E. = .146). Taken together, these results suggest that performance maintenance tends to be better among high magnitude of resilience MNEs than is the case among low magnitude of resilience MNEs and provides support for H3.

5.4.2.2 Magnitude of resilience and performance recovery

A series of one-way MANCOVA procedures were again used to examine whether there was a difference between the effect of high magnitude of resilience and low magnitude of resilience on MNE performance recovery. Results suggest that there were statistically significant differences in the years 2012 [$F(2, 76) = 2.674$, $p < .10$, Wilks' Λ = .934, partial $\eta^2 = .066$]; 2013 [$F(2, 79) = 3.864$, $p < .05$, Wilks' $\Lambda = .911$, partial $\eta^2 = .089$]; and 2014 [$F(2, 76) = 2.868$, $p < .10$, Wilks' $\Lambda = .930$, partial $\eta^2 = .070$]. However, there was no evidence of a statistically significant difference in the year 2011 [$F(2, 79) = 1.267$, $p = .287$, Wilks' $\Lambda = .969$] or 2015 [$F(2, 78) = 1.882$, $p = .159$, Wilks' $\Lambda = .954$].

Univariate ANCOVA procedures were again used to conduct a series of post hoc tests of between-subjects effects. Results indicate that magnitude of resilience had a statistically significant effect on both ROS and ROE in all three years for which a significant difference between high and low magnitude of resilience effects were found. Specifically, magnitude of resilience had a significant effect on ROS [$F(1, 77) = 3.375$, $p < .10$, partial $\eta^2 = .042$] and ROE [$F(1, 77) = 5.348$, $p < .05$, partial $\eta^2 = .065$] in the year 2012. Results also indicate a significant relationship with ROS [$F(1, 80) = 5.852$, $p < .05$, partial $\eta^2 = .068$] and ROE [$F(1, 80) = 7.597$, $p < .01$, partial $\eta^2 = .087$] in the year 2013,

Table 13: One-way MANCOVA Results for MNE Performance Recovery

Dependent Variable	F	df	Error df	p	Wilks' Lambda	Partial Eta Squared	Observed Power
2011 Performance	1.27	2	79	0.29	0.97	0.03	0.27
2012 Performance	2.67	2	76	0.08	0.93	0.07	0.52
2013 Performance	3.86	2	79	0.03	0.91	0.09	0.68
2014 Performance	2.87	2	76	0.06	0.93	0.07	0.55
2015 Performance	1.88	2	78	0.16	0.95	0.05	0.38

Notes: 2006 revenue, firm age, and industry sector included in analysis as covariates.

Table 14: Univariate ANCOVA and Marginal Mean Results for MNE Performance Recovery

Dependent Variable	F	df	Error df	Magnitude of Resilience	Marginal Mean	p	Partial Eta Squared	Observed Power
2011 ROS	0.79	1	80	High	0.07	0.38	0.01	0.14
				Low	0.06			
2011 ROE	2.51	1	80	High	0.13	0.12	0.03	0.35
				Low	0.10			
2012 ROS	3.38	1	77	High	0.07	0.07	0.04	0.44
				Low	0.04			
2012 ROE	5.35	1	77	High	0.12	0.02	0.07	0.63
				Low	0.06			
2013 ROS	5.85	1	80	High	0.07	0.02	0.07	0.67
				Low	0.04			
2013 ROE	7.60	1	80	High	0.12	0.01	0.09	0.78
				Low	0.06			

Notes: 2006 revenue, firm age, and industry sector included in analysis as covariates.

Table 14 (continued): Univariate ANCOVA and Marginal Mean Results for MNE Performance Recovery

Dependent Variable	F	df	Error df	Magnitude of Resilience	Marginal Mean	p	Partial Eta Squared	Observed Power
2014 ROS	5.66	1	77	High	0.07	0.02	0.07	0.65
				Low	0.04			
2014 ROE	4.07	1	77	High	0.12	0.05	0.05	0.51
				Low	0.07			
2015 ROS	3.11	1	79	High	0.07	0.08	0.04	0.41
				Low	0.05			
2015 ROE	3.43	1	79	High	0.11	0.07	0.04	0.45
				Low	0.08			

Notes: 2006 revenue, firm age, and industry sector included in analysis as covariates.

as well as ROS [$F(1, 77) = 5.662$, $p < .05$, partial $\eta^2 = .068$] and ROE [$F(1, 77) = 4.066$, $p < .05$, partial $\eta^2 = .050$] in the year 2014.

Estimated marginal means were examined to determine whether high magnitude of resilience MNEs outperformed low magnitude of resilience MNEs in the performance recovery period. Results indicate that MNEs with high magnitude of resilience had higher adjusted mean ROS (M = .067, S.E. = .185) than MNEs with low magnitude of resilience (M = .038, S.E. = .237) in the year 2012. Results for high (M = .121, S.E. = .177) and low (M = .062, S.E. = .228) magnitude of resilience MNEs showed a similar relationship for ROE in the same year. Analysis of 2013 and 2014 data also showed a pattern in which high magnitude of resilience firms outperformed low magnitude of resilience firms. In the year 2013 adjusted mean ROS for high magnitude of resilience firms (M = .071, S.E. = .161) was higher than that of low magnitude of resilience firms (M = .036, S.E. = .220) as was adjusted mean ROE for high (M = .121, S.E. = .134) and low (M = .065, S.E. = .182) magnitude of resilience firms. This was also the case for high magnitude of resilience MNE ROS (M = .072, S.E. = .135) and low magnitude of resilience MNE ROS (M = .042, S.E. = .184) as well as for adjusted mean ROE for high (M = .123, S.E. = .146) and low (M = .074, S.E. = .199) magnitude of resilience MNEs in the year 2014. As with performance maintenance, these results suggest that high magnitude of resilience MNEs outperform low magnitude of resilience MNEs in performance recovery and provides support for H4.

5.4.2.3 Moderating impact of desirability

A number of analyses were conducted to examine the influence of desirability on the relationship between magnitude of resilience and MNE performance. First, a series of

two-way MANCOVA procedures were used to analyze the effects on performance from 2008 – 2015. Omnibus test results suggest that there were statistically significant differences in the years 2008 [$F_{(4, 126)} = 4.157$, $p < .05$, Wilks' $\Lambda = .794$, partial $\eta^2 = .109$]; 2009 [$F_{(4, 132)} = 2.379$, $p < .10$, Wilks' $\Lambda = .870$, partial $\eta^2 = .067$]; and 2015 [$F_{(4, 132)} = 2.073$, $p < .10$, Wilks' $\Lambda = .885$, partial $\eta^2 = .059$]. There was no evidence of a statistically significant difference in the years 2010 [$F_{(4, 148)} = 1.727$, $p = .147$, Wilks' $\Lambda = .913$]; 2011 [$F_{(4, 134)} = 1.894$, $p = .115$, Wilks' $\Lambda = .896$]; 2012 [$F_{(4, 128)} = 1.595$, $p = .180$, Wilks' $\Lambda = .907$]; 2013 [$F_{(4, 142)} = .584$, $p = .675$, Wilks' $\Lambda = .968$]; or 2014 [$F_{(4, 130)} = .521$, $p = .720$, Wilks' $\Lambda = .969$].

Results of post hoc univariate ANCOVA procedures indicate that desirability had a significant indirect effect on ROS in two of the three years for which omnibus tests revealed significant differences. Only one of the three years showed a significant effect on ROE. In particular, results show a significant effect on ROS [$F_{(2, 69)} = 6.734$, $p < .05$, partial $\eta^2 = .163$] and ROE [$F_{(2, 69)} = 2.542$, $p < .10$, partial $\eta^2 = .069$] in the year 2008. In the year 2015, ROS [$F_{(2, 67)} = 4.056$, $p < .05$, partial $\eta^2 = .108$] was also significantly affected by desirability. Post hoc results did not indicate a significant effect of desirability on either ROS [$F_{(2, 67)} = 2.179$, $p = .121$] or ROE [$F_{(2, 67)} = 1.587$, $p = .212$] in the year 2009.

Estimated marginal means were examined for the two years in which significant differences were found to determine the direction of the effect that desirability had on the relationship between magnitude of resilience and performance. Results indicate that in the year 2008, corrected mean values for ROS were highest among high desirability

Table 15: Two-way MANCOVA Results for MNE Performance Maintenance

Dependent Variable	F	df	Error df	p	Wilks' Lambda	Partial Eta Squared	Observed Power
2008 Performance	4.16	4	136	0.00	0.79	0.11	0.91
2009 Performance	2.38	4	132	0.06	0.87	0.07	0.67
2010 Performance	1.73	4	148	0.15	0.91	0.05	0.52

Notes: 2006 revenue, firm age, and industry sector included in analysis as covariates.

Table 16: Two-way MANCOVA Results for MNE Performance Recovery

Dependent Variable	F	df	Error df	p	Wilks' Lambda	Partial Eta Squared	Observed Power
2011 Performance	1.89	4	134	0.12	0.90	0.05	0.56
2012 Performance	1.60	4	128	0.18	0.91	0.05	0.48
2013 Performance	0.58	4	142	0.68	0.97	0.02	0.19
2014 Performance	0.52	4	130	0.72	0.97	0.02	0.17
2015 Performance	2.07	4	132	0.09	0.89	0.06	0.61

Notes: 2006 revenue, firm age, and industry sector included in analysis as covariates.

Table 17: Univariate ANCOVA and Marginal Mean Results for MNE Performance Maintenance

Dependent Variable	F	df	Error df	Magnitude of Resilience	Desirability	Marginal Mean	p	Partial Eta Squared	Observed Power
2008 ROS	6.73	2	69	High	High	0.08	0.00	0.16	0.91
				High	Low	0.02			
				Low	High	0.09			
				Low	Low	0.05			
2008 ROE	2.54	2	69	High	High	0.15	0.09	0.07	0.49
				High	Low	0.07			
				Low	High	0.11			
				Low	Low	0.10			
2009 ROS	2.18	2	67	High	High	0.09	0.12	0.06	0.43
				High	Low	0.05			
				Low	High	0.04			
				Low	Low	0.05			
2009 ROE	1.59	2	67	High	High	0.14	0.21	0.05	0.33
				High	Low	0.12			
				Low	High	0.05			
				Low	Low	0.09			
2010 ROS	1.30	2	75	High	High	0.07	0.28	0.03	0.27
				High	Low	0.04			
				Low	High	0.06			
				Low	Low	0.04			
2010 ROE	0.10	2	75	High	High	0.12	0.90	0.00	0.07
				High	Low	0.12			
				Low	High	0.07			
				Low	Low	0.08			

Notes: 2006 revenue, firm age, and industry sector included in analysis as covariates.

Table 18: Univariate ANCOVA and Marginal Mean Results for MNE Performance Recovery

Dependent Variable	*F*	*df*	Error *df*	Magnitude of Resilience	Desirability	Marginal Mean	*p*	Partial Eta Squared	Observed Power
2011 ROS	2.23	2	68	High	High	0.07	0.12	0.06	0.44
				High	Low	0.04			
				Low	High	0.07			
				Low	Low	0.05			
2011 ROE	0.26	2	68	High	High	0.12	0.77	0.01	0.09
				High	Low	0.10			
				Low	High	0.10			
				Low	Low	0.11			
2012 ROS	1.60	2	65	High	High	0.07	0.21	0.05	0.33
				High	Low	0.04			
				Low	High	0.06			
				Low	Low	0.02			
2012 ROE	0.26	2	65	High	High	0.11	0.77	0.01	0.09
				High	Low	0.11			
				Low	High	0.08			
				Low	Low	0.05			
2013 ROS	0.57	2	72	High	High	0.06	0.57	0.02	0.14
				High	Low	0.06			
				Low	High	0.06			
				Low	Low	0.03			
2013 ROE	1.05	2	72	High	High	0.10	0.36	0.03	0.23
				High	Low	0.12			
				Low	High	0.10			
				Low	Low	0.05			

Notes: 2006 revenue, firm age, and industry sector included in analysis as covariates.

Table 18 (continued): Univariate ANCOVA and Marginal Mean Results for MNE Performance Recovery

Dependent Variable	F	df	Error df	Magnitude of Resilience	Desirability	Marginal Mean	p	Partial Eta Squared	Observed Power
2014 ROS	0.94	2	66	High	High	0.08	0.40	0.03	0.21
				High	Low	0.05			
				Low	High	0.04			
				Low	Low	0.06			
2014 ROE	0.71	2	66	High	High	0.13	0.50	0.02	0.17
				High	Low	0.10			
				Low	High	0.06			
				Low	Low	0.09			
2015 ROS	4.06	2	67	High	High	0.05	0.02	0.11	0.70
				High	Low	0.05			
				Low	High	0.08			
				Low	Low	0.03			
2015 ROE	1.38	2	67	High	High	0.12	0.26	0.04	0.29
				High	Low	0.11			
				Low	High	0.11			
				Low	Low	0.06			

Notes: 2006 revenue, firm age, and industry sector included in analysis as covariates.

MNEs with low magnitude of resilience (M = .093, S.E. = .402) followed by high

desirability MNEs with high magnitude of resilience (M = .082, S.E. = .199) and low

desirability MNEs with low magnitude of resilience (M = .046, S.E. = .305). The

estimated marginal mean value was lowest for those MNEs with low desirability and

high magnitude of resilience (M = .021, S.E. = .338). Corrected mean values for ROE in

the same year were highest among high desirability MNEs with high magnitude of

resilience (M = .147, S.E. = .175) followed by high desirability MNEs with low

magnitude of resilience (M = .109, S.E. = .355) and low desirability MNEs with low

magnitude of resilience (M = .104, S.E. = .270). Estimated marginal mean value was

again lowest for MNEs with low desirability and high magnitude of resilience (M = .067,

S.E. = .298). Corrected mean values for ROS in the year 2015 indicated that high

desirability MNEs with low magnitude of resilience (M = .079, S.E. = .316)

outperformed high desirability MNEs with high magnitude of resilience (M = .052, S.E.

= .150), low desirability MNEs with high magnitude of resilience (M = .051, S.E. =

.254), and low desirability MNEs with low magnitude of resilience (M = .029, S.E. =

.228).

In Chapter 4, a number of hypotheses were presented that predicted how

desirability impacts the relationship between magnitude of resilience and MNE

performance. In order to address these hypotheses (i.e., H5, H6), the results reported

above were compared with the adjusted marginal mean results of performance for high

magnitude of resilience MNEs and low magnitude of resilience MNEs when desirability

was included as a variable in the analysis. Results of these comparisons suggest that low

desirability negatively moderates the relationship between both high and low magnitude

of resilience and MNE performance recovery (i.e., H5b, H6b). Specifically, the corrected

mean ROS value for performance recovery among high magnitude of resilience MNEs

with low desirability (M = .051, S.E. = .254) was lower than that found among all high

magnitude of resilience MNEs (M = .062, S.E. = .148). Similarly, low magnitude of

resilience MNEs with low desirability (M = .029, S.E. = .228) performed less well than

low magnitude of resilience MNEs overall (M = .048, S.E. = .192). The results also

suggest that high desirability (M = .079, S.E. = .316) positively moderates the

relationship between low magnitude of resilience and MNE performance recovery (i.e.,

H6d). The results of the analysis did not provide sufficient evidence to support any of the

hypothesized impacts of desirability on performance maintenance. There was also no

evidence to suggest a significant indirect effect of high desirability on the performance

recovery of high magnitude of resilience MNEs (i.e., H5d). Table 19 summarizes the

hypothesis testing results in terms of hypothesis support.

Table 19: Summary of Support for Hypotheses

H1	*Diversity of internationalization experience is positively related to MNE magnitude of resilience.*	**No Support**
H2	*Frequency of internationalization events positively moderates the relationship between diverse internationalization experience and MNE magnitude of resilience.*	**No Support**
H3	*High magnitude of resilience MNEs outperform low magnitude of resilience MNEs in performance maintenance.*	**Support**
H4	*High magnitude of resilience MNEs outperform low magnitude of resilience MNEs in performance recovery.*	**Support**
H5a	*Low desirability positively moderates the relationship between high magnitude of resilience and MNE performance maintenance.*	**No Support**
H5b	*Low desirability negatively moderates the relationship between high magnitude of resilience and MNE performance recovery.*	**Support**
H5c	*High desirability negatively moderates the relationship between high magnitude of resilience and MNE performance maintenance.*	**No Support**
H5d	*High desirability positively moderates the relationship between high magnitude of resilience and MNE performance recovery.*	**No Support**
H6a	*Low desirability positively moderates the relationship between low magnitude of resilience and MNE performance maintenance.*	**No Support**
H6b	*Low desirability negatively moderates the relationship between low magnitude of resilience and MNE performance recovery.*	**Support**
H6c	*High desirability negatively moderates the relationship between low magnitude of resilience and MNE performance maintenance.*	**No Support**
H6d	*High desirability positively moderates the relationship between low magnitude of resilience and MNE performance recovery.*	**Support**

5.5 Post hoc Analysis

5.5.1 Testing the Resilience Architecture Framework

A series of one-way MANOVA procedures were conducted to examine performance differences between the four resilience archetypes discussed in Chapter 3. Each MNE was categorized based on magnitude of resilience (high/low) and desirability (high/low) then dummy coded as follows: low magnitude of resilience/low desirability coded "1" (Transient); low magnitude of resilience/high desirability coded "2" (Vulnerable); high magnitude of resilience/low desirability coded "3" (Rigid); and high magnitude of resilience/high desirability coded "4" (Adaptive). Results are reported in Table 20 and indicate significant differences in the years 2008 [$F(6, 142) = 3.021$, $p < .05$, Wilks' $\Lambda = .786$, partial $\eta^2 = .113$], 2009 [$F(6, 138) = 2.629$, $p < .05$, Wilks' $\Lambda = .805$, partial $\eta^2 = .103$], 2012 [$F(6, 134) = 2.285$, $p < .05$, Wilks' $\Lambda = .823$, partial $\eta^2 = .093$], and 2015 [$F(6, 138) = 2.231$, $p < .05$, Wilks' $\Lambda = .831$, partial $\eta^2 = .088$].

Univariate ANOVA results, estimated marginal means, and post hoc multiple comparison with Tukey adjustment were subsequently analyzed to determine performance differences between resilience archetypes more specifically. Results of these analyses are presented in Table 21 and Table 22. In the year 2008, MNEs categorized as Adaptive (M = .082, S.E. = .200) and Vulnerable (M = .093, S.E. = .385) each outperformed MNEs categorized as Rigid (M = .021, S.E. = .338) in ROS. Adaptive MNEs (M = .143, S.E. = .151) also outperformed Vulnerable MNEs (M = .052, S.E. = .278) in the year 2009 in ROE. In the year 2012, Adaptive MNEs (M = .066, S.E. = .225) performed better than Transient MNEs (M = .024, S.E. = .332) in ROS which was also

Table 20: MANOVA Results for Performance Differences between Archetypes

Dependent Variable	F	df	Error df	p	Wilks' Lambda	Partial Eta Squared	Observed Power
2008 Performance	3.02	6	142	0.01	0.79	0.11	0.90
2009 Performance	2.63	6	138	0.02	0.81	0.10	0.85
2010 Performance	1.75	6	154	0.11	0.88	0.06	0.65
2011 Performance	1.54	6	140	0.17	0.88	0.06	0.58
2012 Performance	2.29	6	134	0.04	0.82	0.09	0.78
2013 Performance	1.24	6	148	0.29	0.91	0.05	0.48
2014 Performance	1.03	6	136	0.41	0.92	0.04	0.40
2015 Performance	2.23	6	138	0.04	0.83	0.09	0.77

Table 21: Univariate ANOVA Results for MNE Archetype Performance Differences

Dependent Variable	F	df	Error df	p	Partial Eta Squared	Observed Power
2008 ROS	4.55	3	72	0.01	0.16	0.87
2008 ROE	1.89	3	72	0.14	0.07	0.47
2009 ROS	2.43	3	70	0.07	0.09	0.58
2009 ROE	2.71	3	70	0.05	0.10	0.63
2010 ROS	1.47	3	78	0.23	0.05	0.38
2010 ROE	1.00	3	78	0.40	0.04	0.26
2011 ROS	1.74	3	71	0.17	0.07	0.44
2011 ROE	0.20	3	71	0.90	0.01	0.09
2012 ROS	2.80	3	68	0.05	0.11	0.65
2012 ROE	1.65	3	68	0.19	0.07	0.42
2013 ROS	1.39	3	75	0.25	0.05	0.36
2013 ROE	1.96	3	75	0.13	0.07	0.49
2014 ROS	0.83	3	69	0.48	0.04	0.22
2014 ROE	1.73	3	69	0.17	0.07	0.43
2015 ROS	4.01	3	70	0.01	0.15	0.82
2015 ROE	2.35	3	70	0.08	0.09	0.57

Table 22: Marginal Means of ROS and ROE by Resilience Archetype

|	Rigid		Adaptive		Transient		Vulnerable	
	Mean	S.E.	Mean	S.E.	Mean	S.E.	Mean	S.E.
2008 ROS	0.02	0.34	0.08	0.20	0.05	0.30	0.09	0.39
2008 ROE	0.07	0.29	0.15	0.17	0.11	0.26	0.11	0.33
	(13)		(37)		(16)		(10)	
2009 ROS	0.04	0.30	0.09	0.18	0.05	0.24	0.05	0.32
2009 ROE	0.11	0.25	0.14	0.15	0.09	0.21	0.06	0.28
	(12)		(34)		(18)		(10)	
2010 ROS	0.04	0.28	0.07	0.16	0.04	0.24	0.07	0.30
2010 ROE	0.11	0.25	0.12	0.14	0.08	0.22	0.08	0.27
	(13)		(41)		(17)		(11)	
2011 ROS	0.03	0.28	0.07	0.17	0.05	0.26	0.08	0.34
2011 ROE	0.10	0.27	0.12	0.16	0.11	0.26	0.10	0.33
	(13)		(38)		(15)		(9)	
2012 ROS	0.04	0.40	0.06	0.22	0.02	0.33	0.08	0.42
2012 ROE	0.10	0.40	0.11	0.23	0.05	0.33	0.09	0.42
	(11)		(38)		(16)		(10)	
2013 ROS	0.05	0.44	0.06	0.26	0.03	0.39	0.10	0.50
2013 ROE	0.10	0.35	0.10	0.20	0.05	0.31	0.13	0.40
	(13)		(39)		(17)		(10)	
2014 ROS	0.05	0.38	0.08	0.23	0.06	0.36	0.05	0.43
2014 ROE	0.10	0.30	0.13	0.18	0.09	0.29	0.06	0.34
	(13)		(36)		(14)		(10)	
2015 ROS	0.05	0.25	0.07	0.15	0.03	0.23	0.08	0.30
2015 ROE	0.11	0.25	0.12	0.15	0.06	0.22	0.10	0.30
	(13)		(36)		(16)		(9)	

Notes: *N* in parentheses

the case in the year 2015 for Adaptive (M = .052, S.E. = .152) and Transient MNEs (M = .029, S.E. = .228). Transient MNEs were also outperformed by Vulnerable MNEs (M = .079, S.E. = .303) in ROS while Adaptive MNEs (M = .122, S.E. = .149) outperformed Transient MNEs (M = .058, S.E. = .223) in ROE. Figure 7 through Figure 22 depict a series of interaction plots that illustrate the effect of desirability on the relationship between magnitude of resilience and MNE performance. Examining these plots reveals several trends in the data though conclusions should be drawn with caution as only a limited number of the relationships depicted were found to be statistically significant. A summary of post hoc analysis is presented in the next section.

Figure 7: 2008 ROS by Resilience Archetype
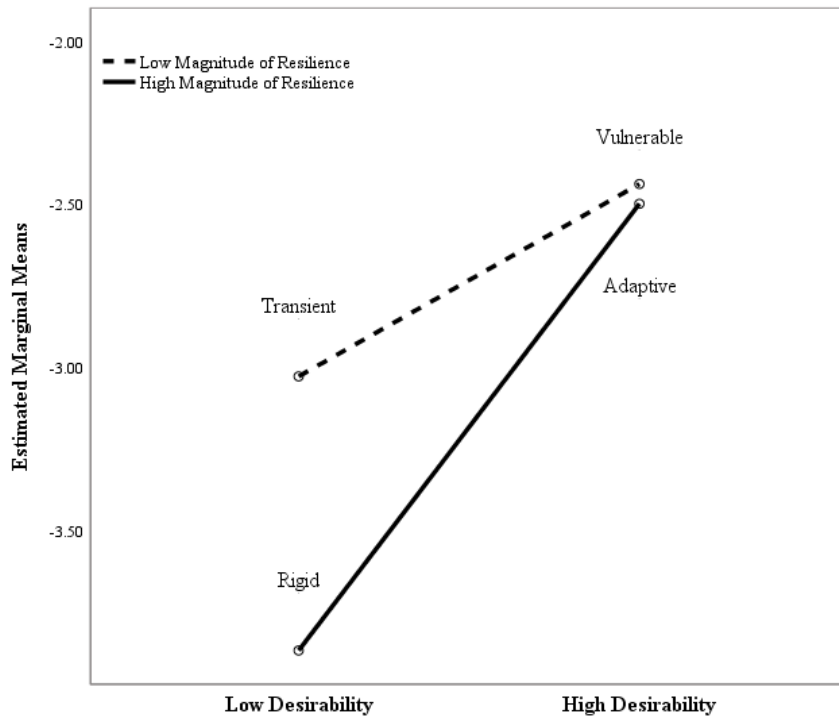
Figure 8: 2008 ROE by Resilience Archetype
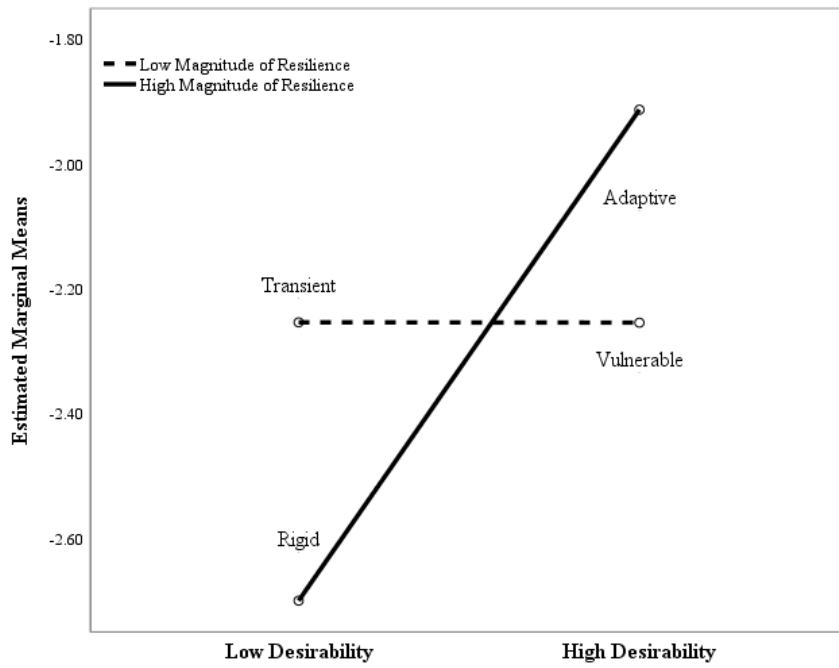
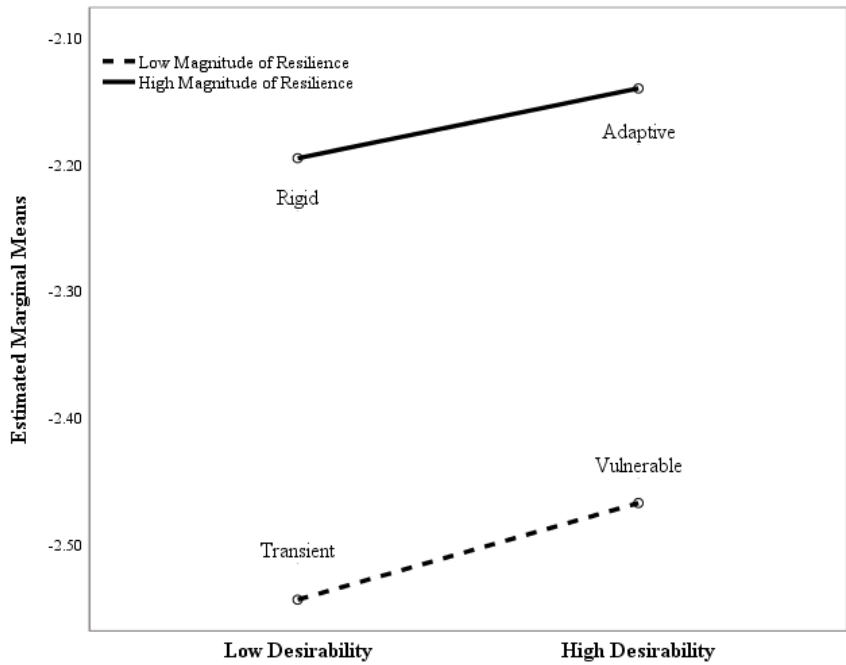**Figure 9: 2009 ROS by Resilience Archetype**
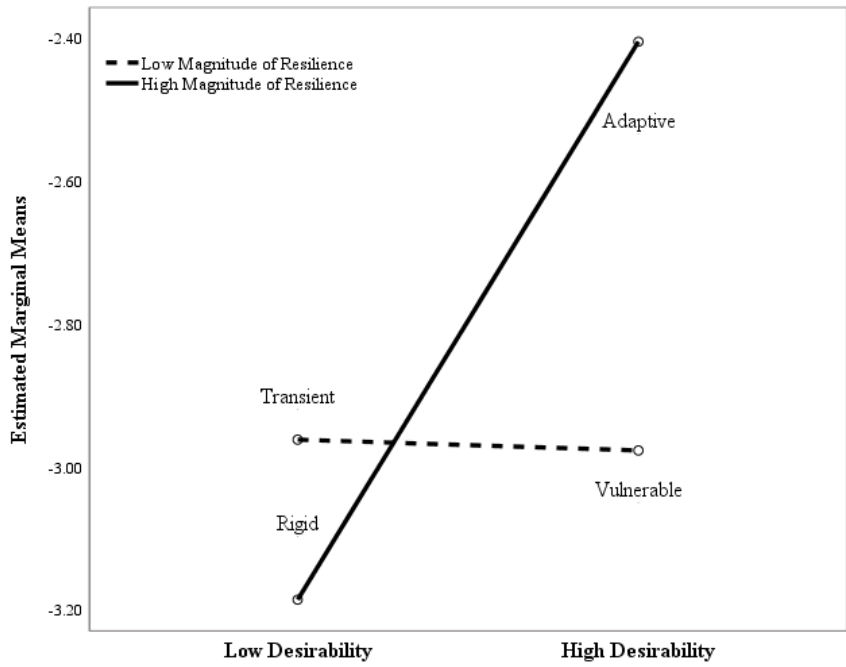
Figure 10: 2009 ROE by Resilience Archetype
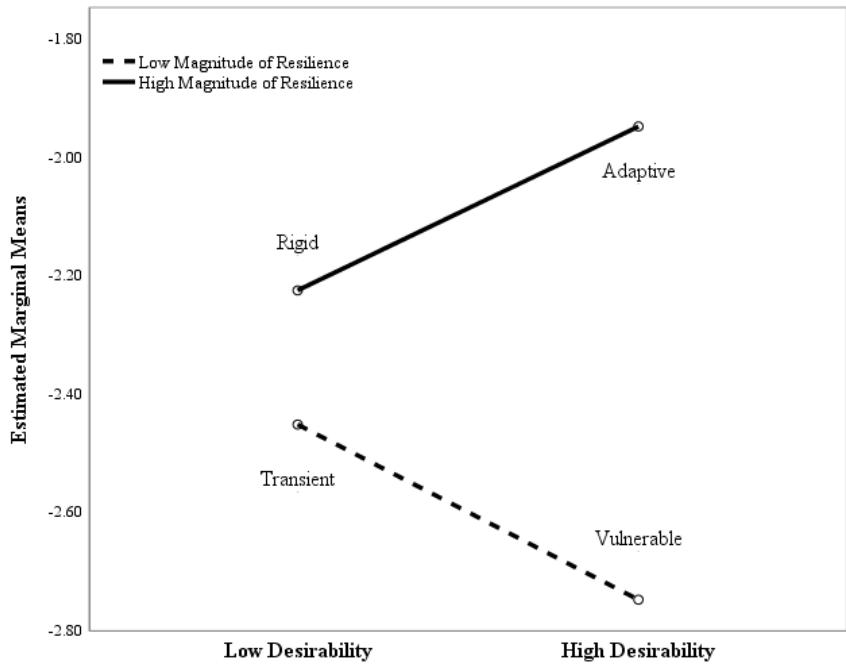
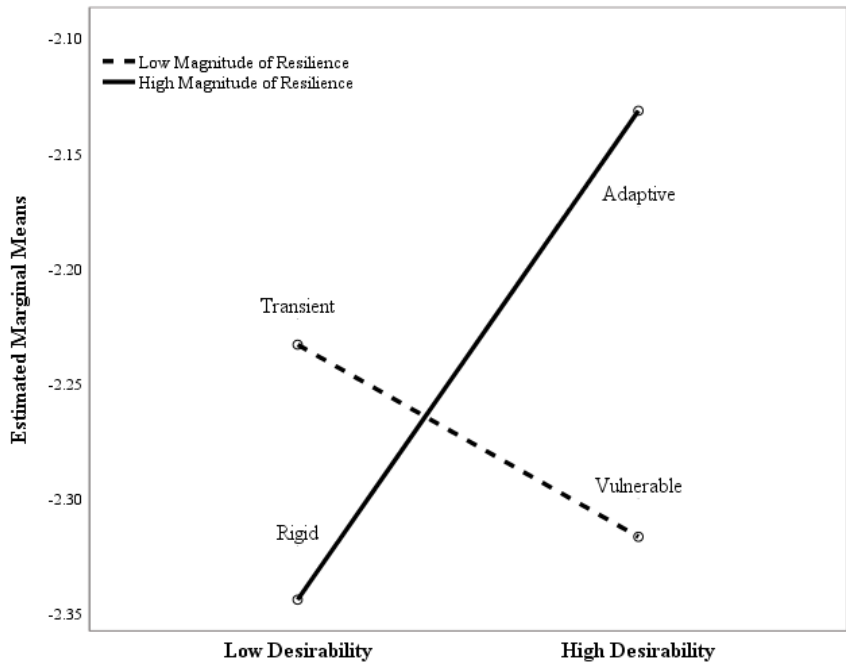**Figure 11: 2010 ROS by Resilience Archetype**
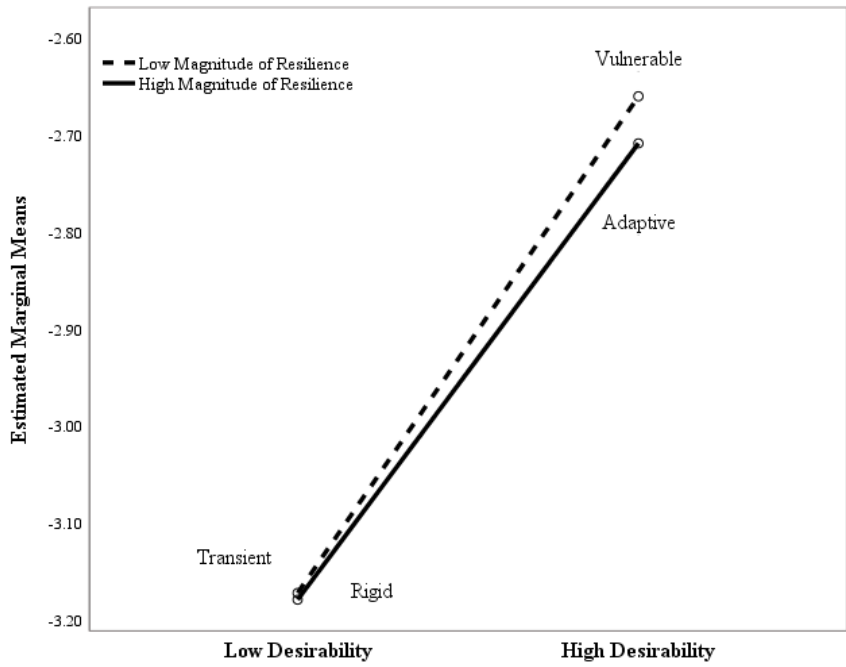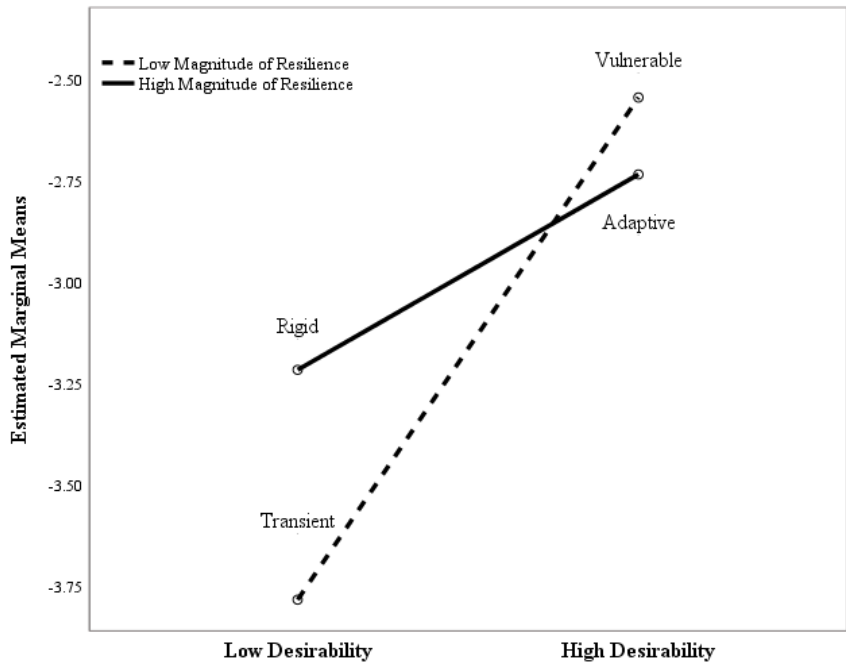

Figure 12: 2010 ROE by Resilience Archetype
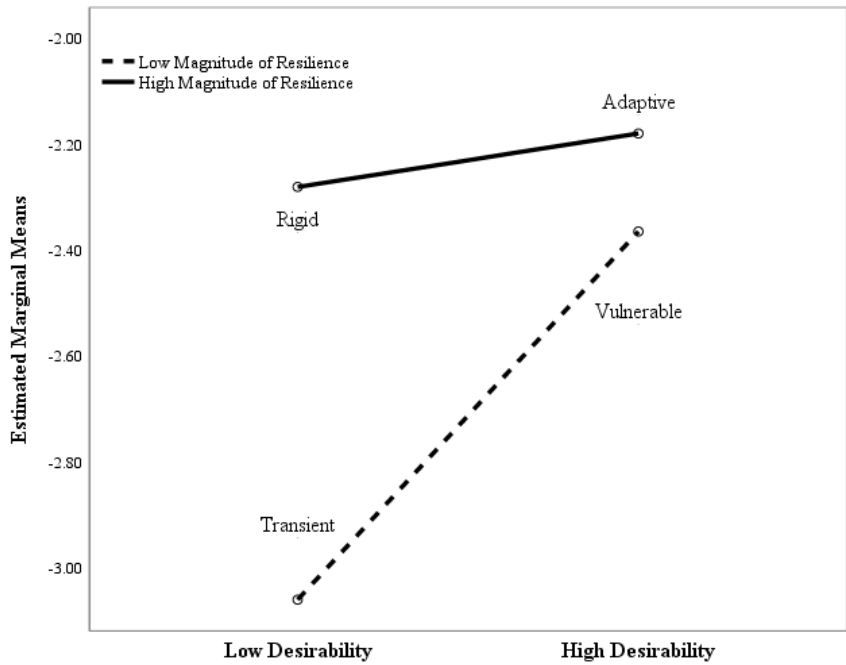
Figure 13: 2011 ROS by Resilience Archetype

Figure 14: 2011 ROE by Resilience Archetype

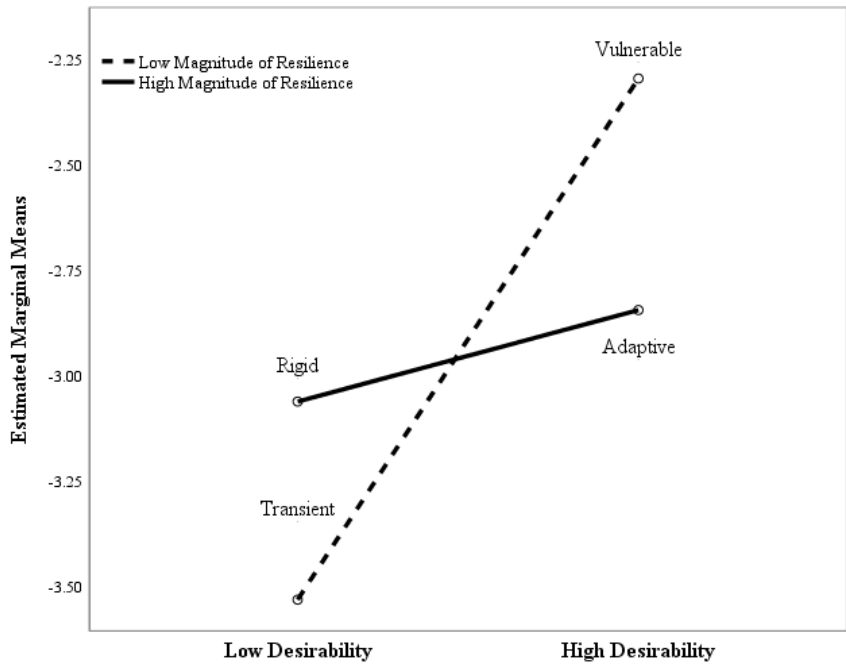**Figure 15: 2012 ROS by Resilience Archetype**

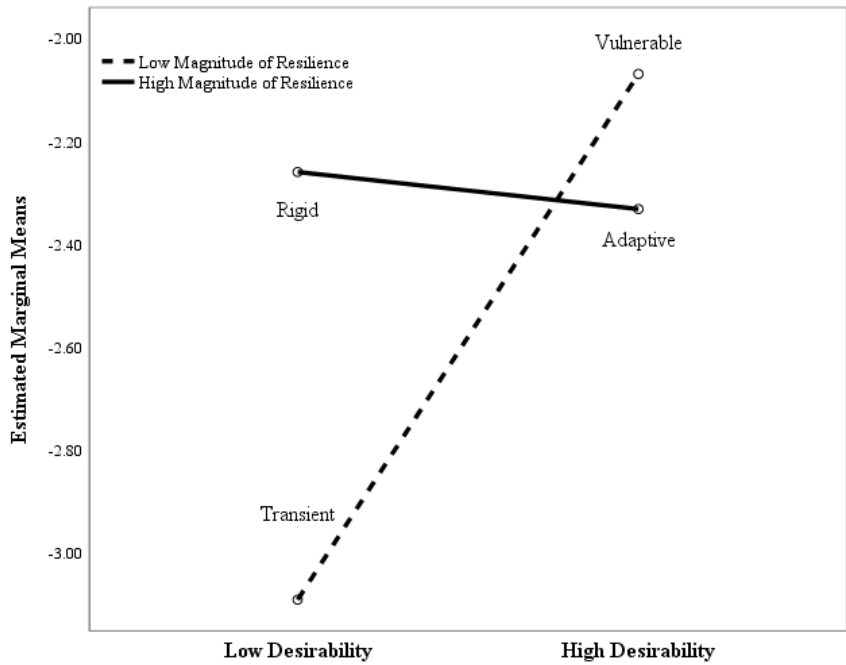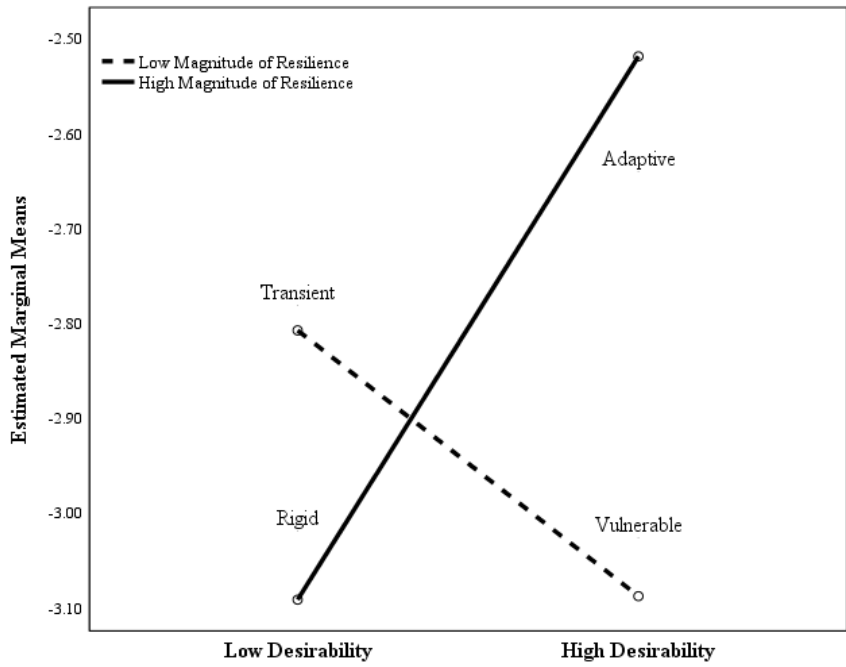**Figure 16: 2012 ROE by Resilience Archetype**

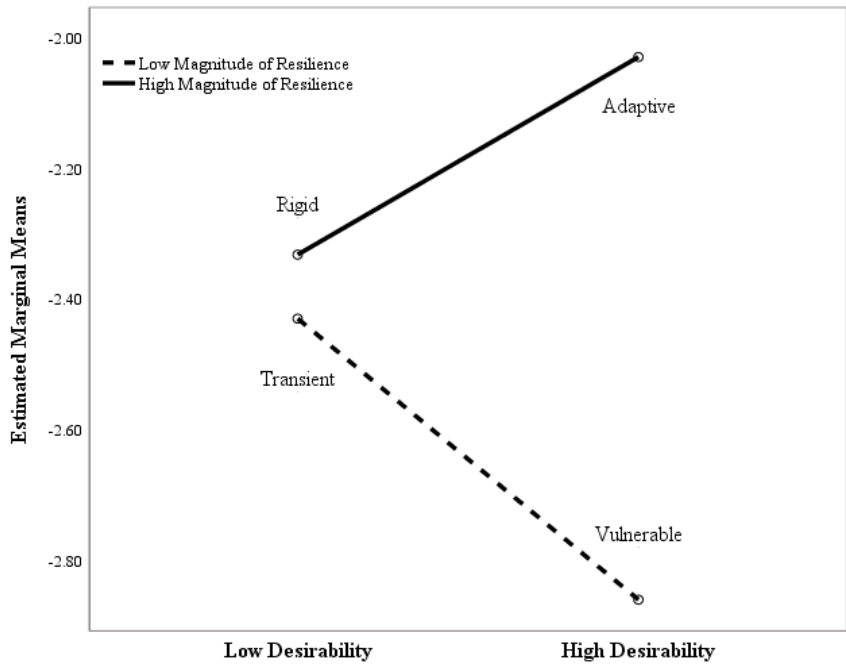**Figure 17: 2013 ROS by Resilience Archetype**

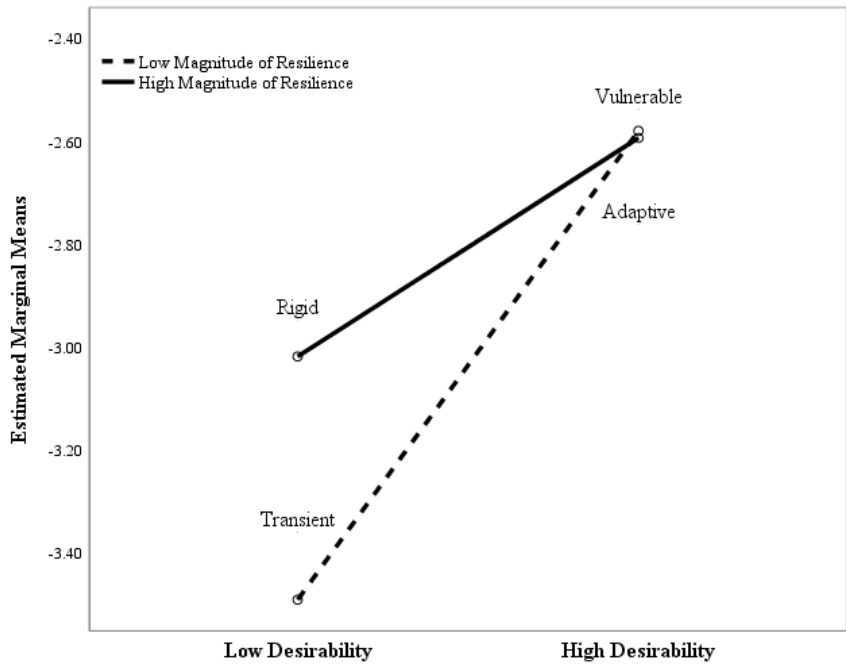**Figure 18: 2013 ROE by Resilience Archetype**

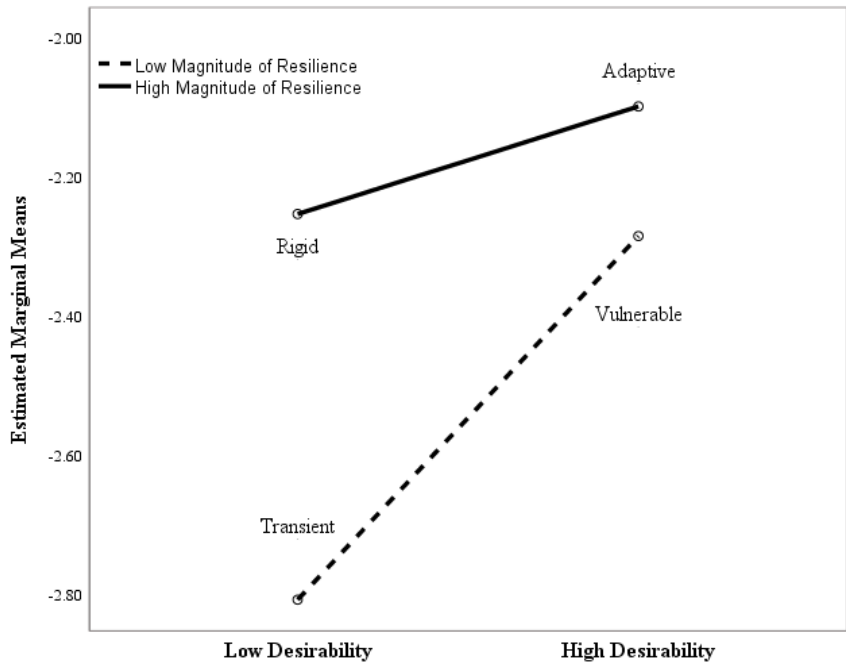135

Figure 19: 2014 ROS by Resilience Archetype

Figure 20: 2014 ROE by Resilience Archetype

Figure 21: 2015 ROS by Resilience Archetype

Figure 22: 2015 ROE by Resilience Archetype

5.5.2 Summary of Post hoc Analysis

This analysis provides an empirical test of the Resilience Architecture Framework developed by Limnios et al. (2014). As discussed in Chapter 3, the framework helps to address the challenge of considering the joint influence of organizations and their contexts by separating organizational resilience into magnitude and desirability dimensions. In general, analysis results indicate that there may be a systemic relationship between resilience archetypes and performance. First, differences in magnitude of resilience tend to be associated with differences in ROE throughout the performance maintenance and performance recovery periods. Differences in desirability, however, tend to be associated with differences in ROS during the maintenance and recovery periods.

Second, Adaptive MNEs tend to outperform all other archetypes, especially in ROE. Vulnerable MNEs also tend to outperform other archetypes, in ROS in particular. Neither Transient MNEs nor Rigid MNEs outperformed all other archetypes though there are instances in which one or the other performed better than Vulnerable or Adaptive MNEs (e.g., 2009). Analysis of within-period results show similar patterns to that found across both periods. Taken together, these results appear to provide tentative support for the basic arguments that undergird the Resilience Architecture Framework and suggest that there are important performance differences between resilience archetypes. These results and those of the previous section are discussed further in the next chapter.

Chapter 6. Discussion of Study Limitations, Results, and Future Research

Research literature in the organizational resilience domain has shown considerable growth since its introduction to the management literature through the complementary works of Staw, Sandelands, and Dutton (1981) and Meyer (1982). Research has moved from a disjointed discussion of stability and adaptation to theorizing antecedents and outcomes of resilience. In turn, this has led to recent attempts at theoretical integration and empirically testing hypothesized relationships. This dissertation sought to contribute to the growing body of work by examining potential antecedents to organizational resilience and its outcomes in an international context. Specifically, diversity of internationalization experience and frequency of internationalization were hypothesized to contribute to the development of MNE resilience which subsequently influenced post-crisis organizational performance. This chapter discusses the limitations and empirical results of this study before closing with a section that presents an agenda for future research.

6.1 Study Limitations

6.1.1 Sample

This dissertation focused on firm level organizational resilience of multinational enterprises which is referred to throughout as MNE resilience. The sample used in this study was comprised of established MNEs that were active in a wide range of industries

and country contexts. Most of the countries in which the sample firms were headquartered were generally considered to have developing or transitioning economies (as opposed to developed economies) such as Malaysia and the Russian Federation. Additionally, the average age of firms in this study was 24 years. Thus, the results discussed in this chapter may not be generalizable to non-internationalized firms, MNEs headquartered in countries with developed economies, or new MNEs. Domestic-only firms, firms headquartered in countries with developed economies, and young firms face different challenges and opportunities than do the majority of firms that comprise this sample. For example, domestic-only firms may be less able to diversify risk associated with fluctuations in the domestic economy than MNEs, but do not have to overcome a liability of foreignness as is often the case for internationalized firms. Future research may consider this limitation as an opportunity to design studies in such way a as to parse the effects of such differences and provide much needed nuance to the ongoing scholarly discussion of organizational resilience. This work also used a sample limited to firms that survived the financial crisis at least until 2015. Future research may examine firms that did survive and firms that did not survive a crisis in the same sample.

In addition to the types of firms included in the sample, the size of the sample constrained the analysis and requires that caution be exercised when interpreting some of the study results. The small sample size allowed only for reliable detection of large and medium effects; in most cases, statistical power was too low to detect small effects. As research in this domain matures, researchers should seek to design studies with sufficient statistical power to provide more granular insight regarding the antecedents and outcomes of organizational resilience.

Another area in which improved sampling may open important avenues for understanding organizational resilience is to collect both antecedents and outcomes longitudinally; in this study, only performance data were collected longitudinally (i.e., ROS and ROE from 2008 – 2015). Longitudinally collecting antecedents to organizational resilience, even resilience data itself, in addition to performance data would allow researchers to better examine the underlying dynamism of the relationships at play. With such data, researchers could more precisely test how changes in antecedents affect organizational resilience and how changes in resilience affect performance.

6.1.2 Analytical Approach

Two particular limitations arose as a result of decisions made during the analytical process, some of which were mentioned in Chapter 5 of this dissertation during the discussion regarding variable adjustments. First, the opacity of the Bloomberg Default Risk as the measure used for the desirability model variable likely obscured the nature of the relationship of interest to some degree. The measure is based on company data, market data, and quantitative modeling whose aggregated formulation prevents a more fine-grained, precise assessment of the focal relationships. Future research would benefit from improved, more transparent measures for desirability that could perhaps be developed through qualitative methods.

A second limitation arose from the decision to limit the number of control variables in an effort to maintain statistical power at an acceptable level. This decision, though, almost assuredly means that other influential factors were not controlled and thus masked the nature of the hypothesized relationships. For example, gross world product or perhaps the average gross domestic product of the countries in which a MNE was active

for a given year likely impacted the relationship between organizational resilience and performance to some extent. Researchers would benefit from large-sample studies that include numerous control variables and establish a basis for including particular control variables in future organizational resilience research.

6.2 Discussion of Results

As was implied by the research questions guiding this dissertation, two assumptions rest at the core of this work: 1) learning through direct experience can contribute to resilience and 2) resilience impacts performance. Through the exploration and examination of the potential relationships between experience, resilience, and performance, this dissertation made several contributions to the organizational resilience research literature.

First, despite the lack of empirical support in this study regarding its formation, a theoretical extension of the organizational resilience concept was developed to begin addressing the apparent absence of discussion concerning organizational resilience in an international context. By considering the potential impact of direct experience gained during the internationalization process on organizational resilience, this work introduces the concept of MNE resilience. The concept suggests that internationalized firms develop resilience differently than domestic-only firms and that this difference is due, at least in part, to the internationalization process itself. Going forward, this could provide a point of departure not only for studies of resilience in the international business domain but might open the door for comparative resilience studies that assess the between-group commonalities and differences of various organizational forms operating across a range of organizational contexts. For example, as research in this area progresses and the

antecedents to MNE resilience are better understood, comparative analysis might inform our understanding of other types of internationalized organizations, such as international nongovernmental organizations (INGOs).

Second, this work helps link MNE resilience with an outcome variable of critical importance for strategic management scholars: firm performance. It answers calls from Kantur and Iseri-Say (2012) to examine the impact of different forms of resilience on performance and to establish a clearer link between the two (Starr, Newfrock, & Delurey, 2003). In so doing, light is cast on areas of critical importance for researchers and practitioners alike including the strategic management concerns of competitive advantage and managerial decision making (Lampel, Bhalla, & Jha, 2014; Sheffi & Rice, 2005). The finding that different resilience archetypes yield differences in performance prompts questions about the hierarchy of archetype performance, when particular archetypes outperform others, and why these performance differences are variable. In turn, this suggests that managers can make strategic choices regarding the particular type of resilience they believe is best for their organizations to develop and maintain. In essence, these results help affirm the notion that all resilience is not created equal and the differences have consequences.

Third, this work empirically tested a recent conceptualization of organizational resilience for which there have been repeated calls due to the dearth of empiricism that exists in the organizational resilience domain (Sutcliffe & Vogus, 2003). In addition, to the best of the author's knowledge, this dissertation provides the first empirical test of the Resilience Architecture Framework developed by Limnios et al. (2014). The framework recognizes that context influences the effect of resilience and presents a two-dimensional

typology of organizational resilience (i.e., magnitude of resilience, desirability). The results presented in the previous chapter provide support for the notion that context (i.e., desirability) impacts the extent to which an organization's resilience response is efficacious.

This work also incorporates multiple streams of organizational resilience research into a single work. Specifically, organizational preparedness (i.e., experience acquisition through internationalization), organizational reliability, and organizational adaptability, each of which was captured in the context of the Resilience Architecture Framework, were integrated into a single model and empirically tested. In this way, this work takes a modest step toward reducing the disjointedness of the organizational resilience research domain.

It is worth noting and expounding upon the fact that the present work fell particularly short in its effort to clarify the antecedents to organizational resilience. An argument was put forth in Chapter 3 that leveraged the organizational learning literature to posit relationships between the acquisition of direct internationalization experience and the development of MNE resilience. As reported in Chapter 5, however, no support was found for the hypothesized relationships concerning resilience formation. Thus, this work makes little progress toward addressing the concerns of scholars that our knowledge of how to develop organizational resilience is quite limited (Boin & van Eeten, 2013; van der Vegt et al., 2015).

In retrospect, despite the challenges inherent in complex data collection and data coding, a potential reason for the lack of support for internationalization experience contributing to MNE resilience development was that the formulation was overly

simplistic. As others have suggested, the process of developing organizational resilience is likely a complex, multilevel, time- and path-dependent dynamic (Amann & Jaussaud, 2012; Lampel, Bhalla, & Jha, 2014; van der Vegt et al., 2015). This more comprehensive perspective is also captured by the definition of resilience capacity (Lengnick-Hall & Beck, 2005) discussed earlier in this dissertation. Thus, if researchers are to bring clarity to the ways in which organizational resilience is developed, the methods leveraged to examine the phenomenon will need to better accommodate the multifaceted nature of the resilience development process.

This section discussed this dissertation's findings in the context of, and highlighted its contributions to, the broader organizational resilience literature. In summary, results provide empirical support for the intuitive notion that firms with a high magnitude of resilience tend to outperform low magnitude of resilience firms in the aftermath of a crisis though this may not always be the case (e.g., results of post hoc analysis for 2008). Similarly, there is some evidence to suggest that high desirability may not always be favorable, particularly among low magnitude of resilience firms (e.g., results of post hoc analysis for 2009). Results also suggest that there may be systemic differences in the performance associated with various types of organizational resilience. Taken together this work makes theoretical and empirical contributions to the organizational resilience literature. The next section proposes paths to build upon this research that might further scholars' collective understanding of organizational resilience.

6.3 Future Research Agenda

The previous section mentioned several potential avenues for future research. While the initial focus going forward will be on publishing the results of this dissertation,

this section expands the discussion into a broader research agenda. One stream of research focuses on the multilevel, complex nature of organizational resilience development and subsequent resilience activation. A second stream of research focuses on comparing resilience between organizational forms to elucidate areas of similarity and distinctiveness. A third stream focuses on the role of resilience in various operating environments.

6.3.1 Organizational Resilience as a Multilevel Construct

Chapter 1 presented a perspective of resilience that describes it as playing a role at multiple levels within the organization and posits that organizational resilience is more than the aggregation of these sub-organization level resiliencies. Instead, organizational resilience is a consequence of both the discrete nodes of resilience and of the resilience of linkages between the nodes. For example, group level resilience is a result of individuals' resilience and the resilience of connections between individuals. It may also, to some degree, depend on the connection between individuals and the group, as well as between the focal group and other groups within the organization. As such, resilience at the organizational level is likely the result of the resilience of individuals and groups, as well as the resilience of their connections to each other and the organization as a whole. Empirically testing these types of relationships requires methodological approaches such as structural equation modeling, hierarchical linear modeling, and network analysis. In addition, testing such models will require the collection of survey or qualitative data. For example, one planned project will examine the ways in which leader sensegiving lays the groundwork for a leader-activated resilience response to the onset of a crisis. Future work

in this area will continue to explore the ways that organization leaders' actions contribute to organizational resilience.

6.3.2 Differences in Resilience between Organization Forms

Public-private collaboration has become a topic of discussion among economics, public administration, and management scholars among others in recent years. As crisis and disaster recovery often require effective interaction between firms, government agencies, and civic organizations, it seems that understanding the nature of various organizations' resilience development, orientation, and activation is critical for inter-organizational resilience and effective collaboration. This may especially be true during long-running crises, such as famine and civil strife or in the wake of large-scale natural disasters like earthquakes and hurricanes. A study currently being prepared for initial submission will provide a point of departure for future research in area of comparative resilience studies. In it leader messaging during crisis situations is content analyzed in an effort to detect rhetorical patterns as crises unfold. Going forward a similar approach can be used to examine the messaging from leaders of various types of organizations in juxtaposition regarding the same crisis.

6.3.3 Organizational Resilience in Various Contexts

An important area for future research is aimed at better understanding the role of organizational resilience from one context to another. Indeed, a recent editorial in the *Academy of Management Journal* called on "management scholars to take up the *grand challenge* of studying the role and functioning of organizations during adverse natural or social events" and went on to boldly argue that society as a whole can be resilient only if business is resilient (van der Vegt et al., 2015). In this stream of research the focus is on

the context within which the organization is embedded and the nature of the crisis or disaster the organization faces. For example, whether a crisis is triggered by an endogenous versus exogenous shock, long term versus short term, or perceived as avoidable versus unavoidable may impact the way resilience is activated and the impact it has on organizational outcomes. Future work will explore the contextual influences in an effort to develop a more nuanced understanding of the role that resilience plays from one circumstance to another.

6.4 Conclusion

Organizations might be thought of as the building blocks of modern society, of which, firms like those examined in this dissertation are but one type, albeit a particularly important one. Unfortunately, however, they are at times beset by a range of crises large and small. From accidents to major weather events to violence, some challenges threaten organizations' very existence and, by extension, they may threaten ours as well. Given organizations' critical position in society, scholars' collective call for organizational resilience to be considered as a strategic concern and to more quantitatively assess its role seems particularly salient. Through its findings and contributions, this dissertation sought to move toward a clearer, fuller understanding of organizational resilience. In particular, it presented a concept of MNE resilience and empirically tested relationships between resilience, its antecedents, and its outcomes. Hopefully, the insights this work provides will afford researchers a platform from which to launch their own forays into this important research domain, helping to shore up organizations and the societies they support.

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